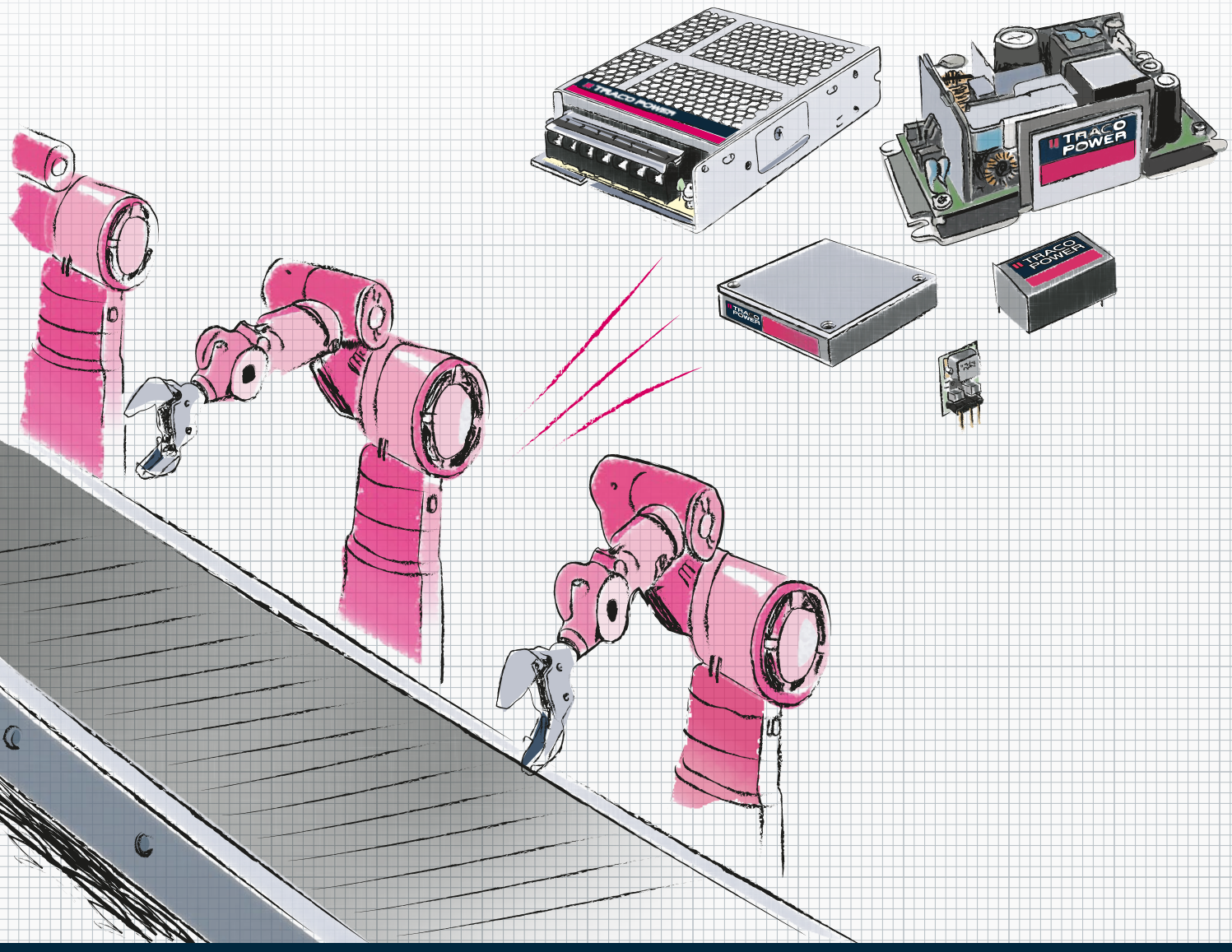
TRACO POWER

2025 | Industrial Power Solutions

Product Portfolio



www.tracopower.com

Company Profile

TRACO Electronic AG is a Swiss company with headquarters based in Baar, Switzerland. As a leading power supply specialist with more than 40 years experience we are dedicated to the design and manufacturing of high quality DC/DC and AC/DC power conversion products.

TRACO markets its products worldwide under the registered trademark TRACO POWER. Our mission is to provide our customers with optimal power supply solutions in terms of performance, quality and cost for their individual application.

The varying levels of industrial power supplies

All power supplies designed for use in non-medical application are required to meet the international safety standards of IEC/EN/UL 62368-1. Industrial grade power supplies are subjected to increased requirements which vary depending upon their operating environment, typically divided into 2 categories, one for office/manufacturing environments and another for harsh/hazardous environments.

For power supplies in household applications, there are virtually no differences when it comes to insulation and operational safety. However, stronger electromagnetic and conducted disturbances are expected to arise in industrial environments, and electrical power supplies must be resistant to these. EMC immunity tests according to the generic standard IEC 61000-6-2 „immunity for industrial environments“ is the common denominator for a power supply being classified as industrial-grade.

The right product for the application and environment/ standard products
Traco Power offers a wide selection of standard industrial power supplies that are manufactured and tested according to the varying environments and applicable safety standards, allowing our customers to choose the power solution that is most cost-effective for their application and environmental requirements.

All our industrial rated power supplies provide following features as standard:
- Safety approval according IEC/EN/UL 62368-1 (for 3000 VAC I/O isolation)
- EMC immunity according IEC 61000-6-2
- EMC emission according EN 55032 class B
- Protection against short circuit, overload and output over-voltage

Customer specific applications / customized solutions
It is often not possible to find a standard power supply that fully complies with the respective requirements or without unnecessary features making the application more expensive. With our design company **TRACO POWER SOLUTIONS** we have a center of competence to develop and optimize power supplies for customer-specific requirements. The motto from our design team is “Reduced to the Max” and develop or modify a solution specific to your needs at the lowest cost of ownership.

Note: All dimension drawings in mm (inch)

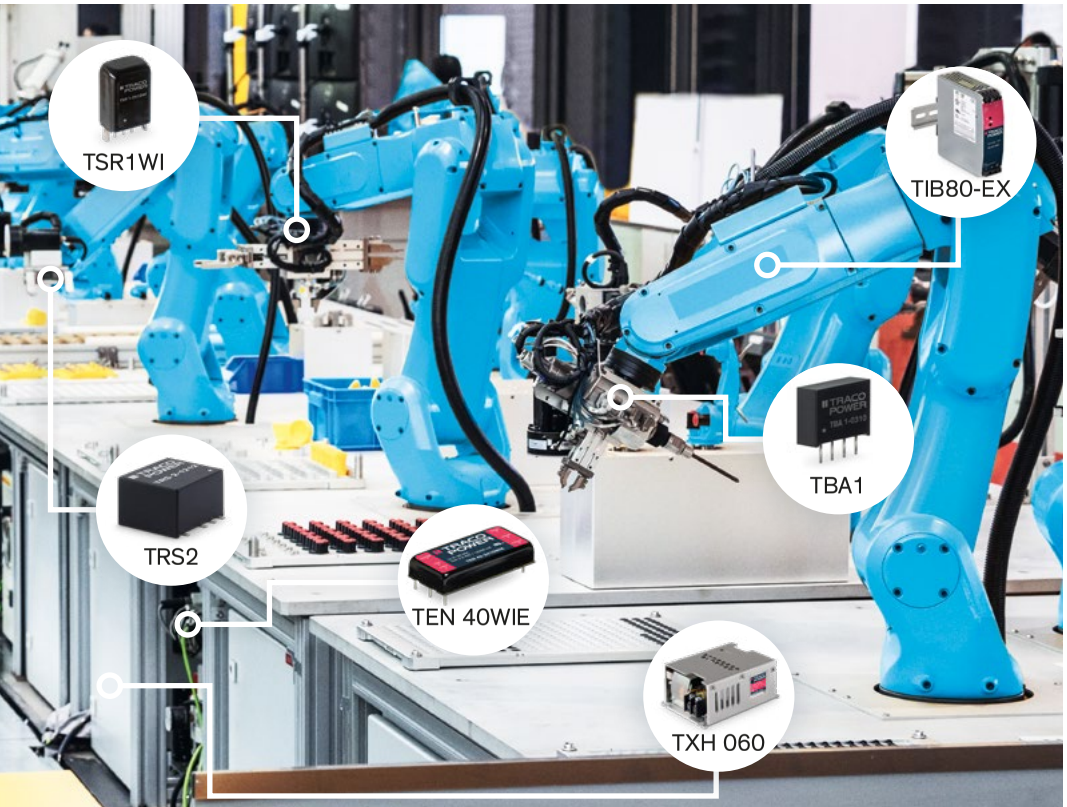
DC/DC converter
1–300 Watt
AC/DC power supplies
3–1000 Watt

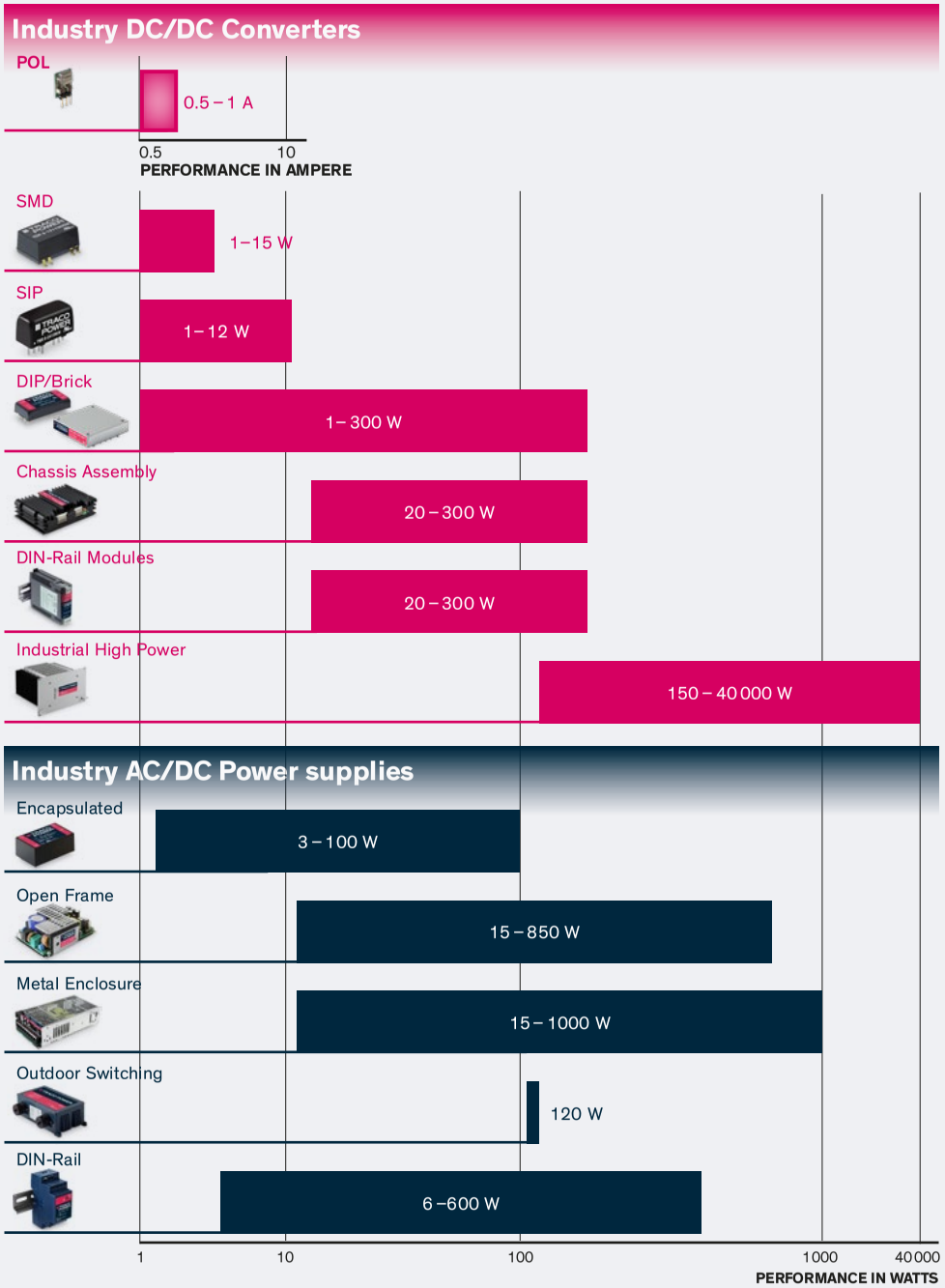
Features

- Broad application range covering office, manufacturing, industrial, harsh and hazardous environments
- Industrial EMC immunity acc. to IEC 61000-6-2
- Various mounting types: PCB, Chassis-Mount and DIN-Rail
- Open-frame, encapsulated and encased package styles
- 3-year warranty

Standards and Directives

- IEC/EN/UL 62368-1
- IEC/EN 61010-1
- ATEX
- UL HazLoc
- UL508
- UL130
- EN50178





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Non-Isolated Step Down DC/DC Converters (POL) in SIP Package — 0.5–3 Amp

TSR 0.5	SIP-3 package, 4.75–32 VDC input, pos.-pos. circuit, LM78 compatible		0.5 A	12
TSR 0.6WI	SIP-3 package, 9–72 VDC input, pos.-pos. circuit, LM78 compatible		0.6 A	13
TSR 1	SIP-3 package, 4.6–36 VDC input, pos.-pos. circuit, LM78 compatible		1 A	13
TSR 1E	SIP-3 package, 6–36 VDC input, pos.-pos. circuit, cost efficient, LM78 compatible		1 A	14
TSR 1WI	SIP-3 package, 9–72 VDC input, pos.-pos. circuit, LM78 compatible		1 A	14
TSN 1	SIP-3 package, –7.0 to –32 VDC input, neg.-neg. circuit, LM78 compatible		1 A	15
TSRN 1	SIP-3 package, 4.6–42 VDC input, pos.-neg. circuit, LM78 compatible		1 A	15
TSR 1.5E	SIP-3 package, 7–36 VDC input, pos.-pos. circuit, open frame, LM78 compatible		1.5 A	16
TSR 2N	SIP-3, 4.6–36 VDC input, pos.-pos. circuit, wide temp. range, LM78 compatible	NEW	2A	16
TSR 2	SIP-3 package, 3.0–36 VDC input, pos.-pos. circuit, LM78 compatible		2 A	17
TSR 3N	SIP-3, 4.6–36 VDC input, pos.-pos. circuit, wide temp. range, LM78 compatible	NEW	3A	17
TSR 3	SIP-5 package, 2.5–30 VDC input, pos.-pos. circuit, open frame, LM78 compatible		3 A	18

Non-Isolated Step Down DC/DC Converters (POL) SMD Package — 0.5–3 Amp

TSR 0.5SM	SMD (DIP-10) package, 4.75–32 VDC input, pos.-pos. circuit		0.5 A	19
TSR 1SM	SMD (DIP-10) package, 3.0–36 VDC input, pos.-pos. circuit		1 A	20
TSRN 1SM	SMD (DIP-10) package, 3.0–42 VDC input, pos.-neg. circuit		1 A	20

SMD DC/DC Converters — 1–15 Watt

TES 1N	SMD (DIP-10) package, cost efficient, ±10% input, unregulated	NEW under development	1 W	21
TES 1	SMD (DIP-10) package, ±10% input, unregulated		1 W	22
TES 1V	SMD (DIP-12) package, ±10% input, unregulated, 3000 VDC I/O-isolation, plastic case		1 W	22
TRN 1SM	SMD package, 2:1 input, regulated, cost efficient, encapsulated		1 W	23
TDN 1WISM	SMD package, 4:1 input, regulated, high power density, encapsulated		1 W	23
TMR 1SM	SMD (DIP-14) package, 2:1 input, regulated		1 W	24
TRI 1SM	SMD package, ±10% input, regulated, 480 VAC working voltage, encapsulated		1 W	24
TES 2E	SMD (DIP-10) package, cost efficient, ±10 input, unregulated	NEW under development	2 W	25
TES 2H	SMD (DIP-10) package, ±10% input, unregulated		2 W	25
TMR 2WISM	SSMD (DIP-14) package, 4:1 input, regulated		2 W	26
TDR 2SM	SMD (DIP-14) package, 2:1 input, regulated, overmold (washable)		2 W	26
TDR 2WISM	SMD (DIP-14) package, 4:1 input, regulated, overmold (washable)		2 W	27
TRS 2	SMD package, 2:1 input, regulated, cost efficient, encapsulated		2 W	27
TES 2M	SMD (DIP-16) package, ±10% input, unregulated, 4000 VAC I/O-isolation (reinforced)		2 W	28
TIM 2SM	SMD (DIP-16), 2:1 input, 5000 VAC I/O-isolation, 2 × MOPP, medical, encapsulated		2 W	28
TRN 3SM	SMD package, 2:1 input, regulated, cost efficient, encapsulated		3 W	29
TDN 3WISM	SMD package, 4:1 input, regulated, high power density, encapsulated		3 W	29
TMR 3WISM	SMD (DIP-14) package, 4:1 input, regulated		3 W	30
TDR 3SM	SMD (DIP-14) package, 2:1 input, regulated, overmold (washable)		3 W	30
TDR 3WISM	SMD (DIP-14) package, 4:1 input, regulated, overmold (washable)		3 W	31
TIM 3.5SM	SMD (DIP-16), 2:1 input, 5000 VAC I/O-isolation, 2 × MOPP, medical, encapsulated		3.5 W	31
TDN 5WISM	SMD package, 4:1 input, regulated, high power density, encapsulated		5 W	32
TON 15WISM	SMD package, 4:1 input, regulated, open frame		15 W	32

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SIP DC/DC CONVERTERS — 1–12 Watt

TBA 1E	SIP-7 package, ±10% input, unregulated, short circuit protection, encapsulated		1 W	33
TEA 1E	SIP-7 package, ±10% input, unregulated, cost optimized design, encapsulated		1 W	34
TMA	SIP-7 package, ±10% input, unregulated, encapsulated		1 W	34
TBA 1	SIP-4 package, ±10% input, unregulated, short circuit protection, encapsulated		1 W	35
TEA 1	SIP-4 package, ±10% input, unregulated, cost optimized design, encapsulated		1 W	35
TME	SIP-4 package, ±10% input, unregulated, encapsulated		1 W	36
TMV	SIP-7 package, ±10% input, unregulated, 3000 VDC I/O isolation, encapsulated		1 W	36
TBA 1HI	SIP-7 package, ±10% input, unregulated, short circuit protection, 3000 VDC I/O iso.		1 W	37
TEA 1HI	SIP-7 package, ±10% input, unregulated, 4000 VDC I/O isolation, encapsulated		1 W	37
TMV-HI	SIP-7 package, ±10% input, unregulated, 5200 VDC I/O isolation, encapsulated		1 W	38
TMV-EN	SIP-7 package, ±10% input, unregulated, 3000 VAC I/O isolation (reinforced), encapsulated		1 W	38
TRI 1	SIP-7 package, ±10% input, regulated, 480 VAC working voltage, encapsulated		1 W	39
TRV 1	SIP-7 package, ±10% input, semi-regulated, 3000 VDC I/O isolation, encapsulated		1 W	39
TRV 1M	SIP-7 package, ±10% input, semi-regulated, 5000 VAC isolation, 2 × MOPP		1 W	40
TRN 1	SIP-5 package, 2:1 input, regulated, cost efficient, compact, encapsulated		1 W	40
TMR 1	SIP-6 package, 2:1 input, regulated, encapsulated		1 W	41
TMR 1WIN	SIP-8 package, 4:1 input, regulated, encapsulated	**NEW under development**	1 W	41
TEC 1UI	SIP-8 package, ultra wide 8:1 input, regulated, encapsulated	**NEW under development**	1 W	42
TMU 2	SIP-4 package, ±10% input, unregulated, encapsulated	**NEW**	2 W	42
TMV 2HI	SIP-7 package, 10% input, unregulated, 5200 VDC I/O-isolation, encapsulated		2 W	43
TBA 2	SIP-7 package, ±10% input, unregulated, short circuit protection, encapsulated		2 W	43
TMH	SIP-7 package, ±10% input, unregulated, encapsulated		2 W	44
TEC 2	SIP-8 package, 2:1 input, regulated, cost efficient, encapsulated		2 W	44
TEC 2WI	SIP-8 package, 4:1 input, regulated, cost efficient, encapsulated		2 W	45
TMR 2	SIP-8 package, 2:1 input, regulated, encapsulated		2 W	45
TMR 2WIN	SIP-8 package, 4:1 input, regulated, encapsulated		2 W	46
TRV 2M	SIP-9 package, ±10% input, semi-regulated, 5000 VAC isolation, 2 × MOPP		2 W	46
TMU 3	SIP-4 package, ±10% input, unregulated, encapsulated		3 W	47
TRN 3	SIP-5 package, 2:1 input, regulated, cost efficient, compact, encapsulated		3 W	47
TEC 3	SIP-8 package, 2:1 input, regulated, cost efficient, encapsulated		3 W	48
TEC 3WI	SIP-8 package, 4:1 input, regulated, cost efficient, encapsulated		3 W	48
TEC 3UI	SIP-8 package, ultra wide 8:1 input, regulated, encapsulated	**NEW**	3 W	49
TMR 3	SIP-8 package, 2:1 input, regulated, encapsulated		3 W	49
TMR 3WI	SIP-8 package, 4:1 input, regulated, encapsulated		3 W	50
TMR 3HI	SIP-8 package, 2:1 input, regulated, 3000 VDC I/O-isolation (functional), encapsulated		3 W	50
TVN 3	SIP-8 package, 2:1 input, regulated, ultra low ripple & noise, metal case		3 W	51
TMR 3WIR	SIP-8 package, 2:1 input, regulated, 3000 VDC I/O-isolation, railway, metal case		3 W	51
TMR 4	SIP-8 package, 2:1 input, regulated, encapsulated		4 W	52
TMR 4WI	SIP-8 package, 4:1 input, regulated, encapsulated		4 W	52
TEC 6	SIP-8 package, 2:1 input, regulated, cost efficient, encapsulated	**NEW**	6 W	53
TMR 6	SIP-8 package, 2:1 input, regulated, encapsulated		6 W	53
TMR 6WI	SIP-8 package, 4:1 input, regulated, encapsulated		6 W	54
TEC 6UI	SIP-8 package, ultra wide 8:1 input, regulated, encapsulated	**NEW**	6 W	54
TMR 6WIR	SIP-8 package, 2:1 input, regulated, 3000 VDC I/O-isolation, railway, metal case		6 W	55
TMR 8WI	SIP-8 package, 4:1 input, regulated, ultra compact, encapsulated	**NEW under development**	8 W	55
TEC 8UI	SIP-8 package, ultra wide 8:1 input, regulated, encapsulated	**NEW under development**	8 W	56

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TMR 9	SIP-8 package, 2:1 input, regulated, ultra compact, encapsulated		9 W	56
TMR 9WI	SIP-8 package, 4:1 input, regulated, ultra compact, encapsulated		9 W	57
TMR 10WI	SIP-8 package, 4:1 input, regulated, ultra compact, encapsulated	**NEW under development**	10 W	57
TMR 12WI	SIP-8 package, 4:1 input, regulated, ultra compact, encapsulated, metal case		12 W	58

High Performance DC/DC Converters — 1–80 Watt

TDU 1	DIP-8 package, ±10% input, unregulated, encapsulated		1 W	59
TDN 1WI	DIP package, 4:1 input, regulated, encapsulated		1 W	60
TDL 2	DIP package, 2:1 input, regulated, compact design, encapsulated		2 W	60
TDR 2	DIP-14 package, 2:1 input, regulated, overmold (washable), plastic case		2 W	61
TDR 2WI	DIP-14 package, 4:1 input, regulated, overmold (washable), plastic case		2 W	61
TEL 2	DIP-16 package, 2:1 input, regulated, encapsulated		2 W	62
THI 2M	DIP-16 package, ±10% input, unregulated, 2 × MOOP, encapsulated		2 W	62
TIM 2	DIP-16 package, 2 :1 input, regulated, 5000 VAC I/O-isolation, 2 × MOPP medical, encapsulatedl		2 W	63
TDL 3	DIP package, 2:1 input, regulated, compact design, encapsulated		3 W	63
TDN 3WI	DIP package, 4:1 input, regulated, high power density, encapsulated		3 W	64
TDR 3	DIP-14 package, 2:1 input, regulated, overmold (washable), plastic case		3 W	64
TDR 3WI	DIP-14 package, 4:1 input, regulated, overmold (washable), plastic case		3 W	65
THL 3WI	DIP-16 package, 4:1 input, regulated, encapsulated		3 W	65
TEM 3N	DIP-24 package, ±10% input, regulated, cost efficient, encapsulated		3 W	66
TEN 3N	DIP-24 package, 2:1 input, regulated, cost efficient, encapsulated		3 W	66
TEN 3WIN	DIP-24 package, 4:1 input, regulated, cost efficient, encapsulated		3 W	67
TEN 3WIRH	DIP-24 package, 4:1 input, regulated, 3000 VAC isolation (reinforced), railway		3 W	67
TRI 3	DIP-24 package, 2:1 input, regulated, 1000 VAC working voltage, encapsulated		3.5 W	68
THR 3WI	DIP-24 package, 4:1 input, regulated, 3000 VAC isolation (reinforced), encapsulated		3 W	68
THI 3	DIP-24 package, 10% input, regulated, 4000 VAC isolation, 2 × MOPP , encapsulated		3 W	69
THP 3	DIP-24 package, 4:1 input, regulated, 3000 VAC isolation, 2 × MOPP encapsulated		3 W	69
THM 3	DIP-24 package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		3 W	70
THM 3WI	DIP-24 package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		3 W	70
TIM 3.5	DIP-16 package, 2 :1 input, regulated, 5000 VAC I/O-isolation, 2 × MOPP medical, encapsulated		3.5 W	71
TDN 5WI	DIP package, 4:1 input, regulated, highest power density, encapsulated		5 W	71
TVN 5WI	DIP-24 package, 4:1 input, regulated, ultra low ripple & noise, encapsulated, metal case		5 W	72
TEL 5	DIP-24 package, 2:1 input, regulated, cost optimized, encapsulated		5 W	72
TMDC 06	2.09" × 1.34", 4:1 input, harsh EMC capabilities, chassis mount		6 W	73
TMDC 06H	2.09" × 1.34", 2:1 input, harsh EMC capabilities, 3000 VAC isolation, chassis mount		6 W	73
TEL 6WIN	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case	**NEW under development**	6 W	74
TEN 6N	DIP-24 package, 2:1 input, regulated, cost efficient, encapsulated		6 W	74
TEN 6WIN	DIP-24 package, 4:1 input, regulated, cost efficient, encapsulated		6 W	75
TEN 6WIN-HI	DIP-24 package, 4:1 input, regulated, cost efficient, 3000 VDC isolation, encapsulated		6 W	75
TEN 6WIRH	DIP-24 package, 4:1 input, regulated, 3000 VAC isolation (reinforced), railway		6 W	76
TRI 6	DIP-24 package, 2:1 input, regulated, 1000 VAC working voltage, encapsulated		6 W	76
THM 6	DIP-24 package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		6 W	77
TIM 6	DIP-24 package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated	**NEW**	6 W	77
THM 6WI	DIP-24 package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		6 W	78
TEL 8	DIP-16 package, 2:1 input, regulated, high power density, encapsulated, metal case		8 W	78
TEL 8WI	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case		8 W	79
TEN 8	DIP-24 package, 2:1 input, regulated, encapsulated, metal case		8 W	79
TEN 8WI	DIP-24 package, 4:1 input, regulated, encapsulated, railway, metal case		8 W	80

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TEL 10	DIP-16 package, 2:1 input, regulated, high power density, encapsulated, metal case		10 W	80
TEL 10WI	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case		10 W	81
THD 10N	DIP-24 package, 2:1 input, regulated, encapsulated, metal case		10 W	81
THD 10WIN	DIP-24 package, 4:1 input, regulated, encapsulated, metal case		10 W	82
THL 10	1" × 1" package, 2:1 input, regulated, cost efficient, encapsulated, metal case		10 W	82
THN 10WIR	1" × 1" package, 4:1 input, regulated, 3000 VDC isolation, encapsulated, metal case		10 W	83
THN 10UIR	1" × 1" package, through-hole, 12:1 input, encapsulated, 3000 VDC isolation	NEW	10 W	83
TEN 10WIRH	DIP-24 package, 4:1 input, regulated, 3000 VAC isolation (reinforced), railway		10 W	84
TRI 10	DIP-24 package, 2:1 input, regulated, 1000 VAC working voltage, encapsulated		10 W	84
THR 10WI	2 × 1" package, 4:1 input, regulated, 3000 VAC isolation (reinforced), encapsulated		10 W	85
THM 10	DIP-24 package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		10 W	85
THM 10WI	DIP-24 package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		10 W	86
TMDC 10	3.11" × 1.34", 4:1 input, harsh EMC capabilities, chassis mount		10 W	86
TMDC 10H	3.11" × 1.34", 2:1 input, harsh EMC capabilities, 3000 VAC isolation, chassis mount		10 W	87
TEL 12	DIP-16 package, 2:1 input, regulated, high power density, encapsulated, metal case		12 W	87
TEL 12WI	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case		12 W	88
THD 12	DIP-24 package, 2:1 input, regulated, encapsulated, metal case		12 W	88
THD 12WI	DIP-24 package, 4:1 input, regulated, encapsulated, metal case		12 W	89
THD 15N	DIP-24 package, 2:1 input, regulated, encpasulated, metal case		15 W	89
THD 15WIN	DIP-24 package, 4:1 input, regulated, encpasulated, metal case		15 W	90
THN 15N	1" × 1" package, 2:1 input, regulated, encpasulated, metal case		15 W	90
THL 15WI	1" × 1" package, 4:1 input, regulated, cost optimized, encpasulated, metal case		15 W	91
THN 15WI	1" × 1" package, 4:1 input, regulated, encpasulated, metal case		15 W	91
TEL 15N	DIP-16 package, 2:1 input, regulated, high power density, encapsulated, metal case		15 W	92
TEL 15N-HS	DIP-16 package, 2:1 input, regulated, great thermal performance, encapsulated, metal case		15 W	92
TEL 15WIN	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case		15 W	93
TEL 15WIN-HS	DIP-16 package, 4:1 input, regulated, great thermal performance, encapsulated, metal case		15 W	93
TRI 15	2" × 1" package, 2:1 input, regulated, 1000 VAC working voltage, encpasulated		15 W	94
THN 15WIR	1" × 1" package, 4:1 input, regulated, 3000 VDC isolation, railway, encpasulated, metal case		15 W	94
THN 15UIR	1" × 1" package, through-hole, 12:1 input, encapsulated, 3000 VDC isolation	NEW	15 W	95
THM 15	1.6" × 1" package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		15 W	95
THM 15WI	1.6" × 1" package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		15 W	96
THN 20	1" × 1" package, 2:1 input, regulated, encpasulated, metal case		20 W	96
THN 20WI	1" × 1" package, 4:1 input, regulated, encpasulated, metal case		20 W	97
TEN 20WIN	2" × 1" package, 4:1 input, regulated, encpasulated, metal case		20 W	97
TEL 20WIN	DIP-16 package, 4:1 input, regulated, high power density, encapsulated, metal case	NEW under development	20 W	98
TRI 20	2" × 1" package, 2:1 input, regulated, 1000 VAC working voltage, encpasulated		20 W	98
THR 20WI	2" × 1" package, 4:1 input, regulated, 3000 VAC isolation (reinforced), encapsulated		20 W	99
THN 20WIR	1" × 1" package, 4:1 input, regulated, 3000 VDC isolation, railway, encpasulated		20 W	99
THN 20UIR	1" × 1" package, through-hole, 12:1 input, encapsulated, 3000 VDC isolation	NEW	20 W	100
TEN 20WIR	2" × 1" package, 4:1 input, regulated, 2250 VDC isolation, railway, encpasulated		20 W	100
TEN 20WIRH	1.6" × 1" package, 4:1 input, regulated, 3000 VAC isolation (reinforced), railway		20 W	101
THM 20	1.6" × 1" package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulatedl		20 W	101
THM 20WI	1.6" × 1" package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		20 W	102
TMDC 20	3.78" × 1.81", 4:1 input, harsh EMC capabilities, chassis mount		20 W	102
TMDC 20H	3.78" × 1.81", 2:1 input, harsh EMC capabilities, 3000 VAC isolation, chassis mount		20 W	103
TEQ 20WIR	4" × 2.3" package, 4:1 input, regulated, 2250 VDC isolation, railway, encased, chassis mount		20 W	103
THL 25	1" × 1" package, 2:1 input, regulated, cost optimized, encpasulated, metal case		25 W	104
THL 25WI	1" × 1" package, 4:1 input, regulated, cost optimized, encpasulated, metal case		25 W	104

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TEN 30WIN	2" × 1" package, 4:1 input, regulated, encpasulated, metal case		30 W	105
TEN 30UIR	2" × 1" package, through-hole, 12:1 input, encapsulated, 3000 VDC isolation	NEW	30 W	106
THN 30	1" × 1" package, 2:1 input, regulated, encpasulated, metal case		30 W	106
THN 30WI	1" × 1" package, 4:1 input, regulated, encpasulated, metal case		30 W	107
THL 30WI	1" × 1" package, 4:1 input, regulated, cost efficient, encpasulated, metal case	NEW	30 W	107
THN 30WIR	1" × 1" package, 4:1 input, regulated, 3000 VDC isolation, railway, encpasulated		30 W	108
THM 30	2" × 1" package, 2:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		30 W	108
THM 30WI	2" × 1" package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical, encapsulated		30 W	109
THL 40WI	1" × 1" package, 4:1 input, regulated, high power density, encapsulated, metal case	NEW	40 W	109
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TEN 40WIE	2" × 1" package, 4:1 input, regulated, cost efficient, encpasulated, metal case		40 W	110
THR 40WI	2" × 1" package, 4:1 input, regulated, 3000 VAC isolation (reinforced), encapsulated		40 W	111
TEN 40WIR	2" × 1" package, 4:1 input, regulated, 2250 VDC isolation, railway, encpasulated		40 W	111
TEN 40WIRH	2" × 1" package, 4:1 input, regulated, 3000 VAC isolation (reinforced), railway		40 W	112
TEN 40UIR	1" × 1" package, through-hole, 12:1 input, encapsulated, 3000 VDC isolation	NEW	40 W	112
TEQ 40WIR	4" × 2.3" package, 4:1 input, regulated, 2250 VDC isolation, railway, encased, chassis mount		40 W	113
TMDC 40	4.41" × 2.51", 4:1 input, harsh EMC capabilities, chassis mount		40 W	113
TMDC 40H	4.41" × 2.51", 2:1 input, harsh EMC capabilities, 3000 VAC isolation, chassis mount		40 W	114
TEN 50	2" × 1" package, 2:1 input, regulated, encpasulated, metal case		50 W	114
TEN 50WI	2" × 1" package, 4:1 input, regulated, encpasulated, metal case		50 W	115
TEN 60N	2" × 1" package, 2:1 input, regulated, encpasulated, metal case		60 W	115
TEN 60WIN	2" × 1" package, 4:1 input, regulated, encpasulated, metal case		60 W	116
TEN 60WIR	2" × 1" package, 4:1 input, regulated, 3000 VDC isolation, railway, encpasulated		60 W	116
THM 60WI	2.28" × 1.45" package, 4:1 input, regulated, 5000 VAC isolation, 2 × MOPP medical		60 W	117
TMDC 60	4.41" × 2.67", 4:1 input, harsh EMC capabilities, chassis mount		60 W	117
TMDC 60H	4.41" × 2.67", 2:1 input, harsh EMC capabilities, 3000 VAC isolation, chassis mount		60 W	118
TEN 80WI	2" × 1" package, 4:1 input, regulated, high power density, encapsulated, metal case	NEW	80 W	118

High Power DC/DC Converters / RIA12 Surge Filters — 40–300 Watt

TFI	DIP-24/1.6" × 1" package, RIA 12, NF F01-510 surge filter		0–300 W	119
TEP 40UIR	1/4-Brick package, 12:1 input, 3000 VAC isolation, railway, PCB mount		40 W	120
TEP 60UIR	1/4-Brick package, 12:1 input, 3000 VAC isolation, railway, PCB mount		60 W	120
TER 75WIR	1/4-Brick package, 4:1 input, 3000 VAC isolation, railway, PCB mount	NEW under development	75 W	121
TEP 75WI	1/2-Brick package, 4:1 input, 2250 VDC isolation, railway, PCB- chassis mount		75 W	121
TER 100WIR	1/4-Brick package, 4:1 input, 3000 VAC isolation, railway, PCB mount	NEW under development	100 W	122
TEP 100	1/2-Brick package, 2:1 input, 2250 VDC isolation, PCB- chassis mount		100 W	122
TEP 100UIR	1/4-Brick package, 12:1 input, 3000 VAC isolation, railway, PCB mount		100 W	123
TEP 100WIR	1/2-Brick package, 4:1 input, 2250 VDC isolation, railway, PCB- chassis mount		100 W	123
TEQ 100WIR	3" × 4" × 3.5" package, 4:1 input, 2250 VDC isolation, rugged design, railway, chassis mount		100 W	124
TER 150WIR	1/4-Brick package, 4:1 input, 3000 VAC isolation, railway, PCB mount	NEW under development	150 W	124
TEP 150WI	3.9" × 2.1" package, 4:1 input, 2250 VDC isolation, rugged design, railway, chassis mount		150 W	125
TEP 150UIR	1/2-Brick package, 10:1 input, 3000 VAC isolation, railway, PCB mount	NEW	150 W	125
TEP 160	1/2-Brick package, 2:1 input, 2250 VDC isolation, PCB- chassis mount		160 W	126
TEP 160WIR	1/2-Brick package, 4:1 input, 2250 VDC isolation, railway, PCB- chassis mount		160 W	126
TEQ 160WIR	3" × 4" × 3.5" package, 4:1 input, 2250 VDC isolation, rugged design, railway, chassis mount		160 W	127
TER 200WIR	1/4-Brick package, 4:1 input, 3000 VAC isolation, railway, PCB mount	NEW under development	200 W	127
TEP 200WIR	1/2-Brick package, 4:1 input, 2250 VDC isolation, railway, PCB- chassis mount		200 W	128

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TEP 200UIR	1/2-Brick package, 10:1 input, 3000 VAC isolation, railway, PCB mount	**NEW**	200 W	128
TEQ 200WIR	3" × 4" × 3.5" package, 4:1 input, 2250 VDC isolation, rugged design, railway, chassis mount		200 W	129
TEP 300WIR	1/2-Brick package, 4:1 input, 3000 VAC isolation, railway, PCB mount	**NEW under development**	300 W	129
TEQ 300WIR	6" × 4" × 1.5" package, 4:1 input, 2250 VDC isolation, rugged design, railway, chassis mount		300 W	130

Industrial DIN-Rail Mount DC/DC Converters — 24–60 Watt

TCL-DC	Slim plastic case, 4:1 input, 1500 VDC isolation, DIN-rail mount		24–60 W	131

Encapsulated AC/DC Power Modules — 3–100 Watt

TMPS 03	1" × 1" package, 3000 VAC isolation, household, PCB mount		3 W	132
TMLM 04	1.44" × 1.06" package, 3000 VAC isolation, PCB mount		4 W	133
TMPS 05	1" × 1" package, 3000 VAC isolation, household, PCB mount		5 W	133
TMPW 5	1.46" × 1.08", 90–305 VAC input, 4000 VAC isolation, household, PCB mount		5 W	134
TMPW 5-J/-T	2.17" × 1.08", 90–305 VAC input, 4000 VAC isolation, houshold, chassis mount		5 W	134
TMPS 10	1.5" × 1" package, 3000 VAC isolation, household, PCB mount		10 W	135
TMPW 10	1.46" × 1.08", 90–305 VAC input, 4000 VAC isolation, household, PCB mount		10 W	135
TMPW 10-J/-T	2.17" × 1.08", 90–305 VAC input, 4000 VAC isolation, household, chassis mount		10 W	136
TMPW 15	1.84" × 1.14", PCB, Encapsulated, 90–305 VAC, 4000 VAC	**NEW**	15 W	136
TMPW 15-J/-T	2.7" × 1.35", Chassis, Encapsulated, 90–305 VAC, 4000 VAC	**NEW**	15 W	137
TMPS 15	2" × 1" package, 3000 VAC isolation, household, PCB mount		15 W	137
TPP 15-J	2.82" × 1.14" package, 4000 VAC isolation, medical/household, 2 × MOPP, chassis mount		15 W	138
TPP 15-D	1.65" × 1.14" package, 4000 VAC isolation, medical/household, 2 × MOPP, PCB mount		15 W	138
TIW	2.2" × 2.2" package, 4000 VAC isolation, household, flush box mounting (IP67)		4–24 W	139
TMPW 25	2.07" × 1.08", 90–305 VAC input, 4000 VAC isolation, household, PCB mount	**NEW models**	25 W	139
TMPW 25-J/-T	3.48" × 1.08", 90–305 VAC input, 4000 VAC isolation, household, chassis mount	**NEW models**	25 W	140
TMF	4000 VAC isolation, medical 2 × MOPP, PCB mount		5–30 W	140
TPP 30-J	3.95" × 1.50" package, 4000 VAC isolation, medical/household, 2 × MOPP chassis mount		30 W	141
TPP 30-D	2.89" × 1.50" package, 4000 VAC isolation, medical/household, 2 × MOPP, PCB mount		30 W	141
TMW	2.09" × 2.0", 4000 VAC isolation, household/medical, 2 × MOPP, flush box mount (IP68)		24–36 W	142
TMPW 40	2.52" × 1.8", PCB, Encapsulated, 90–305 VAC, 4000 VAC	**NEW**	40 W	142
TMPW 40-J/-T	3.48" × 1.84", Chassis, Encapsulated, 90–305 VAC, 4000 VAC	**NEW**	40 W	143
TPP 40E-J	4.3" × 2.2" package, 4000 VAC isolation, medical 2 × MOPP, encapsulated, chassis mount		40 W	143
TPP 40E-D	3.2" × 2.2" package, 4000 VAC isolation, medical 2 × MOPP, encapsulated, PCB mount		40 W	144
TMG	Compact design, 3000 VAC isolation, PCB mount		7–50 W	144
TMPW 50	2.92" × 1.85", 90–305 VAC input, 4000 VAC isolation, household, PCB mount		50 W	145
TMPW 50-J/-T	3.81" × 1.85", 90–305 VAC input, 4000 VAC isolation, household, chassis mount		50 W	145
TMP/TMP-C	PCB or Chassis mount packages, 3000 VAC isolation		7–60 W	146
TML/TML-C	PCB or Chassis mount packages, 3000 VAC isolation		20–40 W	146
TMM/TMM-C	Low profile case, 3000 VAC isolation, PCB or chassis mount versions		24–60 W	147
TMPW 60	2.92" × 1.85", 90–305 VAC input, 4000 VAC isolation, household, PCB mount	**NEW**	60 W	147
TMPW 60-J/-T	3.81" × 1.85", 90–305 VAC input, 4000 VAC isolation, household, chassis mount	**NEW**	60 W	148
TPP 65E-J	4.3" × 2.2" package, 4000 VAC isolation, medical 2 × MOPP, encapsulated, chassis mount		65 W	148
TPP 65E-D	3.2" × 2.2" package, 4000 VAC isolation, medical 2 × MOPP, encapsulated, PCB mount		65 W	149
TMPW 80	3.2" × 1.85", PCB, Encapsulated, 90–305 VAC, 4000 VAC	**NEW under development**	80 W	149
TMPW 80-J/-T	4.24" × 2.0", Chassis, Encapsulated, 90–305 VAC, 4000 VAC	**NEW under development**	80 W	150
TML 100C	5.5" × 2.36" package, 3000 VAC isolation, active PFC, chassis mount		100 W	150
TMPW 100	3.5" × 2.05", PCB, Encapsulated, 90–305 VAC, 4000 VAC	**NEW under development**	100 W	151

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TMPW 100-J/-T	4.57" × 2.2", Chassis, Encapsulated, 90–305 VAC, 4000 VAC	**NEW under development**	100 W	151

Metal Enclosure and Open Frame Power Supplies — 15–850 Watt

TXM	Metal case, 3000 VAC isolation, cost efficient, without fan, encased, chassis mount		15–200 W	152
TXLN	Metal case, 3000 VAC isolation, high power, encased, chassis mount		18–960 W	153
TXN	Metal case, 3000 VAC isolation, cost optimized design, encased, chassis mount	**NEW**	25–1000 W	153
TPP 15A-J	2.6" × 1.0" package, 4000 VAC isolation, medical/household, 2 × MOPP, chassis mount		15 W	154
TPP 15A-D	1.5" × 1.0" package, 4000 VAC isolation, medical/household, 2 × MOPP, PCB mount		15 W	154
TPI 30A-J	3.34" × 1.36" package, 3000 VAC isolation, cost efficient, chassis mount		30 W	155
TPP 30A-J	3.34" × 1.36" package, 4000 VAC isolation, medical/household, 2 × MOPP, chassis mount		30 W	155
TPP 30A-D	2.74" × 1.1" package, 4000 VAC isolation, medical/household, 2 × MOPP, PCB mount		30 W	156
TPP 40A	3" × 2" package, 4000 VAC isolation, medical, 2 × MOPP, open frame, chassis mount		40 W	156
TPP 40	3.53" × 2.38" package, 4000 VAC isolation, medical, 2 × MOPP, enclosed, chassis mount		40 W	157
TXO 45	3" x 2" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	45 W	157
TPI 50A-J	3" × 1.5" package, 3000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	50 W	158
TXH 060	3.1" × 2" package, 3000 VAC isolation, cost efficient, enclosed, chassis mount		60 W	158
TXO 60	3" x 2" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	60 W	159
TPI 65A-J	3" × 2" package, 3000 VAC isolation, cost efficient, open frame, chassis mount		65 W	159
TPP 65A	3" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount		65 W	160
TPP 65	3.53" × 2.38" package, 4000 VAC isolation, medical 2 × MOPP, encased, chassis mount		65 W	160
TOP 100	4" × 2" package, 3000 VAC isolation, open frame, chassis mount		100 W	161
TOP 100C	4.1" × 2.4" package, 3000 VAC isolation, encased, chassis mount		100 W	161
TPI 100A	3" × 2" package, 3000 VAC isolation, open frame, chassis mount		100 W	162
TPP 100A-J	3" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount		100 W	162
TPP 100	3.6" × 2.44" package, 4000 VAC isolation, medical 2 × MOPP, encased, chassis mount		100 W	163
TXO 120	3" x 2" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	120 W	163
TPI 125A-J	3" × 2" package, 4000 VAC isolation, cost efficient, open frame, chassis mount		125 W	164
TCI 130	3" × 2.35" package, 4000 VAC isolation, unique conduction cooled design, encased	**NEW**	130 W	164
TXO 150	4" × 2" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	150 W	165
TPI 150A	4" × 2" package, 3000 VAC isolation, open frame, chassis mount		150 W	165
TPP 150A-J	4" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount		150 W	166
TPP 150	4.6" × 2.44" package, 4000 VAC isolation, medical 2 × MOPP, encased, chassis mount		150 W	166
TPI 180A-M	3" × 2" package, 3000 VAC isolation, cost efficient, open frame, chassis mount		180 W	167
TPI 180-M	3.6" × 2.44" package, 3000 VAC isolation, cost efficient, encased, chassis mount		180 W	167
TPP 180A-M	3" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount		180 W	168
TPP 180-M	3.6" × 2.44" package, 4000 VAC isolation, medical 2 × MOPP, encased, chassis mount		180 W	168
TXO 200	4" × 3" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	200 W	169
TXH	Metal case, 3000 VAC isolation, compact design, encased, chassis mount		240 W	169
TOP 200	5" × 3" package, 3000 VAC isolation, open frame, chassis mount		200 W	170
TOP 200C	5" × 3" package, 3000 VAC isolation, encased, chassis mount		200 W	170
TCI 240	4.1" × 2.46" package, 4000 VAC isolation, unique conduction cooled design, encased	**NEW**	240 W	171
TPP 250A	4" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount	**NEW**	250 W	171
TXO 300	5" × 3" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	**NEW**	300 W	172
TPI 300L-M	4" × 2" package, 3000 VAC isolation, open frame, chassis mount		300 W	172
TPI 300-M	4.6" × 2.44" package, 3000 VAC isolation, cost efficient, encased, chassis mount		300 W	173
TPP 300A-M	4" × 2" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount		300 W	173
TPP 300-M	4.4.6" × 2.44" package, 4000 VAC isolation, medical 2 × MOPP, encased, chassis mount		300 W	174

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TPP 450BA	5 × 3" package, JST-connectors, open frame, 4000 VAC I/O-isolation		450 W	174
TPP 450B	5.83 × 3" package, JST-connectors, encased, 4000 VAC I/O-isolation		450 W	175
TXO 500	6" × 4" package, 4000 VAC isolation, cost efficient, open frame, chassis mount	NEW	500 W	175
TCI 500	5.1" × 3.26" package, 4000 VAC isolation, unique conduction cooled design, encased	NEW	500 W	176
TCI 500U	4.1" × 2.46" package, 4000 VAC isolation, unique conduction cooled design, U-Bracket	NEW	500 W	176
TPP 600A	5" × 3" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount	NEW	600 W	177
TPP 850L	6" × 4" package, 4000 VAC isolation, medical 2 × MOPP, open frame, chassis mount	NEW	850 W	177

Outdoor Power Supply — 120 Watt

TEX 120	6.9" × 3.7" package, 3000 VAC isolation, IP67 enclosure, dust- water- and oil proof		120 W	178

DIN-Rail Power Supplies — 15–600 Watt

TBL	Low profile case (55mm depth), 85–264 VAC input, UL 1310, UL 508		15–150 W	179
TBLC	Low profile case (55mm depth), 85–264 VAC input, high efficiency, EN 60355-1, UL 1310, UL 508		6–90 W	180
TCL	Slim profile case, 85–264 VAC input, UL 508		24–240 W	180
TPC	Slim profile case, 85–264 VAC input, robust design, ErP ready, UL 508		30–120 W	181
TIB	Rugged metal case, 85–264 VAC input, cost efficient, UL 508		80–480 W	181
TIB-EX	Rugged metal case, 85–264 VAC input, ATEX & UL HazLoc approvals, UL 508		80–480 W	182
TSPC	Slim metal case, 85–264 VAC input, UL 508		50–480 W	182
TSP	Rugged meal case, 85–264 VAC input, for harsh environments, UPS module options		72–600 W	183
TSP-WR	Rugged metal case, wide range 100/230–500 VAC input, UL 508		180–600 W	183

UPS Systems and Function Modules (DIN-Rail and Industrial Cabinets)

UPS System

TSPC 240UPS	Compact universal power supply for uniterruptable 24 VDC output voltage		240 W	184

Battery Controller Modules

TSP-BCMU360	Universal battery controller module for uninterruptable 24 VDC and 48 VDC bus voltage		360 W	185
TSP-BCM	Battery controller modules compatible with the TSP series		72–600 W	185
TIB-BCMU240	Universal battery controller module for uninterruptable 24 VDC bus voltage	NEW	240 W	186

Buffer Modul

TSP-BFM	Buffery moduel to increase hold-up time compatible with the TSP series		600 W	186

Decoupling, Redundancy and Current Share Modules

TCL-REM	Redundancy module compatible with the TCL series		480 W	187
TPC-REM	Redundancy module compatible with the TPC series		240 W	187
TSP-REM	Redundancy module compatible with the TSP series		360–600 W	188
TIB-REM480	Redundancy module compatible with the TSP series	NEW	480 W	188

Non-Isolated Step Down DC/DC Converters (POL) in SIP Package

0.5–3 Amp

Our SIP-3 non-isolated /point-of-load regulators provide output currents up to 3 Amps with high-efficiency operation. Convection-cooled operation combined with the standard SIP-3 / TO-220 pinout, make these true alternatives to less efficient linear regulators.



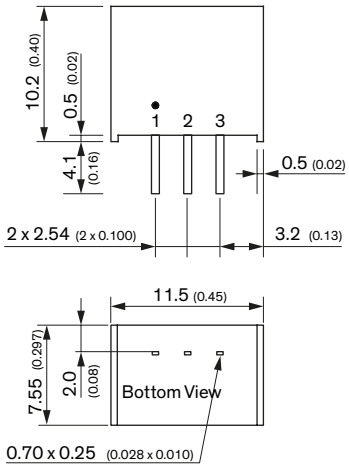






TSR 0.5 | 0.5 Amp





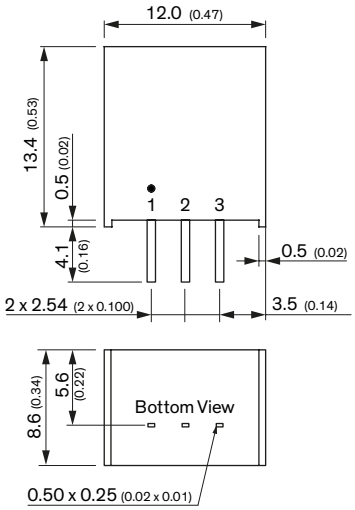
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TSR 0.5-2415	**4.75–32 VDC**	1.5 VDC		73%
TSR 0.5-2418		1.8 VDC		82%
TSR 0.5-2425		2.5 VDC		87%
TSR 0.5-2433		3.3 VDC		91%
TSR 0.5-2450	**6.5–32 VDC**	5 VDC	500 mA	94%
TSR 0.5-2465	**8–32 VDC**	6.5 VDC		95%
TSR 0.5-2490	**11–32 VDC**	9 VDC		96%
TSR 0.5-24120	**15–32 VDC**	12 VDC		97%
TSR 0.5-24150	**18–32 VDC**	15 VDC		97%

- Compact SIP package
- Very high efficiency up to 97%
- Excellent line/load regulation
- Low standby current
- Operating temperature range –40 to 90°C
- Over-temperature protection
- Short circuit protection
- 3-year product warranty

Pinout	
Pin	**Function**
1	+Vin
2	GND
3	+Vout

TSR 0.6WI | 0.6 Amp





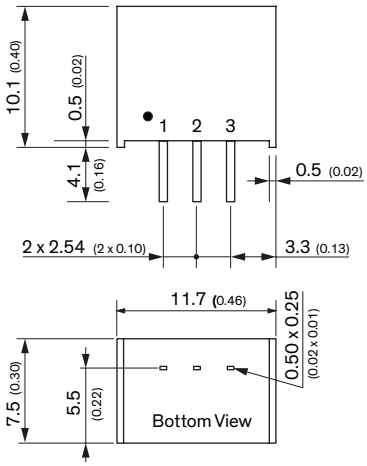
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 0.6-4833WI	9–72 VDC	3.3 VDC	600 mA	85%
TSR 0.6-4850WI		5 VDC		89%
TSR 0.6-4865WI		6.5 VDC		91%
TSR 0.6-4890WI	14–72 VDC	9 VDC		92%
TSR 0.6-48120WI	17–72 VDC	12 VDC		93%
TSR 0.6-48150WI	20–72 VDC	15 VDC		94%
TSR 0.6-48240WI	33–72 VDC	24 VDC	400 mA	94%

- Ultra wide 8:1 input voltage range: 9–72 VDC
- Covers a majority of standard bus- and battery voltages
- Up to 94% efficiency – No heatsink required
- Pin compatible with LMxx linear regulators (SIP-3)
- Operating temperature range –40 to +85°C
- Low standby current
- Excellent line/load regulation
- Protection against short circuit, overvoltage and overtemperature
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout

TSR 1 | 1 Amp





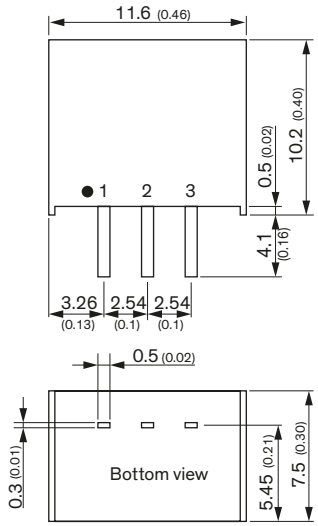
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 1-2412	4.6–36 VDC	1.2 VDC	1000 mA	74%
TSR 1-2415		1.5 VDC		78%
TSR 1-2418		1.8 VDC		82%
TSR 1-2425		2.5 VDC		87%
TSR 1-2433	4.75–36 VDC	3.3 VDC		91%
TSR 1-2450	6.5–36 VDC	5 VDC		94%
TSR 1-2465	9–36 VDC	6.5 VDC		93%
TSR 1-2490	12–36 VDC	9 VDC		95%
TSR 1-24120	15–36 VDC	12 VDC		95%
TSR 1-24150	18–36 VDC	15 VDC		96%

- Up to 96% efficiency – No heat-sink required
- Pin compatible with LMxx linear regulators
- SIP-package fits existing TO-220 footprint
- Built in filter capacitors
- Operation temp. range –40°C to +85°C
- Short circuit protection
- Wide input operating range
- Excellent line/load regulation
- Low standby current
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout

TSR 1E | 1 Amp





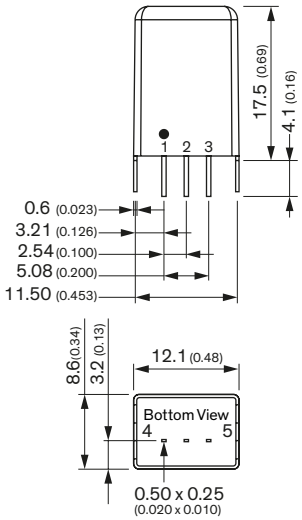
Model	Input Voltage Range	Output Voltage	Output Current max.	Efficiency
TSR 1-2433E	6–36 VDC	3.3 VDC	1000 mA	88%
TSR 1-2450E	7–36 VDC	5 VDC	1000 mA	92%

- Highly cost efficient design
- Pin compatible with LMxx linear regulators
- Operation temperature. range –40°C to +85°C
- Efficiency up to 92%
- Wide input operating range 6–36 VDC
- Short circuit protection
- Excellent line/load regulation
- 3-year product warranty

Pinout	
Pin	Function
1	+ Vin
2	GND
3	+ Vout

TSR 1WI | 1 Amp





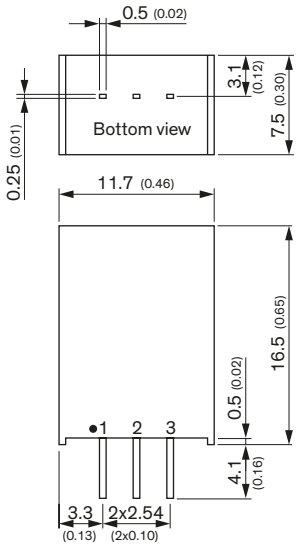
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 1-4833WI	9–72 VDC	3.3 VDC	1000 mA	83%
TSR 1-4850WI		5 VDC		87%
TSR 1-4865WI		6.5 VDC		88%
TSR 1-4890WI	14–72 VDC	9 VDC		90%
TSR 1-48120WI	17–72 VDC	12 VDC		93%
TSR 1-48150WI	21–72 VDC	15 VDC		93%
TSR 1-48240WI	33–72 VDC	24 VDC	700 mA	92%

- Ultra wide 8:1 input voltage range: 9–72 VDC
- Covers a majority of standard bus- and battery voltages
- Up to 93% efficiency – No heatsink required
- Pin compatible with LMxx linear regulators (SIP-3)
- Operating temperature range –40 to +80°C
- Low standby current
- Excellent line/load regulation
- Protection against short circuit, overvoltage and overtemperature
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout
4	Case pin
5	Case pin

TSN 1 | 1 Amp





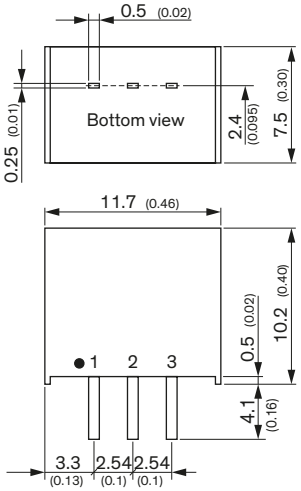
- Non-isolated converter for negative output
- Small size and low profile
- Pin compatible with LM79xx linear regulators
- No heatsink required
- High efficiency up to 96%
- Operation temp. range –40°C to +85°C
- Protection against overload, short circuit and over-temperature
- Fixed switching frequency
- Wide input range up to –32 VDC
- Excellent line/load regulation
- 3-year product warranty

Pinout	
Pin	**Single**
1	GND
2	–Vin
3	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSN 1-2450	**-7.0 – -32 VDC**	-5.0 VDC		91.5%
TSN 1-2452	**-7.0 – -32 VDC**	-5.2 VDC		92.0%
TSN 1-2460	**-8.0 – -32 VDC**	-6.0 VDC		92.5%
TSN 1-2480	**-10.5 – -32 VDC**	-8.0 VDC	–1.0 A	94.0%
TSN 1-2490	**-11.5 – -32 VDC**	-9.0 VDC		94.5%
TSN 1-24120	**-15 – -32 VDC**	-12.0 VDC		96.0%
TSN 1-24150	**-18 – -32 VDC**	-15.0 VDC		96.0%

TSRN 1 | 1 Amp





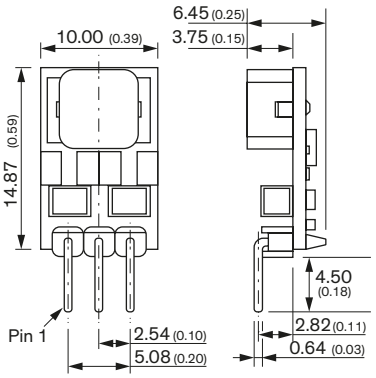
- SIP-package fits existing TO-220 footprint
- Suitable for positive & negative output circuit
- Pin compatible with LMxx linear regulators
- Built in filter capacitors
- Operation temp. range –40°C to +85°C
- No heat-sink required
- Over-temperature & short circuit protection
- Wide input range up to 36 VDC
- Excellent line/load regulation
- 3-year product warranty

Pinout	
Pin	**Function**
1	+Vin
2	GND
3	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSRN 1-2415	**4.6–36 VDC**	1.5 VDC		77%
TSRN 1-2418		1.8 VDC		81%
TSRN 1-2425		2.5 VDC		84%
TSRN 1-2433		3.3 VDC		88%
TSRN 1-2450	**6.5–36 VDC**	5 VDC	1000 mA	92%
TSRN 1-2465	**8–36 VDC**	6.5 VDC		93%
TSRN 1-2490	**10.5–36 VDC**	9 VDC		95%
TSRN 1-24120	**13.5–36 VDC**	12 VDC		95%
TSRN 1-24150	**16.5–36 VDC**	15 VDC		96%

TSR 1.5E | 1.5 Amp





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 1.5-2433E	7–36 VDC (12 nom.)	3.3 VDC	1500 mA	93%
TSR 1.5-2450E		5 VDC		95%
TSR 1.5-24120E	15–36 VDC (24 nom.)	12 VDC	1000 mA	97%

- Highly cost efficient design
- Pin compatible with TO-220 package 78xx linear regulators
- Operation temperature range –40°C to +85°C without derating
- Efficiency up to 97%
- Wide input operating range 7–36 VDC
- Short circuit protection
- Excellent line/load regulation
- 3-year product warranty

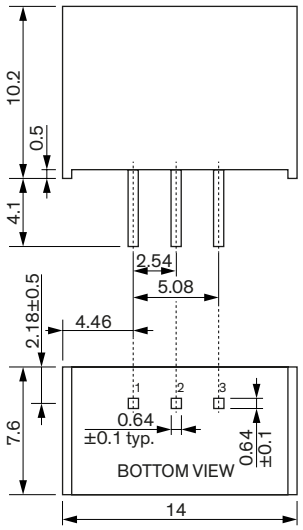
Pinout	
Pin	Function
1	+Vin
2	Common
3	+Vout



TSR 2N | 2 Amp

NEW!





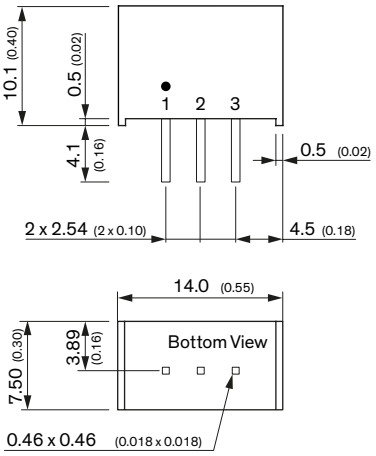
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 2-2412N	4.6–28 VDC	1.2 VDC	2000 mA	87.5%
TSR 2-2415N	4.6–32 VDC	1.5 VDC		89%
TSR 2-2418N	4.6–36 VDC	1.8 VDC		90%
TSR 2-2425N	4.6–36 VDC	2.5 VDC		92%
TSR 2-2433N	4.6–36 VDC	3.3 VDC		93%
TSR 2-2450N	6.5–36 VDC	5 VDC		94.5%
TSR 2-2465N	9–36 VDC	6.5 VDC		95%
TSR 2-2490N	11–36 VDC	9 VDC		95.5%
TSR 2-24120N	15–36 VDC	12 VDC		96%
TSR 2-24150N	18–36 VDC	15 VDC		96%

- Wide operating temperature range –40°C to +95°C
- Ultra compact SIP package 0.55×0.30×0.40 inch
- Up to 96% efficiency – No heat-sink required
- Pin compatible with LMxx linear regulators
- Built in filter capacitors
- Excellent line / load regulation
- Short circuit & over temperature protection
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout

TSR 2 | 2 Amp





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 2-0512	3–5.5 VDC	1.2 VDC	2000 mA	90%
TSR 2-0515		1.5 VDC		91%
TSR 2-0518		1.8 VDC		92%
TSR 2-0525	3.8–5.5 VDC	2.5 VDC		95%
TSR 2-2412	4.6–36 VDC	1.2 VDC		84%
TSR 2-2415		1.5 VDC		86%
TSR 2-2418		1.8 VDC		87%
TSR 2-2425		2.5 VDC		89%
TSR 2-2433	4.75–36 VDC	3.3 VDC		91%
TSR 2-2450	6.5–36 VDC	5 VDC		94%
TSR 2-2465	9–36 VDC	6.5 VDC		94%
TSR 2-2490	12–36 VDC	9 VDC		95%
TSR 2-24120	15–36 VDC	12 VDC		95%
TSR 2-24150	18–36 VDC	15 VDC		96%

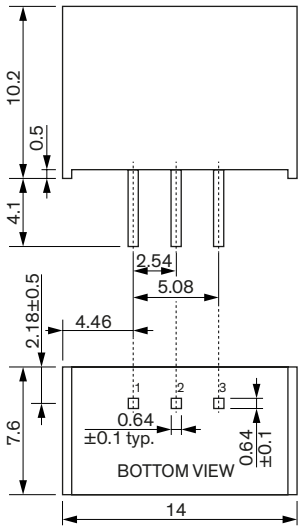
- Ultra compact SIP package 0.55 × 0.30 × 0.40 inch
- Up to 96% efficiency – No heat-sink required
- Pin compatible with LMxx linear regulators
- Built in filter capacitors
- Operating temperature range –40°C to +85°C
- Excellent line/load regulation
- Short circuit protection
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout

TSR 3N | 3 Amp

NEW!





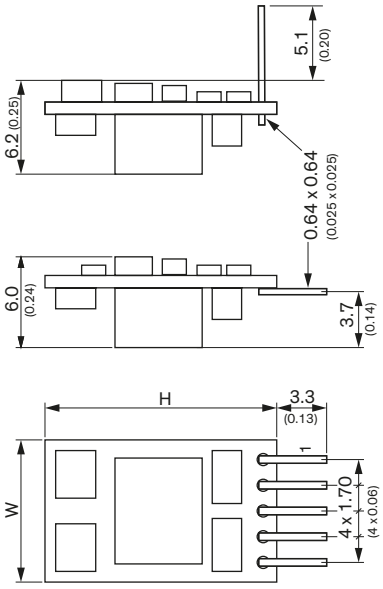
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 3-2412N	4.6–28 VDC	1.2 VDC	3000 mA	87.5%
TSR 3-2415N	4.6–32 VDC	1.5 VDC		89%
TSR 3-2418N	4.6–36 VDC	1.8 VDC		90%
TSR 3-2425N	4.6–36 VDC	2.5 VDC		92%
TSR 3-2433N	4.6–36 VDC	3.3 VDC		93%
TSR 3-2450N	6.5–36 VDC	5 VDC		94.5%
TSR 3-2465N	9–36 VDC	6.5 VDC		95%
TSR 3-2490N	11–36 VDC	9 VDC		95.5%
TSR 3-24120N	15–36 VDC	12 VDC		96%
TSR 3-24150N	18–36 VDC	15 VDC		96%

- Wide operating temperature range –40°C to +85°C
- Ultra compact SIP package 0.55 × 0.30 × 0.40 inch
- Up to 95% efficiency – No heat-sink required
- Pin compatible with LMxx linear regulators
- Built in filter capacitors
- Excellent line / load regulation
- Short circuit & over temperature protection
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	GND
3	+Vout

TSR 3 | 3 Amp





- High performance 3 Amp. switching regulator
- Suitable for positive & negative output circuit
- High efficiency up to 95%
- Adjustable output voltages
- Wide input voltage ranges 2.5–5.5, 4.5–14 and 10–30 VDC
- Short circuit protection
- Remote On/Off input
- Low output ripple & noise
- 3-year product warranty

Pinout		
Pin	**positive**	**negative**
1	Remote On/Off	
2	+Vin (Vcc)	
3	GND	–Vout
4	+Vout	GND
5	Trim	

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 3-0533	**2.5–5.5 VDC**	**0.6 VDC**	3000 mA	95%
TSR 3-1250	**4.5–14 VDC**			93%
TSR 3-2450	**10–30 VDC**	**3 VDC**		91%
TSR 3-24150		**5 VDC**		95%

Non-Isolated Step Down DC/DC Converters (POL) in SMD Package

0.5–3 Amp

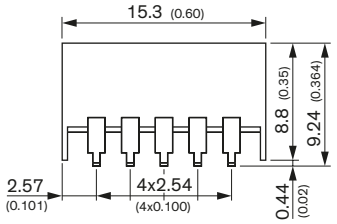
Our SMD non-isolated /point of load regulators provide output currents up to 1 Amp with high efficiency operation. Convection-cooled operation surface mount packaging make these ideal power solutions for a broad range of applications.

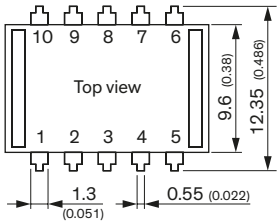




TSR 0.5SM | 0.5 Amp







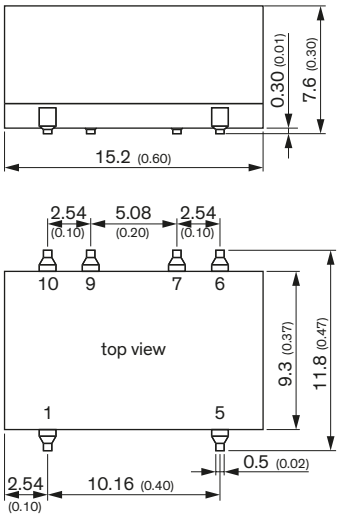
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TSR 0.5-2415SM	4.75–32 VDC	1.5 VDC		73%
TSR 0.5-2418SM		1.8 VDC		82%
TSR 0.5-2425SM		2.5 VDC		87%
TSR 0.5-2433SM		3.3 VDC		91%
TSR 0.5-2450SM	6.5–32 VDC	5 VDC	500 mA	94%
TSR 0.5-2465SM	8–32 VDC	6.5 VDC		95%
TSR 0.5-2490SM	11–32 VDC	9 VDC		96%
TSR 0.5-24120SM	15–32 VDC	12 VDC		97%
TSR 0.5-24150SM	18–32 VDC	15 VDC		97%

- Compact SMD package
- Very high efficiency up to 97%
- Excellent line/load regulation
- Low standby current
- Operating temperature range –40 to 90°C
- Over-temperature and short circuit protection
- Remote On/Off input
- Adjustable output voltage
- Moisture sensitivity level 2 as per IPC J-STD-033C
- 3-year product warranty

Pinout	
Pin	**Function**
1	+Vin
2	+Vin
3	GND
4	+Vout
5	+Vout
6	Trim
7	GND
8	GND
9	GND
10	Remote On/Off

TSR 1SM | 1 Amp





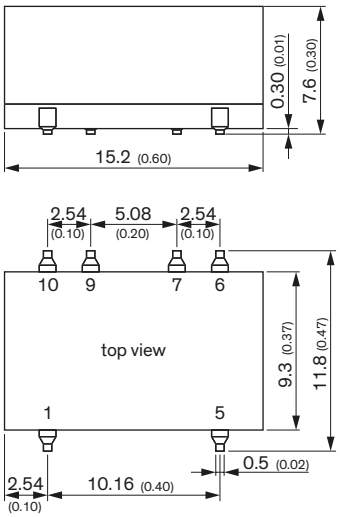
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSR 1-0512SM	3–5.5 VDC	1.2 VDC	1000 mA	91%
TSR 1-0515SM		1.5 VDC		92%
TSR 1-0518SM		1.8 VDC		93%
TSR 1-0525SM	3.8–5.5 VDC	2.5 VDC		95%
TSR 1-2412SM	4.6–36 VDC	1.2 VDC		74%
TSR 1-2415SM		1.5 VDC		79%
TSR 1-2418SM		1.8 VDC		82%
TSR 1-2425SM		2.5 VDC		87%
TSR 1-2433SM	4.75–36 VDC	3.3 VDC		91%
TSR 1-2450SM	6.5–36 VDC	5 VDC		94%
TSR 1-2465SM	9–36 VDC	6.5 VDC		94%
TSR 1-2490SM	12–36 VDC	9 VDC		95%
TSR 1-24120SM	15–36 VDC	12 VDC		95%
TSR 1-24150SM	18–36 VDC	15 VDC		96%

- SMD-package
- Up to 96% efficiency
- No thermal layer required
- Built in filter capacitors
- Operation temp. range –40°C to +85°C
- Short circuit protection
- Wide input operating range
- Excellent line/load regulation
- Low standby current
- 3-year product warranty

Pinout	
Pin	**Function**
1	+Vin
5	+Vout
6	NC
7	GND
9	GND
10	NC

TSRN 1SM | 1 Amp





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TSRN 1-0525SM	3–5.5 VDC	2.5 VDC	1000 mA	96%
TSRN 1-2433SM	4.6–42 VDC	3.3 VDC		88%
TSRN 1-2450SM	6.5–42 VDC	5 VDC		92%
TSRN 1-2490SM	10.5–42 VDC	9 VDC		95%
TSRN 1-2490SM	13.5–42 VDC	12 VDC		95%
TSRN 1-24150SM	16.5–42 VDC	15 VDC		96%

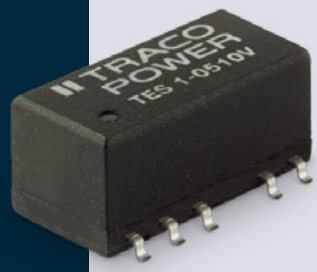
- Compact SMD package
- Suitable for positive & negative output circuit
- Adjustable output voltage
- Wide input up to 42 VDC
- Remote On/Off input
- Built in filter capacitors
- Operation temp. range –40°C to +85°C
- Excellent line/load regulation
- Low standby current
- 3-year product warranty

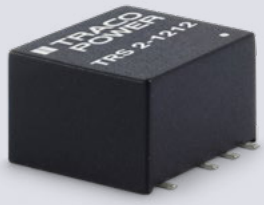
Pinout	
Pin	**Function**
1	+Vin
5	+Vout
6	Trim
7	GND
9	GND
10	Remote On/Off

SMD DC/DC Converters

1–15 watt

TRACO POWER's range of isolated DC/DC converters in SMD package consists of products from 1 to 5 W with unregulated or regulated outputs. All models provide high pin accuracy and are qualified for automated pick-and-place machines and withstand lead-free reflow solder processes and comply with IPC J-STD-020D standard.





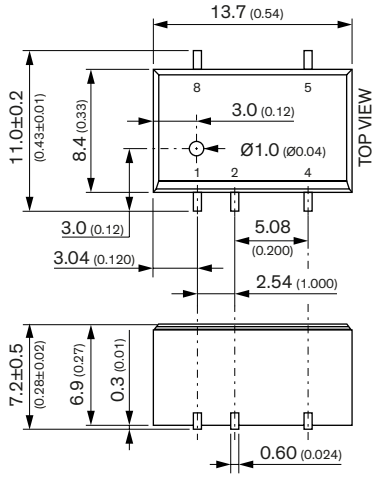




TES 1N | 1 W

NEW under development





- Cost efficient design
- Unregulated outputs
- I/O isolation 1500 VDC
- Input voltage 5, 12, 24 VDC
- Operating temperature range –40°C to +95°C
- High efficiency up to 80%
- Qualified for leadfree reflow solder process according to IPC/JEDEC J-STD-020C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vin	
3	No Pin	
4	–Vout	Common
5	+Vout	–Vout
6	No Pin	
7	No Pin	+Vout
8	NTC	No Pin
9	–	No Pin
10	–	NTC

NTC: Not to connect

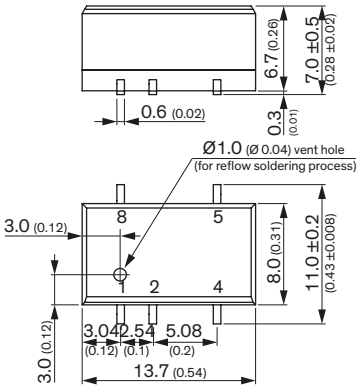
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 1-0510N		3.3 VDC	300 mA	74%
TES 1-0511N		5 VDC	200 mA	78%
TES 1-0512N		12 VDC	84 mA	79%
TES 1-0513N	**4.5–5.5 VDC**	15 VDC	67 mA	80%
TES 1-0515N	(5 VDC nom.)	24 VDC	42 mA	79%
TES 1-0521N		±5 VDC	±100 mA	75%
TES 1-0522N		±12 VDC	±42 mA	79%
TES 1-0523N		±15 VDC	±33 mA	79%
TES 1-1210N		3.3 VDC	300 mA	75%
TES 1-1211N		5 VDC	200 mA	78%
TES 1-1212N		12 VDC	84 mA	80%
TES 1-1213N	**10.8–13.2 VDC**	15 VDC	67 mA	81%
TES 1-1215N	(12 VDC nom.)	24 VDC	42 mA	80%
TES 1-1221N		±5 VDC	±100 mA	75%
TES 1-1222N		±12 VDC	±42 mA	79%
TES 1-1223N		±15 VDC	±33 mA	80%
TES 1-2410N		3.3 VDC	300 mA	73%
TES 1-2411N		5 VDC	200 mA	77%
TES 1-2412N		12 VDC	84 mA	78%
TES 1-2413N	**21.6–26.4 VDC**	15 VDC	67 mA	79%
TES 1-2415N	(24 VDC nom.)	24 VDC	42 mA	78%
TES 1-2421N		±5 VDC	±100 mA	74%
TES 1-2422N		±12 VDC	±42 mA	78%
TES 1-2423N		±15 VDC	±33 mA	78%

TES 1 | 1 W

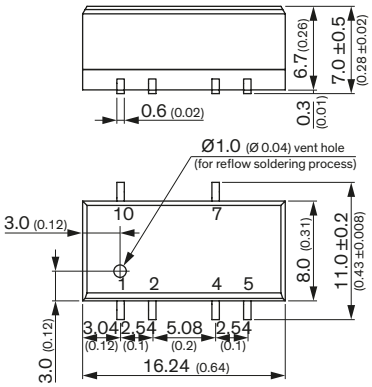


- I/O isolation 1500 VDC
- Unregulated device
- Single and dual output models
- Input voltage 5, 12 and 24 VDC
- High efficiency up to 80%
- Operating temperature range –40°C to +90°C
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/ JEDEC J-STD-020C
- Available in tape and reel package
- 3-year product warranty

Single Output Models



Dual Output Models



Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 1-0510	5 VDC ±10% (nominal 5 VDC)	3.3 VDC	300 mA	73%
TES 1-0511		5 VDC	200 mA	78%
TES 1-0519		9 VDC	110 mA	78%
TES 1-0512		12 VDC	85 mA	78%
TES 1-0513		15 VDC	65 mA	79%
TES 1-0521		±5 VDC	±100 mA	74%
TES 1-0522		±12 VDC	±40 mA	78%
TES 1-0523		±15 VDC	±35 mA	78%
TES 1-1211	12 VDC ±10% (nominal 12 VDC)	5 VDC	200 mA	76%
TES 1-1219		9 VDC	110 mA	78%
TES 1-1212		12 VDC	85 mA	79%
TES 1-1213		15 VDC	65 mA	80%
TES 1-1221		±5 VDC	±100 mA	74%
TES 1-1222		±12 VDC	±40 mA	78%
TES 1-1223		±15 VDC	±35 mA	79%
TES 1-2411	24 VDC ±10% (nominal 24 VDC)	5 VDC	200 mA	78%
TES 1-2419		9 VDC	110 mA	77%
TES 1-2412		12 VDC	85 mA	77%
TES 1-2413		15 VDC	65 mA	79%
TES 1-2421		±5 VDC	±100 mA	73%
TES 1-2422		±12 VDC	±40 mA	78%
TES 1-2423		±15 VDC	±35 mA	78%

Pinout

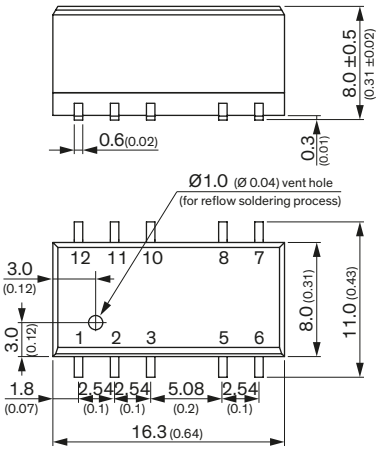
Pin	Single	Pin	Dual
1	–Vin (GND)	1	–Vin (GND)
2	+Vin (Vcc)	2	+Vin (Vcc)
4	–Vout	4	Common
5	+Vout	5	–Vout
8	*NC	7	+Vout
–		10	*NC

* Pin to be isolated from circuitry

TES 1V | 1 W



- Small SMD package with standard footprint
- I/O isolation voltage 3000 VDC
- Unregulated device
- Single- and dual output models
- High efficiency up to 80%
- Operating temperature range –40°C to +90°C
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/ JEDEC J-STD-020E
- Available in tape and reel package
- 3-year product warranty

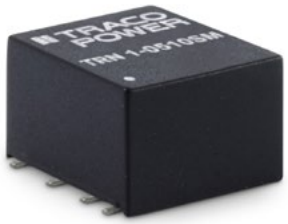


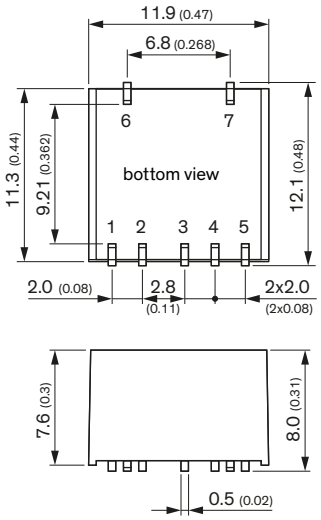
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 1-0510V	5 VDC ±10% (nominal 5 VDC)	3.3 VDC	260 mA	72%
TES 1-0511V		5.0 VDC	200 mA	75%
TES 1-0512V		12 VDC	84 mA	79%
TES 1-0513V		15 VDC	67 mA	80%
TES 1-0521V		±5 VDC	±100 mA	75%
TES 1-0522V		±12 VDC	±42 mA	79%
TES 1-0523V		±15 VDC	±34 mA	80%
TES 1-1210V	12 VDC ±10% (nominal 12 VDC)	3.3 VDC	260 mA	73%
TES 1-1211V		5.0 VDC	200 mA	76%
TES 1-1212V		12 VDC	84 mA	80%
TES 1-1213V		15 VDC	67 mA	81%
TES 1-1221V		±5 VDC	±100 mA	76%
TES 1-1222V		±12 VDC	±42 mA	80%
TES 1-1223V		±15 VDC	±34 mA	80%
TES 1-2410V	24 VDC ±10% (nominal 24 VDC)	3.3 VDC	260 mA	70%
TES 1-2411V		5.0 VDC	200 mA	73%
TES 1-2412V		12 VDC	84 mA	79%
TES 1-2413V		15 VDC	67 mA	79%
TES 1-2421V		±5 VDC	±100 mA	73%
TES 1-2422V		±12 VDC	±42 mA	79%
TES 1-2423V		±15 VDC	±34 mA	79%

Pinout

Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	+Vin	+Vin
3	No con.	No con.
5	–Vout	Common
6	No con.	–Vout
7	No con.	No con.
8	+Vout	+Vout
10	No con.	No con.
11	No con.	No con.
12	No con.	No con.

TRN 1SM | 1 W





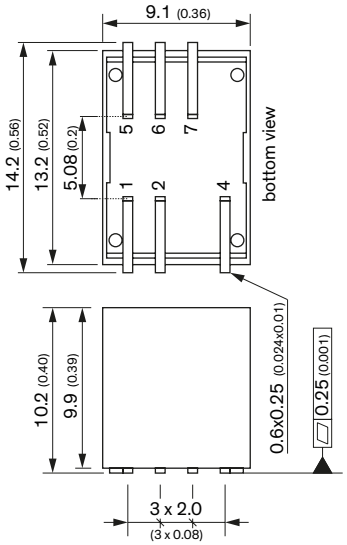
- Compact SMD package 11.9 × 11.3 × 8.0 mm
- Fully regulated outputs
- Input Voltage range 4.5–13.2, 9–18, 18–36, 36–75 VDC
- I/O-isolation 1600 VDC
- Operating temperature range –40°C to +90°C without derating
- Short circuit protection
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	+Vout	+Vout
4	no pin	common
5	–Vout	–Vout
6	NC	NC
7	NC	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRN 1-0510SM	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-0511SM		5.0 VDC	200 mA	79%
TRN 1-0512SM		12 VDC	90 mA	81%
TRN 1-0513SM		15 VDC	70 mA	82%
TRN 1-0515SM		24 VDC	45 mA	83%
TRN 1-0521SM		± 5.0 VDC	±100 mA	79%
TRN 1-0522SM		±12 VDC	±45 mA	83%
TRN 1-0523SM		±15 VDC	±35 mA	80%
TRN 1-1210SM	**9–18 VDC** (12 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-1211SM		5.0 VDC	200 mA	80%
TRN 1-1212SM		12 VDC	90 mA	81%
TRN 1-1213SM		15 VDC	70 mA	83%
TRN 1-1215SM		24 VDC	45 mA	83%
TRN 1-1221SM		± 5.0 VDC	±100 mA	79%
TRN 1-1222SM		±12 VDC	±45 mA	83%
TRN 1-1223SM		±15 VDC	±35 mA	80%
TRN 1-2410SM	**18–36 VDC** (24 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-2411SM		5.0 VDC	200 mA	81%
TRN 1-2412SM		12 VDC	90 mA	82%
TRN 1-2413SM		15 VDC	70 mA	83%
TRN 1-2415SM		24 VDC	45 mA	82%
TRN 1-2421SM		± 5.0 VDC	±100 mA	79%
TRN 1-2422SM		±12 VDC	±45 mA	82%
TRN 1-2423SM		±15 VDC	±35 mA	80%
TRN 1-4810SM	**36–75 VDC** (48 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-4811SM		5.0 VDC	200 mA	78%
TRN 1-4812SM		12 VDC	90 mA	80%
TRN 1-4813SM		15 VDC	70 mA	81%
TRN 1-4815SM		24 VDC	45 mA	81%
TRN 1-4821SM		± 5.0 VDC	±100 mA	78%
TRN 1-4822SM		±12 VDC	±45 mA	81%
TRN 1-4823SM		±15 VDC	±35 mA	79%

TDN 1WISM | 1 W





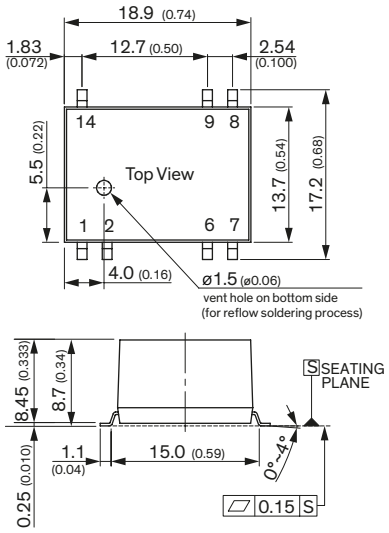
- Compact SMD package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C without derating
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	no con.	–Vout
6	–Vout	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Effi-ciency
TDN 1-1210WISM	**4.5–18 VDC** (12 VDC nominal)	3.3 VDC	300 mA	77%
TDN 1-1211WISM		5.0 VDC	200 mA	79%
TDN 1-1219WISM		9.0 VDC	112 mA	79%
TDN 1-1212WISM		12 VDC	90 mA	81%
TDN 1-1213WISM		15 VDC	70 mA	81%
TDN 1-1215WISM		24 VDC	45 mA	80%
TDN 1-1221WISM		± 5.0 VDC	±100 mA	77%
TDN 1-1222WISM		±12 VDC	±45 mA	80%
TDN 1-1223WISM		±15 VDC	±35 mA	81%
TDN 1-2410WISM	**9–36 VDC** (24 VDC nominal)	3.3 VDC	300 mA	76%
TDN 1-2411WISM		5.0 VDC	200 mA	78%
TDN 1-2419WISM		9.0 VDC	112 mA	79%
TDN 1-2412WISM		12 VDC	90 mA	81%
TDN 1-2413WISM		15 VDC	70 mA	81%
TDN 1-2415WISM		24 VDC	45 mA	80%
TDN 1-2421WISM		± 5.0 VDC	±100 mA	77%
TDN 1-2422WISM		±12 VDC	±45 mA	80%
TDN 1-2423WISM		±15 VDC	±35 mA	81%
TDN 1-4810WISM	**18–75 VDC** (48 VDC nominal)	3.3 VDC	300 mA	75%
TDN 1-4811WISM		5.0 VDC	200 mA	78%
TDN 1-4819WISM		9.0 VDC	112 mA	79%
TDN 1-4812WISM		12 VDC	90 mA	81%
TDN 1-4813WISM		15 VDC	70 mA	81%
TDN 1-4815WISM		24 VDC	45 mA	80%
TDN 1-4821WISM		± 5.0 VDC	±100 mA	77%
TDN 1-4822WISM		±12 VDC	±45 mA	80%
TDN 1-4823WISM		±15 VDC	±35 mA	81%

TMR 1SM | 1 W





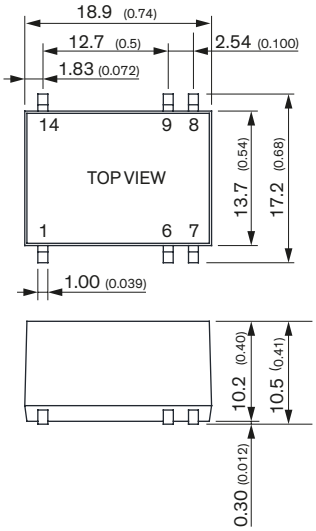
- Wide 2:1 input voltage range
- Compact SMD package
- Fully regulated outputs
- Cost optimised design
- No minimum load required
- Continuous short circuit protection
- Temperature range –40°C to +85°C
- I/O isolation 1500 VDC
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
6	NTC	Common
7	NTC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 1-0511SM	**4.5–9 VDC** (5 VDC nom.)	5 VDC	200 mA	78%
TMR 1-0512SM		12 VDC	83 mA	79%
TMR 1-0513SM		15 VDC	67 mA	81%
TMR 1-0522SM		±12 VDC	42 mA	79%
TMR 1-0523SM		±15 VDC	33 mA	80%
TMR 1-1211SM	**9–18 VDC** (12 VDC nom.)	5 VDC	200 mA	79%
TMR 1-1212SM		12 VDC	83 mA	79%
TMR 1-1213SM		15 VDC	67 mA	82%
TMR 1-1222SM		±12 VDC	42 mA	81%
TMR 1-1223SM		±15 VDC	33 mA	80%
TMR 1-2411SM	**18–36 VDC** (24 VDC nom.)	5 VDC	200 mA	79%
TMR 1-2412SM		12 VDC	83 mA	82%
TMR 1-2413SM		15 VDC	67 mA	82%
TMR 1-2422SM		±12 VDC	42 mA	82%
TMR 1-2423SM		±15 VDC	33 mA	82%
TMR 1-4811SM	**36–75 VDC** (48 VDC nom.)	5 VDC	200 mA	79%
TMR 1-4812SM		12 VDC	83 mA	80%
TMR 1-4813SM		15 VDC	67 mA	80%
TMR 1-4822SM		±12 VDC	42 mA	81%
TMR 1-4823SM		±15 VDC	33 mA	81%

TRI 1SM | 1 W





- Reinforced I/O-isolation 3000 VAC rated for 480 VAC working voltage
- Ultra-high isolation peak voltage 8000 VDC (1s)
- Operating temperature range –40 to +85°C without derating
- High efficiency up to 84%
- Input voltage range (±10%): 5, 12, 24 VDC
- Protection against overvoltage and short circuit
- 3-year product warranty

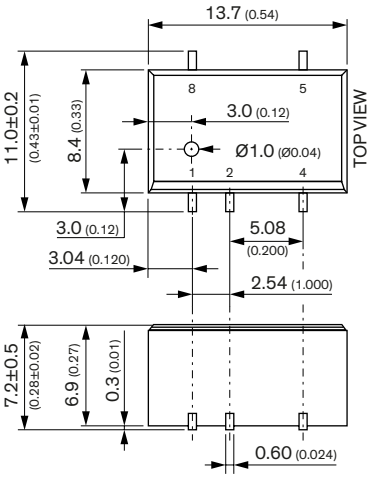
Pinout		
Pin	**Single**	**Dual**
1	–Vin	–Vin
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 1-0511SM	**5 VDC ±10%** (nominal 5VDC)	5 VDC	200 mA	76%
TRI 1-0512SM		12 VDC	84 mA	80%
TRI 1-0513SM		15 VDC	68 mA	83%
TRI 1-0522SM		±12 VDC	±42 mA	80%
TRI 1-0523SM		±15 VDC	±33 mA	84%
TRI 1-1211SM	**12 VDC ±10%** (nominal 12VDC)	5 VDC	200 mA	76%
TRI 1-1212SM		12 VDC	84 mA	79%
TRI 1-1213SM		15 VDC	68 mA	80%
TRI 1-1222SM		±12 VDC	±42 mA	79%
TRI 1-1223SM		±15 VDC	±33 mA	80%
TRI 1-2411SM	**24 VDC ±10%** (nominal 24VDC)	5 VDC	200 mA	76%
TRI 1-2412SM		12 VDC	84 mA	80%
TRI 1-2413SM		15 VDC	68 mA	80%
TRI 1-2422SM		±12 VDC	±42 mA	80%
TRI 1-2423SM		±15 VDC	±33 mA	80%

TES 2E | 2 W

NEW under development





- Cost efficient design
- Unregulated outputs
- I/O isolation 1500 VDC
- Input voltage 5, 12, 24 VDC
- Operating temperature range –40°C to +95°C
- High efficiency up to 85%
- Qualified for leadfree reflow solder process according to IPC/JEDEC J-STD-020C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vin	
3	No Pin	
4	–Vout	Common
5	+Vout	–Vout
6	No Pin	
7	No Pin	+Vout
8	NTC	No Pin
9	–	No Pin
10	–	NTC

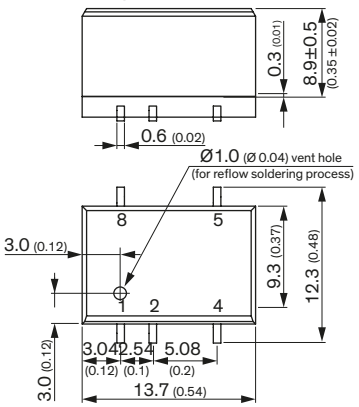
NTC: Not to connect

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 2-0510E		3.3 VDC	600 mA	77%
TES 2-0511E		5 VDC	400 mA	83%
TES 2-0512E		12 VDC	167 mA	84%
TES 2-0513E	**4.5–5.5 VDC**	15 VDC	134 mA	85%
TES 2-0515E	(5 VDC nom.)	24 VDC	83 mA	85%
TES 2-0521E		±5 VDC	±200 mA	82%
TES 2-0522E		±12 VDC	±83 mA	83%
TES 2-0523E		±15 VDC	±67 mA	84%
TES 2-1210E		3.3 VDC	600 mA	77%
TES 2-1211E		5 VDC	400 mA	83%
TES 2-1212E		12 VDC	167 mA	84%
TES 2-1213E	**10.8–13.2 VDC**	15 VDC	134 mA	84%
TES 2-1215E	(12 VDC nom.)	24 VDC	83 mA	85%
TES 2-1221E		±5 VDC	±200 mA	83%
TES 2-1222E		±12 VDC	±83 mA	84%
TES 2-1223E		±15 VDC	±67 mA	84%
TES 2-2410E		3.3 VDC	600 mA	77%
TES 2-2411E		5 VDC	400 mA	83%
TES 2-2412E		12 VDC	167 mA	84%
TES 2-2413E	**21.6–26.4 VDC**	15 VDC	134 mA	84%
TES 2-2415E	(24 VDC nom.)	24 VDC	83 mA	85%
TES 2-2421E		±5 VDC	±200 mA	84%
TES 2-2422E		±12 VDC	±83 mA	85%
TES 2-2423E		±15 VDC	±67 mA	85%

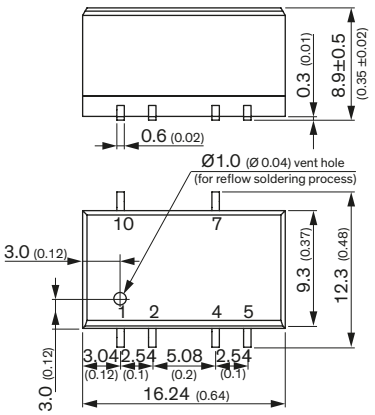
TES 2H | 2 W



Single Output Models



Dual Output Models



- I/O isolation voltage 1500 VDC
- Unregulated device
- Single and dual output models
- Input voltage 5, 12 and 24 VDC
- High efficiency up to 80%
- Operating Temperature range –40 to +90°C
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/ JEDEC J-STD-020E
- Available in tape and reel package
- 3-year product warranty

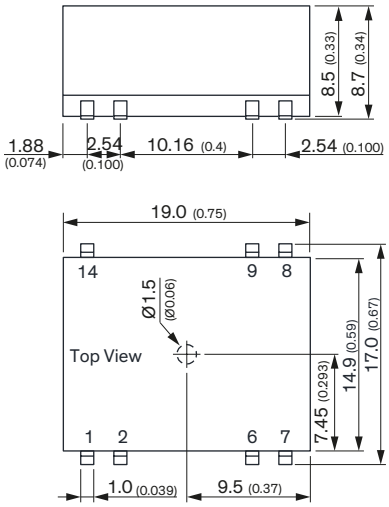
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 2-0510H		3.3 VDC	500 mA	70%
TES 2-0511H		5.0 VDC	400 mA	73%
TES 2-0512H	**5 VDC ±10%**	12 VDC	165 mA	77%
TES 2-0521H	(5 VDC nominal)	±5 VDC	±200 mA	74%
TES 2-0522H		±12 VDC	±83 mA	76%
TES 2-0523H		±15 VDC	±66 mA	76%
TES 2-1210H		3.3 VDC	500 mA	72%
TES 2-1211H	**12 VDC ±10%**	5.0 VDC	400 mA	75%
TES 2-1212H	(12 VDC nominal)	12 VDC	165 mA	79%
TES 2-1222H		±12 VDC	±83 mA	80%
TES 2-1223H		±15 VDC	±66 mA	80%
TES 2-2410H		3.3 VDC	500 mA	72%
TES 2-2411H	**24 VDC ±10%**	5.0 VDC	400 mA	75%
TES 2-2412H	(24 VDC nominal)	12 VDC	165 mA	79%
TES 2-2422H		±12 VDC	±83 mA	79%
TES 2-2423H		±15 VDC	±66 mA	79%

Pinout			
Pin	**Single**	**Pin**	**Dual**
1	–Vin (GND)	**1**	–Vin (GND)
2	+Vin (Vcc)	**2**	+Vin (Vcc)
4	–Vout	**4**	Common
5	+Vout	**5**	–Vout
8	*NC	**7**	+Vout
–		**10**	*NC

* Pin to be isolated from circuitry

TMR 2WISM | 2 W





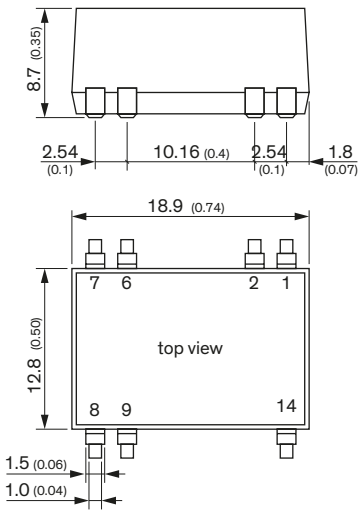
- Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC
- I/O-isolation 1500 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Protection against short circuit and overload
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 2-0511WISM	**4.5–12 VDC** (9 VDC nom.)	5 VDC	400 mA	80%
TMR 2-0512WISM		12 VDC	167 mA	84%
TMR 2-0513WISM		15 VDC	134 mA	83%
TMR 2-0515WISM		24 VDC	83 mA	84%
TMR 2-0522WISM		±12 VDC	83 mA	83%
TMR 2-0523WISM		±15 VDC	67 mA	82%
TMR 2-2411WISM	**9–36 VDC** (24 VDC nom.)	5 VDC	400 mA	80%
TMR 2-2412WISM		12 VDC	167 mA	84%
TMR 2-2413WISM		15 VDC	134 mA	85%
TMR 2-2415WISM		24 VDC	83 mA	85%
TMR 2-2422WISM		±12 VDC	83 mA	83%
TMR 2-2423WISM		±15 VDC	67 mA	83%
TMR 2-4811WISM	**18–75 VDC** (48 VDC nom.)	5 VDC	400 mA	78%
TMR 2-4812WISM		12 VDC	167 mA	82%
TMR 2-4813WISM		15 VDC	134 mA	83%
TMR 2-4815WISM		24 VDC	83 mA	84%
TMR 2-4822WISM		±12 VDC	83 mA	82%
TMR 2-4823WISM		±15 VDC	67 mA	82%

TDR 2SM | 2 W





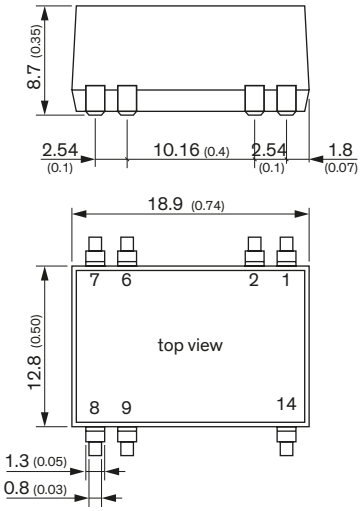
- Compact design in SMD package
- Wide 2:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDR 2-0511SM	**4.5–9.0 VDC** (5 VDC nominal)	5.0 VDC	400 mA	80%
TDR 2-0512SM		12 VDC	167 mA	81%
TDR 2-0513SM		15 VDC	134 mA	83%
TDR 2-0522SM		±12 VDC	±83 mA	81%
TDR 2-0523SM		±15 VDC	±67 mA	82%
TDR 2-1211SM	**9–18 VDC** (12 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-1212SM		12 VDC	167 mA	81%
TDR 2-1213SM		15 VDC	134 mA	84%
TDR 2-1222SM		±12 VDC	±83 mA	83%
TDR 2-1223SM		±15 VDC	±67 mA	82%
TDR 2-2411SM	**18–36 VDC** (24 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-2412SM		12 VDC	167 mA	84%
TDR 2-2413SM		15 VDC	134 mA	84%
TDR 2-2422SM		±12 VDC	±83 mA	84%
TDR 2-2423SM		±15 VDC	±67 mA	84%
TDR 2-4811SM	**36–75 VDC** (48 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-4812SM		12 VDC	167 mA	82%
TDR 2-4813SM		15 VDC	134 mA	82%
TDR 2-4822SM		±12 VDC	±83 mA	83%
TDR 2-4823SM		±15 VDC	±67 mA	83%

TDR 2WISM | 2 W



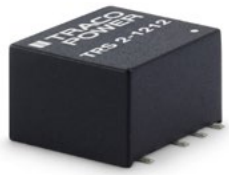


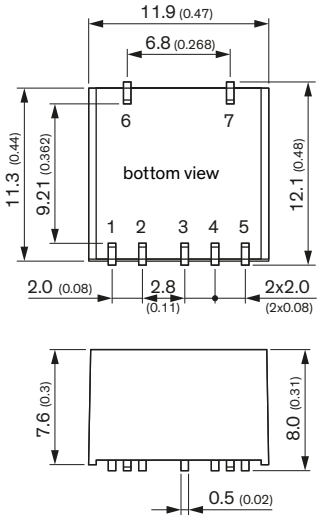
- Compact design in SMD package
- Ultra wide 4:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TDR 2-1211WISM	**4.5–18 VDC** (12 VDC nominal)	5.0 VDC	400 mA	79%
TDR 2-1212WISM		12 VDC	167 mA	80%
TDR 2-1213WISM		15 VDC	134 mA	81%
TDR 2-1222WISM		±12 VDC	±83 mA	81%
TDR 2-1223WISM		±15 VDC	±67 mA	81%
TDR 2-2411WISM	**9–36 VDC** (24 VDC nominal)	5.0 VDC	400 mA	79%
TDR 2-2412WISM		12 VDC	167 mA	80%
TDR 2-2413WISM		15 VDC	134 mA	82%
TDR 2-2422WISM		±12 VDC	±83 mA	81%
TDR 2-2423WISM		±15 VDC	±67 mA	81%
TDR 2-4811WISM	**18–75 VDC** (48 VDC nominal)	5.0 VDC	400 mA	78%
TDR 2-4812WISM		12 VDC	167 mA	81%
TDR 2-4813WISM		15 VDC	134 mA	82%
TDR 2-4822WISM		±12 VDC	±83 mA	81%
TDR 2-4823WISM		±15 VDC	±67 mA	81%

TRS 2 | 2 W





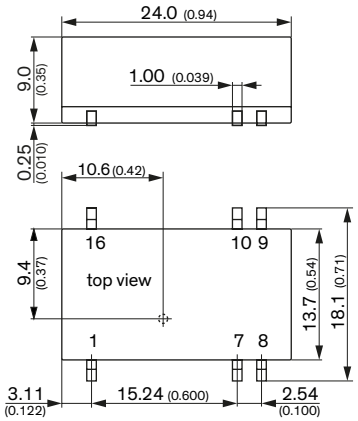
- Most compact 2 Watt SMD DC/DC converter: 11.9 mm × 11.3 mm × 8 mm (0.47 × 0.44 × 0.31 inch)
- 1600 VDC I/O isolation (functional)
- High efficiency for low thermal loss
- Operating temp. range –40°C to +90°C
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (VCC)	+Vin (VCC)
3	+Vout	+Vout
4	No Pin	Common
5	–Vout	–Vout
6	NC	NC
7	NC	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TRS 2-0910	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	500 mA	77%
TRS 2-0911		5.0 VDC	400 mA	80%
TRS 2-0919		9.0 VDC	222 mA	80%
TRS 2-0912		12 VDC	167 mA	83%
TRS 2-0913		15 VDC	134 mA	82%
TRS 2-0915		24 VDC	83 mA	82%
TRS 2-0921		±5.0 VDC	±200 mA	78%
TRS 2-0922		±12 VDC	±83 mA	82%
TRS 2-0923		±15 VDC	±67 mA	80%
TRS 2-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	500 mA	77%
TRS 2-1211		5.0 VDC	400 mA	80%
TRS 2-1219		9.0 VDC	222 mA	80%
TRS 2-1212		12 VDC	167 mA	84%
TRS 2-1213		15 VDC	134 mA	83%
TRS 2-1215		24 VDC	83 mA	83%
TRS 2-1221		±5.0 VDC	±200 mA	79%
TRS 2-1222		±12 VDC	±83 mA	83%
TRS 2-1223		±15 VDC	±67 mA	81%
TRS 2-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	500 mA	77%
TRS 2-2411		5.0 VDC	400 mA	78%
TRS 2-2419		9.0 VDC	222 mA	80%
TRS 2-2412		12 VDC	167 mA	84%
TRS 2-2413		15 VDC	134 mA	84%
TRS 2-2415		24 VDC	83 mA	82%
TRS 2-2421		±5.0 VDC	±200 mA	80%
TRS 2-2422		±12 VDC	±83 mA	83%
TRS 2-2423		±15 VDC	±67 mA	82%
TRS 2-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	500 mA	76%
TRS 2-4811		5.0 VDC	400 mA	79%
TRS 2-4819		9.0 VDC	222 mA	80%
TRS 2-4812		12 VDC	167 mA	83%
TRS 2-4813		15 VDC	134 mA	83%
TRS 2-4815		24 VDC	83 mA	82%
TRS 2-4821		±5.0 VDC	±200 mA	78%
TRS 2-4822		±12 VDC	±83 mA	82%
TRS 2-4823		±15 VDC	±67 mA	80%

TES 2M | 2 W





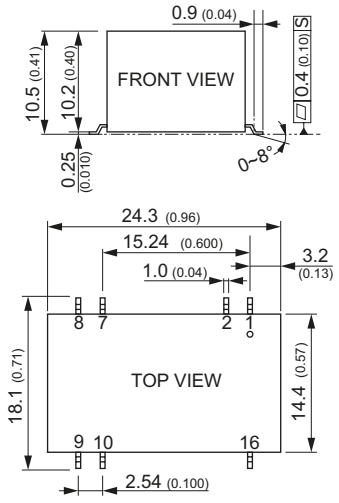
- Supplementary and reinforced insulation
- I/O isolation 4000 VACrms rated for 300 Vrms working voltage
- Unregulated device
- 2 × MOOP Medical safety
- Industrial safety to UL/IEC/EN 62368-1
- Ultracompact SMD-package
- Operating temp. range –25°C to +80°C
- Qualified for leadfree reflow solder process
- Available in tape & reel package
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TES 2-0511M	**5.0 VDC ±10%** (nominal 05 VDC)	5 VDC	400 mA	66%
TES 2-0512M		12 VDC	165 mA	66%
TES 2-0513M		15 VDC	133 mA	66%
TES 2-0522M		±12 VDC	±83 mA	72%
TES 2-0523M		±15 VDC	±66 mA	73%
TES 2-1211M	**12.0 VDC ±10%** (nominal 12 VDC)	5 VDC	400 mA	66%
TES 2-1212M		12 VDC	165 mA	66%
TES 2-1213M		15 VDC	133 mA	66%
TES 2-1222M		±12 VDC	±83 mA	74%
TES 2-1223M		±15 VDC	±66 mA	75%
TES 2-2411M	**24 VDC ±10%** (nominal 24 VDC)	5 VDC	400 mA	66%
TES 2-2412M		12 VDC	165 mA	66%
TES 2-2413M		15 VDC	133 mA	66%
TES 2-2422M		±12 VDC	±83 mA	74%
TES 2-2423M		±15 VDC	±66 mA	75%

TIM 2SM | 2 W



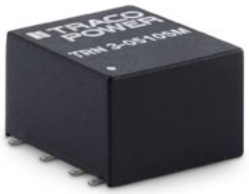


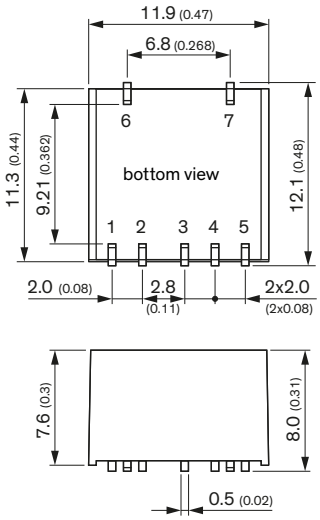
- Compact SMD-16-package
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and operation up to 5000 m altitude
- Low leakage current <2 µA
- Extended operating temperature range –40°C to 95°C.
- 5-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TIM 2-0910SM	**4.5–12 VDC** (9 VDC nom.)	3.3 VDC	600 mA	75%
TIM 2-0911SM		5 VDC	400 mA	78%
TIM 2-0919SM		9 VDC	222 mA	78%
TIM 2-0912SM		12 VDC	167 mA	82%
TIM 2-0913SM		15 VDC	134 mA	82%
TIM 2-0915SM		24 VDC	83 mA	82%
TIM 2-0922SM		±12 VDC	83 mA	82%
TIM 2-0923SM		±15 VDC	67 mA	80%
TIM 2-1210SM	**9–18 VDC** (12 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-1211SM		5 VDC	400 mA	78%
TIM 2-1219SM		9 VDC	222 mA	79%
TIM 2-1212SM		12 VDC	167 mA	82%
TIM 2-1213SM		15 VDC	134 mA	82%
TIM 2-1215SM		24 VDC	83 mA	81%
TIM 2-1222SM		±12 VDC	83 mA	81%
TIM 2-1223SM		±15 VDC	67 mA	81%
TIM 2-2410SM	**18–36 VDC** (24 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-2411SM		5 VDC	400 mA	79%
TIM 2-2419SM		9 VDC	222 mA	80%
TIM 2-2412SM		12 VDC	167 mA	81%
TIM 2-2413SM		15 VDC	134 mA	81%
TIM 2-2415SM		24 VDC	83 mA	81%
TIM 2-2422SM		±12 VDC	83 mA	81%
TIM 2-2423SM		±15 VDC	67 mA	81%
TIM 2-4810SM	**36–75 VDC** (48 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-4811SM		5 VDC	400 mA	78%
TIM 2-4819SM		9 VDC	222 mA	79%
TIM 2-4812SM		12 VDC	167 mA	80%
TIM 2-4813SM		15 VDC	134 mA	82%
TIM 2-4815SM		24 VDC	83 mA	81%
TIM 2-4822SM		±12 VDC	83 mA	81%
TIM 2-4823SM		±15 VDC	67 mA	81%

TRN 3SM | 3 W





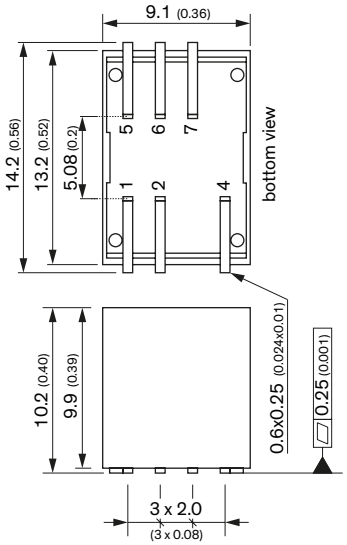
- Compact SMD package 11.9 × 11.3 × 8.0 mm
- Fully regulated outputs
- Input Voltage range 4.5–13.2, 9–18, 18–36, 36–75 VDC
- I/O-isolation 1600 VDC
- Operating temperature range –40°C to +85°C
- Short circuit protection
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	+Vout	+Vout
4	no pin	common
5	–Vout	–Vout
6	NC	NC
7	NC	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRN 3-0510SM	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	700 mA	75%
TRN 3-0511SM		5.0 VDC	600 mA	78%
TRN 3-0512SM		12 VDC	250 mA	82%
TRN 3-0513SM		15 VDC	200 mA	80%
TRN 3-0515SM		24 VDC	125 mA	80%
TRN 3-0521SM		± 5.0 VDC	±300 mA	77%
TRN 3-0522SM		±12 VDC	±125 mA	80%
TRN 3-0523SM		±15 VDC	±100 mA	80%
TRN 3-1210SM	**9–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	76%
TRN 3-1211SM		5.0 VDC	600 mA	79%
TRN 3-1212SM		12 VDC	250 mA	84%
TRN 3-1213SM		15 VDC	200 mA	83%
TRN 3-1215SM		24 VDC	125 mA	82%
TRN 3-1221SM		± 5.0 VDC	±300 mA	78%
TRN 3-1222SM		±12 VDC	±125 mA	82%
TRN 3-1223SM		±15 VDC	±100 mA	81%
TRN 3-2410SM	**18–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	76%
TRN 3-2411SM		5.0 VDC	600 mA	78%
TRN 3-2412SM		12 VDC	250 mA	84%
TRN 3-2413SM		15 VDC	200 mA	84%
TRN 3-2415SM		24 VDC	125 mA	83%
TRN 3-2421SM		± 5.0 VDC	±300 mA	79%
TRN 3-2422SM		±12 VDC	±125 mA	83%
TRN 3-2423SM		±15 VDC	±100 mA	82%
TRN 3-4810SM	**36–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	75%
TRN 3-4811SM		5.0 VDC	600 mA	79%
TRN 3-4812SM		12 VDC	250 mA	83%
TRN 3-4813SM		15 VDC	200 mA	83%
TRN 3-4815SM		24 VDC	125 mA	82%
TRN 3-4821SM		± 5.0 VDC	±300 mA	77%
TRN 3-4822SM		±12 VDC	±125 mA	82%
TRN 3-4823SM		±15 VDC	±100 mA	80%

TDN 3WISM | 3 W





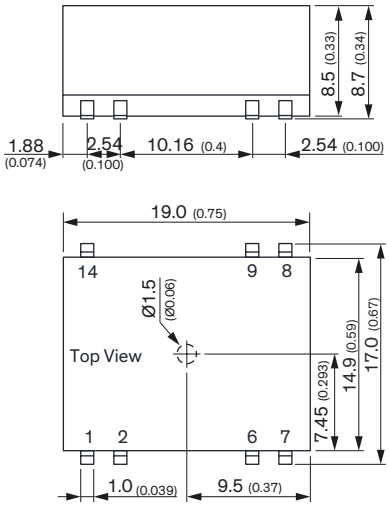
- Ultra compact SMD package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +70°C without derating
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	no con.	–Vout
6	–Vout	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDN 3-1210WISM	**4.5–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	76%
TDN 3-1211WISM		5.0 VDC	600 mA	80%
TDN 3-1219WISM		9.0 VDC	333 mA	81%
TDN 3-1212WISM		12 VDC	250 mA	83%
TDN 3-1213WISM		15 VDC	200 mA	84%
TDN 3-1215WISM		24 VDC	125 mA	82%
TDN 3-1221WISM		± 5.0 VDC	±300 mA	80%
TDN 3-1222WISM		±12 VDC	±125 mA	82%
TDN 3-1223WISM		±15 VDC	±100 mA	82%
TDN 3-2410WISM	**9–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	77%
TDN 3-2411WISM		5.0 VDC	600 mA	80%
TDN 3-2419WISM		5.0 VDC	333 mA	81%
TDN 3-2412WISM		12 VDC	250 mA	83%
TDN 3-2413WISM		15 VDC	200 mA	83%
TDN 3-2415WISM		24 VDC	125 mA	82%
TDN 3-2421WISM		± 5.0 VDC	±300 mA	80%
TDN 3-2422WISM		±12 VDC	±125 mA	82%
TDN 3-2423WISM		±15 VDC	±100 mA	82%
TDN 3-4810WISM	**18–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	77%
TDN 3-4811WISM		5.0 VDC	600 mA	80%
TDN 3-4819WISM		9.0 VDC	333 mA	81%
TDN 3-4812WISM		12 VDC	250 mA	83%
TDN 3-4813WISM		15 VDC	200 mA	83%
TDN 3-4815WISM		24 VDC	125 mA	82%
TDN 3-4821WISM		± 5.0 VDC	±300 mA	80%
TDN 3-4822WISM		±12 VDC	±125 mA	82%
TDN 3-4823WISM		±15 VDC	±100 mA	82%

TMR 3WISM | 3 W





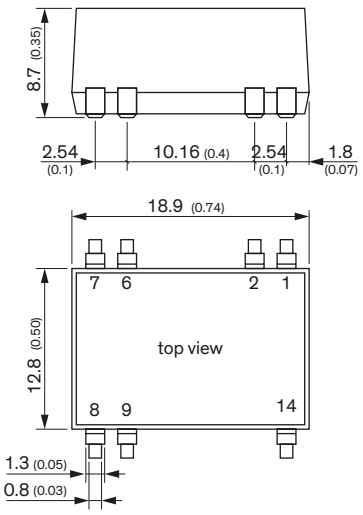
- Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC
- I/O-isolation 1500 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Protection against short circuit and overload
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 3-0511WISM	**4.5–12 VDC** (9 VDC nom.)	5 VDC	600 mA	81%
TMR 3-0512WISM		12 VDC	250 mA	84%
TMR 3-0513WISM		15 VDC	200 mA	84%
TMR 3-0515WISM		24 VDC	125 mA	84%
TMR 3-0522WISM		±12 VDC	125 mA	83%
TMR 3-0523WISM		±15 VDC	100 mA	83%
TMR 3-2411WISM	**9–36 VDC** (24 VDC nom.)	5 VDC	600 mA	80%
TMR 3-2412WISM		12 VDC	250 mA	85%
TMR 3-2413WISM		15 VDC	200 mA	85%
TMR 3-2415WISM		24 VDC	125 mA	85%
TMR 3-2422WISM		±12 VDC	125 mA	84%
TMR 3-2423WISM		±15 VDC	100 mA	84%
TMR 3-4811WISM	**18–75 VDC** (48 VDC nom.)	5 VDC	600 mA	80%
TMR 3-4812WISM		12 VDC	250 mA	84%
TMR 3-4813WISM		15 VDC	200 mA	84%
TMR 3-4815WISM		24 VDC	125 mA	85%
TMR 3-4822WISM		±12 VDC	125 mA	83%
TMR 3-4823WISM		±15 VDC	100 mA	82%

TDR 3SM | 3 W





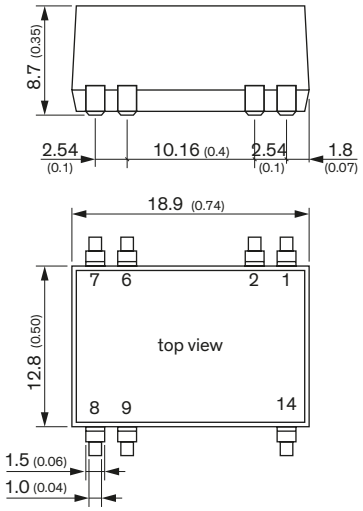
- Compact design in SMD package
- Wide 2:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDR 3-0511SM	**4.5–9.0 VDC** (5 VDC nominal)	5.0 VDC	600 mA	79%
TDR 3-0512SM		12 VDC	250 mA	80%
TDR 3-0513SM		15 VDC	200 mA	81%
TDR 3-0522SM		±12 VDC	±125 mA	80%
TDR 3-0523SM		±15 VDC	±100 mA	81%
TDR 3-1211SM	**9–18 VDC** (12 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-1212SM		12 VDC	250 mA	82%
TDR 3-1213SM		15 VDC	200 mA	82%
TDR 3-1222SM		±12 VDC	±125 mA	82%
TDR 3-1223SM		±15 VDC	±100 mA	83%
TDR 3-2411SM	**18–36 VDC** (24 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-2412SM		12 VDC	250 mA	82%
TDR 3-2413SM		15 VDC	200 mA	83%
TDR 3-2422SM		±12 VDC	±125 mA	83%
TDR 3-2423SM		±15 VDC	±100 mA	83%
TDR 3-4811SM	**36–75 VDC** (48 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-4812SM		12 VDC	250 mA	82%
TDR 3-4813SM		15 VDC	200 mA	82%
TDR 3-4822SM		±12 VDC	±125 mA	83%
TDR 3-4823SM		±15 VDC	±100 mA	83%

TDR 3WISM | 3 W





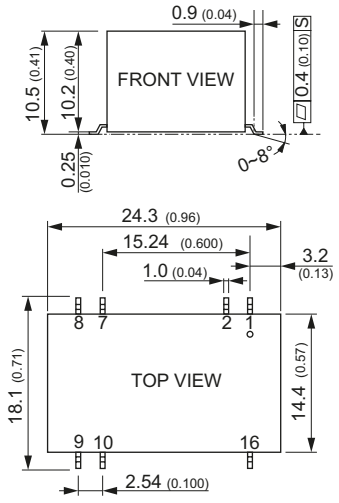
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDR 3-1211WISM	4.5–18 VDC (12 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-1212WISM		12 VDC	250 mA	82%
TDR 3-1213WISM		15 VDC	200 mA	82%
TDR 3-1222WISM		±12 VDC	±125 mA	82%
TDR 3-1223WISM		±15 VDC	±100 mA	81%
TDR 3-2411WISM	9–36 VDC (24 VDC nominal)	5.0 VDC	600 mA	80%
TDR 3-2412WISM		12 VDC	250 mA	82%
TDR 3-2413WISM		15 VDC	200 mA	82%
TDR 3-2422WISM		±12 VDC	±125 mA	82%
TDR 3-2423WISM		±15 VDC	±100 mA	81%
TDR 3-4811WISM	18–75 VDC (48 VDC nominal)	5.0 VDC	600 mA	80%
TDR 3-4812WISM		12 VDC	250 mA	83%
TDR 3-4813WISM		15 VDC	200 mA	82%
TDR 3-4822WISM		±12 VDC	±125 mA	82%
TDR 3-4823WISM		±15 VDC	±100 mA	81%

- Compact design in SMD package
- Ultra wide 4:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

TIM 3.5SM | 3.5 W





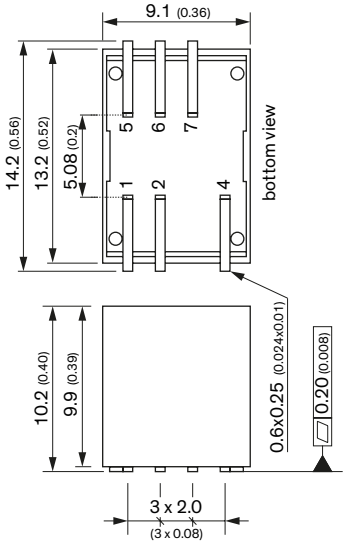
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TIM 3.5-0911SM	4.5–12 VDC (9 VDC nom.)	5 VDC	700 mA	77%
TIM 3.5-0919SM		9 VDC	389 mA	78%
TIM 3.5-0912SM		12 VDC	292 mA	82%
TIM 3.5-0913SM		15 VDC	234 mA	82%
TIM 3.5-0915SM		24 VDC	146 mA	82%
TIM 3.5-0922SM		±12 VDC	146 mA	82%
TIM 3.5-0923SM		±15 VDC	117 mA	81%
TIM 3.5-1211SM	9–18 VDC (12 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-1219SM		9 VDC	389 mA	79%
TIM 3.5-1212SM		12 VDC	292 mA	82%
TIM 3.5-1213SM		15 VDC	234 mA	82%
TIM 3.5-1215SM		24 VDC	146 mA	82%
TIM 3.5-1222SM		±12 VDC	146 mA	82%
TIM 3.5-1223SM		±15 VDC	117 mA	82%
TIM 3.5-2411SM	18–36 VDC (24 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-2419SM		9 VDC	389 mA	80%
TIM 3.5-2412SM		12 VDC	292 mA	83%
TIM 3.5-2413SM		15 VDC	234 mA	83%
TIM 3.5-2415SM		24 VDC	146 mA	82%
TIM 3.5-2422SM		±12 VDC	146 mA	82%
TIM 3.5-2423SM		±15 VDC	117 mA	82%
TIM 3.5-4811SM	36–75 VDC (48 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-4819SM		9 VDC	389 mA	80%
TIM 3.5-4812SM		12 VDC	292 mA	82%
TIM 3.5-4813SM		15 VDC	234 mA	82%
TIM 3.5-4815SM		24 VDC	146 mA	82%
TIM 3.5-4822SM		±12 VDC	146 mA	82%
TIM 3.5-4823SM		±15 VDC	117 mA	82%

- Compact SMD-16-package
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and operation to 5000 m altitude
- Low leakage current <2 µA for BF-applications
- Extended operating temperature range –40°C to 90°C
- 5-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TDN 5WISM | 5 W





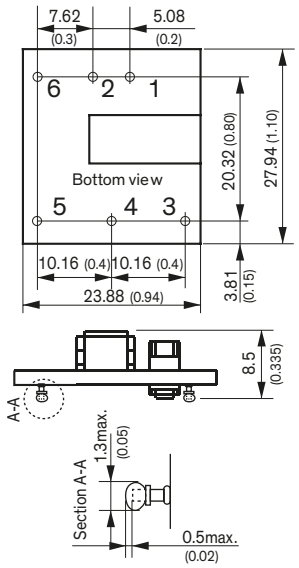
- Ultra compact SMD package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +75°C
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	NC	–Vout
6	–Vout	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDN 5-0910WISM	**4.5–13.2 VDC** (9 VDC nom.)	3.3 VDC	1000 mA	76%
TDN 5-0911WISM		5.0 VDC	1000 mA	80%
TDN 5-0919WISM		9.0 VDC	555 mA	81%
TDN 5-0912WISM		12 VDC	420 mA	83%
TDN 5-0913WISM		15 VDC	333 mA	83%
TDN 5-0915WISM		24 VDC	210 mA	83%
TDN 5-0921WISM		±5.0 VDC	±500 mA	80%
TDN 5-0922WISM		±12 VDC	±210 mA	83%
TDN 5-0923WISM		±15 VDC	±168 mA	83%
TDN 5-2410WISM	**9–36 VDC** (24 VDC nom.)	3.3 VDC	1000 mA	76%
TDN 5-2411WISM		5.0 VDC	1000 mA	80%
TDN 5-2419WISM		9.0 VDC	555 mA	81%
TDN 5-2412WISM		12 VDC	420 mA	83%
TDN 5-2413WISM		15 VDC	333 mA	83%
TDN 5-2415WISM		24 VDC	210 mA	83%
TDN 5-2421WISM		±5.0 VDC	±500 mA	80%
TDN 5-2422WISM		±12 VDC	±210 mA	83%
TDN 5-2423WISM		±15 VDC	±168 mA	84%
TDN 5-4810WISM	**18–75 VDC** (48 VDC nom.)	3.3 VDC	1000 mA	76%
TDN 5-4811WISM		5.0 VDC	1000 mA	81%
TDN 5-4819WISM		9.0 VDC	555 mA	81%
TDN 5-4812WISM		12 VDC	420 mA	83%
TDN 5-4813WISM		15 VDC	333 mA	83%
TDN 5-4815WISM		24 VDC	210 mA	83%
TDN 5-4821WISM		±5.0 VDC	±500 mA	80%
TDN 5-4822WISM		±12 VDC	±210 mA	83%
TDN 5-4823WISM		±15 VDC	±168 mA	84%

TON 15WISM | 15 W





- Ultra compact 15 W converter
- Ultra wide 4:1 input voltage range
- Cost efficient open frame design with industry standard pin-out
- Surface-mount (SM) and through-hole version
- I/O isolation voltage 2250 V, rated for basic insulation
- Extended operating temperature range –40°C to +85°C
- Remote On/Off
- Lead free design, RoHS compliant
- 3-years product warranty

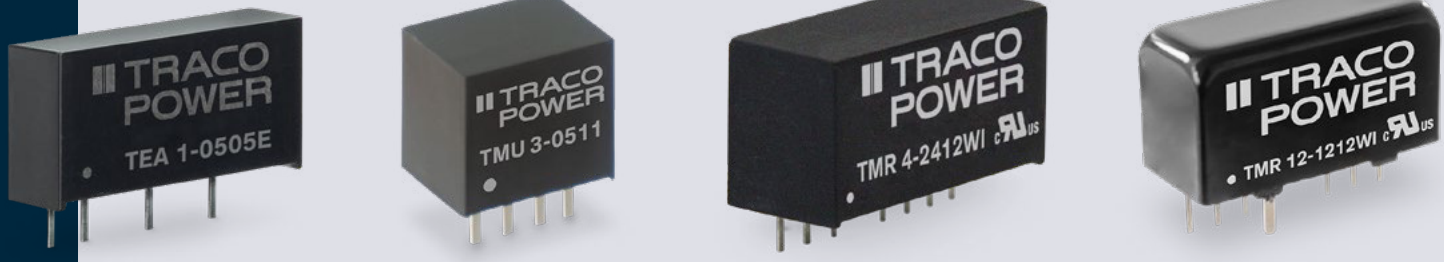
Pinout	
Pin	**Single**
1	+Vin (Vcc)
2	–Vin (GND)
3	+Vout
4	Trim
5	–Vout
6	Remote On/Off

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TON 15-2410WISM	**9–36 VDC** (24 VDC nominal)	3.3 VDC	4000 mA	85%
TON 15-2411WISM		5.0 VDC	3000 mA	87%
TON 15-2412WISM		12 VDC	1300 mA	86%
TON 15-2413WISM		15 VDC	1000 mA	86%
TON 15-4810WISM	**18–75 VDC** (48 VDC nominal)	3.3 VDC	4000 mA	85%
TON 15-4811WISM		5.0 VDC	3000 mA	87%
TON 15-4812WISM		12 VDC	1300 mA	86%
TON 15-4813WISM		15 VDC	1000 mA	86%

SIP DC/DC Converters

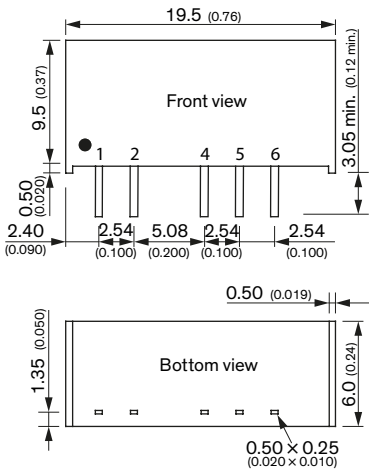
1–12 watt

TRACO POWER's SIP package isolated DC/DC Converters provides a complete range of compact products from 1 to 12 watts with non-regulated, semi-regulated and fully regulated outputs.



TBA 1E | 1 W





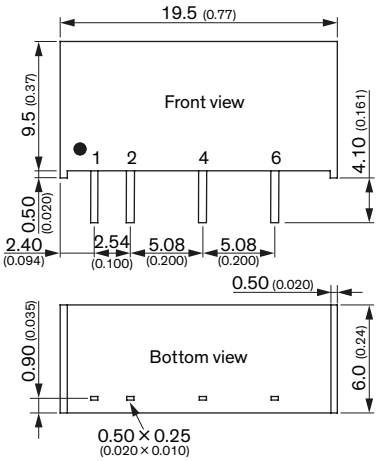
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TBA 1-0511E	**4.5–5.5 VDC** (5 VDC nom.)	5 VDC	200 mA	79%
TBA 1-0512E		12 VDC	84 mA	82%
TBA 1-0513E		15 VDC	66 mA	82%
TBA 1-0521E		±5 VDC	100 mA	79%
TBA 1-0522E		±12 VDC	41 mA	82%
TBA 1-0523E		±15 VDC	33 mA	82%
TBA 1-1211E	**10.8–13.2 VDC** (12 VDC nom.)	5 VDC	200 mA	79%
TBA 1-1212E		12 VDC	84 mA	80%
TBA 1-1213E		15 VDC	66 mA	80%
TBA 1-1221E		±5 VDC	100 mA	79%
TBA 1-1222E		±12 VDC	41 mA	80%
TBA 1-1223E		±15 VDC	33 mA	80%
TBA 1-2411E	**21.6–26.4 VDC** (24 VDC nom.)	5 VDC	200 mA	79%
TBA 1-2412E		12 VDC	84 mA	82%
TBA 1-2413E		15 VDC	66 mA	82%
TBA 1-2421E		±5 VDC	100 mA	79%
TBA 1-2422E		±12 VDC	41 mA	82%
TBA 1-2423E		±15 VDC	33 mA	82%

- Continuous short circuit protection
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +85°C without derating
- Input voltage ranges (±10%): 5, 12, 24 VDC
- High efficiency up to 82%
- SIP-7 package
- Unregulated outputs
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	–Vout	–Vout
5	No pin	Common
6	+Vout	+Vout

TEA 1E | 1 W





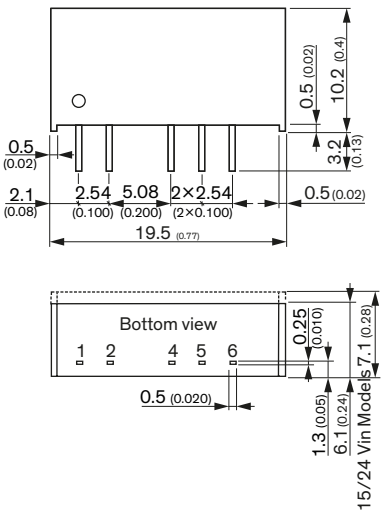
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEA 1-0505E	4.5–5.5 VDC	5 VDC	200 mA	78%

- Highly cost efficient design
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +85°C without derating
- 5 VDC (±10%) input voltage range
- Unregulated outputs
- Efficiency up to 78%
- Industry standard SIP-7 package
- 3-year product warranty

Pinout	
Pin	Single
1	+Vin
2	–Vin
4	–Vout
6	+Vout

TMA | 1 W





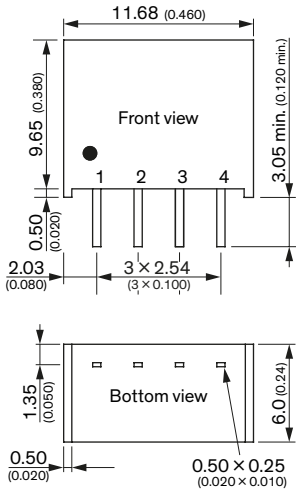
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMA 0505S	5 VDC ± 10%	5 VDC	200 mA	71%
TMA 0512S		12 VDC	84 mA	78%
TMA 0515S		15 VDC	67 mA	78%
TMA 0505D		± 5 VDC	±100 mA	72%
TMA 0512D		±12 VDC	±42 mA	78%
TMA 0515D		±15 VDC	±34 mA	79%
TMA 1205S	12 VDC ± 10%	5 VDC	200 mA	73%
TMA 1212S		12 VDC	84 mA	80%
TMA 1215S		15 VDC	67 mA	80%
TMA 1205D		±5 VDC	±100 mA	74%
TMA 1212D		±12 VDC	±42 mA	81%
TMA 1215D		±15 VDC	±34 mA	81%
TMA 1505S	15 VDC ± 10%	5 VDC	200 mA	72%
TMA 1512S		12 VDC	84 mA	79%
TMA 1515S		15 VDC	67 mA	79%
TMA 1505D		±5 VDC	±100 mA	72%
TMA 1512D		±12 VDC	±42 mA	80%
TMA 1515D		±15 VDC	±34 mA	80%
TMA 2405S	24 VDC ± 10%	5 VDC	200 mA	71%
TMA 2412S		12 VDC	84 mA	78%
TMA 2415S		15 VDC	67 mA	79%
TMA 2405D		±5 VDC	±100 mA	72%
TMA 2412D		±12 VDC	±42 mA	79%
TMA 2415D		±15 VDC	±34 mA	80%

- Industry standard pinout
- Non-regulated output
- Single and dual output models
- I/O isolation voltage 1000 VDC
- High efficiency
- Operating temperature range –40°C to +85°C
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	–Vout	–Vout
5	No pin	Common
6	+Vout	+Vout

TBA 1 | 1 W





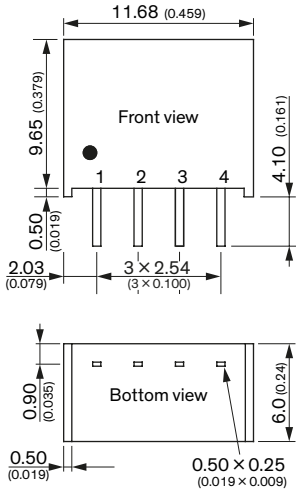
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TBA 1-0310	**2.97–3.63 VDC** (3.3 VDC nom.)	3.3 VDC	260 mA	73%
TBA 1-0311		5 VDC	200 mA	76%
TBA 1-0510	**4.5–5.5 VDC** (5 VDC nom.)	3.3 VDC	260 mA	75%
TBA 1-0511		5 VDC	200 mA	79%
TBA 1-0519		9 VDC	110 mA	80%
TBA 1-0512		12 VDC	80 mA	82%
TBA 1-0513		15 VDC	65 mA	82%
TBA 1-1211	**10.8–13.2 VDC** (12 VDC nom.)	5 VDC	200 mA	79%
TBA 1-1219		9 VDC	110mA	79%
TBA 1-1212		12 VDC	80 mA	80%
TBA 1-1213		15 VDC	65 mA	80%
TBA 1-2411	**21.6–26.4 VDC** (24 VDC nom.)	5 VDC	200 mA	79%
TBA 1-2419		9 VDC	110mA	80%
TBA 1-2412		12 VDC	80 mA	82%
TBA 1-2413		15 VDC	65 mA	82%

- Continuous short circuit protection
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +85°C without derating
- Input voltage ranges (±10%): 3.3, 5, 12, 24 VDC
- High efficiency up to 82%
- SIP-4 package
- Unregulated outputs
- 3-year product warranty

Pinout	
Pin	**Function**
1	–Vin (GND)
2	+Vin (Vcc)
3	–Vout
4	+Vout

TEA 1 | 1 W





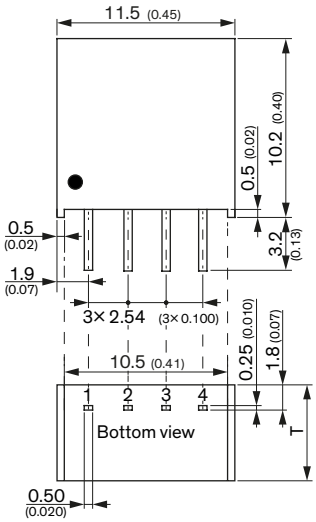
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEA 1-0505	**4.5–5.5 VDC**	5 VDC	200 mA	78%

- Highly cost efficient design
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +85°C without derating
- 5 VDC (±10%) input voltage range
- Unregulated outputs
- Efficiency up to 78%
- Industry standard SIP-4 package
- 3-year product warranty

Pinout	
Pin	**Single**
1	–Vin
2	+Vin
3	–Vout
4	+Vout

TME | 1 W





T: 6.1 (0.24) for 3.3Vin & 5Vin & 12Vin Models
T: 7.1 (0.28) for 24Vin Models

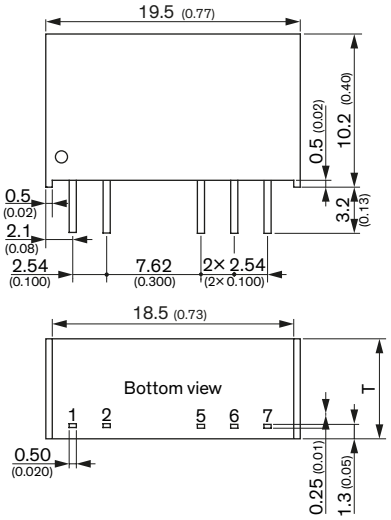
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TME 0303S	3.3 VDC ±10%	3.3 VDC	260 mA	74%
TME 0305S		5.0 VDC	200 mA	77%
TME 0503S	5 VDC ±10%	3.3 VDC	260 mA	72%
TME 0505S		5 VDC	200 mA	69%
TME 0509S		9 VDC	110 mA	76%
TME 0512S		12 VDC	84 mA	77%
TME 0515S		15 VDC	67 mA	78%
TME 1205S	12 VDC ±10%	5 VDC	200 mA	71%
TME 1209S		9 VDC	110 mA	77%
TME 1212S		12 VDC	84 mA	79%
TME 1215S		15 VDC	67 mA	80%
TME 2405S	24 VDC ±10%	5 VDC	200 mA	70%
TME 2409S		9 VDC	110 mA	76%
TME 2412S		12 VDC	84 mA	79%
TME 2415S		15 VDC	67 mA	79%

- Unregulated outputs
- I/O isolation voltage 1000 VDC
- Efficiency up to 80%
- Operating temperature range –40°C to +85°C
- 3-year product warranty

Pinout	
Pin	Single
1	–Vin (GND)
2	+Vin (Vcc)
3	–Vout
4	+Vout

TMV | 1 W





T: 6.1 (0.24) for 5 Vin & 12 Vin Models
T: 7.1 (0.28) for 24 Vin Models

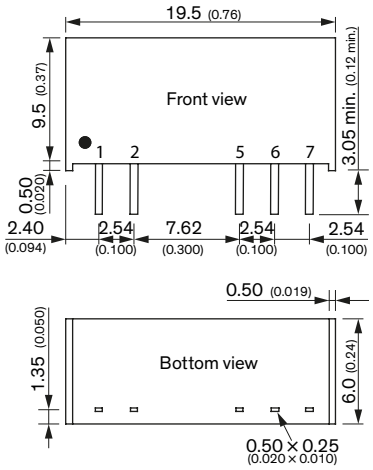
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMV 0505S	5 VDC ±10%	5 VDC	200 mA	71%
TMV 0509S		9 VDC	110 mA	76%
TMV 0512S		12 VDC	84 mA	78%
TMV 0515S		15 VDC	67 mA	78%
TMV 0505D		± 5 VDC	±100 mA	72%
TMV 0512D		±12 VDC	±42 mA	78%
TMV 0515D		±15 VDC	±34 mA	79%
TMV 1205S	12 VDC ±10%	5 VDC	200 mA	73%
TMV 1212S		12 VDC	84 mA	80%
TMV 1215S		15 VDC	67 mA	80%
TMV 1205D		± 5 VDC	±100 mA	74%
TMV 1212D		±12 VDC	±42 mA	81%
TMV 1215D		±15 VDC	±34 mA	81%
TMV 2405S	24 VDC ±10%	5 VDC	200 mA	71%
TMV 2412S		12 VDC	84 mA	78%
TMV 2415S		15 VDC	67 mA	79%
TMV 2405D		± 5 VDC	±100 mA	72%
TMV 2412D		±12 VDC	±42 mA	79%
TMV 2415D		±15 VDC	±34 mA	80%

- Industry standard pinout
- Unregulated device
- I/O isolation voltage 3000 VDC
- Operating temperature range –40°C to +85°C
- Efficiency up to 81%
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

TBA 1HI | 1 W





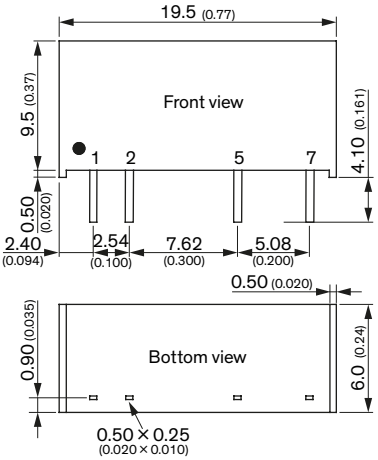
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TBA 1-0511HI	**4.5–5.5 VDC** (5 VDC nom.)	5 VDC	200 mA	79%
TBA 1-0519HI		9 VDC	111 mA	80%
TBA 1-0512HI		12 VDC	84 mA	82%
TBA 1-0513HI		15 VDC	66 mA	82%
TBA 1-0521HI		±5 VDC	100 mA	79%
TBA 1-0522HI		±12 VDC	41 mA	82%
TBA 1-0523HI		±15 VDC	33 mA	82%
TBA 1-1211HI	**10.8–13.2 VDC** (12 VDC nom.)	5 VDC	200 mA	79%
TBA 1-1219HI		9 VDC	111 mA	79%
TBA 1-1212HI		12 VDC	84 mA	80%
TBA 1-1213HI		15 VDC	66 mA	80%
TBA 1-1221HI		±5 VDC	100 mA	79%
TBA 1-1222HI		±12 VDC	41 mA	80%
TBA 1-1223HI		±15 VDC	33 mA	80%
TBA 1-2411HI	**21.6–26.4 VDC** (24 VDC nom.)	5 VDC	200 mA	79%
TBA 1-2419HI		9 VDC	111 mA	80%
TBA 1-2412HI		12 VDC	84 mA	82%
TBA 1-2413HI		15 VDC	66 mA	82%
TBA 1-2421HI		±5 VDC	100 mA	79%
TBA 1-2422HI		±12 VDC	41 mA	82%
TBA 1-2423HI		±15 VDC	33 mA	82%

- Continuous short circuit protection
- I/O isolation: 3000 VDC
- Operating temperature range –40 to +85°C without derating
- Input voltage ranges (±10%): 5, 12, 24 VDC
- High efficiency up to 82%
- SIP-7 package
- Unregulated outputs
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

TEA 1HI | 1 W





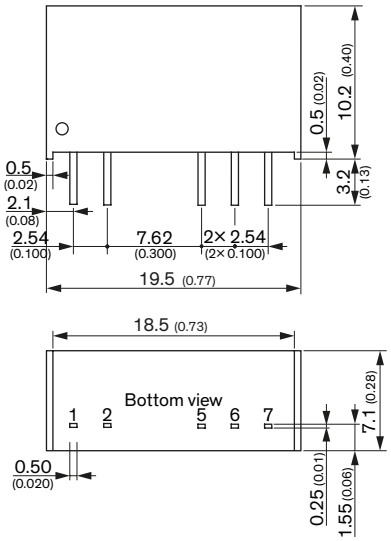
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEA 1-0505HI	**4.5–5.5 VDC**	5 VDC	200 mA	78%

- Highly cost efficient design
- I/O isolation: 4000 VDC
- Operating temperature range –40 to +85°C without derating
- 5 VDC (±10%) input voltage range
- Unregulated outputs
- Efficiency up to 78%
- Industry standard SIP-7 package
- 3-year product warranty

Pinout	
Pin	**Single**
1	+Vin
2	–Vin
5	–Vout
7	+Vout

TMV-HI | 1 W





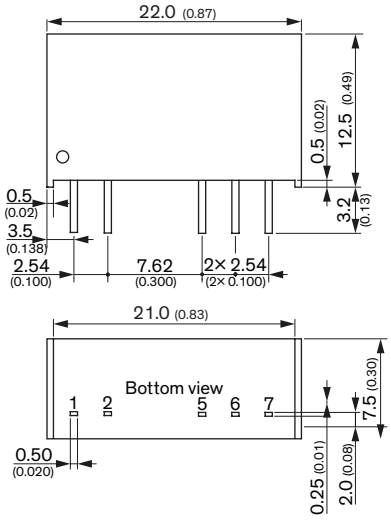
- Ultra compact SIP-7 package
- Very high 5200 VDC I/O-isolation
- Unregulated device
- Dedicated for IGBT applications
- Operating temperature range –40°C to +95°C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMV 0503SHI	5 VDC ±10%	3.3 VDC	303 mA	70%
TMV 0505SHI		5.0 VDC	200 mA	70%
TMV 0509SHI		9.0 VDC	111 mA	75%
TMV 0512SHI		12 VDC	84 mA	77%
TMV 0515SHI		15 VDC	66 mA	78%
TMV 0505DHI		±5.0 VDC	±100 mA	71%
TMV 0509DHI		±9.0 VDC	±56 mA	75%
TMV 0512DHI		±12 VDC	±42 mA	77%
TMV 0515DHI		±15 VDC	±33 mA	78%
TMV 05159HI		+15/–9 VDC	+33/–55 mA	76%
TMV 1203SHI	12 VDC ±10%	3.3 VDC	303 mA	71%
TMV 1205SHI		5.0 VDC	200 mA	71%
TMV 1209SHI		9.0 VDC	111 mA	76%
TMV 1212SHI		12 VDC	84 mA	78%
TMV 1215SHI		15 VDC	66 mA	79%
TMV 1205DHI		±5.0 VDC	±100 mA	72%
TMV 1209DHI		±9.0 VDC	±56 mA	76%
TMV 1212DHI		±12 VDC	±42 mA	78%
TMV 1215DHI		±15 VDC	±33 mA	79%
TMV 12159HI		+15/–9 VDC	+33/–55 mA	77%
TMV 1503SHI	15 VDC ±10%	3.3 VDC	303 mA	70%
TMV 1505SHI		5.0 VDC	200 mA	70%
TMV 1509SHI		9.0 VDC	111 mA	75%
TMV 1512SHI		12 VDC	84 mA	75%
TMV 1515SHI		15 VDC	66 mA	79%
TMV 1505DHI		±5.0 VDC	±100 mA	71%
TMV 1509DHI		±9.0 VDC	±56 mA	75%
TMV 1512DHI		±12 VDC	±42 mA	78%
TMV 1515DHI		±15 VDC	±33 mA	79%
TMV 15159HI		+15/–9 VDC	+33/–55 mA	76%
TMV 2403SHI	24 VDC ±10%	3.3 VDC	303 mA	70%
TMV 2405SHI		5.0 VDC	200 mA	70%
TMV 2409SHI		9.0 VDC	111 mA	75%
TMV 2412SHI		12 VDC	84 mA	78%
TMV 2415SHI		15 VDC	66 mA	80%
TMV 2405DHI		±5.0 VDC	±100 mA	71%
TMV 2409DHI		±9.0 VDC	±56 mA	75%
TMV 2412DHI		±12 VDC	±42 mA	77%
TMV 2415DHI		±15 VDC	±33 mA	78%
TMV 24159HI		+15/–9 VDC	+33/–55 mA	75%

TMV-EN | 1 W





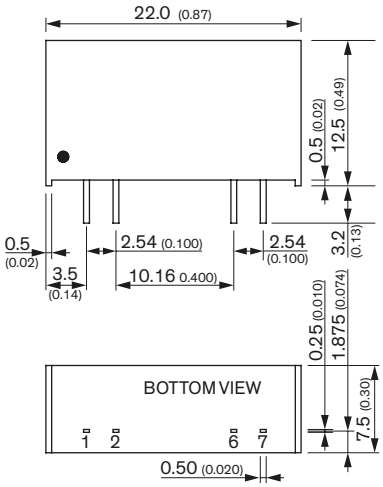
- Single-in-line package (SIP)
- Industrial safety to IEC/EN/UL 62368-1
- Reinforced insulation rated for 300 VAC working voltage
- I/O isolation voltage 3000 VACrms
- Operating temperature range –25°C to +85°C
- Unregulated device
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMV 0505 EN	5 VDC ±10%	5 VDC	200 mA	66%
TMV 0512 EN		12 VDC	80 mA	66%
TMV 0515 EN		15 VDC	65 mA	66%
TMV 0505D EN		±5 VDC	±100 mA	66%
TMV 0512D EN		±12 VDC	±40 mA	72%
TMV 0515D EN		±15 VDC	±35 mA	73%
TMV 1205 EN	12 VDC ±10%	5 VDC	200 mA	66%
TMV 1212 EN		12 VDC	80 mA	66%
TMV 1215 EN		15 VDC	65 mA	66%
TMV 1205D EN		±5 VDC	±100 mA	66%
TMV 1212D EN		±12 VDC	±40 mA	74%
TMV 1215D EN		±15 VDC	±35 mA	75%

TRI 1 | 1 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 1-0511	5 VDC ±10% (nominal 5VDC)	5 VDC	200 mA	79%
TRI 1-0512		12 VDC	84 mA	80%
TRI 1-0513		15 VDC	68 mA	81%
TRI 1-1211	12 VDC ±10% (nominal 12VDC)	5 VDC	200 mA	79%
TRI 1-1212		12 VDC	84 mA	81%
TRI 1-1213		15 VDC	68 mA	79%
TRI 1-2411	24 VDC ±10% (nominal 24VDC)	5 VDC	200 mA	76%
TRI 1-2412		12 VDC	84 mA	79%
TRI 1-2413		15 VDC	68 mA	79%

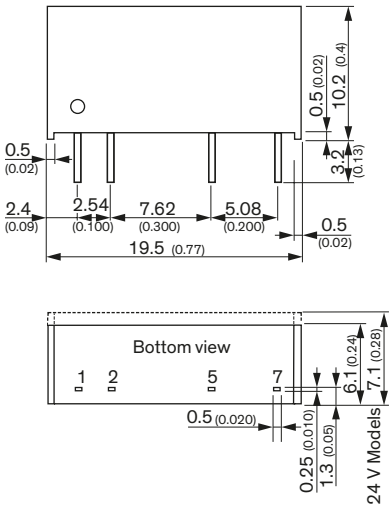
- Reinforced I/O-isolation 3000 VAC rated for 480 VAC working voltage
- Ultra-high isolation peak voltage 8000 VDC (1s)
- Operating temperature range –40 to +85°C without derating
- High efficiency up to 81%
- Input voltage range (±10%): 5, 12, 24 VDC
- Protection against overvoltage and short circuit
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin
2	–Vin
3	–Vout
4	+Vout



TRV 1 | 1 W





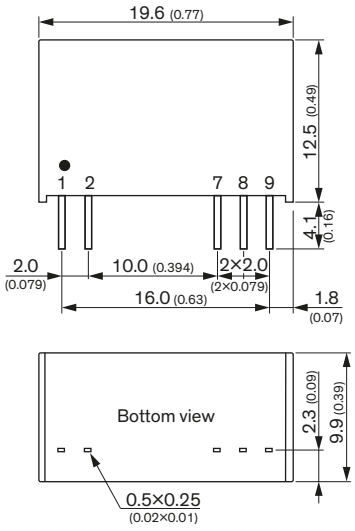
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRV 1-0511	5 VDC ±10%	5 VDC	200 mA	84%
TRV 1-0519		9 VDC	110 mA	86.5%
TRV 1-0512		12 VDC	84 mA	87%
TRV 1-0513		15 VDC	67 mA	87.5%
TRV 1-1211	12 VDC ±10%	5 VDC	200 mA	84%
TRV 1-1219		9 VDC	110 mA	86%
TRV 1-1212		12 VDC	84 mA	88%
TRV 1-1213		15 VDC	67 mA	88%
TRV 1-2411	24 VDC ±10%	5 VDC	200 mA	84%
TRV 1-2419		9 VDC	110 mA	86.5%
TRV 1-2412		12 VDC	84 mA	87.5%
TRV 1-2413		15 VDC	67 mA	87.5%

- Semi-regulated output (load)
- I/O isolation voltage 3000 VDC
- Operationally reliable up to 5000 m altitude
- Operating temperature range –40°C to +85°C
- 3-year product warranty

Pinout	
Pin	Function
1	+Vin (Vcc)
2	–Vin (GND)
5	–Vout
7	+Vout

TRV 1M | 1 W





- I/O isolation 5000 VAC (reinforced)
- Short circuit protection
- Semi-regulated outputs
- Input voltage ranges (±10%): 5, 12, 15, 24 VDC
- Operating temperature range –40 to +95°C without derating
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and IEC/EN/UL 62368-1
- Low leakage current <2 µA
- Efficiency up to 85%
- Operation up to 5000 m altitude
- 5-year product warranty

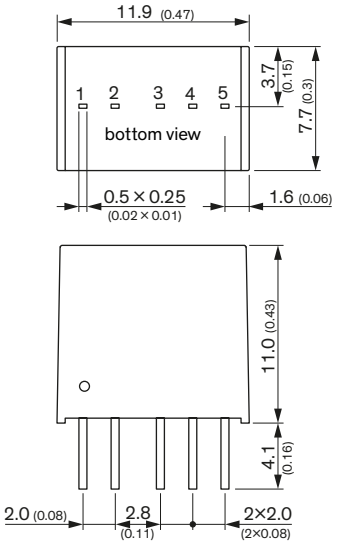
Model	Input	Vout	Iout	Efficiency
TRV 1-0510M	4.5–5.5 VDC (5 VDC nom.)	3.3 VDC	303 mA	80%
TRV 1-0511M		5 VDC	200 mA	82%
TRV 1-0512M		12 VDC	83 mA	85%
TRV 1-0513M		15 VDC	67 mA	84%
TRV 1-0521M		±5 VDC	±100 mA	85%
TRV 1-0522M		±12 VDC	±42 mA	85%
TRV 1-0523M		±15 VDC	±34 mA	84%
TRV 1-1210M	9.6–14.4 VDC (5 VDC nom.)	3.3 VDC	303 mA	80%
TRV 1-1211M		5 VDC	200 mA	82%
TRV 1-1212M		12 VDC	83 mA	84%
TRV 1-1213M		15 VDC	67 mA	83%
TRV 1-1221M		±5 VDC	±100 mA	82%
TRV 1-1222M		±12 VDC	±42 mA	83%
TRV 1-1223M		±15 VDC	±34 mA	83%
TRV 1-1510M	12–18 VDC (5 VDC nom.)	3.3 VDC	303 mA	79%
TRV 1-1511M		5 VDC	200 mA	83%
TRV 1-1512M		12 VDC	83 mA	84%
TRV 1-1513M		15 VDC	67 mA	84%
TRV 1-1521M		±5 VDC	±100 mA	82%
TRV 1-1522M		±12 VDC	±42 mA	83%
TRV 1-1523M		±15 VDC	±34 mA	83%
TRV 1-2410M	19.2–28.8 VDC (5 VDC nom.)	3.3 VDC	303 mA	78%
TRV 1-2411M		5 VDC	200 mA	82%
TRV 1-2412M		12 VDC	83 mA	83%
TRV 1-2413M		15 VDC	67 mA	83%
TRV 1-2421M		±5 VDC	±100 mA	80%
TRV 1-2422M		±12 VDC	±42 mA	81%
TRV 1-2423M		±15 VDC	±34 mA	81%

Pinout		
Pin	Single Output	Dual Output
1	+Vin	+Vin
2	–Vin	–Vin
7	–Vout	–Vout
8	No pin	Common
9	+Vout	+Vout



TRN 1 | 1 W





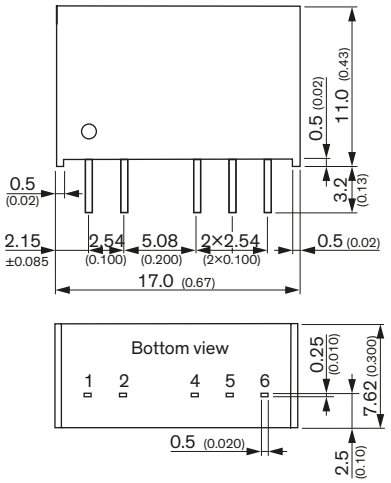
- Compact SIP package 11.9 × 7.7 × 11.0 mm
- Fully regulated outputs
- Input Voltage range 4.5–13.2, 9–18, 18–36, 36–75 VDC
- I/O-isolation 1600 VDC
- Operating temperature range –40°C to +90°C without derating
- Short circuit protection
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TRN 1-0510	4.5–13.2 VDC (9 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-0511		5.0 VDC	200 mA	79%
TRN 1-0512		12 VDC	90 mA	81%
TRN 1-0513		15 VDC	70 mA	82%
TRN 1-0515		24 VDC	45 mA	83%
TRN 1-0521		± 5.0 VDC	±100 mA	79%
TRN 1-0522		±12 VDC	±45 mA	83%
TRN 1-0523		±15 VDC	±35 mA	80%
TRN 1-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-1211		5.0 VDC	200 mA	80%
TRN 1-1212		12 VDC	90 mA	81%
TRN 1-1213		15 VDC	70 mA	83%
TRN 1-1215		24 VDC	45 mA	83%
TRN 1-1221		± 5.0 VDC	±100 mA	79%
TRN 1-1222		±12 VDC	±45 mA	83%
TRN 1-1223		±15 VDC	±35 mA	80%
TRN 1-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-2411		5.0 VDC	200 mA	81%
TRN 1-2412		12 VDC	90 mA	82%
TRN 1-2413		15 VDC	70 mA	83%
TRN 1-2415		24 VDC	45 mA	82%
TRN 1-2421		± 5.0 VDC	±100 mA	79%
TRN 1-2422		±12 VDC	±45 mA	82%
TRN 1-2423		±15 VDC	±35 mA	80%
TRN 1-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	300 mA	77%
TRN 1-4811		5.0 VDC	200 mA	78%
TRN 1-4812		12 VDC	90 mA	80%
TRN 1-4813		15 VDC	70 mA	81%
TRN 1-4815		24 VDC	45 mA	81%
TRN 1-4821		± 5.0 VDC	±100 mA	78%
TRN 1-4822		±12 VDC	±45 mA	81%
TRN 1-4823		±15 VDC	±35 mA	79%

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	+Vout	+Vout
4	no pin	common
5	–Vout	–Vout

TMR 1 | 1 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 1-0511	4.5–9 VDC (5 VDC nom.)	5 VDC	200 mA	76%
TMR 1-0512		12 VDC	83 mA	77%
TMR 1-0513		15 VDC	67 mA	79%
TMR 1-0515		24 VDC	42 mA	76%
TMR 1-0522		±12 VDC	42 mA	77%
TMR 1-0523		±15 VDC	33 mA	78%
TMR 1-1211	9–18 VDC (12 VDC nom.)	5 VDC	200 mA	77%
TMR 1-1212		12 VDC	83 mA	77%
TMR 1-1213		15 VDC	67 mA	80%
TMR 1-1215		24 VDC	42 mA	77%
TMR 1-1222		±12 VDC	42 mA	79%
TMR 1-1223		±15 VDC	33 mA	78%
TMR 1-2411	18–36 VDC (24 VDC nom.)	5 VDC	200 mA	77%
TMR 1-2412		12 VDC	83 mA	80%
TMR 1-2413		15 VDC	67 mA	80%
TMR 1-2415		24 VDC	42 mA	77%
TMR 1-2422		±12 VDC	42 mA	80%
TMR 1-2423		±15 VDC	33 mA	80%
TMR 1-4811	36–75 VDC (48 VDC nom.)	5 VDC	200 mA	77%
TMR 1-4812		12 VDC	83 mA	78%
TMR 1-4813		15 VDC	67 mA	78%
TMR 1-4815		24 VDC	42 mA	76%
TMR 1-4822		±12 VDC	42 mA	79%
TMR 1-4823		±15 VDC	33 mA	79%

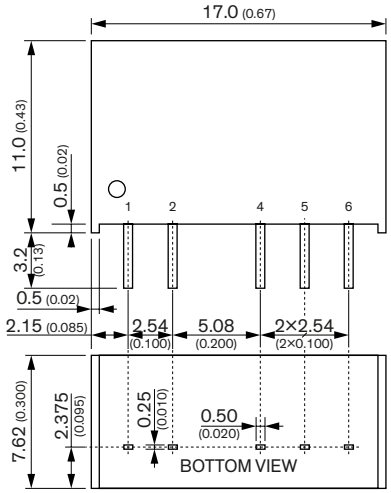
- Wide 2:1 input voltage range
- Compact SIP-6 package
- Fully regulated outputs
- Cost optimised design
- No minimum load required
- Continuous short circuit protection
- Temperature range –40°C to +95°C
- I/O isolation 1500 VDC
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
4	+Vout	+Vout
5	No pin	Common
6	–Vout	–Vout

TMR 1WIN | 1 W

NEW under development





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 1-1210WIN	4.5–18 VDC (12 VDC nom.)	3.3 VDC	300 mA	75%
TMR 1-1211WIN		5 VDC	200 mA	77%
TMR 1-1212WIN		12 VDC	83 mA	77%
TMR 1-1213WIN		15 VDC	67 mA	80%
TMR 1-1215WIN		24 VDC	42 mA	77%
TMR 1-1221WIN		±5 VDC	±100 mA	77%
TMR 1-1222WIN		±12 VDC	±42 mA	79%
TMR 1-1223WIN		±15 VDC	±33 mA	78%
TMR 1-2410WIN	9–36 VDC (24 VDC nom.)	3.3 VDC	300 mA	75%
TMR 1-2411WIN		5 VDC	200 mA	77%
TMR 1-2412WIN		12 VDC	83 mA	80%
TMR 1-2413WIN		15 VDC	67 mA	80%
TMR 1-2415WIN		24 VDC	42 mA	77%
TMR 1-2421WIN		±5 VDC	±100 mA	77%
TMR 1-2422WIN		±12 VDC	±42 mA	80%
TMR 1-2423WIN		±15 VDC	±33 mA	80%
TMR 1-4810WIN	18–75 VDC (48 VDC nom.)	3.3 VDC	300 mA	75%
TMR 1-4811WIN		5 VDC	200 mA	77%
TMR 1-4812WIN		12 VDC	83 mA	78%
TMR 1-4813WIN		15 VDC	67 mA	78%
TMR 1-4815WIN		24 VDC	42 mA	76%
TMR 1-4821WIN		±5 VDC	±100 mA	76%
TMR 1-4822WIN		±12 VDC	±42 mA	79%
TMR 1-4823WIN		±15 VDC	±33 mA	79%

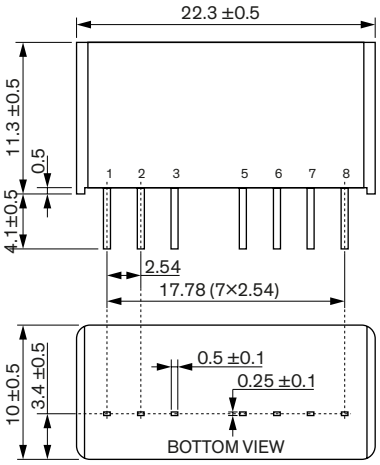
- Wide 4:1 input voltage range
- I/O isolation 1500 VDC
- Cost optimized design
- Compact SIP-6 package
- Temperature range –40°C to +95°C
- Fully regulated outputs
- Efficiency up to 80%
- Protection against undervoltage, overload and short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	
2	+Vin	
4	+Vout	
5	No Pin	Common
6	–Vout	

TEC 1UI | 1 W

NEW under development





- Ultra-wide 8:1 input range: 9 VDC to 75 VDC
- Operating temperature from –40°C to +95°C
- Compact SIP8 plastic case
- I/O isolation 2000 VDC
- Operating up to 5000m altitude
- Certification according to IEC/EN/UL 62368-1
- Short circuit protection and over current limitation
- Under voltage lockout
- Remote ON/OFF
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEC 1-2410UI	**9–75 VDC** (24 VDC nom.)	3.3 VDC	310 mA	73%
TEC 1-2411UI		5 VDC	200 mA	74%
TEC 1-2412UI		12 VDC	84 mA	74%
TEC 1-2413UI		15 VDC	67 mA	74%
TEC 1-2421UI		±5 VDC	±100 mA	74%
TEC 1-2422UI		±12 VDC	±42 mA	75%
TEC 1-2423UI		±15 VDC	±33 mA	75%

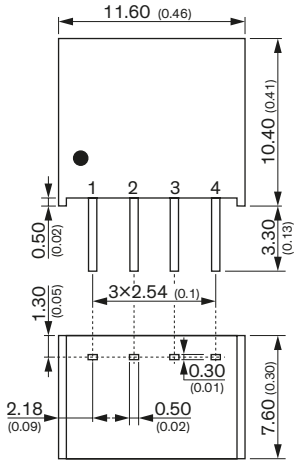
Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vin	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

NC: Not connected

TMU 2 | 2 W

NEW!





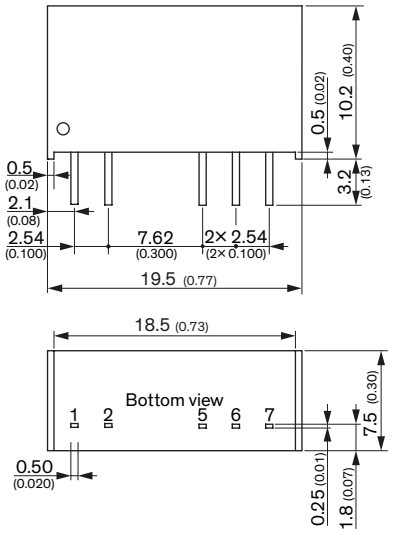
- Continuous short circuit protection
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +85 °C without derating
- Input voltage ranges (±10%): 5, 12, 24 VDC
- High efficiency up to 83%
- SIP-4 package
- Unregulated outputs
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMU 2-0511	**5 VDC ±10%** (nominal 5 VDC)	5 VDC	400 mA	78%
TMU 2-0512		12 VDC	165 mA	82%
TMU 2-0513		15 VDC	130 mA	82%
TMU 2-0515		24 VDC	80 mA	83%
TMU 2-1211	**12 VDC ±10%** (nominal 12 VDC)	5 VDC	400 mA	78%
TMU 2-1212		12 VDC	165 mA	82%
TMU 2-1213		15 VDC	130 mA	82%
TMU 2-1215		24 VDC	80 mA	83%
TMU 2-2411	**24 VDC ±10%** (nominal 24 VDC)	5 VDC	400 mA	78%
TMU 2-2412		12 VDC	165 mA	82%
TMU 2-2413		15 VDC	130 mA	82%
TMU 2-2415		24 VDC	80 mA	83%

Pinout	
Pin	**Function**
1	–Vin
2	+Vin
3	–Vout
4	+Vout

TMV 2HI | 2 W





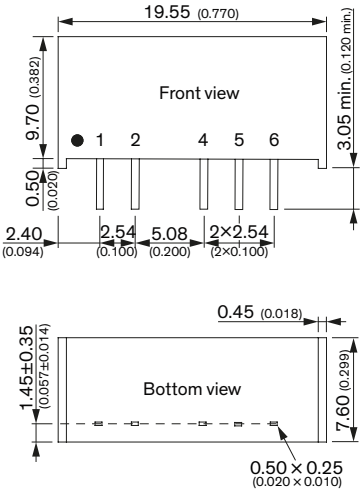
- Very high 5200 VDC I/O-isolation (5700 Vpk)
- Unregulated device
- Dedicated for IGBT applications
- Operating temperature range –40°C to +85°C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMV 2–0503SHI		3.3 VDC	500 mA	74%
TMV 2–0505SHI		5.0 VDC	400 mA	80%
TMV 2–0509SHI		9.0 VDC	222 mA	81%
TMV 2–0512SHI		12 VDC	168 mA	82%
TMV 2–0515SHI	5 VDC	15 VDC	132 mA	79%
TMV 2–0505DHI	±10%	±5.0 VDC	±200 mA	78%
TMV 2–0509DHI		±9.0 VDC	±112 mA	80%
TMV 2–0512DHI		±12 VDC	±84 mA	80%
TMV 2–0515DHI		±15 VDC	±66 mA	79%
TMV 2–05159HI		+15/–9 VDC	+66/–110 mA	80%
TMV 2–1203SHI		3.3 VDC	500 mA	76%
TMV 2–1205SHI		5.0 VDC	400 mA	79%
TMV 2–1209SHI		9.0 VDC	222 mA	81%
TMV 2–1212SHI		12 VDC	168 mA	83%
TMV 2–1215SHI	12 VDC	15 VDC	132 mA	82%
TMV 2–1205DHI	±10%	±5.0 VDC	±200 mA	79%
TMV 2–1209DHI		±9.0 VDC	±112 mA	81%
TMV 2–1212DHI		±12 VDC	±84 mA	82%
TMV 2–1215DHI		±15 VDC	±66 mA	83%
TMV 2–12159HI		+15/–9 VDC	+66/–110 mA	81%
TMV 2–1503SHI		3.3 VDC	500 mA	77%
TMV 2–1505SHI		5.0 VDC	400 mA	79%
TMV 2–1509SHI		9.0 VDC	222 mA	83%
TMV 2–1512SHI		12 VDC	168 mA	83%
TMV 2–1515SHI	15 VDC	15 VDC	132 mA	85%
TMV 2–1505DHI	±10%	±5.0 VDC	±200 mA	81%
TMV 2–1509DHI		±9.0 VDC	±112 mA	84%
TMV 2–1512DHI		±12 VDC	±84 mA	82%
TMV 2–1515DHI		±15 VDC	±66 mA	82%
TMV 2–15159HI		+15/–9 VDC	+66/–110 mA	83%
TMV 2–2403SHI		3.3 VDC	500 mA	76%
TMV 2–2405SHI		5.0 VDC	400 mA	77%
TMV 2–2409SHI		9.0 VDC	222 mA	81%
TMV 2–2412SHI		12 VDC	168 mA	82%
TMV 2–2415SHI	24 VDC	15 VDC	132 mA	82%
TMV 2–2405DHI	±10%	±5.0 VDC	±200 mA	77%
TMV 2–2409DHI		±9.0 VDC	±112 mA	81%
TMV 2–2412DHI		±12 VDC	±84 mA	81%
TMV 2–2415DHI		±15 VDC	±66 mA	80%
TMV 2–24159HI		+15/–9 VDC	+66/–110 mA	81%

TBA 2 | 2 W





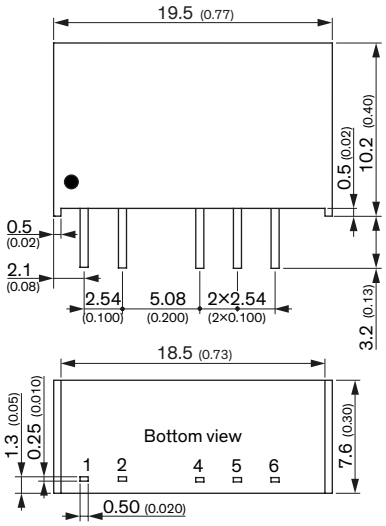
- Continuous short circuit protection
- I/O isolation: 1500 VDC
- Operating temperature range –40 to +80°C without derating
- Input voltage ranges (±10%): 5, 12, 24 VDC
- High efficiency up to 84%
- SIP-7 package
- Unregulated outputs
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	–Vout	–Vout
5	No pin	Common
6	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TBA 2-0511		5 VDC	400 mA	78%
TBA 2-0512		12 VDC	165 mA	82%
TBA 2-0513	4.5–5.5 VDC	15 VDC	130 mA	82%
TBA 2-0521	(5 VDC nom.)	±5 VDC	200 mA	79%
TBA 2-0522		±12 VDC	80 mA	82%
TBA 2-0523		±15 VDC	65 mA	82%
TBA 2-1211		5 VDC	400 mA	79%
TBA 2-1212		12 VDC	165 mA	82%
TBA 2-1213	10.8–13.2 VDC	15 VDC	130 mA	84%
TBA 2-1221	(12 VDC nom.)	±5 VDC	200 mA	79%
TBA 2-1222		±12 VDC	80 mA	83%
TBA 2-1223		±15 VDC	65 mA	84%
TBA 2-2411		5 VDC	400 mA	78%
TBA 2-2412		12 VDC	165 mA	84%
TBA 2-2413	21.6–26.4 VDC	15 VDC	130 mA	84%
TBA 2-2421	(24 VDC nom.)	±5 VDC	200 mA	80%
TBA 2-2422		±12 VDC	80 mA	84%
TBA 2-2423		±15 VDC	65 mA	84%

TMH | 2 W



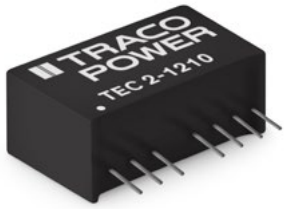


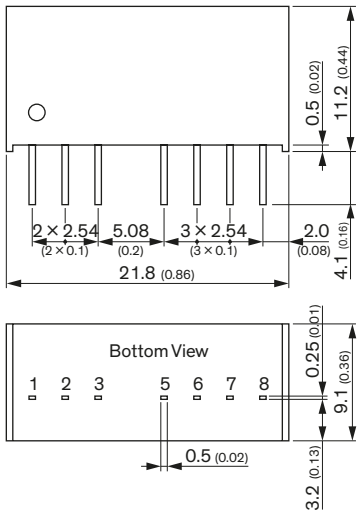
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMH 0505S	5 VDC ±10%	5 VDC	400 mA	76%
TMH 0512S		12 VDC	165 mA	80%
TMH 0515S		15 VDC	133 mA	80%
TMH 0505D		±5 VDC	±200 mA	77%
TMH 0512D		±12 VDC	±83 mA	79%
TMH 0515D		±15 VDC	±66 mA	79%
TMH 1205S	12 VDC ±10%	5 VDC	400 mA	78%
TMH 1212S		12 VDC	165 mA	82%
TMH 1215S		15 VDC	133 mA	83%
TMH 1205D		±5 VDC	±200 mA	79%
TMH 1212D		±12 VDC	±83 mA	82%
TMH 1215D		±15 VDC	±66 mA	82%
TMH 2405S	24 VDC ±10%	5 VDC	400 mA	77%
TMH 2412S		12 VDC	165 mA	81%
TMH 2415S		15 VDC	133 mA	82%
TMH 2405D		±5 VDC	±200 mA	79%
TMH 2412D		±12 VDC	±83 mA	81%
TMH 2415D		±15 VDC	±66 mA	82%

- Industry standard pinout
- Unregulated device
- Operating temperature range –40°C to +85°C
- I/O isolation voltage 1000 VDC
- Efficiency up to 83%
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	–Vout	–Vout
5	No pin	Common
6	+Vout	+Vout

TEC 2 | 2 W





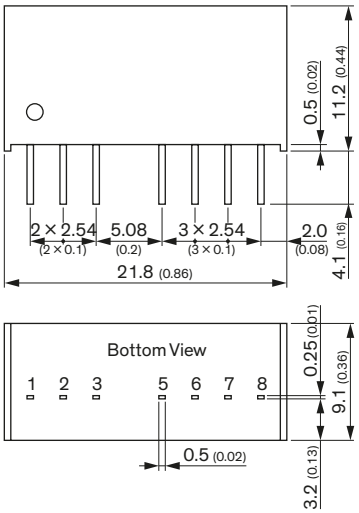
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEC 2-0910	4.5–13.2 VDC (9 VDC nominal)	3.3 VDC	500 mA	78%
TEC 2-0911		5.0 VDC	400 mA	81%
TEC 2-0919		9.0 VDC	222 mA	84%
TEC 2-0912		12 VDC	167 mA	84%
TEC 2-0913		15 VDC	134 mA	84%
TEC 2-0915		24 VDC	83 mA	85%
TEC 2-0921		±5.0 VDC	±200 mA	81%
TEC 2-0922		±12 VDC	±83 mA	85%
TEC 2-0923		±15 VDC	±67 mA	84%
TEC 2-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	500 mA	78%
TEC 2-1211		5.0 VDC	400 mA	82%
TEC 2-1219		9.0 VDC	222 mA	84%
TEC 2-1212		12 VDC	167 mA	85%
TEC 2-1213		15 VDC	134 mA	85%
TEC 2-1215		24 VDC	83 mA	85%
TEC 2-1221		±5.0 VDC	±200 mA	82%
TEC 2-1222		±12 VDC	±83 mA	85%
TEC 2-1223		±15 VDC	±67 mA	84%
TEC 2-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	500 mA	78%
TEC 2-2411		5.0 VDC	400 mA	83%
TEC 2-2419		9.0 VDC	222 mA	85%
TEC 2-2412		12 VDC	167 mA	86%
TEC 2-2413		15 VDC	134 mA	85%
TEC 2-2415		24 VDC	83 mA	85%
TEC 2-2421		±5.0 VDC	±200 mA	83%
TEC 2-2422		±12 VDC	±83 mA	85%
TEC 2-2423		±15 VDC	±67 mA	86%
TEC 2-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	500 mA	76%
TEC 2-4811		5.0 VDC	400 mA	80%
TEC 2-4819		9.0 VDC	222 mA	82%
TEC 2-4812		12 VDC	167 mA	84%
TEC 2-4813		15 VDC	134 mA	85%
TEC 2-4815		24 VDC	83 mA	85%
TEC 2-4821		±5.0 VDC	±200 mA	80%
TEC 2-4822		±12 VDC	±83 mA	85%
TEC 2-4823		±15 VDC	±67 mA	83%

- Compact SIP-8 package
- I/O-isolation voltage 1600 VDC
- Fully regulated outputs
- Operating temp range –40°C to +95°C
- Continuous short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	+Vin (VCC)	+Vin (VCC)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TEC 2WI | 2 W





- Compact SIP-8 package
- I/O-isolation voltage 1600 VDC
- Ultra-wide 4:1 input voltage range
- Fully regulated outputs
- Operating temperature range –40°C to + 93°C
- Continuous short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

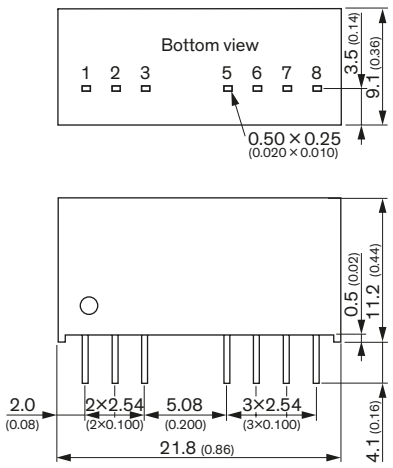
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEC 2-1210WI	4.5–18 VDC (12 VDC nominal)	3.3 VDC	500 mA	75%
TEC 2-1211WI		5.0 VDC	400 mA	80%
TEC 2-1219WI		9.0 VDC	222 mA	81%
TEC 2-1212WI		12 VDC	167 mA	81%
TEC 2-1213WI		15 VDC	134 mA	82%
TEC 2-1215WI		24 VDC	83 mA	82%
TEC 2-1221WI		±5.0 VDC	±200 mA	80%
TEC 2-1222WI		±12 VDC	±83 mA	82%
TEC 2-1223WI		±15 VDC	±67 mA	81%
TEC 2-2410WI	9–36 VDC (24 VDC nominal)	3.3 VDC	500 mA	76%
TEC 2-2411WI		5.0 VDC	400 mA	80%
TEC 2-2419WI		9.0 VDC	222 mA	80%
TEC 2-2412WI		12 VDC	167 mA	82%
TEC 2-2413WI		15 VDC	134 mA	82%
TEC 2-2415WI		24 VDC	83 mA	82%
TEC 2-2421WI		±5.0 VDC	±200 mA	79%
TEC 2-2422WI		±12 VDC	±83 mA	82%
TEC 2-2423WI		±15 VDC	±67 mA	80%
TEC 2-4810WI	18–75 VDC (48 VDC nominal)	3.3 VDC	500 mA	74%
TEC 2-4811WI		5.0 VDC	400 mA	79%
TEC 2-4819WI		9.0 VDC	222 mA	81%
TEC 2-4812WI		12 VDC	167 mA	82%
TEC 2-4813WI		15 VDC	134 mA	81%
TEC 2-4815WI		24 VDC	83 mA	81%
TEC 2-4821WI		±5.0 VDC	±200 mA	79%
TEC 2-4822WI		±12 VDC	±83 mA	81%
TEC 2-4823WI		±15 VDC	±67 mA	81%

Pinout

Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	+Vin (VCC)	+Vin (VCC)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TMR 2 | 2 W





- Wide 2:1 input voltage range
- Compact SIP-8 package
- Small footprint
- Remote On/Off control
- Temperature range –40° to +85°C
- High efficiency
- Excellent load and line regulation
- Indefinite short-circuit protection
- I/O isolation 1600 VDC
- 3-year product warranty

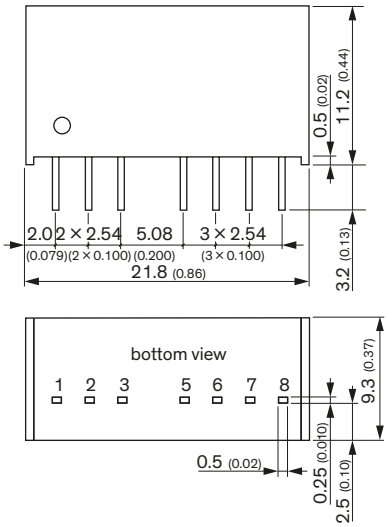
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMR 0510	4.5–9 VDC (5 VDC nom.)	3.3 VDC	500 mA	76%
TMR 0511		5 VDC	400 mA	80%
TMR 0512		12 VDC	167 mA	81%
TMR 0521		±5 VDC	200 mA	79%
TMR 0522		±12 VDC	83 mA	82%
TMR 0523		±15 VDC	67 mA	81%
TMR 1210	9–18 VDC (12 VDC nom.)	3.3 VDC	500 mA	77%
TMR 1211		5 VDC	400 mA	81%
TMR 1212		12 VDC	167 mA	83%
TMR 1221		±5 VDC	200 mA	81%
TMR 1222		±12 VDC	83 mA	83%
TMR 1223		±15 VDC	67 mA	84%
TMR 2410	18–36 VDC (24 VDC nom.)	3.3 VDC	500 mA	78%
TMR 2411		5 VDC	400 mA	81%
TMR 2412		12 VDC	167 mA	83%
TMR 2421		±5 VDC	200 mA	80%
TMR 2422		±12 VDC	83 mA	83%
TMR 2423		±15 VDC	67 mA	82%
TMR 4810	36–75 VDC (48 VDC nom.)	3.3 VDC	500 mA	76%
TMR 4811		5 VDC	400 mA	78%
TMR 4812		12 VDC	167 mA	83%
TMR 4821		±5 VDC	200 mA	80%
TMR 4822		±12 VDC	83 mA	81%
TMR 4823		±15 VDC	67 mA	81%

Pinout

Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TMR 2WIN | 2 W





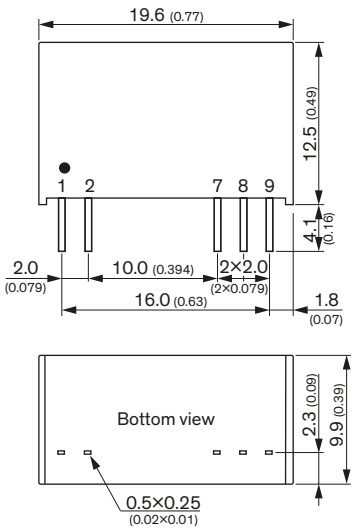
- Ultra-wide 4:1 input range
- Compact SIP-8 package
- Temperature range –40 to +90°C (up to +75°C at full load)
- High efficiency of 82%
- Excellent load and line regulation
- Continuouse short-circuit protection
- Overload protection
- I/O isolation 1500 VDC
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 2-1210WIN	4.5–18 VDC (12 VDC nom.)	3.3 VDC	500 mA	75%
TMR 2-1211WIN		5 VDC	400 mA	80%
TMR 2-1212WIN		12 VDC	167 mA	82%
TMR 2-1213WIN		15 VDC	134 mA	82%
TMR 2-1221WIN		±5 VDC	200 mA	80%
TMR 2-1222WIN		±12 VDC	83 mA	82%
TMR 2-1223WIN		±15 VDC	67 mA	82%
TMR 2-2410WIN	9–36 VDC (24 VDC nom.)	3.3 VDC	500 mA	75%
TMR 2-2411WIN		5 VDC	400 mA	80%
TMR 2-2412WIN		12 VDC	167 mA	82%
TMR 2-2413WIN		15 VDC	134 mA	82%
TMR 2-2421WIN		±5 VDC	200 mA	80%
TMR 2-2422WIN		±12 VDC	83 mA	82%
TMR 2-2423WIN		±15 VDC	67 mA	82%
TMR 2-4810WIN	18–75 VDC (48 VDC nom.)	3.3 VDC	500 mA	74%
TMR 2-4811WIN		5 VDC	400 mA	80%
TMR 2-4812WIN		12 VDC	167 mA	82%
TMR 2-4813WIN		15 VDC	134 mA	82%
TMR 2-4821WIN		±5 VDC	200 mA	80%
TMR 2-4822WIN		±12 VDC	83 mA	82%
TMR 2-4823WIN		±15 VDC	67 mA	82%

TRV 2M | 2 W





- I/O isolation 5000 VAC (reinforced)
- Wide 1.5:1 input voltage range
- Operating temperature range –40 to +80°C without derating
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and IEC/EN/UL 62368-1
- Short circuit protection
- Regulated outputs
- Low leakage current <2 µA
- Efficiency up to 84%
- Operation up to 5000 m altitude
- 5-year product warranty

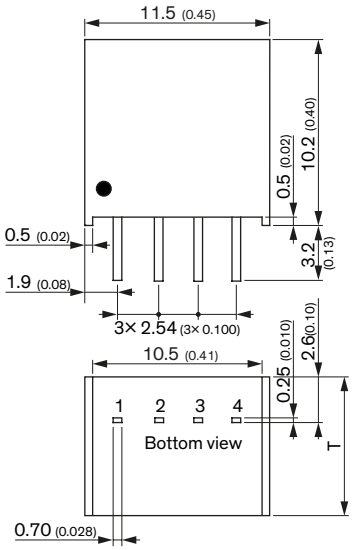
Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	–Vin	–Vin
7	–Vout	–Vout
8	No Pin	Common
9	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Iout	Output Efficiency
TRV 2-0510M	4.5–7 VDC (5 VDC nom.)	3.3 VDC	600 mA	78%
TRV 2-0511M		5 VDC	400 mA	81%
TRV 2-0512M		12 VDC	167 mA	83%
TRV 2-0513M		15 VDC	134 mA	83%
TRV 2-0521M		±5 VDC	± 200 mA	82%
TRV 2-0522M		±12 VDC	±83 mA	83%
TRV 2-0523M		±15 VDC	±67 mA	81%
TRV 2-1210M	9.6–14.4 VDC (12 VDC nom.)	3.3 VDC	600 mA	79%
TRV 2-1211M		5 VDC	400 mA	81%
TRV 2-1212M		12 VDC	167 mA	84%
TRV 2-1213M		15 VDC	134 mA	83%
TRV 2-1221M		±5 VDC	± 200 mA	81%
TRV 2-1222M		±12 VDC	±83 mA	83%
TRV 2-1223M		±15 VDC	±67 mA	82%
TRV 2-1510M	12–18 VDC (15 VDC nom.)	3.3 VDC	600 mA	79%
TRV 2-1511M		5 VDC	400 mA	81%
TRV 2-1512M		12 VDC	167 mA	84%
TRV 2-1513M		15 VDC	134 mA	83%
TRV 2-1521M		±5 VDC	± 200 mA	81%
TRV 2-1522M		±12 VDC	±83 mA	83%
TRV 2-1523M		±15 VDC	±67 mA	80%
TRV 2-2410M	19.2–28.8 VDC (24 VDC nom.)	3.3 VDC	600 mA	78%
TRV 2-2411M		5 VDC	400 mA	80%
TRV 2-2412M		12 VDC	167 mA	82%
TRV 2-2413M		15 VDC	134 mA	82%
TRV 2-2421M		±5 VDC	± 200 mA	81%
TRV 2-2422M		±12 VDC	±83 mA	81%
TRV 2-2423M		±15 VDC	±67 mA	80%



TMU 3 | 3 W





T: 8.6 (0.34) for 5Vin & 12Vin Models
T: 9.6 (0.38) for 24Vin Models

- Compact 3 Watt converter in SIP-4 package
- Continuous short circuit protection
- Unregulated outputs
- Operating temperature range –40 to +75°C without derating
- I/O isolation: 1500 VDC
- Input voltage ranges (±10%): 5, 12, 24 VDC
- High efficiency up to 86%
- 3-year product warranty

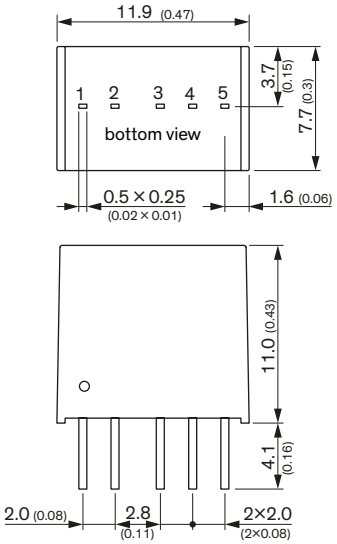
Pinout	
Pin	**Single**
1	–Vin
2	+ Vin
3	– Vout
4	+ Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMU 3-0511	**4.5–5.5 VDC** (5 VDC nom.)	5 VDC	600 mA	79%
TMU 3-0512		12 VDC	250 mA	83%
TMU 3-0513		15 VDC	200 mA	84%
TMU 3-1211	**10.8–13.2 VDC** (12 VDC nom.)	5 VDC	600 mA	81%
TMU 3-1212		12 VDC	250 mA	85%
TMU 3-1213		15 VDC	200 mA	85%
TMU 3-2411	**21.6–26.4 VDC** (24 VDC nom.)	5 VDC	600 mA	82%
TMU 3-2412		12 VDC	250 mA	86%
TMU 3-2413		15 VDC	200 mA	86%



TRN 3 | 3 W



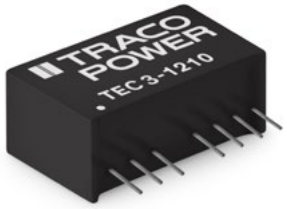


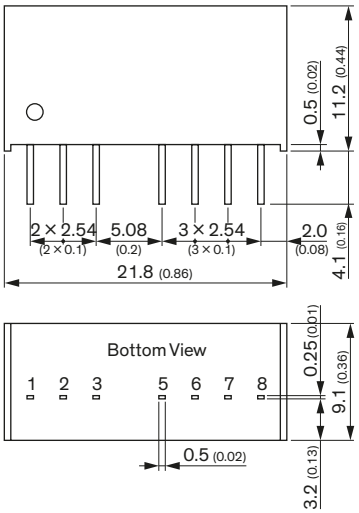
- Compact SIP package 11.9 × 7.7 × 11.0 mm
- Fully regulated outputs
- Input Voltage range 4.5–13.2, 9–18, 18–36, 36–75 VDC
- I/O-isolation 1600 VDC
- Operating temperature range –40°C to +85°C
- Short circuit protection
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	+Vout	+Vout
4	no pin	common
5	–Vout	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRN 3-0510	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	700 mA	75%
TRN 3-0511		5.0 VDC	600 mA	78%
TRN 3-0512		12 VDC	250 mA	82%
TRN 3-0513		15 VDC	200 mA	80%
TRN 3-0515		24 VDC	125 mA	80%
TRN 3-0521		± 5.0 VDC	±300 mA	77%
TRN 3-0522		±12 VDC	±125 mA	80%
TRN 3-0523		±15 VDC	±100 mA	80%
TRN 3-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	76%
TRN 3-1211		5.0 VDC	600 mA	79%
TRN 3-1212		12 VDC	250 mA	84%
TRN 3-1213		15 VDC	200 mA	83%
TRN 3-1215		24 VDC	125 mA	82%
TRN 3-1221		± 5.0 VDC	±300 mA	78%
TRN 3-1222		±12 VDC	±125 mA	82%
TRN 3-1223		±15 VDC	±100 mA	81%
TRN 3-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	76%
TRN 3-2411		5.0 VDC	600 mA	78%
TRN 3-2412		12 VDC	250 mA	84%
TRN 3-2413		15 VDC	200 mA	84%
TRN 3-2415		24 VDC	125 mA	83%
TRN 3-2421		± 5.0 VDC	±300 mA	79%
TRN 3-2422		±12 VDC	±125 mA	83%
TRN 3-2423		±15 VDC	±100 mA	82%
TRN 3-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	75%
TRN 3-4811		5.0 VDC	600 mA	79%
TRN 3-4812		12 VDC	250 mA	83%
TRN 3-4813		15 VDC	200 mA	83%
TRN 3-4815		24 VDC	125 mA	82%
TRN 3-4821		± 5.0 VDC	±300 mA	77%
TRN 3-4822		±12 VDC	±125 mA	82%
TRN 3-4823		±15 VDC	±100 mA	80%

TEC 3 | 3 W





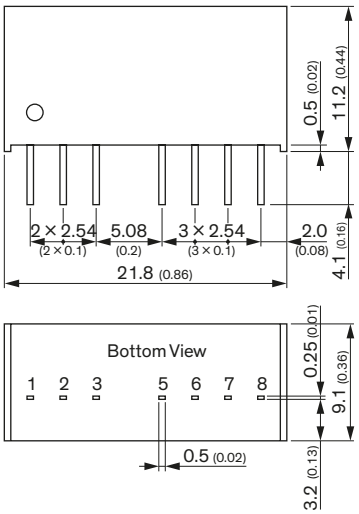
- Compact SIP-8 package
- I/O-isolation voltage 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C
- Continuous short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (VCC)	+Vin (VCC)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEC 3-0910	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	700 mA	75%
TEC 3-0911		5.0 VDC	600 mA	78%
TEC 3-0919		9.0 VDC	333 mA	81%
TEC 3-0912		12 VDC	250 mA	83%
TEC 3-0913		15 VDC	200 mA	84%
TEC 3-0915		24 VDC	125 mA	82%
TEC 3-0921		±5.0 VDC	±300 mA	79%
TEC 3-0922		±12 VDC	±125 mA	82%
TEC 3-0923		±15 VDC	±100 mA	82%
TEC 3-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	77%
TEC 3-1211		5.0 VDC	600 mA	81%
TEC 3-1219		9.0 VDC	333 mA	82%
TEC 3-1212		12 VDC	250 mA	84%
TEC 3-1213		15 VDC	200 mA	85%
TEC 3-1215		24 VDC	125 mA	85%
TEC 3-1221		±5.0 VDC	±300 mA	81%
TEC 3-1222		±12 VDC	±125 mA	85%
TEC 3-1223		±15 VDC	±100 mA	83%
TEC 3-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	77%
TEC 3-2411		5.0 VDC	600 mA	82%
TEC 3-2419		9.0 VDC	333 mA	83%
TEC 3-2412		12 VDC	250 mA	85%
TEC 3-2413		15 VDC	200 mA	86%
TEC 3-2415		24 VDC	125 mA	84%
TEC 3-2421		±5.0 VDC	±300 mA	82%
TEC 3-2422		±12 VDC	±125 mA	84%
TEC 3-2423		±15 VDC	±100 mA	85%
TEC 3-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	75%
TEC 3-4811		5.0 VDC	600 mA	80%
TEC 3-4819		9.0 VDC	333 mA	82%
TEC 3-4812		12 VDC	250 mA	84%
TEC 3-4813		15 VDC	200 mA	85%
TEC 3-4815		24 VDC	125 mA	86%
TEC 3-4821		±5.0 VDC	±300 mA	80%
TEC 3-4822		±12 VDC	±125 mA	86%
TEC 3-4823		±15 VDC	±100 mA	83%

TEC 3WI | 3 W





- Compact SIP-8 package
- I/O-isolation voltage 1600 VDC
- Ultra-wide 4:1 input voltage range
- Fully regulated outputs
- Operating temperature range –40°C to + 90°C
- Continuous short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

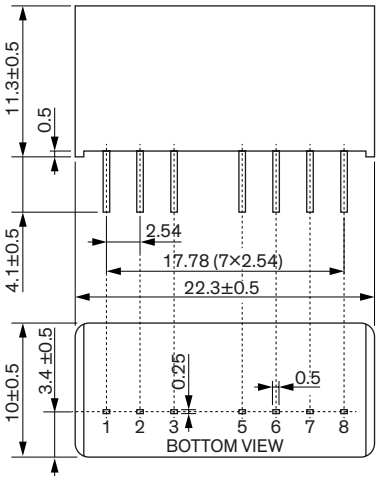
Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (VCC)	+Vin (VCC)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEC 3-1210WI	**4.5–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	75%
TEC 3-1211WI		5.0 VDC	600 mA	79%
TEC 3-1219WI		9.0 VDC	333 mA	81%
TEC 3-1212WI		12 VDC	250 mA	82%
TEC 3-1213WI		15 VDC	200 mA	83%
TEC 3-1215WI		24 VDC	125 mA	82%
TEC 3-1221WI		±5.0 VDC	±300 mA	80%
TEC 3-1222WI		±12 VDC	±125 mA	82%
TEC 3-1223WI		±15 VDC	±100 mA	81%
TEC 3-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	76%
TEC 3-2411WI		5.0 VDC	600 mA	80%
TEC 3-2419WI		9.0 VDC	333 mA	81%
TEC 3-2412WI		12 VDC	250 mA	83%
TEC 3-2413WI		15 VDC	200 mA	83%
TEC 3-2415WI		24 VDC	125 mA	81%
TEC 3-2421WI		±5.0 VDC	±300 mA	79%
TEC 3-2422WI		±12 VDC	±125 mA	81%
TEC 3-2423WI		±15 VDC	±100 mA	81%
TEC 3-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	74%
TEC 3-4811WI		5.0 VDC	600 mA	80%
TEC 3-4819WI		9.0 VDC	333 mA	81%
TEC 3-4812WI		12 VDC	250 mA	82%
TEC 3-4813WI		15 VDC	200 mA	83%
TEC 3-4815WI		24 VDC	125 mA	82%
TEC 3-4821WI		±5.0 VDC	±300 mA	80%
TEC 3-4822WI		±12 VDC	±125 mA	82%
TEC 3-4823WI		±15 VDC	±100 mA	82%

TEC 3UI | 3 W

NEW!





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEC 3-2410UI	9 – 75 VDC (24 VDC nom.)	3.3 VDC	700 mA	75%
TEC 3-2411UI		5 VDC	600 mA	79%
TEC 3-2412UI		12 VDC	250 mA	81%
TEC 3-2413UI		15 VDC	200 mA	81%
TEC 3-2421UI		±5 VDC	±300 mA	77%
TEC 3-2422UI		±12 VDC	±125 mA	79%
TEC 3-2423UI		±15 VDC	±100 mA	79%

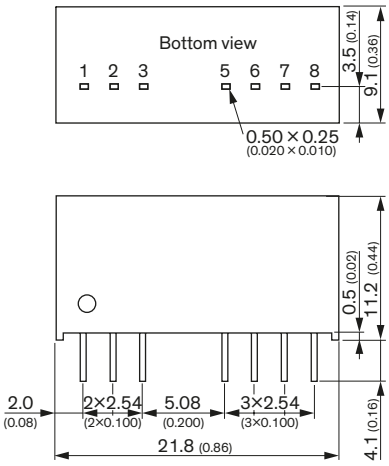
- Ultra-wide 8:1 input voltage range
- Compact SIP-8 package
- I/O-isolation 2000 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C
- Continuous short circuit protection
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	
2	+Vin	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout



TMR 3 | 3 W





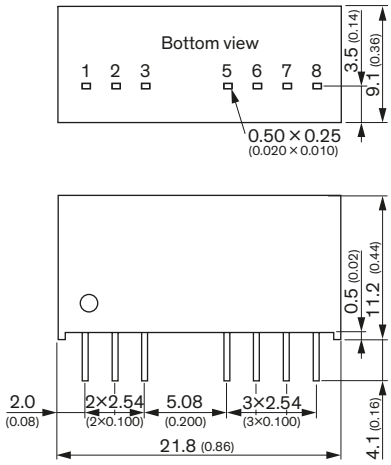
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 3-0510	4.5–9 VDC (5 VDC nom.)	3.3 VDC	700 mA	75%
TMR 3-0511		5 VDC	600 mA	79%
TMR 3-0512		12 VDC	250 mA	81%
TMR 3-0513		15 VDC	200 mA	82%
TMR 3-0521		±5 VDC	300 mA	78%
TMR 3-0522		±12 VDC	125 mA	81%
TMR 3-0523		±15 VDC	100 mA	81%
TMR 3-1210	9–18 VDC (12 VDC nom.)	3.3 VDC	700 mA	77%
TMR 3-1211		5 VDC	600 mA	81%
TMR 3-1212		12 VDC	250 mA	83%
TMR 3-1213		15 VDC	200 mA	83%
TMR 3-1221		±5 VDC	300 mA	82%
TMR 3-1222		±12 VDC	125 mA	83%
TMR 3-1223		±15 VDC	100 mA	83%
TMR 3-2410	18–36 VDC (24 VDC nom.)	3.3 VDC	700 mA	76%
TMR 3-2411		5 VDC	600 mA	82%
TMR 3-2412		12 VDC	250 mA	83%
TMR 3-2413		15 VDC	200 mA	84%
TMR 3-2421		±5 VDC	300 mA	80%
TMR 3-2422		±12 VDC	125 mA	83%
TMR 3-2423		±15 VDC	100 mA	85%
TMR 3-4810	36–75 VDC (48 VDC nom.)	3.3 VDC	700 mA	74%
TMR 3-4811		5 VDC	600 mA	79%
TMR 3-4812		12 VDC	250 mA	81%
TMR 3-4813		15 VDC	200 mA	82%
TMR 3-4821		±5 VDC	300 mA	79%
TMR 3-4822		±12 VDC	125 mA	82%
TMR 3-4823		±15 VDC	100 mA	83%

- Wide 2:1 input voltage range
- Fully regulated output voltage
- Compact SIP-8 package
- 1600 VDC I/O isolation (functional insulation)
- Small footprint
- Temperature range –40° to +85°C
- High efficiency up to 85%
- Short-circuit protection
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TMR 3WI | 3 W





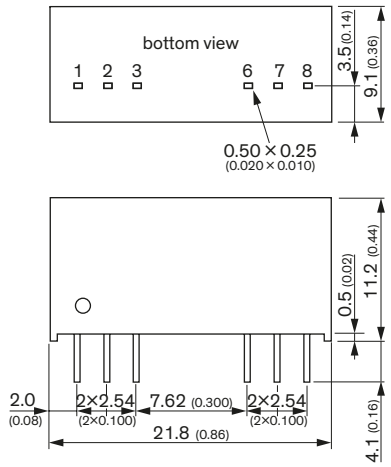
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 3-1210WI	4.5–18 VDC (12 VDC nom.)	3.3 VDC	700 mA	74%
TMR 3-1211WI		5 VDC	600 mA	78%
TMR 3-1212WI		12 VDC	250 mA	80%
TMR 3-1213WI		15 VDC	200 mA	80%
TMR 3-1221WI		±5 VDC	300 mA	80%
TMR 3-1222WI		±12 VDC	125 mA	80%
TMR 3-1223WI		±15 VDC	100 mA	80%
TMR 3-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	700 mA	75%
TMR 3-2411WI		5 VDC	600 mA	80%
TMR 3-2412WI		12 VDC	250 mA	82%
TMR 3-2413WI		15 VDC	200 mA	82%
TMR 3-2421WI		±5 VDC	300 mA	79%
TMR 3-2422WI		±12 VDC	125 mA	81%
TMR 3-2423WI		±15 VDC	100 mA	81%
TMR 3-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	700 mA	74%
TMR 3-4811WI		5 VDC	600 mA	80%
TMR 3-4812WI		12 VDC	250 mA	81%
TMR 3-4813WI		15 VDC	200 mA	81%
TMR 3-4821WI		±5 VDC	300 mA	79%
TMR 3-4822WI		±12 VDC	125 mA	81%
TMR 3-4823WI		±15 VDC	100 mA	81%

- Highest power density in SIP package
- Ultra wide 4:1 input range
- Small footprint: 21.8 × 9.2 mm
- Temperature range –40° to +85°C
- High efficiency up to 82%
- Excellent load and line regulation
- Short-circuit protection
- I/O isolation 1600 VDC
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TMR 3HI | 3 W





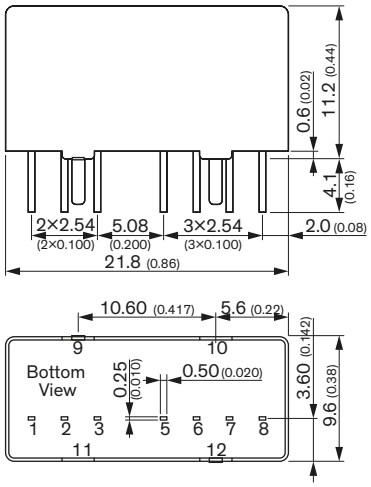
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 3-0510HI	4.5–9 VDC (5 VDC nom.)	3.3 VDC	700 mA	75%
TMR 3-0511HI		5 VDC	600 mA	79%
TMR 3-0512HI		12 VDC	250 mA	81%
TMR 3-0513HI		15 VDC	200 mA	82%
TMR 3-0521HI		±5 VDC	300 mA	78%
TMR 3-0522HI		±12 VDC	125 mA	81%
TMR 3-0523HI		±15 VDC	100 mA	81%
TMR 3-1210HI	9–18 VDC (12 VDC nom.)	3.3 VDC	700 mA	77%
TMR 3-1211HI		5 VDC	600 mA	81%
TMR 3-1212HI		12 VDC	250 mA	83%
TMR 3-1213HI		15 VDC	200 mA	83%
TMR 3-1221HI		±5 VDC	300 mA	82%
TMR 3-1222HI		±12 VDC	125 mA	83%
TMR 3-1223HI		±15 VDC	100 mA	83%
TMR 3-2410HI	18–36 VDC (24 VDC nom.)	3.3 VDC	700 mA	76%
TMR 3-2411HI		5 VDC	600 mA	82%
TMR 3-2412HI		12 VDC	250 mA	83%
TMR 3-2413HI		15 VDC	200 mA	84%
TMR 3-2421HI		±5 VDC	300 mA	80%
TMR 3-2422HI		±12 VDC	125 mA	83%
TMR 3-2423HI		±15 VDC	100 mA	85%
TMR 3-4810HI	36–75 VDC (48 VDC nom.)	3.3 VDC	700 mA	74%
TMR 3-4811HI		5 VDC	600 mA	79%
TMR 3-4812HI		12 VDC	250 mA	81%
TMR 3-4813HI		15 VDC	200 mA	82%
TMR 3-4821HI		±5 VDC	300 mA	79%
TMR 3-4822HI		±12 VDC	125 mA	82%
TMR 3-4823HI		±15 VDC	100 mA	83%

- Wide 2:1 input voltage range
- Fully regulated output voltage
- Compact SIP-8 package
- 3000 VDC I/O isolation (functional insulation)
- Small footprint
- Temperature range –40° to +85°C
- High efficiency up to 85%
- Short-circuit protection
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TVN 3 | 3 W





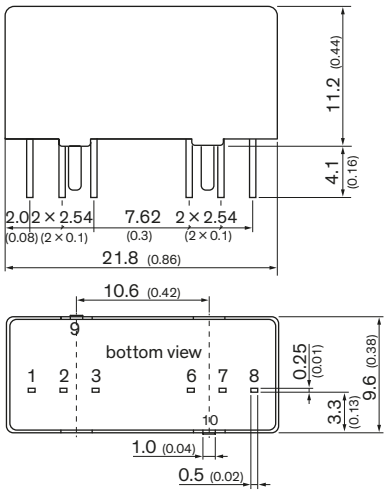
- Ultra low ripple and noise 10 mVp-p typ.
- Compact SIP-8 package
- Input Voltage range 4.5–13.2, 9–18, 18–36, 36–75 VDC
- I/O isolation 1600 VDC
- Operating temperature range –40 to +75°C without derating
- Fully regulated outputs
- Short circuit protection
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9/10	Case	Case

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TVN 3-0910	**4.5–13.2 VDC** (9 VDC nominal)	3.3 VDC	700 mA	75%
TVN 3-0911		5.0 VDC	600 mA	79%
TVN 3-0919		9.0 VDC	333 mA	80%
TVN 3-0912		12 VDC	250 mA	83%
TVN 3-0913		15 VDC	200 mA	83%
TVN 3-0915		24 VDC	125 mA	82%
TVN 3-0921		± 5.0 VDC	±300 mA	78%
TVN 3-0922		±12 VDC	±125 mA	82%
TVN 3-0923		±15 VDC	±100 mA	81%
TVN 3-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	77%
TVN 3-1211		5.0 VDC	600 mA	81%
TVN 3-1219		9.0 VDC	333 mA	80%
TVN 3-1212		12 VDC	250 mA	85%
TVN 3-1213		15 VDC	200 mA	84%
TVN 3-1215		24 VDC	125 mA	84%
TVN 3-1221		± 5.0 VDC	±300 mA	82%
TVN 3-1222		±12 VDC	±125 mA	84%
TVN 3-1223		±15 VDC	±100 mA	83%
TVN 3-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	76%
TVN 3-2411		5.0 VDC	600 mA	82%
TVN 3-2419		9.0 VDC	333 mA	82%
TVN 3-2412		12 VDC	250 mA	85%
TVN 3-2413		15 VDC	200 mA	85%
TVN 3-2415		24 VDC	125 mA	84%
TVN 3-2421		± 5.0 VDC	±300 mA	80%
TVN 3-2422		±12 VDC	±125 mA	84%
TVN 3-2423		±15 VDC	±100 mA	85%
TVN 3-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	74%
TVN 3-4811		5.0 VDC	600 mA	80%
TVN 3-4819		9.0 VDC	333 mA	80%
TVN 3-4812		12 VDC	250 mA	84%
TVN 3-4813		15 VDC	200 mA	84%
TVN 3-4815		24 VDC	125 mA	84%
TVN 3-4821		± 5.0 VDC	±300 mA	79%
TVN 3-4822		±12 VDC	±125 mA	84%
TVN 3-4823		±15 VDC	±100 mA	83%

TMR 3WIR | 3 W





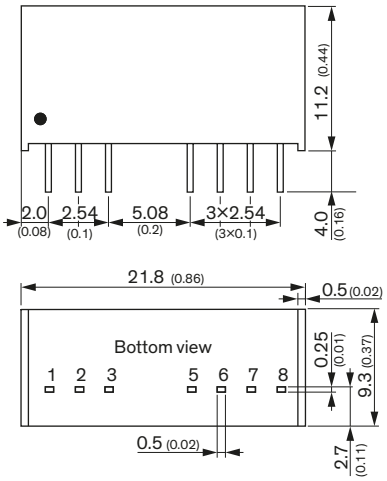
- Compact SIP-8 metal case
- EN 50155 railway approval
- Ultra wide 4:1 Input: 9–36, 18–75 and 43–160 VDC
- I/O-isolation 3000 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C
- Short circuit protection and current limitation
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9, 10	Case	Case

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 3-2410WIR	**9–36 VDC** (24 VDC nom.)	3.3 VDC	700 mA	76%
TMR 3-2411WIR		5 VDC	600 mA	81%
TMR 3-2419WIR		9VDC	333 mA	81%
TMR 3-2412WIR		12 VDC	250 mA	83%
TMR 3-2413WIR		15 VDC	200 mA	83%
TMR 3-2415WIR		24 VDC	125 mA	82%
TMR 3-2421WIR		± 5 VDC	300 mA	80%
TMR 3-2422WIR		±12 VDC	125 mA	82%
TMR 3-2423WIR		±15 VDC	100 mA	82%
TMR 3-4810WIR	**18–75 VDC** (48 VDC nom.)	3.3 VDC	700 mA	75%
TMR 3-4811WIR		5 VDC	600 mA	81%
TMR 3-4819WIR		9VDC	333 mA	81%
TMR 3-4812WIR		12 VDC	250 mA	82%
TMR 3-4813WIR		15 VDC	200 mA	82%
TMR 3-4815WIR		24 VDC	125 mA	82%
TMR 3-4821WIR		± 5 VDC	300 mA	80%
TMR 3-4822WIR		±12 VDC	125 mA	82%
TMR 3-4823WIR		±15 VDC	100 mA	82%
TMR 3-7210WIR	**43–160 VDC** (110 VDC nom.)	3.3 VDC	700 mA	76%
TMR 3-7211WIR		5 VDC	600 mA	80%
TMR 3-7219WIR		9VDC	333 mA	81%
TMR 3-7212WIR		12 VDC	250 mA	82%
TMR 3-7213WIR		15 VDC	200 mA	83%
TMR 3-7215WIR		24 VDC	125 mA	83%
TMR 3-7221WIR		± 5 VDC	300 mA	80%
TMR 3-7222WIR		±12 VDC	125 mA	83%
TMR 3-7223WIR		±15 VDC	100 mA	81%

TMR 4 | 4 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 4-1211	9–18 VDC (12 VDC nom.)	5 VDC	800 mA	78%
TMR 4-1212		12 VDC	333 mA	82%
TMR 4-1213		15 VDC	266 mA	82%
TMR 4-1215		24 VDC	166 mA	82%
TMR 4-1222		±12 VDC	±166 mA	82%
TMR 4-1223		±15 VDC	±133 mA	82%
TMR 4-2411	18–36 VDC (24 VDC nom.)	5 VDC	800 mA	79%
TMR 4-2412		12 VDC	333 mA	83%
TMR 4-2413		15 VDC	266 mA	83%
TMR 4-2415		24 VDC	166 mA	83%
TMR 4-2422		±12 VDC	±166 mA	83%
TMR 4-2423		±15 VDC	±133 mA	83%
TMR 4-4811	18–75 VDC (48 VDC nom.)	5 VDC	800 mA	78%
TMR 4-4812		12 VDC	333 mA	82%
TMR 4-4813		15 VDC	266 mA	82%
TMR 4-4815		24 VDC	166 mA	82%
TMR 4-4822		±12 VDC	±166 mA	82%
TMR 4-4823		±15 VDC	±133 mA	82%

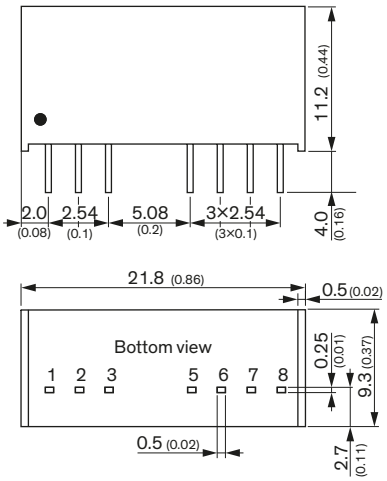
- Compact SIP-8 package
- Wide 2:1 input voltage range
- Temperature range –40° to +70°C without derating
- High efficiency up to 87%
- I/O isolation 1600 VDC
- Protection against short-circuit and over load
- Fully regulated outputs
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout



TMR 4WI | 4 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 4-2411WI	9–36 VDC (24 VDC nom.)	5 VDC	800 mA	79%
TMR 4-2412WI		12 VDC	333 mA	83%
TMR 4-2413WI		15 VDC	266 mA	83%
TMR 4-2415WI		24 VDC	166 mA	83%
TMR 4-2422WI		±12 VDC	166 mA	83%
TMR 4-2423WI		±15 VDC	133 mA	83%
TMR 4-4811WI	18–75 VDC (48 VDC nom.)	5 VDC	800 mA	78%
TMR 4-4812WI		12 VDC	333 mA	82%
TMR 4-4813WI		15 VDC	266 mA	82%
TMR 4-4815WI		24 VDC	166 mA	82%
TMR 4-4822WI		±12 VDC	166 mA	82%
TMR 4-4823WI		±15 VDC	133 mA	82%

- Compact SIP-8 package
- Wide 4:1 input voltage range
- Temperature range –40° to +70°C without derating
- High efficiency up to 83%
- I/O isolation 1600 VDC
- Protection against short-circuit and over load
- Fully regulated outputs
- Remote On/Off control
- 3-year product warranty

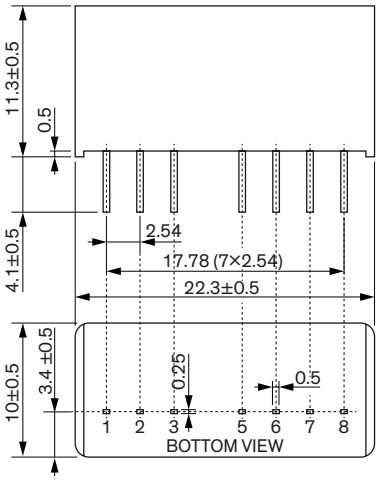
Pinout		
Pin	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout



TEC 6 | 6 W

NEW!





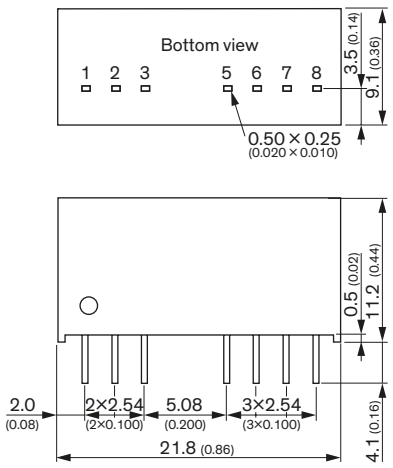
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEC 6-0510	**4.5–9 VDC** (5 VDC nom.)	3.3 VDC	1300 mA	82%
TEC 6-0511		5 VDC	1200 mA	86%
TEC 6-0519		12 VDC	667 mA	85%
TEC 6-0512		12 VDC	500 mA	87%
TEC 6-0513		15 VDC	400 mA	86%
TEC 6-0515		24 VDC	250 mA	83%
TEC 6-0521		±5 VDC	±600 mA	84%
TEC 6-0522		±12 VDC	±250 mA	86%
TEC 6-0523		±15 VDC	±200 mA	86%

- Compact SIP-8 package
- I/O-isolation 1600 VDC
- Wide 2:1 input voltage range
- Fully regulated outputs
- Operating temperature range –40°C to +90°C
- Continuous short circuit protection
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vin	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

TMR 6 | 6 W





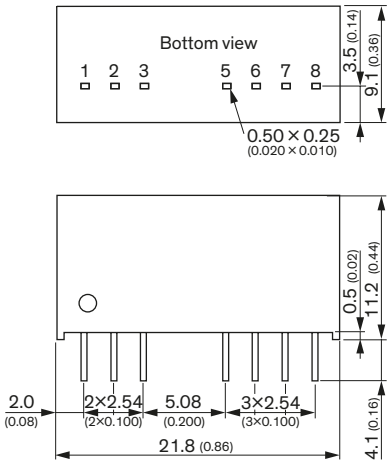
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 6-0510	**4.5–9 VDC** (5 VDC nom.)	3.3 VDC	1300 mA	77%
TMR 6-0511		5 VDC	1200 mA	81%
TMR 6-0519		9 VDC	666 mA	83%
TMR 6-0512		12 VDC	500 mA	84%
TMR 6-0513		15 VDC	400 mA	84%
TMR 6-0515		24 VDC	250 mA	84%
TMR 6-0521		±5 VDC	600 mA	81%
TMR 6-0522		±12 VDC	250 mA	84%
TMR 6-0523		±15 VDC	200 mA	84%
TMR 6-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	1300 mA	78%
TMR 6-1211		5 VDC	1200 mA	83%
TMR 6-1219		9 VDC	666 mA	85%
TMR 6-1212		12 VDC	500 mA	85%
TMR 6-1213		15 VDC	400 mA	85%
TMR 6-1215		24 VDC	250 mA	84%
TMR 6-1221		±5 VDC	600 mA	82%
TMR 6-1222		±12 VDC	250 mA	84%
TMR 6-1223		±15 VDC	200 mA	85%
TMR 6-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	1300 mA	78%
TMR 6-2411		5 VDC	1200 mA	83%
TMR 6-2419		9 VDC	666 mA	85%
TMR 6-2412		12 VDC	500 mA	86%
TMR 6-2413		15 VDC	400 mA	86%
TMR 6-2415		24 VDC	250 mA	85%
TMR 6-2421		±5 VDC	600 mA	82%
TMR 6-2422		±12 VDC	250 mA	85%
TMR 6-2423		±15 VDC	200 mA	85%
TMR 6-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	1300 mA	78%
TMR 6-4811		5 VDC	1200 mA	82%
TMR 6-4819		9 VDC	666 mA	84%
TMR 6-4812		12 VDC	500 mA	85%
TMR 6-4813		15 VDC	400 mA	86%
TMR 6-4815		24 VDC	250 mA	84%
TMR 6-4821		±5 VDC	600 mA	82%
TMR 6-4822		±12 VDC	250 mA	84%
TMR 6-4823		±15 VDC	200 mA	85%

- Ultra-compact SIP-8 package
- Wide 2:1 input voltage range
- Continuous shor-circuit protection
- Temperature range –40° to +78°C
- High efficiency up to 86%
- I/O isolation 1600 VDC
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TMR 6WI | 6 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 6-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	1'500 mA	81%
TMR 6-2411WI		5 VDC	1'200 mA	84%
TMR 6-2419WI		9 VDC	666 mA	86%
TMR 6-2412WI		12 VDC	500 mA	87%
TMR 6-2413WI		15 VDC	400 mA	88%
TMR 6-2415WI		24 VDC	250 mA	87%
TMR 6-2421WI		±5 VDC	600 mA	84%
TMR 6-2422WI		±12 VDC	250 mA	87%
TMR 6-2423WI		±15 VDC	200 mA	87%
TMR 6-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	1'500 mA	81%
TMR 6-4811WI		5 VDC	1'200 mA	84%
TMR 6-4819WI		9 VDC	666 mA	85%
TMR 6-4812WI		12 VDC	500 mA	87%
TMR 6-4813WI		15 VDC	400 mA	87%
TMR 6-4815WI		24 VDC	250 mA	87%
TMR 6-4821WI		±5 VDC	600 mA	84%
TMR 6-4822WI		±12 VDC	250 mA	87%
TMR 6-4823WI		±15 VDC	200 mA	87%

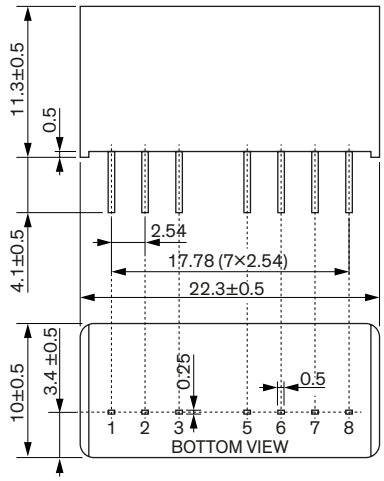
- Highest power density in SIP package
- Wide 4:1 input voltage range
- Ultra-compact SIP-8 package
- Smallest footprint 6 W converter
- Temperature range –40° to +84°C
- High efficiency up to 88%
- Indefinite short-circuit protection
- I/O isolation 1600 VDC
- Remote On/Off control
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout

TEC 6UI | 6 W

NEW!





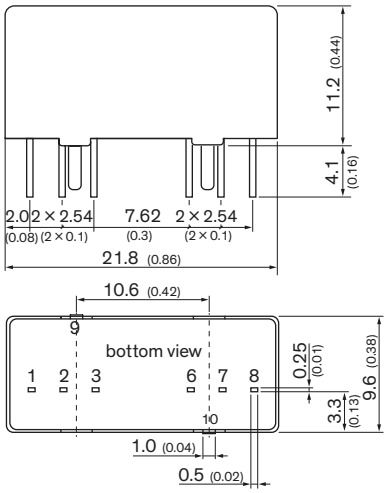
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEC 6-2410UI	9–75 VDC (24 VDC nom.)	3.3 VDC	1500 mA	76%
TEC 6-2411UI		5 VDC	1200 mA	79%
TEC 6-2419UI		9 VDC	666 mA	81%
TEC 6-2412UI		12 VDC	500 mA	83%
TEC 6-2413UI		15 VDC	400 mA	83%
TEC 6-2415UI		24 VDC	250 mA	82%
TEC 6-2421UI		±5 VDC	±600 mA	79%
TEC 6-2422UI		±12 VDC	±250 mA	83%
TEC 6-2423UI		±15 VDC	±200 mA	83%

- Ultra-wide 8:1 input voltage range
- Compact SIP-8 package
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +85°C
- Continuous short circuit protection
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	
2	+Vin	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

TMR 6WIR | 6 W





- Compact SIP-8 metal case
- EN 50155 railway approval
- Ultra wide 4:1 Input: 9–36, 18–75 and 43–160 VDC
- I/O-isolation 3000 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Short circuit protection and current limitation
- Remote On/Off
- 3-year product warranty

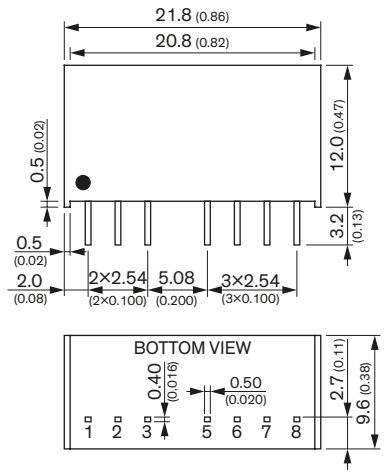
Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9, 10	Case	Case

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 6-2410WIR	**9–36 VDC** (24 VDC nom.)	3.3 VDC	1500 mA	81%
TMR 6-2411WIR		5 VDC	1200 mA	84%
TMR 6-2419WIR		9VDC	666 mA	86%
TMR 6-2412WIR		12 VDC	500 mA	87%
TMR 6-2413WIR		15 VDC	400 mA	88%
TMR 6-2415WIR		24 VDC	250 mA	87%
TMR 6-2421WIR		± 5 VDC	600 mA	84%
TMR 6-2422WIR		±12 VDC	250 mA	87%
TMR 6-2423WIR		±15 VDC	200 mA	87%
TMR 6-4810WIR	**18–75 VDC** (48 VDC nom.)	3.3 VDC	1500 mA	81%
TMR 6-4811WIR		5 VDC	1200 mA	84%
TMR 6-4819WIR		9VDC	666 mA	85%
TMR 6-4812WIR		12 VDC	500 mA	87%
TMR 6-4813WIR		15 VDC	400 mA	87%
TMR 6-4815WIR		24 VDC	250 mA	87%
TMR 6-4821WIR		± 5 VDC	600 mA	84%
TMR 6-4822WIR		±12 VDC	250 mA	87%
TMR 6-4823WIR		±15 VDC	200 mA	87%
TMR 6-7210WIR	**43–160 VDC** (110 VDC nom.)	3.3 VDC	1500 mA	80%
TMR 6-7211WIR		5 VDC	1200 mA	83%
TMR 6-7219WIR		9VDC	666 mA	85%
TMR 6-7212WIR		12 VDC	500 mA	86%
TMR 6-7213WIR		15 VDC	400 mA	86%
TMR 6-7215WIR		24 VDC	250 mA	86%
TMR 6-7221WIR		± 5 VDC	600 mA	83%
TMR 6-7222WIR		±12 VDC	250 mA	86%
TMR 6-7223WIR		±15 VDC	200 mA	86%

TMR 8WI | 8 W

NEW under development





- Ultra compact 8 Watt converter in SIP-8 metal casing
- Highest power density of 4,73 W/cm³
- Wide 4:1 input voltage ranges
- I/O-isolation 1600 VDC
- High efficiency (up to 86%) for low thermal loss
- Operating temperature range –40°C to +85°C
- Fully regulated outputs
- Remote On/Off control
- Indefinite short circuit protection
- 3-year product warranty

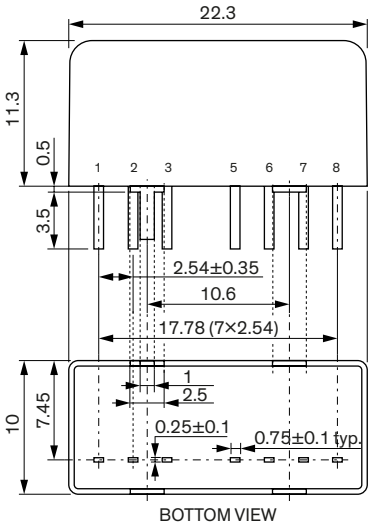
Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vout	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 8-1211WI	**4.5–18 VDC** (12 VDC nom.)	5 VDC	1600 mA	84%
TMR 8-1212WI		12 VDC	665 mA	86%
TMR 8-1213WI		15 VDC	535 mA	86%
TMR 8-1215WI		24 VDC	335 mA	86%
TMR 8-1222WI		±12 VDC	±335 mA	86%
TMR 8-1223WI		±15 VDC	±265 mA	86%
TMR 8-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	1600 mA	84%
TMR 8-2412WI		12 VDC	665 mA	86%
TMR 8-2413WI		15 VDC	535 mA	86%
TMR 8-2415WI		24 VDC	335 mA	86%
TMR 8-2422WI		±12 VDC	±335 mA	86%
TMR 8-2423WI		±15 VDC	±265 mA	86%
TMR 8-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	1600 mA	84%
TMR 8-4812WI		12 VDC	665 mA	86%
TMR 8-4813WI		15 VDC	535 mA	86%
TMR 8-4815WI		24 VDC	335 mA	86%
TMR 8-4822WI		±12 VDC	±335 mA	86%
TMR 8-4823WI		±15 VDC	±265 mA	86%

TEC 8UI | 8 W

NEW under development





- Ultra-wide 8:1 input range: 9 VDC to 75 VDC
- Operating temperature from –40°C to +85°C
- Compact SIP8 plastic case
- I/O isolation 2000 VDC
- Operating up to 5000m altitude
- Certification according to IEC/EN/UL 62368-1
- Short circuit protection and over current limitation
- Under voltage lockout
- Remote ON/OFF
- 3-year product warranty

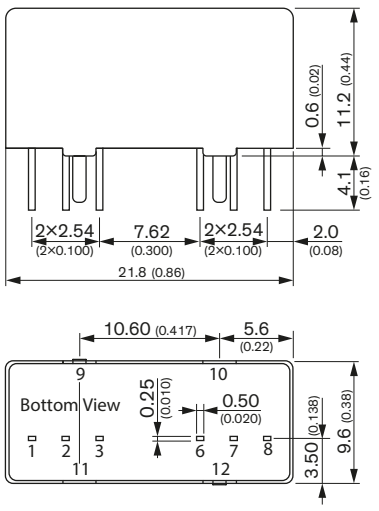
Pinout		
Pin	**Single**	**Dual**
1	–Vin	
2	+Vin	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

NC: Not connected

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEC 8-2410UI	**9–75 VDC** (24 VDC nom.)	3.3 VDC	2430 mA	83%
TEC 8-2411UI		5 VDC	1600 mA	83%
TEC 8-2419UI		9 VDC	890 mA	85%
TEC 8-2412UI		12 VDC	670 mA	86%
TEC 8-2413UI		15 VDC	540 mA	86%
TEC 8-2415UI		24 VDC	340 mA	86%
TEC 8-2421UI		±5 VDC	±800 mA	83%
TEC 8-2422UI		±12 VDC	±340 mA	86%
TEC 8-2423UI		±15 VDC	±270 mA	86%

TMR 9 | 9 W





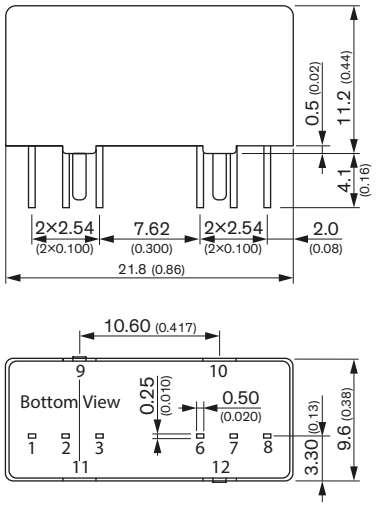
- Highest power density in SIP-8 metal package (optional plastic package)
- Wide 2:1 input voltage range
- Temperature range –40° to +85°C
- High efficiency up to 89%
- Indefinite short-circuit protection
- I/O isolation 1600 VDC
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9	Case	Case
10	Stand Off	Stand Off
11	Stand Off	Stand Off
12	Case	Case

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 9-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	2000 mA	81%
TMR 9-1211		5 VDC	1600 mA	85%
TMR 9-1219		9 VDC	1000 mA	87%
TMR 9-1212		12 VDC	750 mA	88%
TMR 9-1213		15 VDC	600 mA	89%
TMR 9-1215		24 VDC	375 mA	89%
TMR 9-1221		±5 VDC	800 mA	85%
TMR 9-1222		±12 VDC	375 mA	88%
TMR 9-1223		±15 VDC	300 mA	89%
TMR 9-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	2000 mA	82%
TMR 9-2411		5 VDC	1600 mA	85%
TMR 9-2419		9 VDC	1000 mA	88%
TMR 9-2412		12 VDC	750 mA	89%
TMR 9-2413		15 VDC	600 mA	90%
TMR 9-2415		24 VDC	375 mA	90%
TMR 9-2421		±5 VDC	800 mA	86%
TMR 9-2422		±12 VDC	375 mA	89%
TMR 9-2423		±15 VDC	300 mA	87%
TMR 9-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	2000 mA	82%
TMR 9-4811		5 VDC	1600 mA	85%
TMR 9-4819		9 VDC	1000 mA	88%
TMR 9-4812		12 VDC	750 mA	89%
TMR 9-4813		15 VDC	600 mA	89%
TMR 9-4815		24 VDC	375 mA	89%
TMR 9-4821		±5 VDC	800 mA	86%
TMR 9-4822		±12 VDC	375 mA	87%
TMR 9-4823		±15 VDC	300 mA	87%

TMR 9WI | 9 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 9-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	2000 mA	82%
TMR 9-2411WI		5 VDC	1600 mA	85%
TMR 9-2419WI		9 VDC	1000 mA	88%
TMR 9-2412WI		12 VDC	750 mA	88%
TMR 9-2413WI		15 VDC	600 mA	89%
TMR 9-2415WI		24 VDC	375 mA	89%
TMR 9-2421WI		±5 VDC	800 mA	86%
TMR 9-2422WI		±12 VDC	375 mA	88%
TMR 9-2423WI		±15 VDC	300 mA	88%
TMR 9-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	2000 mA	82%
TMR 9-4811WI		5 VDC	1600 mA	85%
TMR 9-4819WI		9 VDC	1000 mA	89%
TMR 9-4812WI		12 VDC	750 mA	89%
TMR 9-4813WI		15 VDC	600 mA	89%
TMR 9-4815WI		24 VDC	375 mA	89%
TMR 9-4821WI		±5 VDC	800 mA	85%
TMR 9-4822WI		±12 VDC	375 mA	88%
TMR 9-4823WI		±15 VDC	300 mA	87%

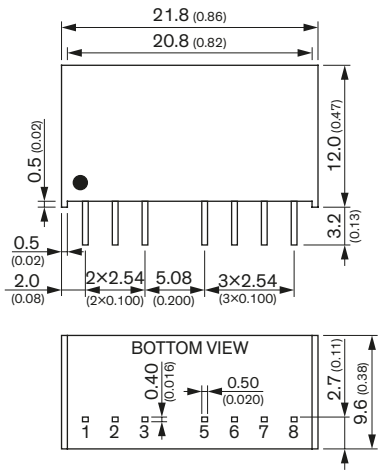
- Highest power density in SIP-8 metal package (optional plastic package)
- Ultra wide 4:1 input voltage range
- Temperature range –40° to +85°C
- High efficiency up to 89%
- Indefinite short-circuit protection
- I/O isolation 1600 VDC
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9	Case	Case
10	Stand Off	Stand Off
11	Stand Off	Stand Off
12	Case	Case

TMR 10WI | 10 W

NEW under development





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMR 10-1211WI	4.5–18 VDC (12 VDC nom.)	5.1 VDC	2000 mA	86%
TMR 10-1212WI		12 VDC	833 mA	88%
TMR 10-1213WI		15 VDC	666 mA	88%
TMR 10-1215WI		24 VDC	416 mA	88%
TMR 10-1222WI		±12 VDC	±416 mA	88%
TMR 10-1223WI		±15 VDC	±333 mA	88%
TMR 10-2411WI	9–36 VDC (24 VDC nom.)	5.1 VDC	2000 mA	86%
TMR 10-2412WI		12 VDC	833 mA	87%
TMR 10-2413WI		15 VDC	666 mA	88%
TMR 10-2415WI		24 VDC	416 mA	88%
TMR 10-2422WI		±12 VDC	±416 mA	87%
TMR 10-2423WI		±15 VDC	±333 mA	87%
TMR 10-4811WI	18–75 VDC (48 VDC nom.)	5.1 VDC	2000 mA	86%
TMR 10-4812WI		12 VDC	833 mA	87%
TMR 10-4813WI		15 VDC	666 mA	88%
TMR 10-4815WI		24 VDC	416 mA	88%
TMR 10-4822WI		±12 VDC	±416 mA	87%
TMR 10-4823WI		±15 VDC	±333 mA	87%

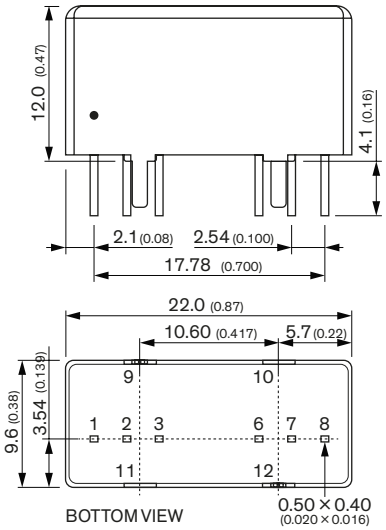
- Ultra compact 10 Watt converter in SIP-8 metal casing
- Highest power density of 4,73 W/cm³
- Wide 4:1 input voltage ranges
- I/O-isolation 1600 VDC
- High efficiency (up to 86%) for low thermal loss
- Operating temperature range –40°C to +85°C
- Fully regulated outputs
- Remote On/Off control
- Indefinite short circuit protection
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	
2	+Vout	
3	Remote On/Off	
5	NC	
6	+Vout	
7	–Vout	Common
8	NC	–Vout

TMR 12WI | 12 W



- Ultra compact 12 Watt converter in SIP-8 metal casing
- Highest power density of 4.73 W/cm³
- Wide 4:1 input voltage ranges
- I/O-isolation 1600 VDC
- High efficiency (up to 90%) for low thermal loss
- Operating temperature range –40°C to +85°C
- Fully regulated outputs
- Remote On/Off control
- Indefinite short circuit protection
- 3-year product warranty



Pinout		
Pin	**Single**	**Dual**
1	–Vin	–Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9	Case	Case
10	Stand off	Stand off
11	Stand off	Stand off
12	Case	Case

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TMR 12-1210WI		3.3 VDC	3000 mA	87%
TMR 12-1211WI		5.1 VDC	2400 mA	88.5%
TMR 12-1219WI		9 VDC	1333 mA	87%
TMR 12-1212WI		12 VDC	1000 mA	89%
TMR 12-1213WI	4.5–18 VDC	15 VDC	800 mA	89%
TMR 12-1215WI		24 VDC	500 mA	90%
TMR 12-1221WI		±5 VDC	±1200 mA	85.5%
TMR 12-1222WI		±12 VDC	±500 mA	89%
TMR 12-1223WI		±15 VDC	±400 mA	89%
TMR 12-2410WI		3.3 VDC	3000 mA	87%
TMR 12-2411WI		5.1 VDC	2400 mA	89%
TMR 12-2419WI		9 VDC	1333 mA	87%
TMR 12-2412WI		12 VDC	1000 mA	89%
TMR 12-2413WI	9–36 VDC	15 VDC	800 mA	89%
TMR 12-2415WI		24 VDC	500 mA	80%
TMR 12-2421WI		±5 VDC	±1200 mA	86%
TMR 12-2422WI		±12 VDC	±500 mA	89%
TMR 12-2423WI		±15 VDC	±400 mA	89%
TMR 12-4810WI		3.3 VDC	3000 mA	87%
TMR 12-4811WI		5.1 VDC	2400 mA	89%
TMR 12-4819WI		9 VDC	1333 mA	87%
TMR 12-4812WI		12 VDC	1000 mA	89%
TMR 12-4813WI	18–75 VDC	15 VDC	800 mA	89%
TMR 12-4815WI		24 VDC	500 mA	90%
TMR 12-4821WI		±5 VDC	±1200 mA	86%
TMR 12-4822WI		±12 VDC	±500 mA	89.5%
TMR 12-4823WI		±15 VDC	±400 mA	89%



High Perfomance DC/DC Converters

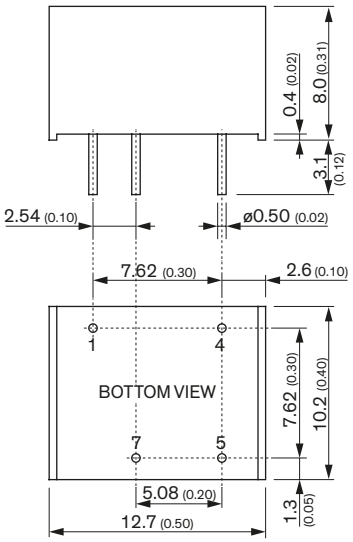
1–80 watt

TRACO POWER's DIP package isolated DC/DC Converters provide a complete range of compact products from 1 to 60 watts with non-regulated, semi-regulated and fully regulated outputs.



TDU 1 | 1 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TDU 1-0511	**5 VDC ±10%** (nominal 5 VDC)	5 VDC	200 mA	80%
TDU 1-0512		12 VDC	84 mA	82%
TDU 1-0513		15 VDC	67 mA	83%
TDU 1-1211	**12 VDC ±10%** (nominal 12 VDC)	5 VDC	200 mA	79%
TDU 1-1212		12 VDC	84 mA	81%
TDU 1-1213		15 VDC	67 mA	82%
TDU 1-2411	**24 VDC ±10%** (nominal 24 VDC)	5 VDC	200 mA	78%
TDU 1-2412		12 VDC	84 mA	80%
TDU 1-2413		15 VDC	67 mA	81%

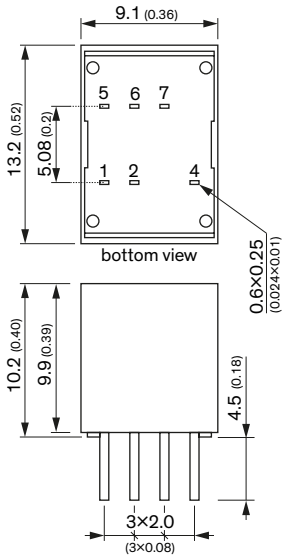
- Compact 1 Watt converter in DIP-8 package
- Continuous short circuit protection
- Unregulated outputs
- Operating temperature range –40 to +85°C without derating
- I/O isolation 1500 VDC
- Input voltage ranges (±10%): 5, 12, 24 VDC
- Efficiency up to 83%
- 3-year product warranty

Pinout	
Pin	**Function**
1	–Vin
2	+Vin
3	+Vout
4	–Vout



TDN 1WI | 1 W





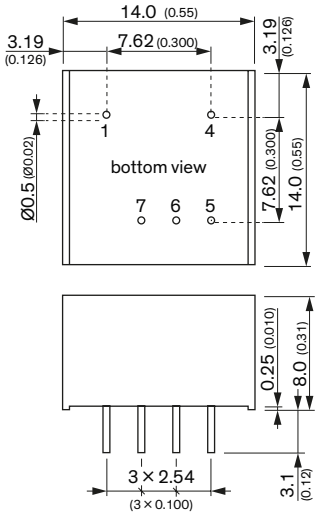
- Compact DIP package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C without derating
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	no con.	–Vout
6	–Vout	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDN 1-1210WI	**4.5–18 VDC** (12 VDC nominal)	3.3 VDC	300 mA	77%
TDN 1-1211WI		5.0 VDC	200 mA	79%
TDN 1-1219WI		9.0 VDC	112 mA	79%
TDN 1-1212WI		12 VDC	90 mA	81%
TDN 1-1213WI		15 VDC	70 mA	81%
TDN 1-1215WI		24 VDC	45 mA	80%
TDN 1-1221WI		± 5.0 VDC	±100 mA	77%
TDN 1-1222WI		±12 VDC	±45 mA	80%
TDN 1-1223WI		±15 VDC	±35 mA	81%
TDN 1-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	300 mA	76%
TDN 1-2411WI		5.0 VDC	200 mA	78%
TDN 1-2419WI		9.0 VDC	112 mA	79%
TDN 1-2412WI		12 VDC	90 mA	81%
TDN 1-2413WI		15 VDC	70 mA	81%
TDN 1-2415WI		24 VDC	45 mA	80%
TDN 1-2421WI		± 5.0 VDC	±100 mA	77%
TDN 1-2422WI		±12 VDC	±45 mA	80%
TDN 1-2423WI		±15 VDC	±35 mA	81%
TDN 1-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	300 mA	75%
TDN 1-4811WI		5.0 VDC	200 mA	78%
TDN 1-4819WI		9.0 VDC	112 mA	79%
TDN 1-4812WI		12 VDC	90 mA	81%
TDN 1-4813WI		15 VDC	70 mA	81%
TDN 1-4815WI		24 VDC	45 mA	80%
TDN 1-4821WI		± 5.0 VDC	±100 mA	77%
TDN 1-4822WI		±12 VDC	±45 mA	80%
TDN 1-4823WI		±15 VDC	±35 mA	81%

TDL 2 | 2 W





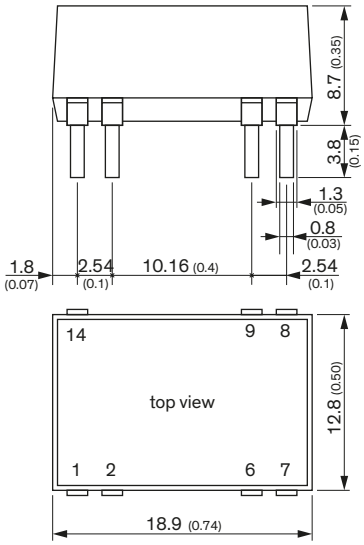
- Compact 2 W converter in DIP package
- I/O-isolation 1500 VDC
- Fully regulated outputs
- Wide 2:1 input voltage range
- Operating temperature range –40°C to +80°C
- Short circuit protection
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
4	+Vin (Vcc)	+Vin (Vcc)
5	+Vout	+Vout
6	no pin	Common
7	–Vout	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDL 2-0510	**4.5–10 VDC** (5 VDC nominal)	3.3 VDC	400 mA	79%
TDL 2-0511		5.0 VDC	400 mA	81%
TDL 2-0512		12 VDC	167 mA	85%
TDL 2-0513		15 VDC	134 mA	87%
TDL 2-0521		±5.0 VDC	±200 mA	83%
TDL 2-0522		±12 VDC	±83 mA	85%
TDL 2-0523		±15 VDC	±67 mA	85%
TDL 2-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	400 mA	80%
TDL 2-1211		5.0 VDC	400 mA	83%
TDL 2-1212		12 VDC	167 mA	87%
TDL 2-1213		15 VDC	134 mA	87%
TDL 2-1221		±5.0 VDC	±200 mA	84%
TDL 2-1222		±12 VDC	±83 mA	86%
TDL 2-1223		±15 VDC	±67 mA	86%
TDL 2-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	400 mA	79%
TDL 2-2411		5.0 VDC	400 mA	84%
TDL 2-2412		12 VDC	167 mA	86%
TDL 2-2413		15 VDC	134 mA	87%
TDL 2-2421		±5.0 VDC	±200 mA	84%
TDL 2-2422		±12 VDC	±83 mA	86%
TDL 2-2423		±15 VDC	±67 mA	86%
TDL 2-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	400 mA	79%
TDL 2-4811		5.0 VDC	400 mA	83%
TDL 2-4812		12 VDC	167 mA	85%
TDL 2-4813		15 VDC	134 mA	86%
TDL 2-4821		±5.0 VDC	±200 mA	82%
TDL 2-4822		±12 VDC	±83 mA	84%
TDL 2-4823		±15 VDC	±67 mA	84%

TDR 2 | 2 W





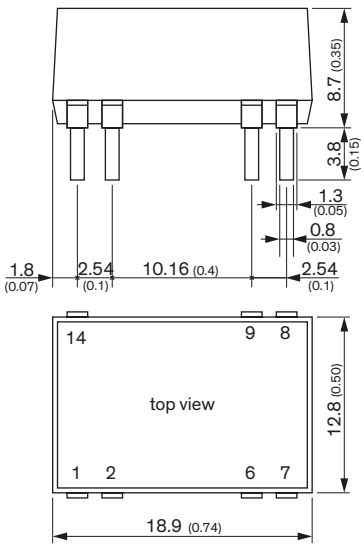
- Compact design in THD Package
- Wide 2:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TDR 2-0511	**4.5–9.0 VDC** (5 VDC nominal)	5.0 VDC	400 mA	80%
TDR 2-0512		12 VDC	167 mA	81%
TDR 2-0513		15 VDC	134 mA	83%
TDR 2-0522		±12 VDC	±83 mA	81%
TDR 2-0523		±15 VDC	±67 mA	82%
TDR 2-1211	**9–18 VDC** (12 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-1212		12 VDC	167 mA	81%
TDR 2-1213		15 VDC	134 mA	84%
TDR 2-1222		±12 VDC	±83 mA	83%
TDR 2-1223		±15 VDC	±67 mA	82%
TDR 2-2411	**18–36 VDC** (24 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-2412		12 VDC	167 mA	84%
TDR 2-2413		15 VDC	134 mA	84%
TDR 2-2422		±12 VDC	±83 mA	84%
TDR 2-2423		±15 VDC	±67 mA	84%
TDR 2-4811	**36–75 VDC** (48 VDC nominal)	5.0 VDC	400 mA	81%
TDR 2-4812		12 VDC	167 mA	82%
TDR 2-4813		15 VDC	134 mA	82%
TDR 2-4822		±12 VDC	±83 mA	83%
TDR 2-4823		±15 VDC	±67 mA	83%

TDR 2WI | 2 W





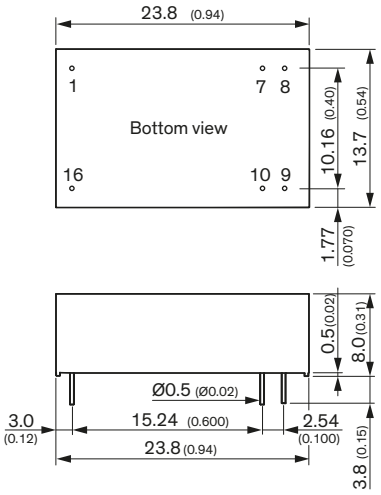
- Compact design in THD Package
- Ultra wide 4:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TDR 2-1211WI	**4.5–18 VDC** (12 VDC nominal)	5.0 VDC	400 mA	79%
TDR 2-1212WI		12 VDC	167 mA	80%
TDR 2-1213WI		15 VDC	134 mA	81%
TDR 2-1222WI		±12 VDC	±83 mA	81%
TDR 2-1223WI		±15 VDC	±67 mA	81%
TDR 2-2411WI	**9–36 VDC** (24 VDC nominal)	5.0 VDC	400 mA	79%
TDR 2-2412WI		12 VDC	167 mA	80%
TDR 2-2413WI		15 VDC	134 mA	82%
TDR 2-2422WI		±12 VDC	±83 mA	81%
TDR 2-2423WI		±15 VDC	±67 mA	81%
TDR 2-4811WI	**18–75 VDC** (48 VDC nominal)	5.0 VDC	400 mA	78%
TDR 2-4812WI		12 VDC	167 mA	81%
TDR 2-4813WI		15 VDC	134 mA	82%
TDR 2-4822WI		±12 VDC	±83 mA	81%
TDR 2-4823WI		±15 VDC	±67 mA	81%

TEL 2 | 2 W





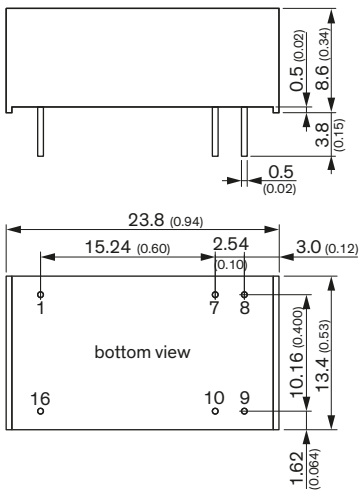
- Ultracompact DIP-16 plastic package
- Wide 2:1 input range
- Regulated output
- I/O isolation 1500V
- Input filter meets EN55022, class A without ext. components
- Low ripple and noise
- Indefinite shortcircuit protection
- Operating temperature range –40°C to +75°C
- Lead free design, RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
7	No con.	No con.
8	No con.	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 2-0510	**4.5–9 VDC** (nominal 5 VDC)	3.3 VDC	500 mA	70%
TEL 2-0511		5 VDC	400 mA	73%
TEL 2-0512		12 VDC	165 mA	75%
TEL 2-0513		15 VDC	135 mA	73%
TEL 2-0521		±5 VDC	±200 mA	64%
TEL 2-0522		±12 VDC	±85 mA	69%
TEL 2-0523		±15 VDC	±65 mA	71%
TEL 2-1210	**9–18 VDC** (nominal 12 VDC)	3.3 VDC	500 mA	73%
TEL 2-1211		5 VDC	400 mA	77%
TEL 2-1212		12 VDC	165 mA	80%
TEL 2-1213		15 VDC	135 mA	80%
TEL 2-1221		±5 VDC	±200 mA	73%
TEL 2-1222		±12 VDC	±85 mA	78%
TEL 2-1223		±15 VDC	±65 mA	78%
TEL 2-2410	**18–36 VDC** (nominal 24 VDC)	3.3 VDC	500 mA	72%
TEL 2-2411		5 VDC	400 mA	77%
TEL 2-2412		12 VDC	165 mA	80%
TEL 2-2413		15 VDC	135 mA	81%
TEL 2-2421		±5 VDC	±200 mA	74%
TEL 2-2422		±12 VDC	±85 mA	78%
TEL 2-2423		±15 VDC	±65 mA	80%
TEL 2-4810	**36–75 VDC** (nominal 48 VDC)	3.3 VDC	500 mA	71%
TEL 2-4811		5 VDC	400 mA	73%
TEL 2-4812		12 VDC	165 mA	79%
TEL 2-4813		15 VDC	135 mA	79%
TEL 2-4821		±5 VDC	±200 mA	71%
TEL 2-4822		±12 VDC	±85 mA	77%
TEL 2-4823		±15 VDC	±65 mA	77%

THI 2M | 2 W





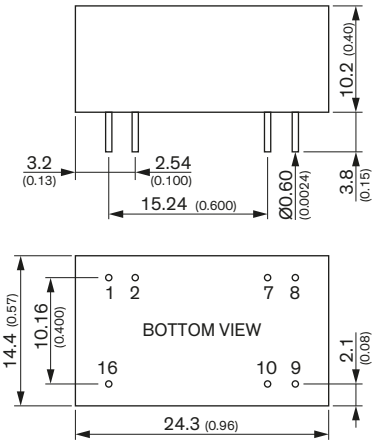
- DIP-16 Package
- Unregulated device
- I/O isolation 3000 VACrms rated for 300 Vrms working voltage
- Medical safety to UL 60601-1 and IEC/EN 60601-1 3rd edition, 2 × MOOP
- Industrial safety to IEC/EN/UL 62368-1
- Operating temp. range –25°C to +80°C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
7	No con.	No con.
8	No con.	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THI 2-0511M	**5.0 VDC ± 10%** (nominal 5 VDC)	5 VDC	400 mA	66%
THI 2-0512M		12 VDC	165 mA	66%
THI 2-0513M		15 VDC	133 mA	66%
THI 2-0522M		±12 VDC	±83 mA	72%
THI 2-0523M		±15 VDC	±66 mA	73%
THI 2-1211M	**12.0 VDC ± 10%** (nominal 12 VDC)	5 VDC	400 mA	66%
THI 2-1212M		12 VDC	165 mA	66%
THI 2-1213M		15 VDC	133 mA	66%
THI 2-1222M		±12 VDC	±83 mA	74%
THI 2-1223M		±15 VDC	±66 mA	75%
THI 2-2411M	**24 VDC ± 10%** (nominal 24 VDC)	5 VDC	400 mA	66%
THI 2-2412M		12 VDC	165 mA	66%
THI 2-2413M		15 VDC	133 mA	66%
THI 2-2422M		±12 VDC	±83 mA	74%
THI 2-2423M		±15 VDC	±66 mA	75%

TIM 2 | 2 W





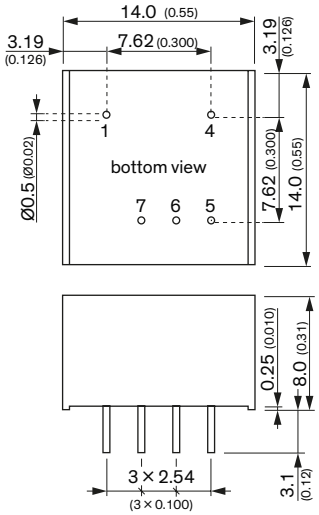
- Compact DIP-16-package
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and operation up to 5000 m altitude
- Low leakage current <2 µA
- Extended operating temperature range –40°C to 95°C.
- 5-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TIM 2-0910	**4.5–12 VDC** (9 VDC nom.)	3.3 VDC	600 mA	75%
TIM 2-0911		5 VDC	400 mA	78%
TIM 2-0919		9 VDC	222 mA	78%
TIM 2-0912		12 VDC	167 mA	82%
TIM 2-0913		15 VDC	134 mA	82%
TIM 2-0915		24 VDC	83 mA	82%
TIM 2-0922		±12 VDC	83 mA	82%
TIM 2-0923		±15 VDC	67 mA	80%
TIM 2-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-1211		5 VDC	400 mA	78%
TIM 2-1219		9 VDC	222 mA	79%
TIM 2-1212		12 VDC	167 mA	82%
TIM 2-1213		15 VDC	134 mA	82%
TIM 2-1215		24 VDC	83 mA	81%
TIM 2-1222		±12 VDC	83 mA	81%
TIM 2-1223		±15 VDC	67 mA	81%
TIM 2-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-2411		5 VDC	400 mA	79%
TIM 2-2419		9 VDC	222 mA	80%
TIM 2-2412		12 VDC	167 mA	81%
TIM 2-2413		15 VDC	134 mA	81%
TIM 2-2415		24 VDC	83 mA	81%
TIM 2-2422		±12 VDC	83 mA	81%
TIM 2-2423		±15 VDC	67 mA	81%
TIM 2-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	600 mA	76%
TIM 2-4811		5 VDC	400 mA	78%
TIM 2-4819		9 VDC	222 mA	79%
TIM 2-4812		12 VDC	167 mA	80%
TIM 2-4813		15 VDC	134 mA	82%
TIM 2-4815		24 VDC	83 mA	81%
TIM 2-4822		±12 VDC	83 mA	81%
TIM 2-4823		±15 VDC	67 mA	81%

TDL 3 | 3 W





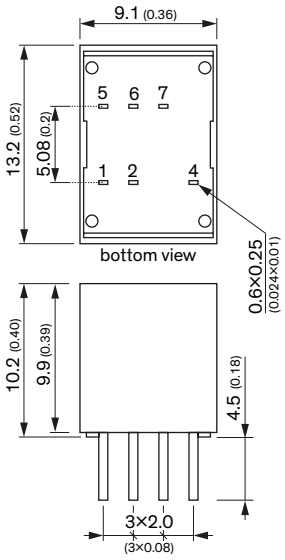
- Compact 3 W converter in DIP package
- I/O-isolation 1500 VDC
- Fully regulated outputs
- Wide 2:1 input voltage range
- Operating temperature range –40°C to +80°C
- Short circuit protection
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
4	+Vin (Vcc)	+Vin (Vcc)
5	+Vout	+Vout
6	no pin	Common
7	–Vout	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TDL 3-0510	**4.5–10 VDC** (5 VDC nominal)	3.3 VDC	600 mA	79%
TDL 3-0511		5.0 VDC	600 mA	81%
TDL 3-0512		12 VDC	250 mA	85%
TDL 3-0513		15 VDC	200 mA	85%
TDL 3-0521		±5.0 VDC	±300 mA	82%
TDL 3-0522		±12 VDC	±125 mA	84%
TDL 3-0523		±15 VDC	±100 mA	85%
TDL 3-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	600 mA	80%
TDL 3-1211		5.0 VDC	600 mA	83%
TDL 3-1212		12 VDC	250 mA	87%
TDL 3-1213		15 VDC	200 mA	87%
TDL 3-1221		±5.0 VDC	±300 mA	84%
TDL 3-1222		±12 VDC	±125 mA	86%
TDL 3-1223		±15 VDC	±100 mA	87%
TDL 3-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	600 mA	80%
TDL 3-2411		5.0 VDC	600 mA	83%
TDL 3-2412		12 VDC	250 mA	87%
TDL 3-2413		15 VDC	200 mA	87%
TDL 3-2421		±5.0 VDC	±300 mA	84%
TDL 3-2422		±12 VDC	±125 mA	86%
TDL 3-2423		±15 VDC	±100 mA	87%
TDL 3-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	600 mA	79%
TDL 3-4811		5.0 VDC	600 mA	82%
TDL 3-4812		12 VDC	250 mA	86%
TDL 3-4813		15 VDC	200 mA	86%
TDL 3-4821		±5.0 VDC	±300 mA	82%
TDL 3-4822		±12 VDC	±125 mA	85%
TDL 3-4823		±15 VDC	±100 mA	85%

TDN 3WI | 3 W



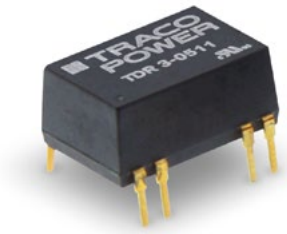


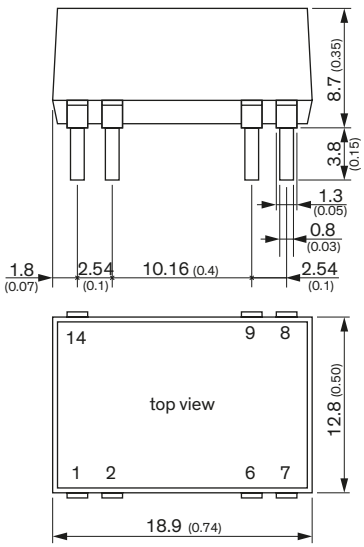
- Ultra compact DIP package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +70°C without derating
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	no con.	–Vout
6	–Vout	Common
7	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDN 3-1210WI	**4.5–18 VDC** (12 VDC nominal)	3.3 VDC	700 mA	76%
TDN 3-1211WI		5.0 VDC	600 mA	80%
TDN 3-1219WI		9.0 VDC	333 mA	81%
TDN 3-1212WI		12 VDC	250 mA	83%
TDN 3-1213WI		15 VDC	200 mA	84%
TDN 3-1215WI		24 VDC	125 mA	82%
TDN 3-1221WI		±5.0 VDC	±300 mA	80%
TDN 3-1222WI		±12 VDC	±125 mA	82%
TDN 3-1223WI		±15 VDC	±100 mA	82%
TDN 3-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	700 mA	77%
TDN 3-2411WI		5.0 VDC	600 mA	80%
TDN 3-2419WI		9.0 VDC	333 mA	81%
TDN 3-2412WI		12 VDC	250 mA	83%
TDN 3-2413WI		15 VDC	200 mA	83%
TDN 3-2415WI		24 VDC	125 mA	82%
TDN 3-2421WI		±5.0 VDC	±300 mA	80%
TDN 3-2422WI		±12 VDC	±125 mA	82%
TDN 3-2423WI		±15 VDC	±100 mA	82%
TDN 3-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	700 mA	77%
TDN 3-4811WI		5.0 VDC	600 mA	80%
TDN 3-4819WI		9.0 VDC	333 mA	81%
TDN 3-4812WI		12 VDC	250 mA	83%
TDN 3-4813WI		15 VDC	200 mA	83%
TDN 3-4815WI		24 VDC	125 mA	82%
TDN 3-4821WI		±5.0 VDC	±300 mA	80%
TDN 3-4822WI		±12 VDC	±125 mA	82%
TDN 3-4823WI		±15 VDC	±100 mA	82%

TDR 3 | 3 W





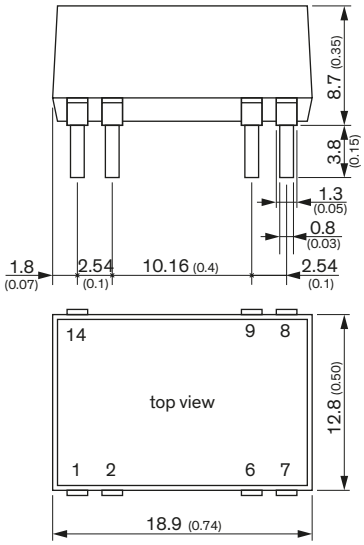
- Compact design in THD Package
- Wide 2:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDR 3-0511	**4.5–9.0 VDC** (5 VDC nominal)	5.0 VDC	600 mA	79%
TDR 3-0512		12 VDC	250 mA	80%
TDR 3-0513		15 VDC	200 mA	81%
TDR 3-0522		±12 VDC	±125 mA	80%
TDR 3-0523		±15 VDC	±100 mA	81%
TDR 3-1211	**9–18 VDC** (12 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-1212		12 VDC	250 mA	82%
TDR 3-1213		15 VDC	200 mA	82%
TDR 3-1222		±12 VDC	±125 mA	82%
TDR 3-1223		±15 VDC	±100 mA	83%
TDR 3-2411	**18–36 VDC** (24 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-2412		12 VDC	250 mA	82%
TDR 3-2413		15 VDC	200 mA	83%
TDR 3-2422		±12 VDC	±125 mA	83%
TDR 3-2423		±15 VDC	±100 mA	83%
TDR 3-4811	**36–75 VDC** (48 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-4812		12 VDC	250 mA	82%
TDR 3-4813		15 VDC	200 mA	82%
TDR 3-4822		±12 VDC	±125 mA	83%
TDR 3-4823		±15 VDC	±100 mA	83%

TDR 3WI | 3 W





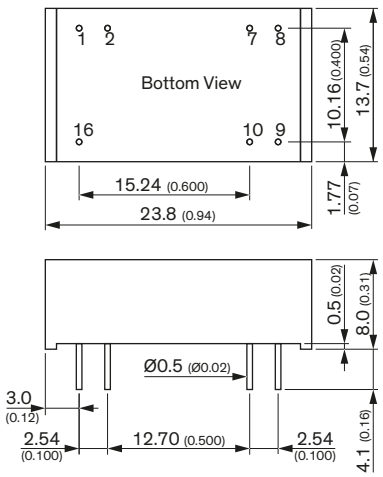
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDR 3-1211WI	**4.5–18 VDC** (12 VDC nominal)	5.0 VDC	600 mA	81%
TDR 3-1212WI		12 VDC	250 mA	82%
TDR 3-1213WI		15 VDC	200 mA	82%
TDR 3-1222WI		±12 VDC	±125 mA	82%
TDR 3-1223WI		±15 VDC	±100 mA	81%
TDR 3-2411WI	**9–36 VDC** (24 VDC nominal)	5.0 VDC	600 mA	80%
TDR 3-2412WI		12 VDC	250 mA	82%
TDR 3-2413WI		15 VDC	200 mA	82%
TDR 3-2422WI		±12 VDC	±125 mA	82%
TDR 3-2423WI		±15 VDC	±100 mA	81%
TDR 3-4811WI	**18–75 VDC** (48 VDC nominal)	5.0 VDC	600 mA	80%
TDR 3-4812WI		12 VDC	250 mA	83%
TDR 3-4813WI		15 VDC	200 mA	82%
TDR 3-4822WI		±12 VDC	±125 mA	82%
TDR 3-4823WI		±15 VDC	±100 mA	81%

- Compact design in THD Package
- Ultra wide 4:1 input voltage range
- Fully regulated outputs
- Low ripple and noise
- Temperature range –40°C to +85°C without derating
- I/O isolation 1600 VDC
- Continuous short-circuit protection
- Remote On/Off control
- Fully RoHS compliant
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

THL 3WI | 3 W



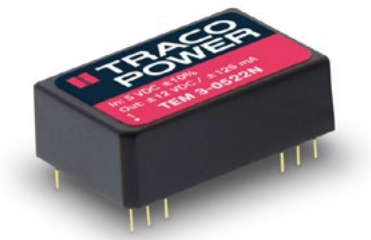


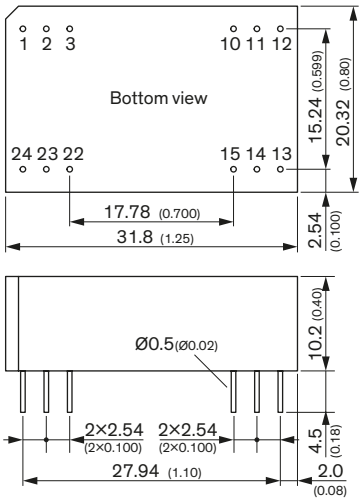
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 3-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	600 mA	75%
THL 3-2411WI		5.0 VDC	600 mA	78%
THL 3-2412WI		12 VDC	250 mA	80%
THL 3-2413WI		15 VDC	200 mA	80%
THL 3-2415WI		24 VDC	125 mA	80%
THL 3-2421WI		±5 VDC	±300 mA	77%
THL 3-2422WI		±12 VDC	±125 mA	80%
THL 3-2423WI		±15 VDC	±100 mA	80%
THL 3-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	600 mA	75%
THL 3-4811WI		5.0 VDC	600 mA	78%
THL 3-4812WI		12 VDC	250 mA	80%
THL 3-4813WI		15 VDC	200 mA	80%
THL 3-4815WI		24 VDC	125 mA	80%
THL 3-4821WI		±5 VDC	±300 mA	77%
THL 3-4822WI		±12 VDC	±125 mA	80%
THL 3-4823WI		±15 VDC	±100 mA	80%

- DIP-16 package, low profile
- Ultra wide 4:1 input voltage range
- Fully regulated outputs
- I/O-isolation 1500 VDC
- Input filter to meet EN 55032, class A
- Remote On/Off
- Adjustable output voltage
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
7	ntc.	ntc.
8	ntc.	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TEM 3N | 3 W





- Cost optimized design in DIP-24 package
- Fully regulated output
- Output ripple & noise 30 mVp-p typ.
- Short circuit protection
- Operating temperature range –40°C to +75°C at full load
- I/O isolation 1500 VDC
- Input filter meet EN 55022, class A
- No minimum load required
- Industry standard pinout
- 3-year product warranty

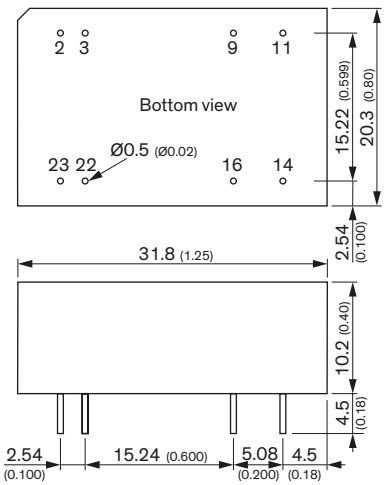
Pinout

Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	ntc.	–Vout
3	ntc.	Common
10	–Vout	Common
11	+Vout	+Vout
12	–Vin (GND)	–Vin (GND)
13	–Vin (GND)	–Vin (GND)
14	+Vout	+Vout
15	–Vout	Common
22	ntc.	Common
23	ntc.	–Vout
24	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEM 3-0511N	5 VDC ±10%	5 VDC	600 mA	70%
TEM 3-0512N		12 VDC	250 mA	78%
TEM 3-0513N		15 VDC	200 mA	78%
TEM 3-0522N		±12 VDC	±125 mA	78%
TEM 3-0523N		±15 VDC	±100 mA	78%
TEM 3-1211N	12 VDC ±10%	5 VDC	600 mA	74%
TEM 3-1212N		12 VDC	250 mA	80%
TEM 3-1213N		15 VDC	200 mA	80%
TEM 3-1222N		±12 VDC	±125 mA	81%
TEM 3-1223N		±15 VDC	±100 mA	82%
TEM 3-2411N	24 VDC ±10%	5 VDC	600 mA	75%
TEM 3-2412N		12 VDC	250 mA	80%
TEM 3-2413N		15 VDC	200 mA	80%
TEM 3-2422N		±12 VDC	±125 mA	81%
TEM 3-2423N		±15 VDC	±100 mA	82%

TEN 3N | 3 W





- Wide 2:1 input range
- Input filter to meet EN 55032, class A and FCC, level A without external components
- Extended operating temperature range –40°C to +85°C
- Models with 1500 VDC and 3000 VDC I/O isolation (functional insulation)
- High reliability, MTBF >1.0 Mio. h
- 3-year product warranty

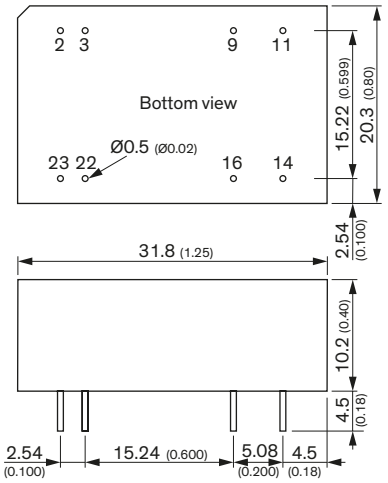
Pinout

Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	ntc	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEN 3-0510N	4.5–9.0 VDC (nominal 5 VDC)	3.3 VDC	750 mA	77%
TEN 3-0511N		5.0 VDC	600 mA	80%
TEN 3-0512N		12 VDC	250 mA	82%
TEN 3-0513N		15 VDC	200 mA	82%
TEN 3-0515N		24 VDC	125 mA	81%
TEN 3-0521N		±5.0 VDC	±250 mA	80%
TEN 3-0522N		±12 VDC	±125 mA	82%
TEN 3-0523N		±15 VDC	±100 mA	82%
TEN 3-1210N	9–18 VDC (nominal 12 VDC)	3.3 VDC	750 mA	79%
TEN 3-1211N		5.0 VDC	600 mA	81%
TEN 3-1212N		12 VDC	250 mA	85%
TEN 3-1213N		15 VDC	200 mA	85%
TEN 3-1215N		24 VDC	125 mA	84%
TEN 3-1221N		±5.0 VDC	±250 mA	80%
TEN 3-1222N		±12 VDC	±125 mA	84%
TEN 3-1223N		±15 VDC	±100 mA	84%
TEN 3-2410N	18–36 VDC (nominal 24 VDC)	3.3 VDC	750 mA	79%
TEN 3-2411N		5.0 VDC	600 mA	81%
TEN 3-2412N		12 VDC	250 mA	85%
TEN 3-2413N		15 VDC	200 mA	85%
TEN 3-2415N		24 VDC	125 mA	84%
TEN 3-2421N		±5.0 VDC	±250 mA	80%
TEN 3-2422N		±12 VDC	±125 mA	84%
TEN 3-2423N		±15 VDC	±100 mA	84%
TEN 3-4810N	36–75 VDC (nominal 48 VDC)	3.3 VDC	750 mA	79%
TEN 3-4811N		5.0 VDC	600 mA	81%
TEN 3-4812N		12 VDC	250 mA	85%
TEN 3-4813N		15 VDC	200 mA	85%
TEN 3-4815N		24 VDC	125 mA	84%
TEN 3-4821N		±5.0 VDC	±250 mA	80%
TEN 3-4822N		±12 VDC	±125 mA	84%
TEN 3-4823N		±15 VDC	±100 mA	84%

TEN 3WIN | 3 W





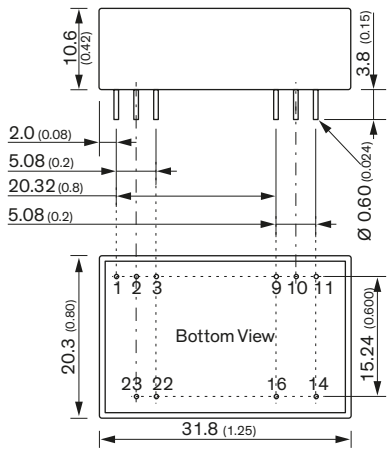
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 3-2410WIN	9.0–36 VDC (nominal 24 VDC)	3.3 VDC	750 mA	77%
TEN 3-2411WIN		5.0 VDC	600 mA	79%
TEN 3-2412WIN		12 VDC	250 mA	82%
TEN 3-2413WIN		15 VDC	200 mA	83%
TEN 3-2415WIN		24 VDC	125 mA	81%
TEN 3-2421WIN		±5.0 VDC	±250 mA	80%
TEN 3-2422WIN		±12 VDC	±125 mA	82%
TEN 3-2423WIN		±15 VDC	±100 mA	82%
TEN 3-4810WIN	18–75 VDC (nominal 48 VDC)	3.3 VDC	750 mA	77%
TEN 3-4811WIN		5 VDC	600 mA	80%
TEN 3-4812WIN		12 VDC	250 mA	83%
TEN 3-4813WIN		15 VDC	200 mA	84%
TEN 3-4815WIN		24 VDC	125 mA	82%
TEN 3-4821WIN		±5.0 VDC	±250 mA	80%
TEN 3-4822WIN		±12 VDC	±125 mA	82%
TEN 3-4823WIN		±15 VDC	±100 mA	82%

- Ultra wide 4:1 input range
- Input filter to meet EN 55032, Class A and FCC, level A without external components
- Extended operating temperature range –40°C to 85°C
- Models with 1500 VDC and 3000 VDC I/O isolation (functional insulation)
- DIP-24 package
- High reliability, MTBF >1.0 Mio. h
- 3-year product warranty

Pinout		
Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	ntc	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEN 3WIRH | 3 W





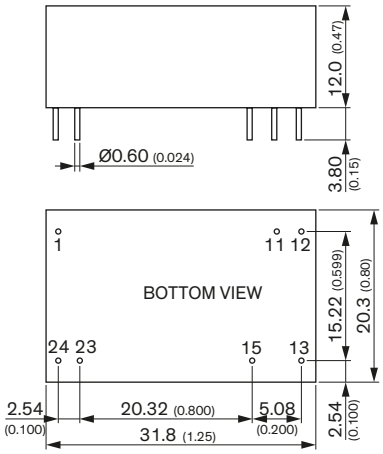
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 3-11010WIRH	36–160 VDC	3.3 VDC	1000 mA	80%
TEN 3-11011WIRH		5 VDC	600 mA	82%
TEN 3-11012WIRH		12 VDC	250 mA	85%
TEN 3-11013WIRH		15 VDC	200 mA	84%
TEN 3-11015WIRH		24 VDC	125 mA	85%
TEN 3-11021WIRH		±5 VDC	±300 mA	81%
TEN 3-11022WIRH		±12 VDC	±125 mA	84%
TEN 3-11023WIRH		±15 VDC	±100 mA	85%

- Fully encapsulated DIP-24 package
- 3000 VAC I/O isolation (reinforced)
- 4:1 input voltage range: 36–160 VDC
- EN 50155 and EN 61373 certified
- Internal class A EMI filter
- –40°C up to +95°C without derating
- EN 45545-2 fire behavior
- Remote on/off function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), and overvoltage protection (OVP)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Ctrl	Ctrl
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Common
10	Trim (option)	Trim (option)
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

TRI 3 | 3.5 W





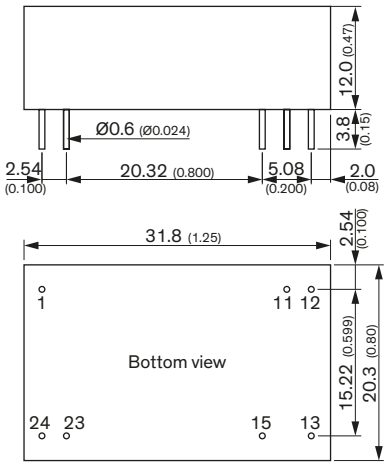
- Reinforced I/O-isolation 5000 VAC rated for 1000 VAC working voltage
- Ultra-high isolation peak voltage 9000 VDC (1s)
- Common Mode Transient Immunity (dv/dt) 15 kV/µs
- Operating temperature range –40 to +90°C
- Low no-load power consumption 96–192 mW
- Internal EN 55032 class A filter
- High efficiency up to 87%
- 2:1 input voltage range: 4.5–9, 9–18, 18–36, 36–75 VDC
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 3-0511	**4.5–9 VDC** (5 VDC nom.)	5 VDC	700 mA	82%
TRI 3-0512		12 VDC	290 mA	83%
TRI 3-0513		15 VDC	235 mA	84%
TRI 3-0515		24 VDC	146 mA	83%
TRI 3-0522		±12 VDC	145 mA	84%
TRI 3-0523		±15 VDC	115 mA	84%
TRI 3-1211	**9–18 VDC** (12 VDC nom.)	5 VDC	700 mA	82%
TRI 3-1212		12 VDC	290 mA	86%
TRI 3-1213		15 VDC	235 mA	87%
TRI 3-1215		24 VDC	146 mA	86%
TRI 3-1222		±12 VDC	145 mA	87%
TRI 3-1223		±15 VDC	115 mA	87%
TRI 3-2411	**18–36 VDC** (24 VDC nom.)	5 VDC	700 mA	82%
TRI 3-2412		12 VDC	290 mA	85%
TRI 3-2413		15 VDC	235 mA	87%
TRI 3-2415		24 VDC	146 mA	86%
TRI 3-2422		±12 VDC	145 mA	87%
TRI 3-2423		±15 VDC	115 mA	86%
TRI 3-4811	**36–75 VDC** (48 VDC nom.)	5 VDC	700 mA	82%
TRI 3-4812		12 VDC	290 mA	85%
TRI 3-4813		15 VDC	235 mA	85%
TRI 3-4815		24 VDC	146 mA	83%
TRI 3-4822		±12 VDC	145 mA	84%
TRI 3-4823		±15 VDC	115 mA	84%

THR 3WI | 3 W



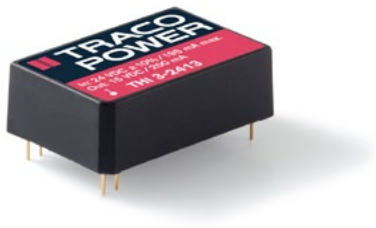


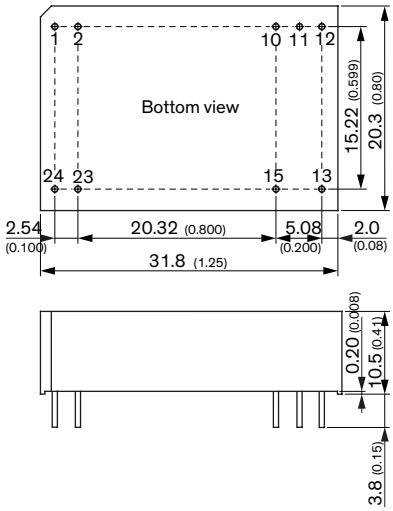
- Reinforced I/O-isolation 3000 VAC
- Shock and vibration resistance according to EN 61373
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- Operating temperature range –40 to +92°C
- Internal EN 55032 class A filter
- High efficiency up to 85%
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
11	No Pin	Common
12	–Vout	No Pin
13	+Vout	–Vout
15	No Pin	+Vout
23	–Vin	–Vin
24	–Vin	–Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THR 3-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	600 mA	80%
THR 3-2412WI		12 VDC	250 mA	84%
THR 3-2413WI		15 VDC	200 mA	85%
THR 3-2422WI		±12 VDC	±125 mA	83%
THR 3-2423WI		±15 VDC	±100 mA	84%
THR 3-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	600 mA	80%
THR 3-4812WI		12 VDC	250 mA	83%
THR 3-4813WI		15 VDC	200 mA	84%
THR 3-4822WI		±12 VDC	±125 mA	83%
THR 3-4823WI		±15 VDC	±100 mA	83%
THR 3-7211WI	**40–160 VDC** (110 VDC nom.)	5 VDC	600 mA	80%
THR 3-7212WI		12 VDC	250 mA	84%
THR 3-7213WI		15 VDC	200 mA	84%
THR 3-7222WI		±12 VDC	±125 mA	83%
THR 3-7223WI		±15 VDC	±100 mA	85%

THI 3 | 3 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THI 3-0511	5.0 VDC ± 10%	5 VDC	600 mA	60%
THI 3-0512		12 VDC	250 mA	62%
THI 3-0513		15 VDC	200 mA	62%
THI 3-0522		±12 VDC	±125 mA	60%
THI 3-0523		±15 VDC	±100mA	60%
THI 3-1211	12.0 VDC ± 10%	5 VDC	600 mA	60%
THI 3-1212		12 VDC	250 mA	62%
THI 3-1213		15 VDC	200 mA	62%
THI 3-1222		±12 VDC	±125 mA	60%
THI 3-1223		±15 VDC	±100 mA	60%
THI 3-2411	24 VDC ± 10%	5 VDC	600 mA	60%
THI 3-2412		12 VDC	250 mA	64%
THI 3-2413		15 VDC	200 mA	64%
THI 3-2422		±12 VDC	±125 mA	60%
THI 3-2423		±15 VDC	±100 mA	60%

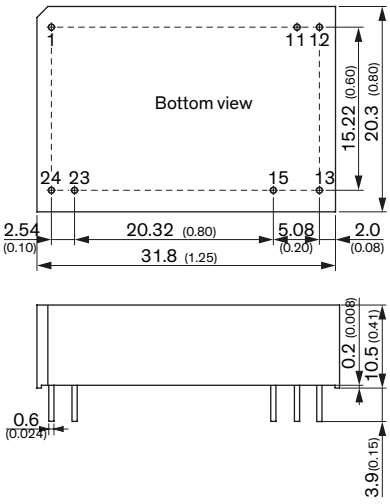
- Standard DIP-24 Package
- I/O isolation 4000 VACrms rated for 300 VACrms working voltage
- 2 × MOOP Medical safety according to AAMI/ANSI ES 60601-1:2005(R) and IEC/EN 60601-1 3rd edition
- Industrial safety to IEC/EN/UL 62368-1
- Operating temperature range –40°C to 75°C
- Fully regulated output voltage
- Input filter meets EN 55032, class A
- Short circuit protection
- 3-year product warranty

Pinout

Pin	Single	Dual
1	+Vin (VCC)	+Vin (VCC)
2	+Vin (VCC)	+Vin (VCC)
10	No pin	Common
11	No pin	Common
12	–Vout	No pin.
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

THP 3 | 3 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THP 3-2411	9–40 VDC (24 VDC nominal)	5 VDC	600 mA	78%
THP 3-2412		12 VDC	250 mA	83%
THP 3-2422		±12 VDC	±125 mA	83%
THP 3-2423		±15 VDC	±100 mA	83%
THP 3-4811	18–80 VDC (48 VDC nominal)	5 VDC	600 mA	78%
THP 3-4812		12 VDC	250 mA	83%
THP 3-4822		±12 VDC	±125 mA	83%
THP 3-4823		±15 VDC	±100 mA	83%
THP 3-7211	36–160 VDC (72 VDC nominal)	5 VDC	600 mA	78%
THP 3-7212		12 VDC	250 mA	83%
THP 3-7222		±12 VDC	±125 mA	83%
THP 3-7223		±15 VDC	±100 mA	83%

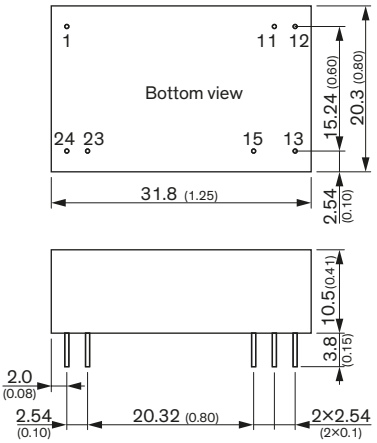
- Ultra wide 4:1 input voltage range up to 160 VDC
- I/O isolation voltage 4000 VACrms
- Reinforced insulation rated for working voltage 1000 VAC
- 2 × MOOP Medical safety according to ANSI/AAMI ES 60601-1:2005 and IEC/EN 60601-1 3rd edition
- Industrial safety to IEC/EN/UL 62368-1
- Operating temperature range –40°C to +85°C
- Input filter to meet EN 55011 & EN 55032, class A
- Low leakage current <2µA
- 3-year product warranty

Pinout

Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

THM 3 | 3 W





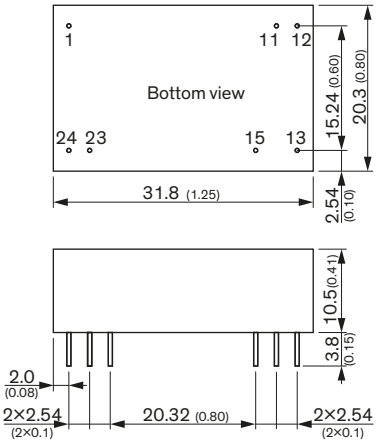
- Compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- IEC 60601-1 certification for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- 5-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 3-0510	**4.5–9 VDC** (5 VDC nom.)	3.3 VDC	1000 mA	81%
THM 3-0511		5 VDC	600 mA	85%
THM 3-0512		12 VDC	250 mA	86%
THM 3-0513		15 VDC	200 mA	88%
THM 3-0515		24 VDC	125 mA	86%
THM 3-0521		± 5 VDC	300 mA	83%
THM 3-0522		±12 VDC	125 mA	86%
THM 3-0523		±15 VDC	100 mA	86%
THM 3-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	1000 mA	82%
THM 3-1211		5 VDC	600 mA	85%
THM 3-1212		12 VDC	250 mA	87%
THM 3-1213		15 VDC	200 mA	87%
THM 3-1215		24 VDC	125 mA	87%
THM 3-1221		± 5 VDC	300 mA	84%
THM 3-1222		±12 VDC	125 mA	88%
THM 3-1223		±15 VDC	100 mA	87%
THM 3-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	1000 mA	82%
THM 3-2411		5 VDC	600 mA	85%
THM 3-2412		12 VDC	250 mA	87%
THM 3-2413		15 VDC	200 mA	87%
THM 3-2415		24 VDC	125 mA	87%
THM 3-2421		± 5 VDC	300 mA	83%
THM 3-2422		±12 VDC	125 mA	87%
THM 3-2423		±15 VDC	100 mA	86%
THM 3-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	1000 mA	81%
THM 3-4811		5 VDC	600 mA	84%
THM 3-4812		12 VDC	250 mA	87%
THM 3-4813		15 VDC	200 mA	87%
THM 3-4815		24 VDC	125 mA	87%
THM 3-4821		± 5 VDC	300 mA	83%
THM 3-4822		±12 VDC	125 mA	86%
THM 3-4823		±15 VDC	100 mA	86%

THM 3WI | 3 W





- Ultra wide 4:1 input voltage 3 W DC/DC converter in a compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	No pin*/Remote	No pin*/Remote
2	–Vin (GND)	–Vin (GND)
10	No pin*/Trim	No pin*/Trim
11	No pin/NC **	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

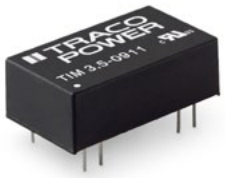
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 3-0510WI	**4.5–9 VDC** (5 VDC nom.)	3.3 VDC	1000 mA	81%
THM 3-0511WI		5 VDC	600 mA	85%
THM 3-0512WI		12 VDC	250 mA	86%
THM 3-0513WI		15 VDC	200 mA	88%
THM 3-0515WI		24 VDC	125 mA	86%
THM 3-0521WI		± 5 VDC	300 mA	83%
THM 3-0522WI		±12 VDC	125 mA	86%
THM 3-0523WI		±15 VDC	100 mA	86%
THM 3-2410WI	**9–36 VDC** (24 VDC nom.)	3.3 VDC	1000 mA	82%
THM 3-2411WI		5 VDC	600 mA	85%
THM 3-2412WI		12 VDC	250 mA	87%
THM 3-2413WI		15 VDC	200 mA	87%
THM 3-2415WI		24 VDC	125 mA	87%
THM 3-2421WI		± 5 VDC	300 mA	83%
THM 3-2422WI		±12 VDC	125 mA	87%
THM 3-2423WI		±15 VDC	100 mA	86%
THM 3-4810WI	**18–75 VDC** (48 VDC nom.)	3.3 VDC	1000 mA	81%
THM 3-4811WI		5 VDC	600 mA	84%
THM 3-4812WI		12 VDC	250 mA	87%
THM 3-4813WI		15 VDC	200 mA	87%
THM 3-4815WI		24 VDC	125 mA	87%
THM 3-4821WI		± 5 VDC	300 mA	83%
THM 3-4822WI		±12 VDC	125 mA	86%
THM 3-4823WI		±15 VDC	100 mA	86%

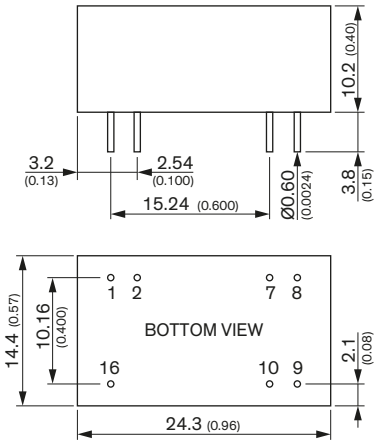
NC: No connection

* If Remote or Trim is not selected there is no pin on corresponding number.

** If Trim is selected there is no pin on the corresponding pin number.

TIM 3.5 | 3.5 W





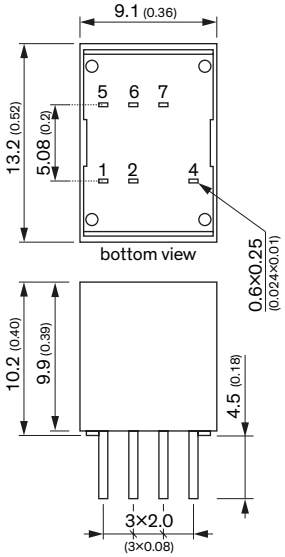
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TIM 3.5-0911	4.5–12 VDC (9 VDC nom.)	5 VDC	700 mA	77%
TIM 3.5-0919		9 VDC	389 mA	78%
TIM 3.5-0912		12 VDC	292 mA	82%
TIM 3.5-0913		15 VDC	234 mA	82%
TIM 3.5-0915		24 VDC	146 mA	82%
TIM 3.5-0922		±12 VDC	146 mA	82%
TIM 3.5-0923		±15 VDC	117 mA	81%
TIM 3.5-1211	9–18 VDC (12 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-1219		9 VDC	389 mA	79%
TIM 3.5-1212		12 VDC	292 mA	82%
TIM 3.5-1213		15 VDC	234 mA	82%
TIM 3.5-1215		24 VDC	146 mA	82%
TIM 3.5-1222		±12 VDC	146 mA	82%
TIM 3.5-1223		±15 VDC	117 mA	82%
TIM 3.5-2411	18–36 VDC (24 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-2419		9 VDC	389 mA	80%
TIM 3.5-2412		12 VDC	292 mA	83%
TIM 3.5-2413		15 VDC	234 mA	83%
TIM 3.5-2415		24 VDC	146 mA	82%
TIM 3.5-2422		±12 VDC	146 mA	82%
TIM 3.5-2423		±15 VDC	117 mA	82%
TIM 3.5-4811	36–75 VDC (48 VDC nom.)	5 VDC	700 mA	79%
TIM 3.5-4819		9 VDC	389 mA	80%
TIM 3.5-4812		12 VDC	292 mA	82%
TIM 3.5-4813		15 VDC	234 mA	82%
TIM 3.5-4815		24 VDC	146 mA	82%
TIM 3.5-4822		±12 VDC	146 mA	82%
TIM 3.5-4823		±15 VDC	117 mA	82%

- Compact DIP-16-package
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP and operation to 5000 m altitude
- Low leakage current <2 µA for BF-applications
- Extended operating temperature range –40°C to 90°C
- 5-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TDN 5WI | 5 W





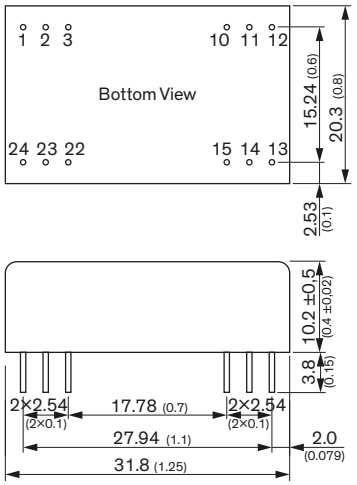
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TDN 5-0910WI	4.5–13.2 VDC (9 VDC nominal)	3.3 VDC	1000 mA	76%
TDN 5-0911WI		5.0 VDC	1000 mA	80%
TDN 5-0919WI		9.0 VDC	555 mA	81%
TDN 5-0912WI		12 VDC	420 mA	83%
TDN 5-0913WI		15 VDC	333 mA	83%
TDN 5-0915WI		24 VDC	210 mA	83%
TDN 5-0921WI		± 5.0 VDC	±500 mA	80%
TDN 5-0922WI		±12 VDC	±210 mA	83%
TDN 5-0923WI		±15 VDC	±168 mA	83%
TDN 5-2410WI	9–36 VDC (24 VDC nominal)	3.3 VDC	1000 mA	76%
TDN 5-2411WI		5.0 VDC	1000 mA	80%
TDN 5-2419WI		9.0 VDC	555 mA	81%
TDN 5-2412WI		12 VDC	420 mA	83%
TDN 5-2413WI		15 VDC	333 mA	83%
TDN 5-2415WI		24 VDC	210 mA	83%
TDN 5-2421WI		± 5.0 VDC	±500 mA	80%
TDN 5-2422WI		±12 VDC	±210 mA	83%
TDN 5-2423WI		±15 VDC	±168 mA	84%
TDN 5-4810WI	18–75 VDC (48 VDC nominal)	3.3 VDC	1000 mA	76%
TDN 5-4811WI		5.0 VDC	1000 mA	81%
TDN 5-4819WI		9.0 VDC	555 mA	81%
TDN 5-4812WI		12 VDC	420 mA	83%
TDN 5-4813WI		15 VDC	333 mA	83%
TDN 5-4815WI		24 VDC	210 mA	83%
TDN 5-4821WI		± 5.0 VDC	±500 mA	80%
TDN 5-4822WI		±12 VDC	±210 mA	83%
TDN 5-4823WI		±15 VDC	±168 mA	84%

- Ultra compact DIP package 13.2 × 9.1 × 10.2 mm
- I/O-isolation 1600 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +75°C
- Short circuit protection
- Remote On/Off
- Designed to meet IEC/EN/UL 62368-1 (not certified)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
4	On/Off	On/Off
5	no con.	–Vout
6	–Vout	Common
7	+Vout	+Vout

TVN 5WI | 5 W





- Ultra low ripple and noise 10 mVp-p typ.
- DIP-24 Package
- Regulated
- I/O isolation 1600 VDC functional
- Operating temperature range –40 to +90°C
- Remote On/Off
- 3-year product warranty

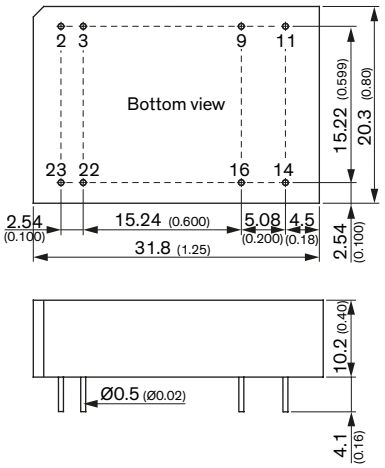
Pinout

Pin	Single	Dual
1	+Vin (Vcc)	
2	+Vin (Vcc)	
3	Case	
10	No pin	Common
11	No pin	+Vout 1
12	Case	
13	TRIM	
14	–Vout	–Vout 2
15	+Vout	Common
22	Remote On / Off	
23	–Vin	
24	–Vin	

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TVN 5-0910WI	4.5–12 VDC (9 VDC nominal)	3.3 VDC	1515 mA	79%
TVN 5-0911WI		5.0 VDC	1000 mA	82%
TVN 5-0912WI		12 VDC	416 mA	87%
TVN 5-0913WI		15 VDC	333 mA	87%
TVN 5-0915WI		24 VDC	208 mA	88%
TVN 5-0921WI		±5.0 VDC	±500 mA	84%
TVN 5-0922WI		±12 VDC	±208 mA	85%
TVN 5-0923WI		±15 VDC	±166 mA	86%
TVN 5-0925WI		±24 VDC	±104 mA	87%
TVN 5-2410WI	9–36 VDC (24 VDC nominal)	3.3 VDC	1515 mA	81%
TVN 5-2411WI		5.0 VDC	1000 mA	83%
TVN 5-2412WI		12 VDC	416 mA	88%
TVN 5-2413WI		15 VDC	333 mA	88%
TVN 5-2415WI		24 VDC	208 mA	89%
TVN 5-2421WI		±5.0 VDC	±500 mA	84%
TVN 5-2422WI		±12 VDC	±208 mA	85%
TVN 5-2423WI		±15 VDC	±166 mA	86%
TVN 5-2425WI		±24 VDC	±104 mA	87%
TVN 5-4810WI	18–75 VDC (48 VDC nominal)	3.3 VDC	1515 mA	80%
TVN 5-4811WI		5.0 VDC	1000 mA	83%
TVN 5-4812WI		12 VDC	416 mA	86%
TVN 5-4813WI		15 VDC	333 mA	87%
TVN 5-4815WI		24 VDC	208 mA	88%
TVN 5-4821WI		±5.0 VDC	±500 mA	83%
TVN 5-4822WI		±12 VDC	±208 mA	85%
TVN 5-4823WI		±15 VDC	±166 mA	86%
TVN 5-4825WI		±24 VDC	±104 mA	87%

TEL 5 | 5 W





- Wide 2:1 input range
- Cost efficient design
- High power density
- High efficiency up to 86%
- Built-in EN 55032 class A filter
- I/O isolation 1500 VDC
- Regulated outputs
- Continuous short-circuit protection
- High reliability, MTBF >1 Mio. h
- 3-year product warranty

Pinout

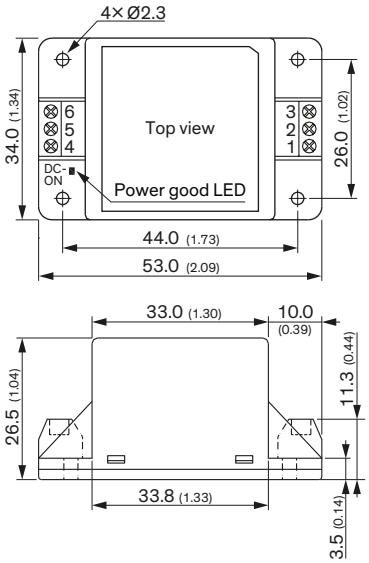
Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No con.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 5-1210	9–18 VDC (nominal 12 VDC)	3.3 VDC	1200 mA	77%
TEL 5-1211		5 VDC	1000 mA	81%
TEL 5-1212		12 VDC	500 mA	84%
TEL 5-1222		±12 VDC	±250 mA	84%
TEL 5-1223		±15 VDC	±200 mA	84%
TEL 5-2410	18–36 VDC (nominal 24 VDC)	3.3 VDC	1200 mA	79%
TEL 5-2411		5 VDC	1000 mA	83%
TEL 5-2412		12 VDC	500 mA	86%
TEL 5-2422		±12 VDC	±250 mA	86%
TEL 5-2423		±15 VDC	±200 mA	86%

TMDC 06 | 6 W



- Fully encapsulated chassis mount modules
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Ultra wide 4:1 input voltage range: 9–36 and 18–75 VDC
- Operating temperature range –40 to +80°C without derating
- I/O-isolation 3000 VDC
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty



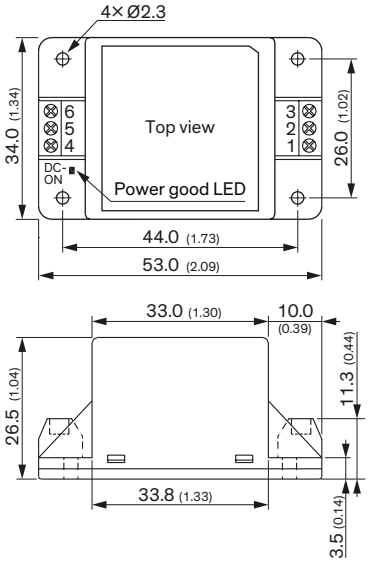
Pinout		
Pin	**Single Output**	**Dual Output**
1	Remote	Remote
2	–Vin (GND)	–Vin (GND)
3	+Vin (Vcc)	+Vin (Vcc)
4	–Vout	–Vout
5	NC	Common
6	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 06-2411	**9–36 VDC** (24 VDC nom.)	5.1 VDC	1200 mA	81%
TMDC 06-2412		12 VDC	500 mA	84%
TMDC 06-2413		15 VDC	400 mA	84%
TMDC 06-2415		24 VDC	250 mA	85%
TMDC 06-2418		48 VDC	125 mA	83%
TMDC 06-2422		±12 VDC	250 mA	84%
TMDC 06-2423		±15 VDC	200 mA	85%
TMDC 06-2425		±24 VDC	125 mA	84%
TMDC 06-4811	**18–75 VDC** (48 VDC nom.)	5.1 VDC	1200 mA	80%
TMDC 06-4812		12 VDC	500 mA	84%
TMDC 06-4813		15 VDC	400 mA	84%
TMDC 06-4815		24 VDC	250 mA	85%
TMDC 06-4818		48 VDC	125 mA	83%
TMDC 06-4822		±12 VDC	250 mA	85%
TMDC 06-4823		±15 VDC	200 mA	85%
TMDC 06-4825		±24 VDC	125 mA	84%

TMDC 06H | 6 W



- Fully encapsulated chassis mount modules
- High 2:1 input voltage range: 80–160 VDC
- Reinforced I/O-isolation 3000 VAC
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Operating temperature range –40 to +80°C without derating
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty



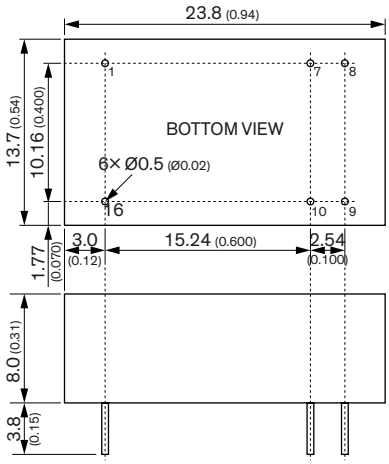
Pinout		
Pin	**Single Output**	**Dual Output**
1	Remote	Remote
2	–Vin (GND)	–Vin (GND)
3	+Vin (Vcc)	+Vin (Vcc)
4	–Vout	–Vout
5	NC	Common
6	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 06-7211H	**80–160 VDC** (110 VDC nom.)	5.1 VDC	1200 mA	79%
TMDC 06-7212H		12 VDC	500 mA	83%
TMDC 06-7213H		15 VDC	400 mA	83%
TMDC 06-7215H		24 VDC	250 mA	84%
TMDC 06-7218H		48 VDC	125 mA	82%
TMDC 06-7222H		±12 VDC	±250 mA	84%
TMDC 06-7223H		±15 VDC	±200 mA	84%
TMDC 06-7225H		± 24 VDC	±125 mA	83%

TEL 6WIN | 6 W

NEW under development





- Ultra compact 6 Watt converter in DIP-16 metal casing
- High power density of 2,3W/cm³
- 6-side shielded metal case with insulated baseplate
- Wide 4:1 input voltage range: 4.5–18, 9–36, 18–75 VDC
- High efficiency (up to 87%) for low thermal loss
- Operating temperature range –40°C to +90°C
- Meets EN 55032 class A (conducted)
- Protection against undervoltage, overload and short circuit
- 3-year product warranty

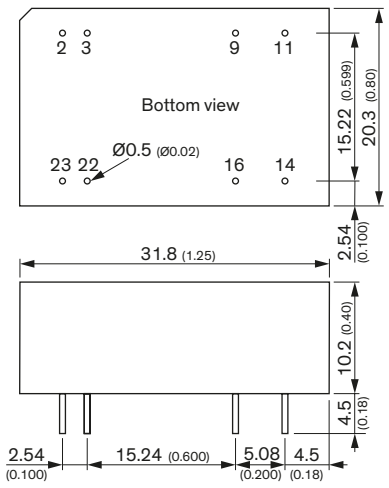
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 6-1210WIN	4.5–18 VDC (12 VDC nom.)	3.3 VDC	1500 mA	78%
TEL 6-1211WIN		5 VDC	1200 mA	82%
TEL 6-1212WIN		12 VDC	500 mA	86%
TEL 6-1213WIN		15 VDC	400 mA	86%
TEL 6-1215WIN		24 VDC	250 mA	87%
TEL 6-1222WIN		±12 VDC	±250 mA	86%
TEL 6-1223WIN		±15 VDC	±200 mA	87%
TEL 6-2410WIN	9–36 VDC (24 VDC nom.)	3.3 VDC	1500 mA	78%
TEL 6-2411WIN		5 VDC	1200 mA	82%
TEL 6-2412WIN		12 VDC	500 mA	86%
TEL 6-2413WIN		15 VDC	400 mA	86%
TEL 6-2415WIN		24 VDC	250 mA	87%
TEL 6-2422WIN		±12 VDC	±250 mA	87%
TEL 6-2423WIN		±15 VDC	±200 mA	87%
TEL 6-4811WIN	18–75 VDC (48 VDC nom.)	5 VDC	1200 mA	xx%
TEL 6-4812WIN		12 VDC	500 mA	xx%
TEL 6-4813WIN		15 VDC	400 mA	xx%
TEL 6-4815WIN		24 VDC	250 mA	xx%
TEL 6-4822WIN		±12 VDC	±250 mA	xx%
TEL 6-4823WIN		±15 VDC	±200 mA	xx%

Pinout		
Pin	Single	Dual
1	–Vin	
7	NC	
8	NC	Common
9	+Vout	
10	–Vout	
16	+Vin	

NC: Not connected

TEN 6N | 6 W





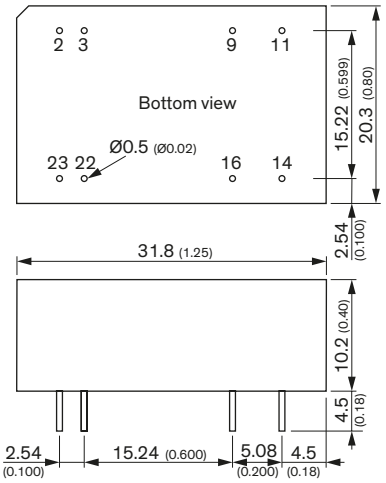
- 2:1 input voltage range
- High efficiency
- Operating temperature range –40°C to +85°C
- Input filter meets EN 55032, class A
- Overload protection
- I/O-isolation 1500 VDC
- DIP-24 plastic package
- Industry standard pinout
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 6-1210N	9–18 VDC (12 VDC nominal)	3.3 VDC	1200 mA	75%
TEN 6-1211N		5 VDC	1200 mA	78%
TEN 6-1212N		12 VDC	500 mA	82%
TEN 6-1213N		15 VDC	400 mA	82%
TEN 6-1215N		24 VDC	250 mA	84%
TEN 6-1221N		±5 VDC	±500 mA	78%
TEN 6-1222N		±12 VDC	±250 mA	82%
TEN 6-1223N		±15 VDC	±200 mA	82%
TEN 6-2410N	18–36 VDC (24 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-2411N		5 VDC	1200 mA	80%
TEN 6-2412N		12 VDC	500 mA	84%
TEN 6-2413N		15 VDC	400 mA	84%
TEN 6-2415N		24 VDC	250 mA	84%
TEN 6-2421N		±5 VDC	±500 mA	80%
TEN 6-2422N		±12 VDC	±250 mA	84%
TEN 6-2423N		±15 VDC	±200 mA	84%
TEN 6-4810N	36–75 VDC (48 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-4811N		5 VDC	1200 mA	80%
TEN 6-4812N		12 VDC	500 mA	84%
TEN 6-4813N		15 VDC	400 mA	84%
TEN 6-4815N		24 VDC	250 mA	84%
TEN 6-4821N		±5 VDC	±500 mA	80%
TEN 6-4822N		±12 VDC	±250 mA	84%
TEN 6-4823N		±15 VDC	±200 mA	84%

Pinout		
Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No function	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEN 6WIN | 6 W





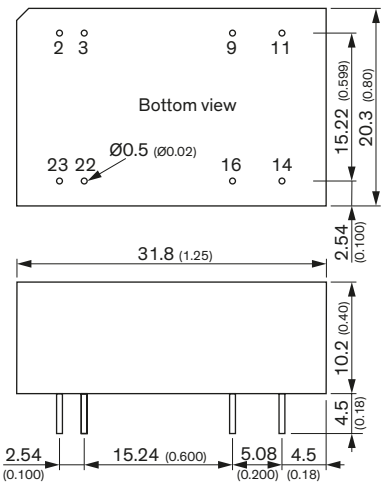
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 6-2410WIN	9–36 VDC (24 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-2411WIN		5 VDC	1200 mA	80%
TEN 6-2412WIN		12 VDC	500 mA	84%
TEN 6-2413WIN		15 VDC	400 mA	84%
TEN 6-2415WIN		24 VDC	250 mA	84%
TEN 6-2421WIN		±5 VDC	±500 mA	80%
TEN 6-2422WIN		±12 VDC	±250 mA	84%
TEN 6-2423WIN		±15 VDC	±200 mA	84%
TEN 6-4810WIN	18–75 VDC (48 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-4811WIN		5 VDC	1200 mA	80%
TEN 6-4812WIN		12 VDC	500 mA	84%
TEN 6-4813WIN		15 VDC	400 mA	84%
TEN 6-4815WIN		24 VDC	250 mA	84%
TEN 6-4821WIN		± 5 VDC	±500 mA	80%
TEN 6-4822WIN		±12 VDC	±250 mA	84%
TEN 6-4823WIN		±15 VDC	±200 mA	84%

- Wide 4:1 input voltage range
- High efficiency
- Operating temperature range –40°C to +85°C
- Models with 1500 VDC and 3000 VDC I/O isolation (functional insulation)
- Input filter meets EN 55022, class A
- Overload protection
- DIP-24 plastic package
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No function	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEN 6WIN-HI | 6 W





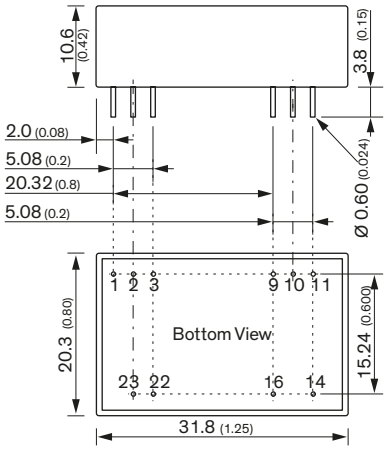
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 6-2410WIN-HI	9–36 VDC (24 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-2411WIN-HI		5 VDC	1200 mA	80%
TEN 6-2412WIN-HI		12 VDC	500 mA	84%
TEN 6-2413WIN-HI		15 VDC	400 mA	84%
TEN 6-2415WIN-HI		24 VDC	250 mA	84%
TEN 6-2421WIN-HI		±5 VDC	±500 mA	80%
TEN 6-2422WIN-HI		±12 VDC	±250 mA	84%
TEN 6-2423WIN-HI		±15 VDC	±200 mA	84%
TEN 6-4810WIN-HI	18–75 VDC (48 VDC nominal)	3.3 VDC	1200 mA	77%
TEN 6-4811WIN-HI		5 VDC	1200 mA	80%
TEN 6-4812WIN-HI		12 VDC	500 mA	84%
TEN 6-4813WIN-HI		15 VDC	400 mA	84%
TEN 6-4815WIN-HI		24 VDC	250 mA	84%
TEN 6-4821WIN-HI		± 5 VDC	±500 mA	80%
TEN 6-4822WIN-HI		±12 VDC	±250 mA	84%
TEN 6-4823WIN-HI		±15 VDC	±200 mA	84%

- Wide 4:1 input voltage range
- High efficiency
- Operating temperature range –40°C to +85°C
- No minimum load required
- 3000 VDC I/O isolation (functional insulation)
- Input filter meets EN 55032, class A
- Overload protection
- DIP-24 plastic package
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	Single	Dual
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No function	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEN 6WIRH | 6 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEN 6-11010WIRH	36–160 VDC	3.3 VDC	1800 mA	83%
TEN 6-11011WIRH		5 VDC	1200 mA	86%
TEN 6-11012WIRH		12 VDC	500 mA	87%
TEN 6-11013WIRH		15 VDC	400 mA	86%
TEN 6-11015WIRH		24 VDC	250 mA	86%
TEN 6-11021WIRH		±5 VDC	±600 mA	83%
TEN 6-11022WIRH		±12 VDC	±250 mA	86%
TEN 6-11023WIRH		±15 VDC	±200 mA	86%

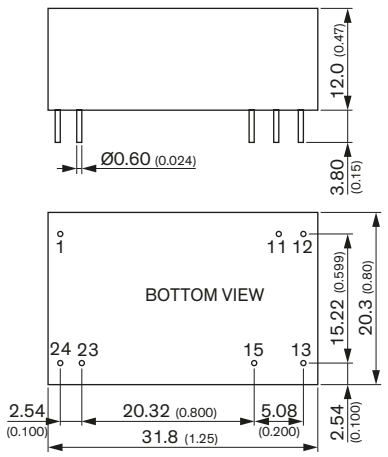
- Fully encapsulated DIP-24 package
- 3000 VAC I/O isolation (reinforced)
- 4:1 input voltage range: 36–160 VDC
- EN 50155 and EN 61373 certified
- Internal class A EMI filter
- –40°C up to +85°C without derating
- EN 45545-2 fire behavior
- Remote on/off function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), and overvoltage protection (OVP)
- 3-year product warranty

Pinout

Pin	Single	Dual
1	Ctrl	Ctrl
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Common
10	Trim (option)	Trim (option)
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

TRI 6 | 6 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TRI 6-1211	9–18 VDC (12 VDC nom.)	5 VDC	1200 mA	83%
TRI 6-1212		12 VDC	500 mA	86%
TRI 6-1213		15 VDC	400 mA	86%
TRI 6-1215		24 VDC	250 mA	86%
TRI 6-1222		±12 VDC	250 mA	87%
TRI 6-1223		±15 VDC	200 mA	87%
TRI 6-2411	18–36 VDC (24 VDC nom.)	5 VDC	1200 mA	83%
TRI 6-2412		12 VDC	500 mA	86%
TRI 6-2413		15 VDC	400 mA	87%
TRI 6-2415		24 VDC	250 mA	85%
TRI 6-2422		±12 VDC	250 mA	86%
TRI 6-2423		±15 VDC	200 mA	87%
TRI 6-4811	36–75 VDC (48 VDC nom.)	5 VDC	1200 mA	83%
TRI 6-4812		12 VDC	500 mA	86%
TRI 6-4813		15 VDC	400 mA	89%
TRI 6-4815		24 VDC	250 mA	86%
TRI 6-4822		±12 VDC	250 mA	87%
TRI 6-4823		±15 VDC	200 mA	88%

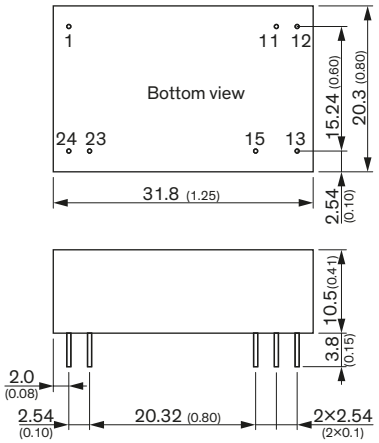
- Reinforced I/O-isolation 5000 VAC rated for 1000 VAC working voltage
- Ultra-high isolation peak voltage 9000 VDC (1s)
- Common Mode Transient Immunity (dv/dt) 15 kV/µs
- Operating temperature range –40 to +85°C
- Low no-load power consumption 120–240 mW
- Internal EN 55032 class A filter
- High efficiency up to 89%
- 2:1 input voltage range: 9–18, 18–36, 36–75 VDC
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout

Pin	Single Output	Dual Output
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

THM 6 | 6 W





- Compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- IEC 60601-1 certification for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- 5-year product warranty

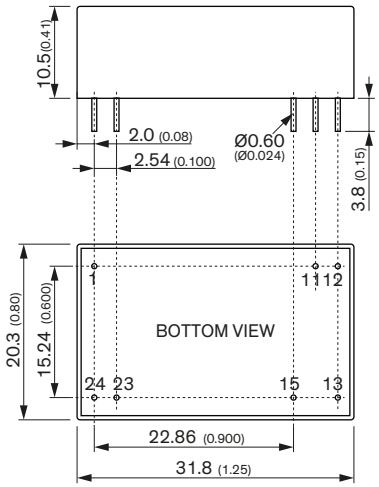
Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 6-0510	**4.5–9 VDC** (5 VDC nom.)	3.3 VDC	1800 mA	82%
THM 6-0511		5 VDC	1200 mA	86%
THM 6-0512		12 VDC	500 mA	86%
THM 6-0513		15 VDC	400 mA	88%
THM 6-0515		24 VDC	250 mA	87%
THM 6-0521		± 5 VDC	600 mA	84%
THM 6-0522		±12 VDC	250 mA	87%
THM 6-0523		±15 VDC	200 mA	88%
THM 6-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	1800 mA	84%
THM 6-1211		5 VDC	1200 mA	86%
THM 6-1212		12 VDC	500 mA	89%
THM 6-1213		15 VDC	400 mA	89%
THM 6-1215		24 VDC	250 mA	89%
THM 6-1221		± 5 VDC	600 mA	85%
THM 6-1222		±12 VDC	250 mA	89%
THM 6-1223		±15 VDC	200 mA	88%
THM 6-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	1800 mA	83%
THM 6-2411		5 VDC	1200 mA	86%
THM 6-2412		12 VDC	500 mA	89%
THM 6-2413		15 VDC	400 mA	89%
THM 6-2415		24 VDC	250 mA	89%
THM 6-2421		± 5 VDC	600 mA	85%
THM 6-2422		±12 VDC	250 mA	89%
THM 6-2423		±15 VDC	200 mA	89%
THM 6-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	1800 mA	83%
THM 6-4811		5 VDC	1200 mA	87%
THM 6-4812		12 VDC	500 mA	88%
THM 6-4813		15 VDC	400 mA	89%
THM 6-4815		24 VDC	250 mA	88%
THM 6-4821		± 5 VDC	600 mA	85%
THM 6-4822		±12 VDC	250 mA	88%
THM 6-4823		±15 VDC	200 mA	87%

TIM 6 | 6 W

NEW!





- Compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 95°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
11	No Pin	Common
12	–Vout	No Pin
13	+Vout	–Vout
15	No Pin	+Vout
23	–Vout	–Vout
24	–Vout	–Vout

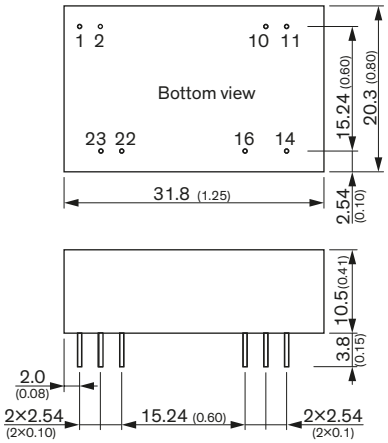
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TIM 6-1211	**9–18 VDC** (12 VDC nom.)	5 VDC	1200 mA	84%
TIM 6-1212		12 VDC	500 mA	87%
TIM 6-1213		15 VDC	400 mA	86%
TIM 6-1221		±5 VDC	±600 mA	83%
TIM 6-1222		±12 VDC	±250 mA	87%
TIM 6-1223		±15 VDC	±200 mA	86%
TIM 6-2411	**18–36 VDC** (24 VDC nom.)	5 VDC	1200 mA	84%
TIM 6-2412		12 VDC	500 mA	87%
TIM 6-2413		15 VDC	400 mA	87%
TIM 6-2421		±5 VDC	±600 mA	84%
TIM 6-2422		±12 VDC	±250 mA	86%
TIM 6-2423		±15 VDC	±200 mA	86%
TIM 6-4811	**36–75 VDC** (48 VDC nom.)	5 VDC	1200 mA	84%
TIM 6-4812		12 VDC	500 mA	87%
TIM 6-4813		15 VDC	400 mA	86%
TIM 6-4821		±5 VDC	±600 mA	83%
TIM 6-4822		±12 VDC	±250 mA	87%
TIM 6-4823		±15 VDC	±200 mA	85%



THM 6WI | 6 W



- Ultra wide 4:1 input voltage 6 W DC/DC converter in a compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty



Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 6-0510WI	4.5–9 VDC (5 VDC nom.)	3.3 VDC	1800 mA	82%
THM 6-0511WI		5 VDC	1200 mA	86%
THM 6-0512WI		12 VDC	500 mA	86%
THM 6-0513WI		15 VDC	400 mA	88%
THM 6-0515WI		24 VDC	250 mA	87%
THM 6-0521WI		± 5 VDC	600 mA	84%
THM 6-0522WI		±12 VDC	250 mA	87%
THM 6-0523WI		±15 VDC	200 mA	88%
THM 6-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	1800 mA	83%
THM 6-2411WI		5 VDC	1200 mA	86%
THM 6-2412WI		12 VDC	500 mA	89%
THM 6-2413WI		15 VDC	400 mA	89%
THM 6-2415WI		24 VDC	250 mA	89%
THM 6-2421WI		± 5 VDC	600 mA	85%
THM 6-2422WI		±12 VDC	250 mA	89%
THM 6-2423WI		±15 VDC	200 mA	89%
THM 6-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	1800 mA	83%
THM 6-4811WI		5 VDC	1200 mA	87%
THM 6-4812WI		12 VDC	500 mA	88%
THM 6-4813WI		15 VDC	400 mA	89%
THM 6-4815WI		24 VDC	250 mA	88%
THM 6-4821WI		± 5 VDC	600 mA	85%
THM 6-4822WI		±12 VDC	250 mA	88%
THM 6-4823WI		±15 VDC	200 mA	87%

Pinout		
Pin	Single	Dual
1	No pin*/Remote	No pin*/Remote
2	–Vin (GND)	–Vin (GND)
10	No pin*/Trim	No pin*/Trim
11	No pin/NC **	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

NC: No connection

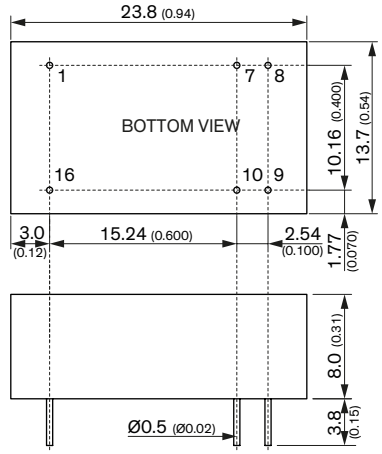
* If Remote or Trim is not selected there is no pin on corresponding number.

**If Trim is selected there is no pin on the corresponding pin number.

TEL 8 | 8 W



- Ultra compact 8 W converter in DIP-16 metal casing
- Operating temperature range –40°C to +80°C
- Wide 2:1 input range
- Built-in EN 55032 class A filter
- Protection against short circuit
- 3-year product warranty

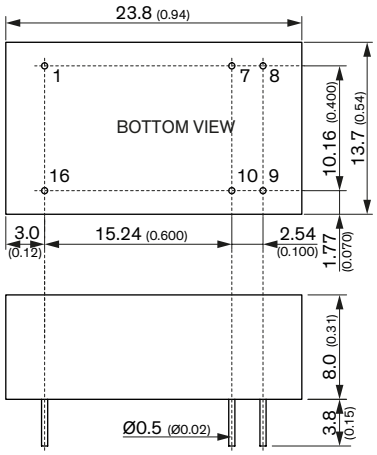


Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 8-1210	9–18 VDC (12 VDC nom.)	3.3 VDC	1600 mA	78%
TEL 8-1211		5 VDC	1600 mA	81%
TEL 8-1212		12 VDC	665 mA	84%
TEL 8-1213		15 VDC	535 mA	84%
TEL 8-1215		24 VDC	335 mA	85%
TEL 8-1222		±12 VDC	335 mA	85%
TEL 8-1223		±15 VDC	265 mA	84%
TEL 8-2410	18–36 VDC (24 VDC nom.)	3.3 VDC	1600 mA	78%
TEL 8-2411		5 VDC	1600 mA	82%
TEL 8-2412		12 VDC	665 mA	85%
TEL 8-2413		15 VDC	535 mA	85%
TEL 8-2415		24 VDC	335 mA	86%
TEL 8-2422		±12 VDC	335 mA	85%
TEL 8-2423		±15 VDC	265 mA	86%
TEL 8-4810	36–75 VDC (48 VDC nom.)	3.3 VDC	1600 mA	78%
TEL 8-4811		5 VDC	1600 mA	81%
TEL 8-4812		12 VDC	665 mA	85%
TEL 8-4813		15 VDC	535 mA	85%
TEL 8-4815		24 VDC	335 mA	86%
TEL 8-4822		±12 VDC	335 mA	86%
TEL 8-4823		±15 VDC	265 mA	86%

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TEL 8WI | 8 W





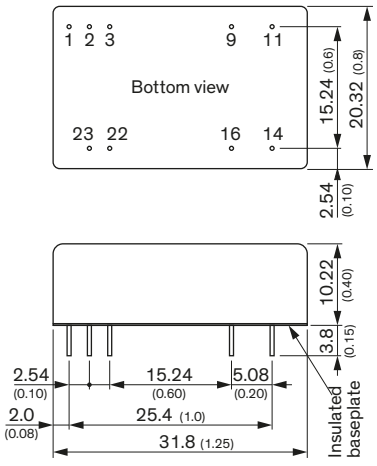
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 8-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	2000 mA	78%
TEL 8-2411WI		5 VDC	1600 mA	82%
TEL 8-2412WI		12 VDC	665 mA	85%
TEL 8-2413WI		15 VDC	535 mA	85%
TEL 8-2415WI		24 VDC	335 mA	86%
TEL 8-2422WI		±12 VDC	335 mA	85%
TEL 8-2423WI		±15 VDC	265 mA	86%
TEL 8-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	2000 mA	78%
TEL 8-4811WI		5 VDC	1600 mA	81%
TEL 8-4812WI		12 VDC	665 mA	85%
TEL 8-4813WI		15 VDC	535 mA	85%
TEL 8-4815WI		24 VDC	335 mA	86%
TEL 8-4822WI		±12 VDC	335 mA	86%
TEL 8-4823WI		±15 VDC	265 mA	86%

- Ultra compact 8 W converter in DIP-16 metal casing
- Operating temperature range –40°C to +80°C
- Ultra wide 4:1 input range
- Built-in EN 55032 class A filter
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TEN 8 | 8 W



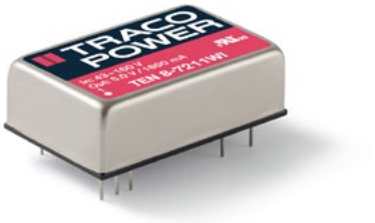


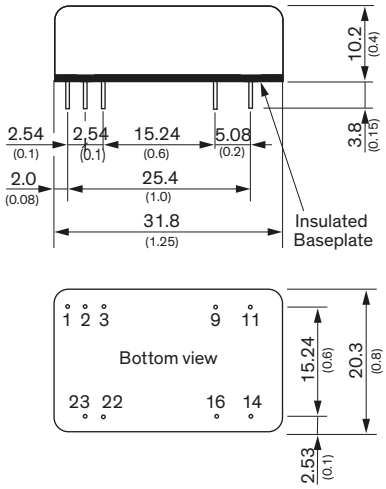
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 8-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	2000 mA	80%
TEN 8-1211		5 VDC	1500 mA	83%
TEN 8-1212		12 VDC	665 mA	88%
TEN 8-1213		15 VDC	535 mA	87%
TEN 8-1221		±5 VDC	±800 mA	83%
TEN 8-1222		±12 VDC	±335 mA	87%
TEN 8-1223		±15 VDC	±265 mA	85%
TEN 8-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	2000 mA	80%
TEN 8-2411		5 VDC	1500 mA	83%
TEN 8-2412		12 VDC	665 mA	86%
TEN 8-2413		15 VDC	535 mA	85%
TEN 8-2421		±5 VDC	±800 mA	82%
TEN 8-2422		±12 VDC	±335 mA	86%
TEN 8-2423		±15 VDC	±265 mA	85%
TEN 8-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	2000 mA	80%
TEN 8-4811		5 VDC	1500 mA	83%
TEN 8-4812		12 VDC	665 mA	86%
TEN 8-4813		15 VDC	535 mA	86%
TEN 8-4821		±5 VDC	±800 mA	85%
TEN 8-4822		±12 VDC	±335 mA	87%
TEN 8-4823		±15 VDC	±265 mA	87%

- DIP–24 package with industry standard footprint
- Wide 2:1 input voltage range
- Input filter meets EN 55032, class A
- Extended operating temperature range: –40°C to +85°C
- Remote On/Off
- Shielded metal casing with insulated baseplate
- Lead free design, RoHS compliant
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No con.	Common
11	No con.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEN 8WI | 8 W





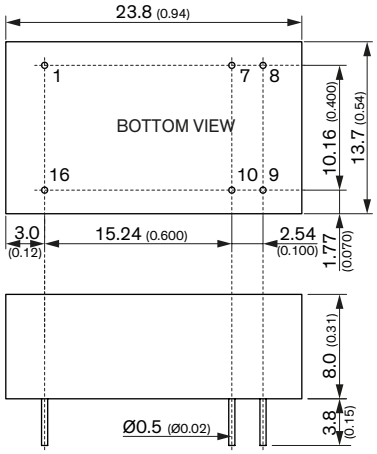
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEN 8-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	2400 mA	85%
TEN 8-2411WI		5 VDC	1600 mA	87%
TEN 8-2412WI		12 VDC	666 mA	86%
TEN 8-2413WI		15 VDC	533 mA	86%
TEN 8-2421WI		± 5 VDC	±800 mA	84%
TEN 8-2422WI		±12 VDC	±333 mA	86%
TEN 8-2423WI		±15 VDC	±267 mA	86%
TEN 8-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	2400 mA	85%
TEN 8-4811WI		5 VDC	1600 mA	87%
TEN 8-4812WI		12 VDC	666 mA	87%
TEN 8-4813WI		15 VDC	533 mA	88%
TEN 8-4821WI		± 5 VDC	±800 mA	84%
TEN 8-4822WI		±12 VDC	±333 mA	87%
TEN 8-4823WI		±15 VDC	±267 mA	87%
TEN 8-7210WI	43–160 VDC (110 VDC nom.)	3.3 VDC	2400 mA	84%
TEN 8-7211WI		5 VDC	1600 mA	85%
TEN 8-7212WI		12 VDC	666 mA	86%
TEN 8-7213WI		15 VDC	533 mA	86%
TEN 8-7221WI		± 5 VDC	±800 mA	82%
TEN 8-7222WI		±12 VDC	±333 mA	85%
TEN 8-7223WI		±15 VDC	±267 mA	85%

- Ultra wide 4:1 input range up to 160 VDC
- Certified for Railway applications (EN 50155)
- Operating temperature range –40°C to + 85°C
- Input under voltage lockout
- I/O isolation 1500 VDC
- Input filter to meet EN 55022 class A
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	NC	Common
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

TEL 10 | 10 W





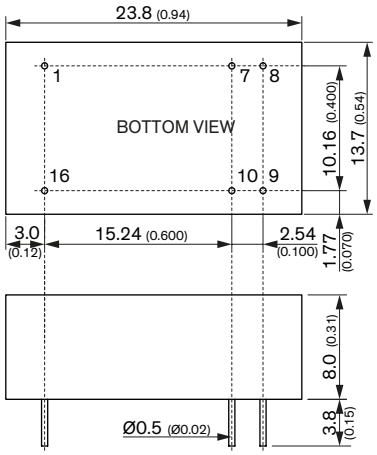
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEL 10-1210	9–18 VDC (12 VDC nom.)	3.3 VDC	2700 mA	79%
TEL 10-1211		5.1 VDC	2000 mA	82%
TEL 10-1212		12 VDC	833 mA	86%
TEL 10-1213		15 VDC	666 mA	87%
TEL 10-1215		24 VDC	416 mA	87%
TEL 10-1222		±12 VDC	416 mA	86%
TEL 10-1223		±15 VDC	333 mA	86%
TEL 10-2410	18–36 VDC (24 VDC nom.)	3.3 VDC	2700 mA	80%
TEL 10-2411		5.1 VDC	2000 mA	83%
TEL 10-2412		12 VDC	833 mA	87%
TEL 10-2413		15 VDC	666 mA	88%
TEL 10-2415		24 VDC	416 mA	88%
TEL 10-2422		±12 VDC	416 mA	87%
TEL 10-2423		±15 VDC	333 mA	87%
TEL 10-4810	36–75 VDC (48 VDC nom.)	3.3 VDC	2700 mA	80%
TEL 10-4811		5.1 VDC	2000 mA	83%
TEL 10-4812		12 VDC	833 mA	87%
TEL 10-4813		15 VDC	666 mA	88%
TEL 10-4815		24 VDC	416 mA	88%
TEL 10-4822		±12 VDC	416 mA	87%
TEL 10-4823		±15 VDC	333 mA	87%

- Most compact 10 Watt converter in DIP-16 metal casing
- Highest power density of 3.83 W/cm^3
- 6-side shielded metal case with insulated base plate
- Wide 2:1 input voltage range
- High efficiency for low thermal loss
- Operating temperature range of –40°C to +88°C
- Built-in EN 55032 class A filter
- Current limitation and protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)

TEL 10WI | 10 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 10-2410WI	9–36 VDC (24 VDC nom.)	3.3 VDC	2700 mA	80%
TEL 10-2411WI		5.1 VDC	2000 mA	83%
TEL 10-2412WI		12 VDC	833 mA	87%
TEL 10-2413WI		15 VDC	666 mA	88%
TEL 10-2415WI		24 VDC	416 mA	88%
TEL 10-2422WI		±12 VDC	416 mA	87%
TEL 10-2423WI		±15 VDC	333 mA	87%
TEL 10-4810WI	18–75 VDC (48 VDC nom.)	3.3 VDC	2700 mA	80%
TEL 10-4811WI		5.1 VDC	2000 mA	83%
TEL 10-4812WI		12 VDC	833 mA	87%
TEL 10-4813WI		15 VDC	666 mA	88%
TEL 10-4815WI		24 VDC	416 mA	88%
TEL 10-4822WI		±12 VDC	416 mA	87%
TEL 10-4823WI		±15 VDC	333 mA	87%

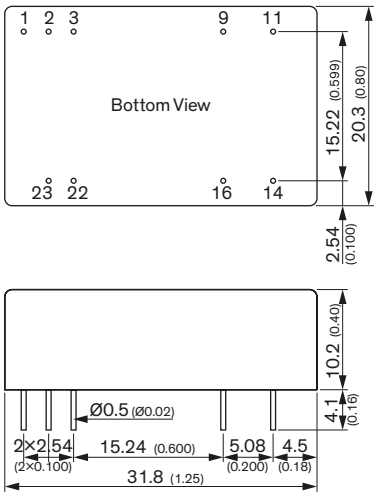
- Most compact 10 Watt converter in DIP-16 metal casing
- Highest power density of 3.83 W/cm³
- 6-side shielded metal case with insulated base plate
- Ultra wide 4:1 input voltage range
- High efficiency for low thermal loss
- Operating temperature range of –40°C to +88°C
- Built-in EN 55032 class A filter
- Protection against short circuit and overload
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin (Vcc)	+Vin (Vcc)



THD 10N | 10 W





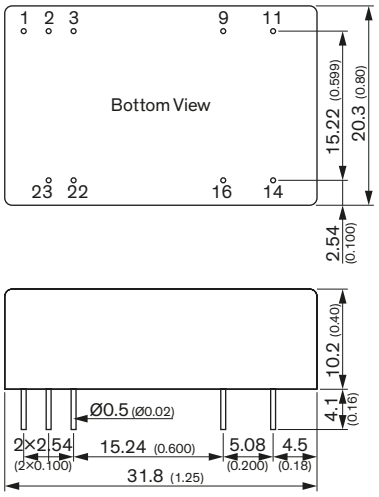
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 10-1210N	9–18 VDC (12 VDC nominal)	3.3 VDC	2700 mA	86%
THD 10-1211N		5.1 VDC	2000 mA	85%
THD 10-1212N		12 VDC	833 mA	88%
THD 10-1213N		15 VDC	666 mA	89%
THD 10-1222N		±12 VDC	±416 mA	88%
THD 10-1223N		±15 VDC	±333 mA	89%
THD 10-2410N	18–36 VDC (24 VDC nominal)	3.3 VDC	2700 mA	86%
THD 10-2411N		5.1 VDC	2000 mA	85%
THD 10-2412N		12 VDC	833 mA	89%
THD 10-2413N		15 VDC	666 mA	89%
THD 10-2422N		±12 VDC	±416 mA	88%
THD 10-2423N		±15 VDC	±333 mA	89%
THD 10-4810N	36–75 VDC (48 VDC nominal)	3.3 VDC	2700 mA	86%
THD 10-4811N		5.1 VDC	2000 mA	85%
THD 10-4812N		12 VDC	833 mA	87%
THD 10-4813N		15 VDC	666 mA	88%
THD 10-4822N		±12 VDC	±416 mA	87%
THD 10-4823N		±15 VDC	±333 mA	88%

- Wide 2:1 input voltage range
- Internal EMI-filter meets EN 55032, Class A without external components
- High efficiency up to 89%
- Operating temperature range –40°C to +85°C
- I/O isolation 1500 VDC
- Overload protection
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No function	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

THD 10WIN | 10 W





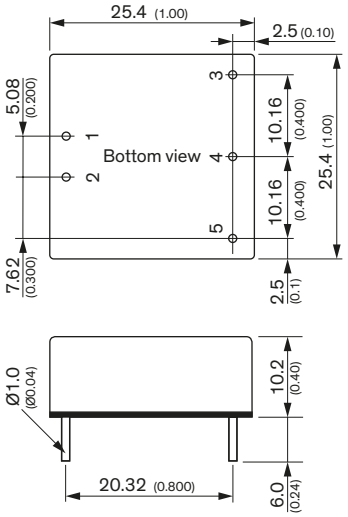
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 10-2410WIN	9–36 VDC (24 VDC nominal)	3.3 VDC	2700 mA	86%
THD 10-2411WIN		5.1 VDC	2000 mA	85%
THD 10-2412WIN		12 VDC	833 mA	87%
THD 10-2413WIN		15 VDC	666 mA	87%
THD 10-2415WIN		24 VDC	416 mA	87%
THD 10-2422WIN		±12 VDC	±416 mA	87%
THD 10-2423WIN		±15 VDC	±333 mA	87%
THD 10-4810WIN	18–75 VDC (48 VDC nominal)	3.3 VDC	2700 mA	86%
THD 10-4811WIN		5.1 VDC	2000 mA	85%
THD 10-4812WIN		12 VDC	833 mA	87%
THD 10-4813WIN		15 VDC	666 mA	87%
THD 10-4815WIN		24 VDC	416 mA	87%
THD 10-4822WIN		±12 VDC	±416 mA	87%
THD 10-4823WIN		±15 VDC	±333 mA	87%

- Ultra wide 4:1 input voltage range
- Internal EMI-filter meets EN 55032, Class A without external components
- High efficiency up to 87%
- Operating temperature range –40°C to +85°C
- I/O isolation 1500 VDC
- Overload protection
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	No pin	Common
11	No function	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

THL 10 | 10 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 10-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	2500 mA	82%
THL 10-1211		5.1 VDC	2000 mA	85%
THL 10-1212		12 VDC	830 mA	87%
THL 10-1213		15 VDC	670 mA	88%
THL 10-1221		±5.0 VDC	±1000 mA	84%
THL 10-1222		±12 VDC	±416 mA	87%
THL 10-1223		±15 VDC	±333 mA	87%
THL 10-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	2500 mA	83%
THL 10-2411		5.1 VDC	2000 mA	85%
THL 10-2412		12 VDC	830 mA	87%
THL 10-2413		15 VDC	670 mA	89%
THL 10-2421		±5.0 VDC	±1000 mA	85%
THL 10-2422		±12 VDC	±416 mA	88%
THL 10-2423		±15 VDC	±333 mA	89%
THL 10-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	2500 mA	83%
THL 10-4811		5.1 VDC	2000 mA	85%
THL 10-4812		12 VDC	830 mA	89%
THL 10-4813		15 VDC	670 mA	89%
THL 10-4821		±5.0 VDC	±1000 mA	86%
THL 10-4822		±12 VDC	±416 mA	87%
THL 10-4823		±15 VDC	±333 mA	88%

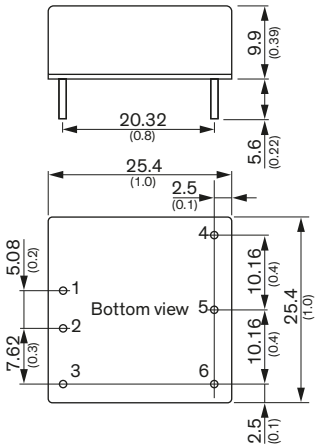
- 10 Watt in 1" × 1" package
- Shielded metal case with isolated baseplate
- Wide 2:1 input voltage ranges
- Operating temp. range –40°C to +80°C and up to +85°C with heat-sink
- I/O isolation voltage 1500 VDC
- Input filter meets EN 55022 class A without external components
- Cost optimized design
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+ Vout	+ Vout
4	No pin	Common
5	–Vout	–Vout

THN 10WIR | 10 W



- Compact 1" × 1" metal package
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behavior according to EN 45545-2
- Wide 4:1 input voltage: 9–36, 18–75, 36–160 VDC
- Operating temperature range –40 to +80°C without derating
- High efficiency up to 90%
- 3000 VDC I/O-isolation
- Protection against overload, overvoltage and short circuit
- Remote On/Off and Trim function
- 3-year product warranty



Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	–Vin	–Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	Trim	Common
6	–Vout	–Vout

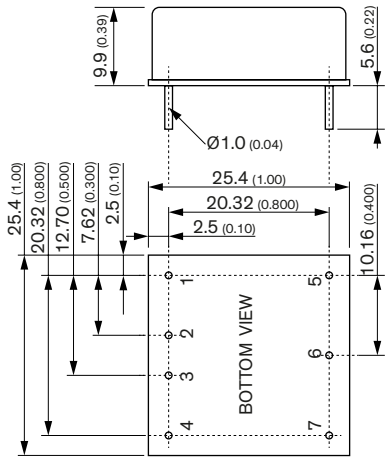
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 10-2410WIR	**9–36 VDC** (24 VDC nom.)	3.3 VDC	3000 mA	87%
THN 10-2411WIR		5 VDC	2000 mA	89%
THN 10-2412WIR		12 VDC	830 mA	89%
THN 10-2413WIR		15 VDC	670 mA	90%
THN 10-2415WIR		24 VDC	420 mA	90%
THN 10-2421WIR		± 5 VDC	±1000 mA	86%
THN 10-2422WIR		±12 VDC	±416 mA	89%
THN 10-2423WIR		±15 VDC	±333 mA	89%
THN 10-2425WIR		±24 VDC	±210 mA	90%
THN 10-4810WIR	**18–75 VDC** (48 VDC nom.)	3.3 VDC	3000 mA	87%
THN 10-4811WIR		5 VDC	2000 mA	89%
THN 10-4812WIR		12 VDC	830 mA	89%
THN 10-4813WIR		15 VDC	670 mA	90%
THN 10-4815WIR		24 VDC	420 mA	90%
THN 10-4821WIR		± 5 VDC	±1000 mA	86%
THN 10-4822WIR		±12 VDC	±416 mA	89%
THN 10-4823WIR		±15 VDC	±333 mA	89%
THN 10-4825WIR		±24 VDC	±210 mA	90%
THN 10-7210WIR	**36–160 VDC** (110 VDC nom.)	3.3 VDC	3000 mA	87%
THN 10-7211WIR		5 VDC	2000 mA	88%
THN 10-7212WIR		12 VDC	830 mA	89%
THN 10-7213WIR		15 VDC	670 mA	89%
THN 10-7215WIR		24 VDC	420 mA	89%
THN 10-7221WIR		± 5 VDC	±1000 mA	85%
THN 10-7222WIR		±12 VDC	±416 mA	89%
THN 10-7223WIR		±15 VDC	±333 mA	89%
THN 10-7225WIR		±24 VDC	±210 mA	89%

THN 10UIR | 10 W

NEW!



- Compact 1" × 1" housing
- Ultra-wide 12:1 input range: 9–75, 14–160 VDC
- –40°C up to 80°C natural convection cooling without derating
- EN 50155, EN 45545-2 and EN 61373 certified
- Dedicated holdup capacitor connection
- Fully encapsulated
- 3000 VDC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit, overvoltage and overtemperature
- 3-year product warranty



Pinout		
Pin	**Single**	**Dual**
1	No Pin* / BUS / UVLO**	
2	+Vin	
3	–Vin	
4	Remote On/Off	
5	+Vout	
6	Trim	Common
7	–Vout	

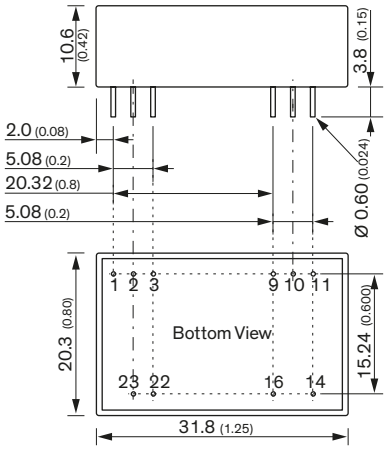
* If neither BUS nor UVLO is present
**UVLO function is optional

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 10-3610UIR	**9–75 VDC** (36 VDC nom.)	3.3 VDC	3000 mA	85%
THN 10-3611UIR		5.1 VDC	2000 mA	86%
THN 10-3612UIR		12 VDC	830 mA	88%
THN 10-3613UIR		15 VDC	670 mA	88%
THN 10-3615UIR		24 VDC	420 mA	88%
THN 10-3621UIR		± 5 VDC	±1000 mA	83%
THN 10-3622UIR		±12 VDC	±416 mA	87%
THN 10-3623UIR		±15 VDC	±333 mA	87%
THN 10-7210UIR	**14–160 VDC** (72 VDC nom.)	3.3 VDC	3000 mA	86%
THN 10-7211UIR		5.1 VDC	2000 mA	87%
THN 10-7212UIR		12 VDC	830 mA	88%
THN 10-7213UIR		15 VDC	670 mA	88%
THN 10-7215UIR		24 VDC	420 mA	88%
THN 10-7221UIR		± 5 VDC	±1000 mA	84%
THN 10-7222UIR		±12 VDC	±416 mA	87%
THN 10-7223UIR		±15 VDC	±333 mA	87%



TEN 10WIRH | 10 W





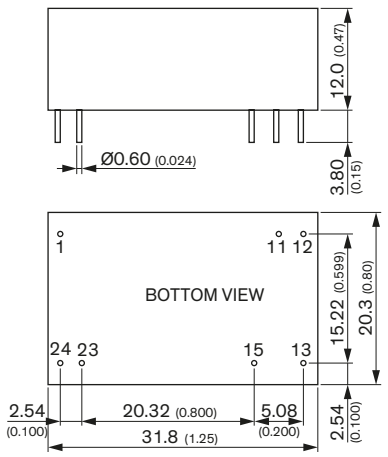
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 10-11010WIRH	36–160 VDC	3.3 VDC	2500 mA	83%
TEN 10-11011WIRH		5 VDC	2000 mA	87%
TEN 10-11012WIRH		12 VDC	830 mA	88%
TEN 10-11013WIRH		15 VDC	670 mA	88%
TEN 10-11015WIRH		24 VDC	416 mA	88%
TEN 10-11021WIRH		±5 VDC	±1000 mA	84%
TEN 10-11022WIRH		±12 VDC	±416 mA	87%
TEN 10-11023WIRH		±15 VDC	±333 mA	87%

- Fully encapsulated DIP-24 package
- 3000 VAC I/O isolation (reinforced)
- 4:1 input voltage range: 36–160 VDC
- EN 50155 and EN 61373 certified
- Internal class A EMI filter
- –40°C up to +75°C without derating
- EN 45545-2 fire behavior
- Remote on/off function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), and overvoltage protection (OVP)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Ctrl	Ctrl
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Common
10	Trim (option)	Trim (option)
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

TRI 10 | 10 W





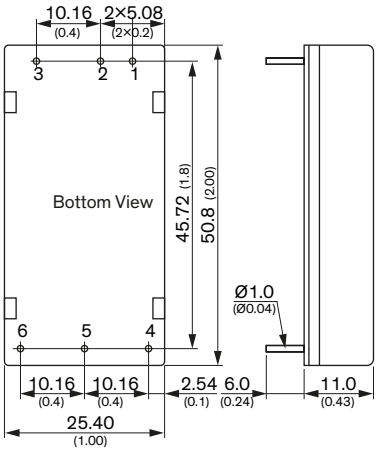
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 10-1210	9–18 VDC (12 VDC nom.)	3.3 VDC	2700 mA	81%
TRI 10-1211		5.1 VDC	2000 mA	83%
TRI 10-1212		12 VDC	833 mA	86%
TRI 10-1213		15 VDC	666 mA	88%
TRI 10-1215		24 VDC	416 mA	88%
TRI 10-1222		±12 VDC	416 mA	88%
TRI 10-1223		±15 VDC	333 mA	87%
TRI 10-2410	18–36 VDC (24 VDC nom.)	3.3 VDC	2700 mA	81%
TRI 10-2411		5.1 VDC	2000 mA	84%
TRI 10-2412		12 VDC	833 mA	87%
TRI 10-2413		15 VDC	666 mA	88%
TRI 10-2415		24 VDC	416 mA	88%
TRI 10-2422		±12 VDC	416 mA	88%
TRI 10-2423		±15 VDC	333 mA	87%
TRI 10-4810	36–75 VDC (48 VDC nom.)	3.3 VDC	2700 mA	81%
TRI 10-4811		5.1 VDC	2000 mA	84%
TRI 10-4812		12 VDC	833 mA	87%
TRI 10-4813		15 VDC	666 mA	88%
TRI 10-4815		24 VDC	416 mA	87%
TRI 10-4822		±12 VDC	416 mA	87%
TRI 10-4823		±15 VDC	333 mA	87%

- Reinforced I/O-isolation 5000 VAC rated for 1000 VAC working voltage
- Ultra-high isolation peak voltage 9000 VDC (1s)
- Common Mode Transient Immunity (dv/dt) 15 kV/µs
- Operating temperature range –40 to +85°C
- Low no-load power consumption 144–288 mW
- Internal EN 55032 class A filter
- High efficiency up to 88%
- 2:1 input voltage range: 9–18, 18–36, 36–75 VDC
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout		
Pin	Single Output	Dual Output
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

THR 10WI | 10 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THR 10-2411WI	9–36 VDC (24 VDC nom.)	5 VDC	2000 mA	84%
THR 10-2412WI		12 VDC	835 mA	86%
THR 10-2413WI		15 VDC	670 mA	87%
THR 10-2415WI		24 VDC	417 mA	88%
THR 10-2422WI		±12 VDC	±417 mA	86%
THR 10-2423WI		±15 VDC	±335 mA	87%
THR 10-4811WI	18–75 VDC (48 VDC nom.)	5 VDC	2000 mA	85%
THR 10-4812WI		12 VDC	835 mA	87%
THR 10-4813WI		15 VDC	670 mA	87%
THR 10-4815WI		24 VDC	417 mA	86%
THR 10-4822WI		±12 VDC	±417 mA	89%
THR 10-4823WI		±15 VDC	±335 mA	88%
THR 10-7211WI	40–160 VDC (110 VDC nom.)	5 VDC	2000 mA	82%
THR 10-7212WI		12 VDC	835 mA	85%
THR 10-7213WI		15 VDC	670 mA	85%
THR 10-7215WI		24 VDC	417 mA	85%
THR 10-7222WI		±12 VDC	±417 mA	86%
THR 10-7223WI		±15 VDC	±335 mA	86%

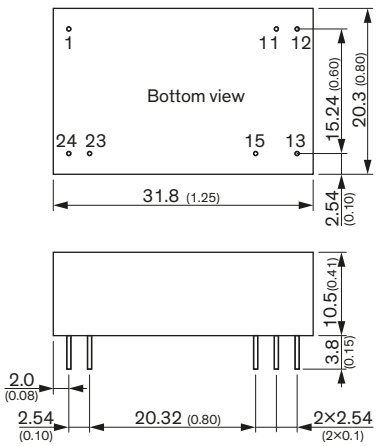
- Reinforced I/O-isolation 3000 VAC
- Shock and vibration resistance according to EN 61373
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- Operating temperature range –40 to +90°C
- Internal EN 55032 class A filter
- High efficiency up to 89%
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout

Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	Trim	Common
6	–Vout	–Vout

THM 10 | 10 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 10-0510	4.5–9 VDC (5 VDC nom.)	3.3 VDC	2500 mA	80%
THM 10-0511		5 VDC	2000 mA	84%
THM 10-0512		12 VDC	830 mA	87%
THM 10-0513		15 VDC	670 mA	87%
THM 10-0515		24 VDC	416 mA	86%
THM 10-0521		± 5 VDC	1000 mA	83%
THM 10-0522		±12 VDC	416 mA	86%
THM 10-0523		±15 VDC	333 mA	87%
THM 10-1210	9–18 VDC (12 VDC nom.)	3.3 VDC	2500 mA	83%
THM 10-1211		5 VDC	2000 mA	86%
THM 10-1212		12 VDC	830 mA	88%
THM 10-1213		15 VDC	670 mA	89%
THM 10-1215		24 VDC	416 mA	89%
THM 10-1221		± 5 VDC	1000 mA	84%
THM 10-1222		±12 VDC	416 mA	89%
THM 10-1223		±15 VDC	333 mA	88%
THM 10-2410	18–36 VDC (24 VDC nom.)	3.3 VDC	2500 mA	83%
THM 10-2411		5 VDC	2000 mA	87%
THM 10-2412		12 VDC	830 mA	89%
THM 10-2413		15 VDC	670 mA	89%
THM 10-2415		24 VDC	416 mA	89%
THM 10-2421		± 5 VDC	1000 mA	85%
THM 10-2422		±12 VDC	416 mA	89%
THM 10-2423		±15 VDC	333 mA	88%
THM 10-4810	36–75 VDC (48 VDC nom.)	3.3 VDC	2500 mA	83%
THM 10-4811		5 VDC	2000 mA	87%
THM 10-4812		12 VDC	830 mA	89%
THM 10-4813		15 VDC	670 mA	89%
THM 10-4815		24 VDC	416 mA	89%
THM 10-4821		± 5 VDC	1000 mA	85%
THM 10-4822		±12 VDC	416 mA	88%
THM 10-4823		±15 VDC	333 mA	88%

- Compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- IEC 60601-1 certification for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- 5-year product warranty

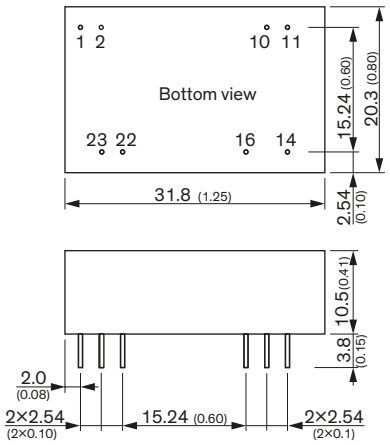
Pinout

Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
11	No pin	Common
12	–Vout	No pin
13	+Vout	–Vout
15	No pin	+Vout
23	–Vin (GND)	–Vin (GND)
24	–Vin (GND)	–Vin (GND)

THM 10WI | 10 W



- Ultra wide 4:1 input voltage 10 W DC/DC converter in a compact DIP-24 plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2 µA
- Operating temperature –40°C to 90°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty



Pinout		
Pin	**Single**	**Dual**
1	No pin*/Remote	No pin*/Remote
2	–Vin (GND)	NC –Vin (GND)
10	No pin*/Trim	No pin*/Trim
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 10-0510WI		3.3 VDC	2500 mA	80%
THM 10-0511WI		5 VDC	2000 mA	84%
THM 10-0512WI		12 VDC	830 mA	87%
THM 10-0513WI	**4.5–9 VDC**	15 VDC	670 mA	87%
THM 10-0515WI	(5 VDC nom.)	24 VDC	416 mA	86%
THM 10-0521WI		± 5 VDC	1000 mA	83%
THM 10-0522WI		±12 VDC	416 mA	86%
THM 10-0523WI		±15 VDC	333 mA	87%
THM 10-2410WI		3.3 VDC	2500 mA	83%
THM 10-2411WI		5 VDC	2000 mA	87%
THM 10-2412WI		12 VDC	830 mA	89%
THM 10-2413WI	**9–36 VDC**	15 VDC	670 mA	89%
THM 10-2415WI	(24 VDC nom.)	24 VDC	416 mA	89%
THM 10-2421WI		± 5 VDC	1000 mA	85%
THM 10-2422WI		±12 VDC	416 mA	89%
THM 10-2423WI		±15 VDC	333 mA	88%
THM 10-4810WI		3.3 VDC	2500 mA	83%
THM 10-4811WI		5 VDC	2000 mA	87%
THM 10-4812WI		12 VDC	830 mA	89%
THM 10-4813WI	**18–75 VDC**	15 VDC	670 mA	89%
THM 10-4815WI	(48 VDC nom.)	24 VDC	416 mA	89%
THM 10-4821WI		± 5 VDC	1000 mA	85%
THM 10-4822WI		±12 VDC	416 mA	88%
THM 10-4823WI		±15 VDC	333 mA	88%

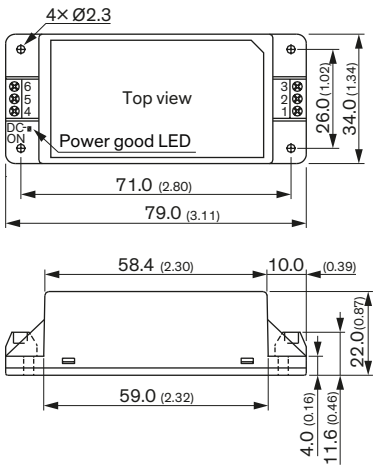
NC: No connection

* If Remote or Trim is not selected there is no pin on corresponding number.

TMDC 10 | 10 W



- Fully encapsulated chassis mount modules
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Ultra wide 4:1 input voltage range: 9–36 and 18–75 VDC
- Operating temperature range –40 to +80°C without derating
- I/O-isolation 3000 VDC
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty

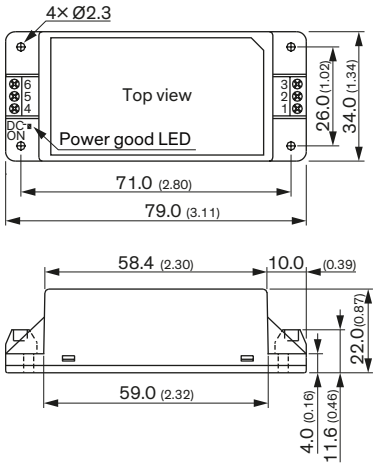


Pinout		
Pin	**Single Output**	**Dual Output**
1	Remote	Remote
2	–Vin (GND)	–Vin (GND)
3	+Vin (Vcc)	+Vin (Vcc)
4	–Vout	–Vout
5	NC	Common
6	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 10-2411		5.1 VDC	2000 mA	84%
TMDC 10-2412		12 VDC	833 mA	86%
TMDC 10-2413		15 VDC	666 mA	86%
TMDC 10-2415	**9–36 VDC**	24 VDC	416 mA	86%
TMDC 10-2418	(24 VDC nom.)	48 VDC	208 mA	84%
TMDC 10-2422		±12 VDC	416 mA	86%
TMDC 10-2423		±15 VDC	333 mA	86%
TMDC 10-2425		±24 VDC	208 mA	85%
TMDC 10-4811		5.1 VDC	2000 mA	84%
TMDC 10-4812		12 VDC	833 mA	86%
TMDC 10-4813		15 VDC	666 mA	86%
TMDC 10-4815	**18–75 VDC**	24 VDC	416 mA	86%
TMDC 10-4818	(48 VDC nom.)	48 VDC	208 mA	84%
TMDC 10-4822		±12 VDC	416 mA	86%
TMDC 10-4823		±15 VDC	333 mA	86%
TMDC 10-4825		±24 VDC	208 mA	85%

TMDC 10H | 10 W





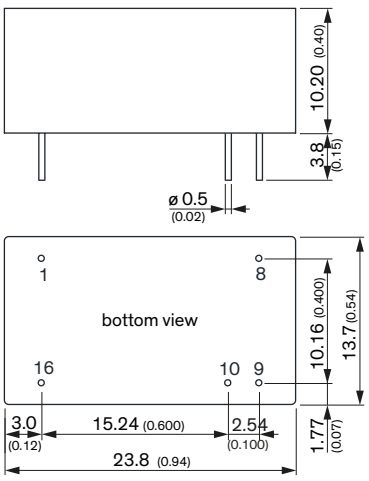
- Fully encapsulated chassis mount modules
- High 2:1 input voltage range: 80–160 VDC
- Reinforced I/O-isolation 3000 VAC
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Operating temperature range –40 to +70°C without derating
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	Remote	Remote
2	–Vin (GND)	–Vin (GND)
3	+Vin (Vcc)	+Vin (Vcc)
4	–Vout	–Vout
5	NC	Common
6	+Vout	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 10-7211H	**80–160 VDC** (110 VDC nom.)	5.1 VDC	2000 mA	83%
TMDC 10-7212H		12 VDC	833 mA	85%
TMDC 10-7213H		15 VDC	666 mA	85%
TMDC 10-7215H		24 VDC	416 mA	85%
TMDC 10-7218H		48 VDC	208 mA	83%
TMDC 10-7222H		±12 VDC	±416 mA	85%
TMDC 10-7223H		±15 VDC	±333 mA	85%
TMDC 10-7225H		± 24 VDC	±208 mA	84%

TEL 12 | 12 W





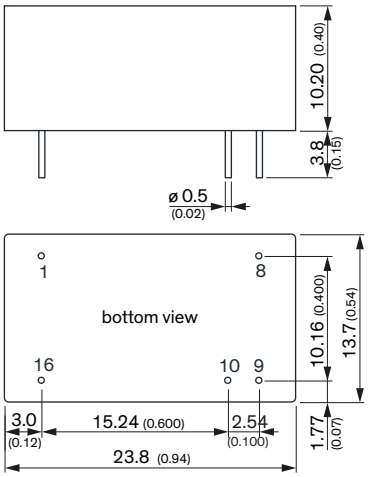
- Ultra compact 12 Watt converter in DIP-16 metal casing
- Highest power density of 3.61 W/cm³
- 6-side shielded metal case with insulated baseplate
- Wide 2:1 input voltage range
- High efficiency (up to 88%) for low thermal loss
- Operating temperature range –40°C to +88°C
- Built-In EN 55032 class A filter
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	–Vin	–Vin
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 12-1211	**9–18 VDC** (12 VDC nom.)	5.1 VDC	2400 mA	83%
TEL 12-1212		12 VDC	1000 mA	87%
TEL 12-1213		15 VDC	800 mA	88%
TEL 12-1215		24 VDC	500 mA	88%
TEL 12-1222		±12 VDC	±500 mA	87%
TEL 12-1223		±15 VDC	±400 mA	87%
TEL 12-2411	**18–36 VDC** (24 VDC nom.l)	5.1 VDC	2400 mA	83%
TEL 12-2412		12 VDC	1000 mA	87%
TEL 12-2413		15 VDC	800 mA	88%
TEL 12-2415		24 VDC	500 mA	88%
TEL 12-2422		±12 VDC	±500 mA	87%
TEL 12-2423		±15 VDC	±400 mA	87%
TEL 12-4811	**36–75 VDC** (48 VDC nom.l)	5.1 VDC	2400 mA	83%
TEL 12-4812		12 VDC	1000 mA	87%
TEL 12-4813		15 VDC	800 mA	88%
TEL 12-4815		24 VDC	500 mA	88%
TEL 12-4822		±12 VDC	±500 mA	87%
TEL 12-4823		±15 VDC	±400 mA	87%

TEL 12WI | 12 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 12-2411WI	9–36 VDC (24 VDC nominal)	5.1 VDC	2400 mA	83%
TEL 12-2412WI		12 VDC	1000 mA	87%
TEL 12-2413WI		15 VDC	800 mA	88%
TEL 12-2415WI		24 VDC	500 mA	88%
TEL 12-2422WI		±12 VDC	±500 mA	87%
TEL 12-2423WI		±15 VDC	±400 mA	87%
TEL 12-4811WI	18–75 VDC (48 VDC nominal)	5.1 VDC	2400 mA	83%
TEL 12-4812WI		12 VDC	1000 mA	87%
TEL 12-4813WI		15 VDC	800 mA	88%
TEL 12-4815WI		24 VDC	500 mA	88%
TEL 12-4822WI		±12 VDC	±500 mA	87%
TEL 12-4823WI		±15 VDC	±400 mA	87%

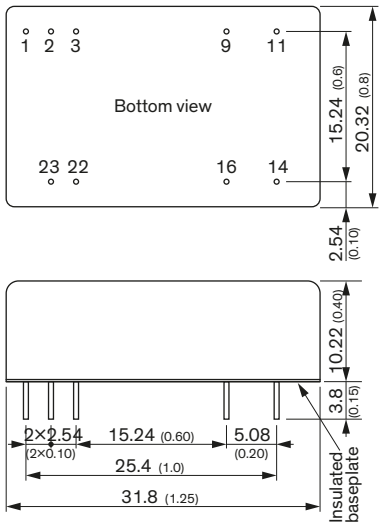
- Ultra compact 12 Watt converter in DIP-16 metal casing
- Highest power density of 3.61 W/cm³
- 6-side shielded metal case with insulated baseplate
- Wide 4:1 input voltage range
- High efficiency (up to 88%) for low thermal loss
- Operating temperature range –40°C to +88°C
- Built-In EN 55032 class A filter
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	–Vin
8	NC	Common
9	+Vout.	+Vout
10	–Vout.	–Vout
16	+Vin	+Vin



THD 12 | 12 W





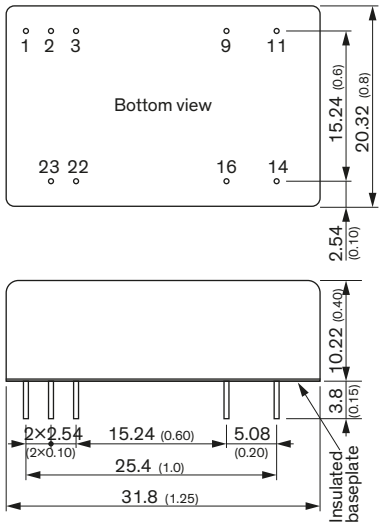
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 12-1209	9–18 VDC (nominal 12 VDC)	2.5 VDC	3500 mA	82%
THD 12-1210		3.3 VDC	3500 mA	84%
THD 12-1211		5.1 VDC	2400 mA	86%
THD 12-1212		12 VDC	1000 mA	86%
THD 12-1222		±12 VDC	±500 mA	87%
THD 12-1223		±15 VDC	±400 mA	87%
THD 12-2409	18–36 VDC (nominal 24 VDC)	2.5 VDC	3500 mA	83%
THD 12-2410		3.3 VDC	3500 mA	85%
THD 12-2411		5.1 VDC	2400 mA	87%
THD 12-2412		12 VDC	1000 mA	87%
THD 12-2422		±12 VDC	±500 mA	88%
THD 12-2423		±15 VDC	±400 mA	88%
THD 12-4809	36–75 VDC (nominal 48 VDC)	2.5 VDC	3500 mA	83%
THD 12-4810		3.3 VDC	3500 mA	85%
THD 12-4811		5.1 VDC	2400 mA	87%
THD 12-4812		12 VDC	1000 mA	87%
THD 12-4822		±12 VDC	±500 mA	88%
THD 12-4823		±15 VDC	±400 mA	88%

- Wide 2:1 input range
- Very high efficiency up to 88%
- I/O isolation 1500V
- Input filter meets EN 55032, class A
- Remote On/Off
- Under voltage lock-out circuit
- Shielded metal case with insulated Baseplate
- Continuous short-circuit protection
- Operating temp. range –40°C to +85°C (with derating)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	ntc.	Common
11	ntc.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

THD 12WI | 12 W



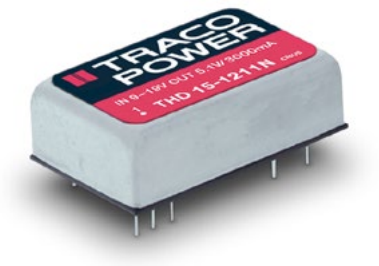


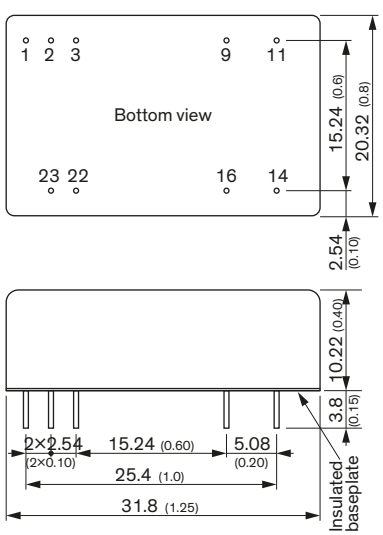
- Ultra-wide 4:1 input range
- High efficiency up to 85%
- I/O isolation 1500V
- Remote On/Off
- Under voltage lock-out circuit
- Shielded metal case with insulated Baseplate
- Continuous short-circuit protection
- Operating temp. range –40°C to +85°C
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	ntc.	Common
11	ntc.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 12-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	3500 mA	84%
THD 12-2411WI		5.1 VDC	2400 mA	85%
THD 12-2412WI		12 VDC	1000 mA	85%
THD 12-2413WI		15 VDC	800 mA	85%
THD 12-2421WI		±5 VDC	±1200 mA	82%
THD 12-2422WI		±12 VDC	±500 mA	85%
THD 12-2423WI		±15 VDC	±400 mA	85%
THD 12-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	3500 mA	84%
THD 12-4811WI		5.1 VDC	2400 mA	85%
THD 12-4812WI		12 VDC	1000 mA	85%
THD 12-4813WI		15 VDC	800 mA	85%
THD 12-4821WI		±5 VDC	±1200 mA	82%
THD 12-4822WI		±12 VDC	±500 mA	85%
THD 12-4823WI		±15 VDC	±400 mA	85%

THD 15N | 15 W





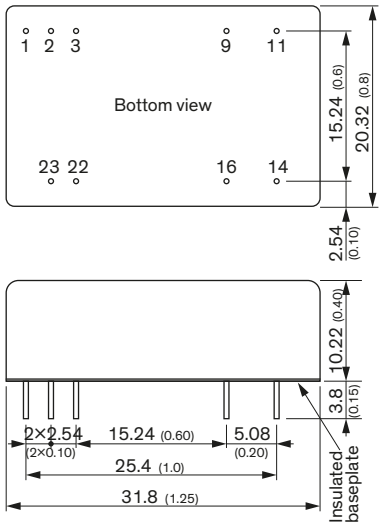
- Highest power density in DIP 24 package
- Shielded metal case with isolated Baseplate
- Very high efficiency up to 91%
- Wide 2:1 input ranges
- No minimum load required
- Input filter meets EN 55022 class A without external components
- I/O isolation voltage 1500 VDC
- Operating temp. range: –40°C to +85°C
- Remote On/Off control
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	NC	Common
11	NC.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 15-1210N	**9–18 VDC** (12 VDC nominal)	3.3 VDC	4000 mA	87%
THD 15-1211N		5.1 VDC	3000 mA	90%
THD 15-1212N		12 VDC	1250 mA	90%
THD 15-1213N		15 VDC	1000 mA	90%
THD 15-1221N		±5 VDC	±1500 mA	86%
THD 15-1222N		±12 VDC	±625 mA	90%
THD 15-1223N		±15 VDC	±500 mA	90%
THD 15-2410N	**18–36 VDC** (24 VDC nominal)	3.3 VDC	4000 mA	88%
THD 15-2411N		5.1 VDC	3000 mA	90%
THD 15-2412N		12 VDC	1250 mA	91%
THD 15-2413N		15 VDC	1000 mA	91%
THD 15-2421N		±5 VDC	±1500 mA	87%
THD 15-2422N		±12 VDC	±625 mA	90%
THD 15-2423N		±15 VDC	±500 mA	90%
THD 15-4810N	**36–75 VDC** (48 VDC nominal)	3.3 VDC	4000 mA	88%
THD 15-4811N		5.1 VDC	3000 mA	90%
THD 15-4812N		12 VDC	1250 mA	90%
THD 15-4813N		15 VDC	1000 mA	91%
THD 15-4821N		±5 VDC	±1500 mA	87%
THD 15-4822N		±12 VDC	±625 mA	90%
THD 15-4823N		±15 VDC	±500 mA	90%

THD 15WIN | 15 W





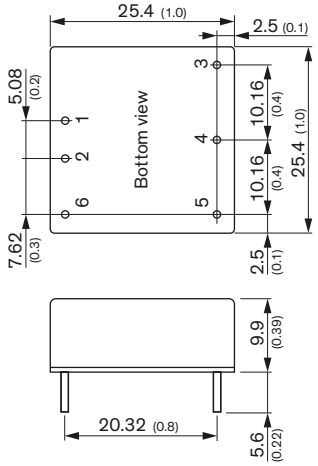
- Highest power density in DIP 24 package
- Shielded metal case with isolated Baseplate
- Very high efficiency up to 90%
- Ultra wide 4:1 input ranges
- No minimum load required
- Input filter meets EN 55022 class A without external components
- I/O isolation voltage 1500 VDC
- Operating temp. range: –40°C to +85°C
- Remote On/Off control
- Industry standard pinout
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND)	–Vin (GND)
9	NC	Common
11	NC.	–Vout
14	+Vout	+Vout
16	–Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THD 15-2410WIN	**9–36 VDC** (24 VDC nominal)	3.3 VDC	4000 mA	88%
THD 15-2411WIN		5.1 VDC	3000 mA	90%
THD 15-2412WIN		12 VDC	1250 mA	90%
THD 15-2413WIN		15 VDC	1000 mA	90%
THD 15-2421WIN		±5 VDC	±1500 mA	86%
THD 15-2422WIN		±12 VDC	±625 mA	89%
THD 15-2423WIN		±15 VDC	±500 mA	90%
THD 15-4810WIN	**18–75 VDC** (48 VDC nominal)	3.3 VDC	4000 mA	89%
THD 15-4811WIN		5.1 VDC	3000 mA	89%
THD 15-4812WIN		12 VDC	1250 mA	90%
THD 15-4813WIN		15 VDC	1000 mA	90%
THD 15-4821WIN		±5 VDC	±1500 mA	86%
THD 15-4822WIN		±12 VDC	±625 mA	89%
THD 15-4823WIN		±15 VDC	±500 mA	90%

THN 15N | 15 W





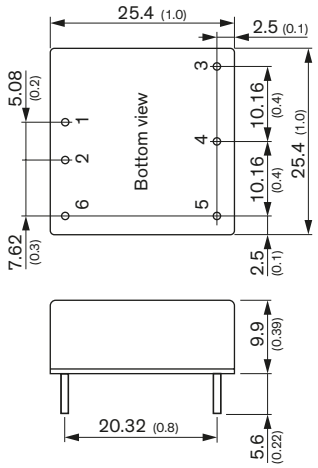
- 15 Watt converter in a compact 1.0" × 1.0" metal package
- Wide 2:1 input voltage: 9–18, 18–36, 36–75 VDC
- Internal EN 55032 class A filter
- Operating temperature range –40 to +70°C without derating
- Low no-load power consumption 96–336 mW
- High efficiency up to 91%
- I/O-isolation voltage 1600 VDC
- Protection against overload, overvoltage and short circuit
- Remote On/Off and Trim function
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	Remote On/Off

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 15-1210N	**9–18 VDC** (nominal 12 VDC)	3.3 VDC	4500 mA	88%
THN 15-1211N		5 VDC	3000 mA	90%
THN 15-1212N		12 VDC	1300 mA	89%
THN 15-1213N		15 VDC	1000 mA	90%
THN 15-1215N		24 VDC	625 mA	91%
THN 15-1221N		±5 VDC	±1500 mA	86%
THN 15-1222N		±12 VDC	±625 mA	89%
THN 15-1223N		±15 VDC	±500 mA	90%
THN 15-1225N		±24 VDC	±315 mA	90%
THN 15-2410N	**18–36 VDC** (nominal 24 VDC)	3.3 VDC	4500 mA	88%
THN 15-2411N		5 VDC	3000 mA	90%
THN 15-2412N		12 VDC	1300 mA	89%
THN 15-2413N		15 VDC	1000 mA	90%
THN 15-2415N		24 VDC	625 mA	91%
THN 15-2421N		±5 VDC	±1500 mA	86%
THN 15-2422N		±12 VDC	±625 mA	90%
THN 15-2423N		±15 VDC	±500 mA	90%
THN 15-2425N		±24 VDC	±315 mA	90%
THN 15-4810N	**36–75 VDC** (nominal 48 VDC)	3.3 VDC	4500 mA	87%
THN 15-4811N		5 VDC	3000 mA	89%
THN 15-4812N		12 VDC	1300 mA	89%
THN 15-4813N		15 VDC	1000 mA	89%
THN 15-4815N		24 VDC	625 mA	90%
THN 15-4821N		±5 VDC	±1500 mA	85%
THN 15-4822N		±12 VDC	±625 mA	89%
THN 15-4823N		±15 VDC	±500 mA	89%
THN 15-4825N		±24 VDC	±315 mA	89%

THL 15WI | 15 W





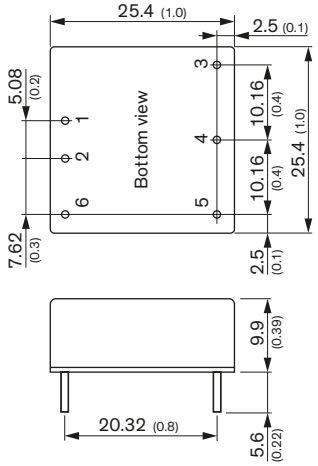
- 15 Watt converter in a 1" × 1" metal package
- Cost efficient design
- Ultra wide 4:1 input voltage range: 9–36 and 18–75 VDC
- Operating temperature range –40 to +70°C without derating
- Internal EN 55032 class A filter
- 1500 VDC I/O-isolation
- Protection against overvoltage, overload and short circuit
- Remote On/Off and trim function
- Optional heatsink for increased temperature capabilities
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+ Vout	+ Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 15-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	3400 mA	86%
THL 15-2411WI		5.0 VDC	3000 mA	88%
THL 15-2412WI		12 VDC	1250 mA	88%
THL 15-2413WI		15 VDC	1000 mA	89%
THL 15-2415WI		24 VDC	625 mA	91%
THL 15-2422WI		±12 VDC	±625 mA	89%
THL 15-2423WI		±15 VDC	±500 mA	89%
THL 15-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	3400 mA	86%
THL 15-4811WI		5.0 VDC	3000 mA	88%
THL 15-4812WI		12 VDC	1250 mA	88%
THL 15-4813WI		15 VDC	1000 mA	89%
THL 15-4815WI		24 VDC	625 mA	91%
THL 15-4822WI		±12 VDC	±625 mA	90%
THL 15-4823WI		±15 VDC	±500 mA	89%

THN 15WI | 15 W





- Smallest encapsulated 15 W Converter! Ultra compact size: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Ultrawide 4:1 input ranges: 9–36 VDC or 18–75 VDC
- Output voltage Trim
- 5 Vout models with trim up to 6 VDC ideal for LDO applications
- I/O isolation voltage 1600 VDC
- Very high efficiency up to 87%
- Operating temp. range: –40°C to +85°C
- Remote On/Off control
- 3-year product warranty

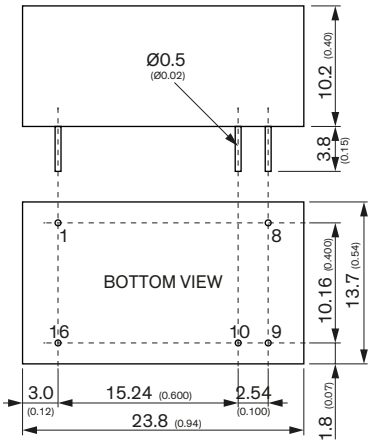
Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+ Vout	+ Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 15-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	4000 mA	86%
THN 15-2411WI		5.0 VDC	3000 mA	86%
THN 15-2411WI-A1		5.0 VDC *1	3000 mA	86%
THN 15-2412WI		12 VDC	1300 mA	87%
THN 15-2413WI		15 VDC	1000 mA	87%
THN 15-2415WI		24 VDC	625 mA	90%
THN 15-2421WI		±5 VDC	±1500 mA	85%
THN 15-2422WI		±12 VDC	±625 mA	87%
THN 15-2423WI		±15 VDC	±500 mA	88%
THN 15-2425WI		±24 VDC (48 VDC)*2	±315 mA	91%
THN 15-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	4000 mA	86%
THN 15-4811WI		5.0 VDC	3000 mA	87%
THN 15-4811WI-A1		5.0 VDC*1	3000 mA	87%
THN 15-4812WI		12 VDC	1300 mA	87%
THN 15-4813WI		15 VDC	1000 mA	87%
THN 15-4815WI		24 VDC	625 mA	91%
THN 15-4821WI		±5 VDC	±1500 mA	85%
THN 15-4822WI		±12 VDC	±625 mA	86%
THN 15-4823WI		±15 VDC	±500 mA	87%
THN 15-4825WI		±24 VDC (48 VDC)*2	±315 mA	90%

*1 Adjustable output up to 6 VDC, suitable for low ripple & noise applications in conjunction with an LDO line regulator
*2 The outputs can also be used in serial circuit for single 48 VDC operation

TEL 15N | 15 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 15-1211N	9–18 VDC (12 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-1212N		12 VDC	1250 mA	87%
TEL 15-1213N		15 VDC	1000 mA	87%
TEL 15-1215N		24 VDC	625 mA	87%
TEL 15-1222N		±12 VDC	±625 mA	87%
TEL 15-1223N		±15 VDC	±500 mA	87%
TEL 15-2411N	18–36 VDC (24 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-2412N		12 VDC	1250 mA	87%
TEL 15-2413N		15 VDC	1000 mA	87%
TEL 15-2415N		24 VDC	625 mA	87%
TEL 15-2422N		±12 VDC	±625 mA	87%
TEL 15-2423N		±15 VDC	±500 mA	87%
TEL 15-4811N	36–75 VDC (48 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-4812N		12 VDC	1250 mA	87%
TEL 15-4813N		15 VDC	1000 mA	87%
TEL 15-4815N		24 VDC	625 mA	87%
TEL 15-4822N		±12 VDC	±625 mA	87%
TEL 15-4823N		±15 VDC	±500 mA	87%

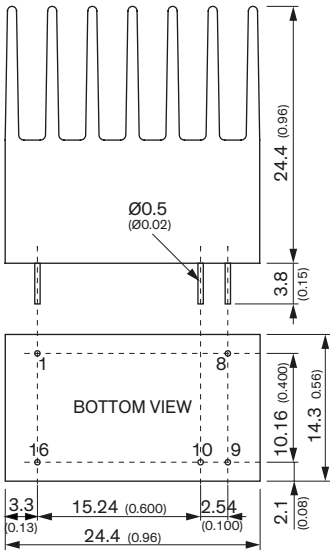
- Ultra compact 15 Watt converter in DIP-16 metal casing
- Highest power density of 4.51 W/cm³
- Operating temperature range –40°C to +85°C
- Wide 2:1 input voltage ranges: 9–18, 18–36, 36–75 VDC
- High efficiency (up to 87%) for low thermal loss
- 6-side shielded metal case with insulated baseplate
- Built-In EN 55032 class A filter (conducted)
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (Vcc)	–Vin (Vcc)
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vout	+Vout



TEL 15N-HS | 15 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 15-1211N-HS	9–18 VDC (12 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-1212N-HS		12 VDC	1250 mA	87%
TEL 15-1213N-HS		15 VDC	1000 mA	87%
TEL 15-1215N-HS		24 VDC	625 mA	87%
TEL 15-1222N-HS		±12 VDC	±625 mA	87%
TEL 15-1223N-HS		±15 VDC	±500 mA	87%
TEL 15-2411N-HS	18–36 VDC (24 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-2412N-HS		12 VDC	1250 mA	87%
TEL 15-2413N-HS		15 VDC	1000 mA	87%
TEL 15-2415N-HS		24 VDC	625 mA	87%
TEL 15-2422N-HS		±12 VDC	±625 mA	87%
TEL 15-2423N-HS		±15 VDC	±500 mA	87%
TEL 15-4811N-HS	36–75 VDC (48 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-4812N-HS		12 VDC	1250 mA	87%
TEL 15-4813N-HS		15 VDC	1000 mA	87%
TEL 15-4815N-HS		24 VDC	625 mA	87%
TEL 15-4822N-HS		±12 VDC	±625 mA	87%
TEL 15-4823N-HS		±15 VDC	±500 mA	87%

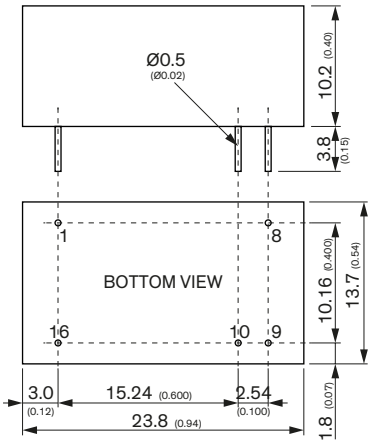
- Ultra compact 15 Watt converter in DIP-16 metal casing
- Special heatsink-case design for maximized temperature capabilities
- Operating temperature range –40°C to +70°C without derating
- Wide 2:1 input voltage ranges: 9–18, 18–36, 36–75 VDC
- High efficiency (up to 87%) for low thermal loss
- 6-side shielded metal case with insulated baseplate
- Built-In EN 55032 class A filter (conducted)
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin (Vcc)	–Vin (Vcc)
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vout	+Vout



TEL 15WIN | 15 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEL 15-2411WIN	9–36 VDC (24 VDC nom.)	5.1 VDC	3000 mA	86%
TEL 15-2412WIN		12 VDC	1250 mA	87%
TEL 15-2413WIN		15 VDC	1000 mA	87%
TEL 15-2415WIN		24 VDC	625 mA	87%
TEL 15-2422WIN		±12 VDC	±625 mA	87%
TEL 15-2423WIN		±15 VDC	±500 mA	87%
TEL 15-4811WIN	18–75 VDC (48 VDC nom.)	5.1 VDC	3000 mA	86%
TEL 15-4812WIN		12 VDC	1250 mA	87%
TEL 15-4813WIN		15 VDC	1000 mA	87%
TEL 15-4815WIN		24 VDC	625 mA	87%
TEL 15-4822WIN		±12 VDC	±625 mA	87%
TEL 15-4823WIN		±15 VDC	±500 mA	87%

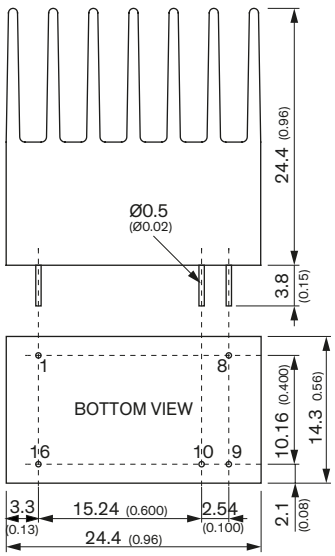
- Ultra compact 15 Watt converter in DIP-16 metal casing
- Highest power density of 4.51 W/cm³
- Operating temperature range –40°C to +85°C
- Wide 4:1 input voltage ranges: 9–36, 18–75 VDC
- High efficiency (up to 87%) for low thermal loss
- 6-side shielded metal case with insulated baseplate
- Built-In EN 55032 class A filter (conducted)
- Protection against short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	–Vin	–Vin
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin



TEL 15WIN-HS | 15 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEL 15-2411WIN-HS	9–36 VDC (24 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-2412WIN-HS		12 VDC	1250 mA	87%
TEL 15-2413WIN-HS		15 VDC	1000 mA	87%
TEL 15-2415WIN-HS		24 VDC	625 mA	87%
TEL 15-2422WIN-HS		±12 VDC	±625 mA	87%
TEL 15-2423WIN-HS		±15 VDC	±500 mA	87%
TEL 15-4811WIN-HS	18–75 VDC (48 VDC nom.)	5.1 VDC	2940 mA	86%
TEL 15-4812WIN-HS		12 VDC	1250 mA	87%
TEL 15-4813WIN-HS		15 VDC	1000 mA	87%
TEL 15-4815WIN-HS		24 VDC	625 mA	87%
TEL 15-4822WIN-HS		±12 VDC	±625 mA	87%
TEL 15-4823WIN-HS		±15 VDC	±500 mA	87%

- Ultra compact 15 Watt converter in DIP-16 metal casing
- Special heatsink-case design for maximized temperature capabilities
- Operating temperature range –40°C to +70°C without derating
- Wide 4:1 input voltage ranges: 9–36, 18–75 VDC
- High efficiency (up to 87%) for low thermal loss
- 6-side shielded metal case with insulated baseplate
- Built-In EN 55032 class A filter (conducted)
- Protection against short circuit
- 3-year product warranty

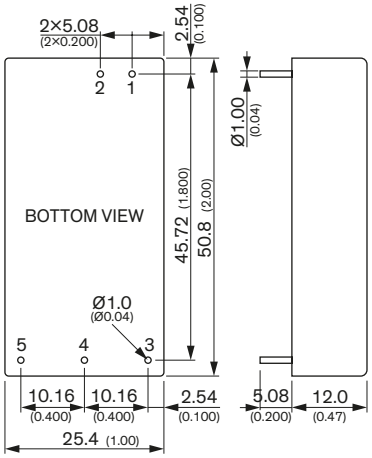
Pinout		
Pin	Single	Dual
1	–Vin (Vcc)	–Vin (Vcc)
8	NC	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vout	+Vout



TRI 15 | 15 W



- Reinforced I/O-isolation 4200 VAC rated for 1000 VAC working voltage
- Ultra-high isolation peak voltage 8000 VDC (1s)
- Common Mode Transient Immunity (dv/dt) 15 kV/µs
- Operating temperature range –40 to +85°C
- Low no-load power consumption 240–480 mW
- Internal EN 55032 class A filter
- High efficiency up to 90%
- 2:1 input voltage range: 9–18, 18–36, 36–75 VDC
- Protection against overload, overvoltage and short circuit
- 3-year product warranty



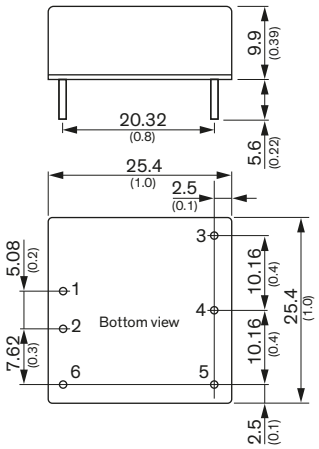
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 15-1211	9–18 VDC (12 VDC nom.)	5.1 VDC	3000 mA	85%
TRI 15-1212		12 VDC	1250 mA	88%
TRI 15-1213		15 VDC	1000 mA	88%
TRI 15-1215		24 VDC	625 mA	88%
TRI 15-1222		±12 VDC	625 mA	88%
TRI 15-1223		±15 VDC	500 mA	89%
TRI 15-2411	18–36 VDC (24 VDC nom.)	5.1 VDC	3000 mA	87%
TRI 15-2412		12 VDC	1250 mA	88%
TRI 15-2413		15 VDC	1000 mA	89%
TRI 15-2415		24 VDC	625 mA	90%
TRI 15-2422		±12 VDC	625 mA	90%
TRI 15-2423		±15 VDC	500 mA	89%
TRI 15-4811	36–75 VDC (48 VDC nom.)	5.1 VDC	3000 mA	87%
TRI 15-4812		12 VDC	1250 mA	87%
TRI 15-4813		15 VDC	1000 mA	90%
TRI 15-4815		24 VDC	625 mA	89%
TRI 15-4822		±12 VDC	625 mA	89%
TRI 15-4823		±15 VDC	500 mA	88%

Pinout		
Pin	Single Output	Dual Output
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	No pin	Common
5	–Vout	–Vout

THN 15WIR | 15 W



- Compact 1.0" × 1.0" × 0.4" standard package
- Ultra-wide 4:1 input voltage range 9–36, 18–75, 36–160 VDC
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behaviour according to EN 45545-2
- 3000 VDC I/O-isolation
- High efficiency up to 91%
- Operating temperature range –40°C to +90°C
- Under-voltage lock out circuit
- Adjustable output voltage & Remote On/Off
- 3-year product warranty



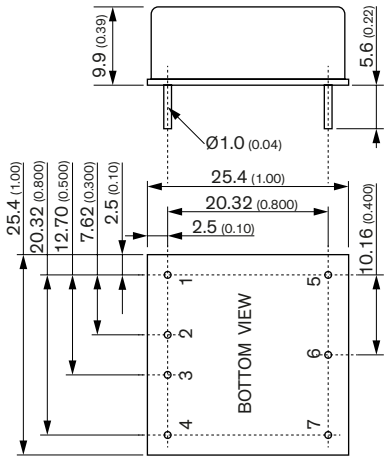
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 15-2410WIR	9–36 VDC (24 VDC nom.)	3.3 VDC	4500 mA	88%
THN 15-2411WIR		5 VDC	3000 mA	90%
THN 15-2412WIR		12 VDC	1300 mA	89%
THN 15-2413WIR		15 VDC	1000 mA	90%
THN 15-2415WIR		24 VDC	625 mA	91%
THN 15-2421WIR		± 5 VDC	±1500 mA	87%
THN 15-2422WIR		±12 VDC	±625 mA	90%
THN 15-2423WIR		±15 VDC	±500 mA	90%
THN 15-2425WIR		±24 VDC	±315 mA	91%
THN 15-4810WIR	18–75 VDC (48 VDC nom.)	3.3 VDC	4500 mA	88%
THN 15-4811WIR		5 VDC	3000 mA	90%
THN 15-4812WIR		12 VDC	1300 mA	89%
THN 15-4813WIR		15 VDC	1000 mA	90%
THN 15-4815WIR		24 VDC	625 mA	91%
THN 15-4821WIR		± 5 VDC	±1500 mA	87%
THN 15-4822WIR		±12 VDC	±625 mA	90%
THN 15-4823WIR		±15 VDC	±500 mA	90%
THN 15-4825WIR		±24 VDC	±315 mA	90%
THN 15-7210WIR	36–160 VDC (110 VDC nom.)	3.3 VDC	4500 mA	88%
THN 15-7211WIR		5 VDC	3000 mA	89%
THN 15-7212WIR		12 VDC	1300 mA	89%
THN 15-7213WIR		15 VDC	1000 mA	89%
THN 15-7215WIR		24 VDC	625 mA	90%
THN 15-7221WIR		± 5 VDC	±1500 mA	86%
THN 15-7222WIR		±12 VDC	±625 mA	89%
THN 15-7223WIR		±15 VDC	±500 mA	89%
THN 15-7225WIR		±24 VDC	±315 mA	90%

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	Remote On/Off

THN 15UIR | 15 W

NEW!





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
THN 15-3611 UIR	9–75 VDC (36 VDC nom.)	5.1 VDC	3000 mA	87%
THN 15-3612 UIR		12 VDC	1250 mA	88%
THN 15-3613 UIR		15 VDC	1000 mA	88%
THN 15-3615 UIR		24 VDC	625 mA	88%
THN 15-3622 UIR		+12 VDC	625 mA	87%
THN 15-3623 UIR		+15 VDC	500 mA	88%
THN 15-7211 UIR	14–160 VDC (72 VDC nom.)	5.1 VDC	3000 mA	87%
THN 15-7212 UIR		12 VDC	1250 mA	88%
THN 15-7213 UIR		15 VDC	1000 mA	87%
THN 15-7215 UIR		24 VDC	625 mA	87%
THN 15-7222 UIR		+12 VDC	625 mA	87%
THN 15-7223 UIR		+15 VDC	500 mA	87%

- Compact 1" × 1" housing
- Ultra-wide 12:1 input voltage range: 9–75, 14–160 VDC
- –40°C up to +70°C natural convection cooling without derating
- EN 50155, EN 45545-2 and EN 61373 certified
- Dedicated holdup capacitor connection
- Fully encapsulated
- 3000 VDC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP) and overtemperature (OTP)
- 3-year product warranty

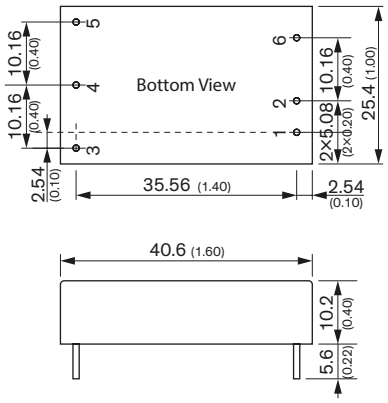
Pinout		
Pin	Single	Dual
1	No Pin* / BUS / UVLO**	
2	+Vin	
3	–Vin	
4	Remote On/Off	
5	+Vout	
6	Trim	Common
7	–Vout	

* If neither BUS nor UVLO is present
**UVLO function is optional



THM 15 | 15 W





Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
THM 15-1211	9–18 VDC (12 VDC nom.)	5 VDC	3000 mA	89%
THM 15-1212		12 VDC	1250 mA	89%
THM 15-1213		15 VDC	1000 mA	89%
THM 15-1215		24 VDC	625 mA	89%
THM 15-1221		± 5 VDC	1500 mA	86%
THM 15-1222		±12 VDC	625 mA	89%
THM 15-1223		±15 VDC	500 mA	89%
THM 15-2411	18–36 VDC (24 VDC nom.)	5 VDC	3000 mA	90%
THM 15-2412		12 VDC	1250 mA	90%
THM 15-2413		15 VDC	1000 mA	90%
THM 15-2415		24 VDC	625 mA	90%
THM 15-2421		± 5 VDC	1500 mA	86%
THM 15-2422		±12 VDC	625 mA	90%
THM 15-2423		±15 VDC	500 mA	90%
THM 15-4811	36–75 VDC (48 VDC nom.)	5 VDC	3000 mA	90%
THM 15-4812		12 VDC	1250 mA	88%
THM 15-4813		15 VDC	1000 mA	89%
THM 15-4815		24 VDC	625 mA	89%
THM 15-4821		± 5 VDC	1500 mA	86%
THM 15-4822		±12 VDC	625 mA	89%
THM 15-4823		±15 VDC	500 mA	89%

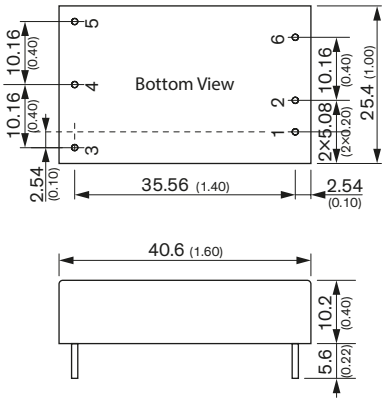
- Wide 2:1 input voltage 15 W DC/DC converter in a 1.6 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 85°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

* If Remote or Trim is not selected there is no pin on corresponding number.

THM 15WI | 15 W





- Ultra wide 4:1 input voltage 15 W DC/DC converter in a 1.6 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 85°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

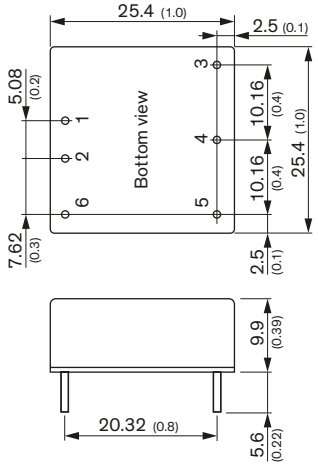
Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 15-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	3000 mA	88%
THM 15-2412WI		12 VDC	1250 mA	89%
THM 15-2413WI		15 VDC	1000 mA	89%
THM 15-2415WI		24 VDC	625 mA	88%
THM 15-2421WI		± 5 VDC	1500 mA	86%
THM 15-2422WI		±12 VDC	625 mA	88%
THM 15-2423WI		±15 VDC	500 mA	89%
THM 15-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	3000 mA	90%
THM 15-4812WI		12 VDC	1250 mA	88%
THM 15-4813WI		15 VDC	1000 mA	89%
THM 15-4815WI		24 VDC	625 mA	89%
THM 15-4821WI		± 5 VDC	1500 mA	86%
THM 15-4822WI		±12 VDC	625 mA	89%
THM 15-4823WI		±15 VDC	500 mA	89%

* If remote is not selected there will be no pin.

THN 20 | 20 W





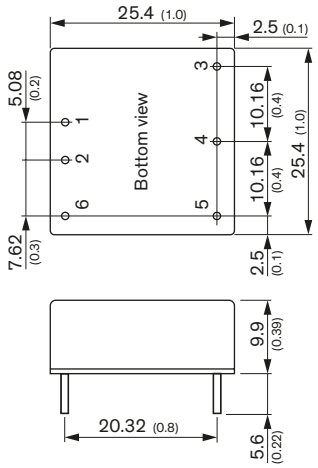
- Smallest encapsulated 20 W Converter! Ultra compact size: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Wide 2:1 input voltage ranges
- Very high efficiency up to 90%
- Output voltage adjustable
- Remote On/Off control
- Operating temp. range –40°C to +75°C and up to 85°C with heat-sink
- I/O isolation voltage 1500 VDC
- Input filter meets EN 55022 class A without external components
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+ Vout	+ Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 20-1210	**9–18 VDC** (12 VDC nominal)	3.3 VDC	4500 mA	86%
THN 20-1211		5.0 VDC	4000 mA	90%
THN 20-1212		12 VDC	1670 mA	89%
THN 20-1213		15 VDC	1330 mA	89%
THN 20-1222		±12 VDC	±833 mA	89%
THN 20-1223		±15 VDC	±667 mA	89%
THN 20-2410	**18–36 VDC** (24 VDC nominal)	3.3 VDC	4500 mA	86%
THN 20-2411		5.0 VDC	4000 mA	90%
THN 20-2412		12 VDC	1670 mA	90%
THN 20-2413		15 VDC	1330 mA	90%
THN 20-2422		±12 VDC	±833 mA	90%
THN 20-2423		±15 VDC	±667 mA	90%
THN 20-4810	**36–75 VDC** (48 VDC nominal)	3.3 VDC	4500 mA	86%
THN 20-4811		5.0 VDC	4000 mA	90%
THN 20-4812		12 VDC	1670 mA	90%
THN 20-4813		15 VDC	1330 mA	90%
THN 20-4822		±12 VDC	±833 mA	90%
THN 20-4823		±15 VDC	±667 mA	90%

THN 20WI | 20 W





- Ultra compact size: 1.0" × 1.0" × 0.4"
- Shielded metal casing with isolated baseplate
- Ultrawide 4:1 input voltage ranges
- Very high efficiency up to 90%
- Output voltage adjustable
- Remote On/Off control
- Operating temp. range –40°C to +75°C and up to 85°C with heat-sink
- I/O isolation voltage 1600 VDC
- Input filter meets EN 55032 class A without external components
- 3-year product warranty

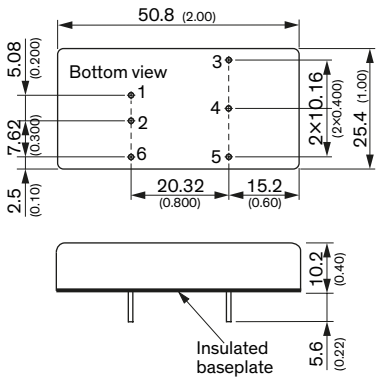
Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+ Vout	+ Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 20-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	4500 mA	86%
THN 20-2411WI		5.0 VDC	4000 mA	89%
THN 20-2411WI-A1		5.0 VDC*1	4000 mA	89%
THN 20-2412WI		12 VDC	1670 mA	89%
THN 20-2413WI		15 VDC	1330 mA	89%
THN 20-2415WI		24 VDC	833 mA	91%
THN 20-2422WI		±12 VDC	±833 mA	89%
THN 20-2423WI		±15 VDC	±667 mA	89%
THN 20-2425WI		±24 VDC (48 VDC)*2	±417 mA	91%
THN 20-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	4500 mA	86%
THN 20-4811WI		5.0 VDC	4000 mA	89%
THN 20-4811WI-A1		5.0 VDC*1	4000 mA	89%
THN 20-4812WI		12 VDC	1670 mA	89%
THN 20-4813WI		15 VDC	1330 mA	90%
THN 20-4815WI		24 VDC	833 mA	91%
THN 20-4822WI		±12 VDC	±833 mA	89%
THN 20-4823WI		±15 VDC	±667 mA	89%
THN 20-4825WI		±24 VDC (48 VDC)*2	±417 mA	91%

*1 Adjustable output up to 6 VDC
*2 The outputs can also be used in serial circuit for single 48 VDC operation

TEN 20WIN | 20 W





- 2" × 1" × 0.4" metal package
- Ultra wide 4:1 input range
- Operating temperature range –40°C to +85°C
- I/O isolation 1500 VDC
- Input filter to meet EN 55022 class A
- Adjustable output voltage
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

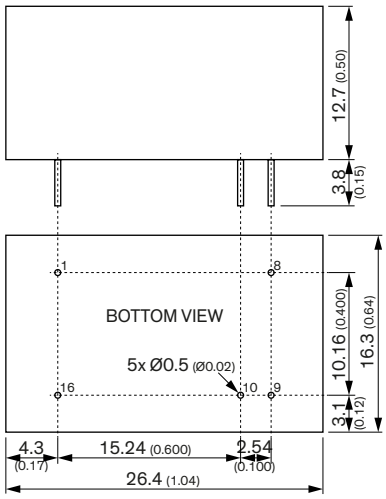
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 20-2410WIN	**9–36 VDC** (24 VDC nominal)	3.3 VDC	5500 mA	85%
TEN 20-2411WIN		5 VDC	4000 mA	88%
TEN 20-2412WIN		12 VDC	1670 mA	86%
TEN 20-2413WIN		15 VDC	1330 mA	86%
TEN 20-2421WIN		±5 VDC	±2000 mA	88%
TEN 20-2422WIN		±12 VDC	±835 mA	87%
TEN 20-2423WIN		±15 VDC	±665 mA	87%
TEN 20-4810WIN	**18–75 VDC** (48 VDC nominal)	3.3 VDC	5500 mA	85%
TEN 20-4811WIN		5 VDC	4000 mA	88%
TEN 20-4812WIN		12 VDC	1670 mA	87%
TEN 20-4813WIN		15 VDC	1330 mA	87%
TEN 20-4821WIN		±5 VDC	±2000 mA	89%
TEN 20-4822WIN		±12 VDC	±835 mA	88%
TEN 20-4823WIN		±15 VDC	±665 mA	88%

TEL 20WIN | 20 W

NEW under development



- Ultra compact 20 Watt converter in DIP-16 metal casing
- High power density of 3,66W/cm³
- 6-side shielded metal case with insulated baseplate
- Wide 4:1 input voltage range: 4.5–18, 9–36, 18–75 VDC
- High efficiency (up to 90%) for low thermal loss
- Operating temperature range –40°C to +85°C
- Meets EN 55032 class A (conducted)
- Protection against undervoltage, overload and short circuit
- 3-year product warranty



Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEL 20-1211WIN	4.5–18 VDC (12 VDC nom.)	5 VDC	4000 mA	88%
TEL 20-1212WIN		12 VDC	1670 mA	89%
TEL 20-1213WIN		15 VDC	1340 mA	88%
TEL 20-1215WIN		24 VDC	835 mA	89%
TEL 20-1222WIN		±12 VDC	±835 mA	88%
TEL 20-1223WIN		±15 VDC	±667 mA	87%
TEL 20-2411WIN	9–36 VDC (24 VDC nom.)	5 VDC	4000 mA	89%
TEL 20-2412WIN		12 VDC	1670 mA	90%
TEL 20-2413WIN		15 VDC	1340 mA	89%
TEL 20-2415WIN		24 VDC	835 mA	90%
TEL 20-2422WIN		±12 VDC	±835 mA	89%
TEL 20-2423WIN		±15 VDC	±667 mA	88%
TEL 20-4811WIN	18–75 VDC (48 VDC nom.)	5 VDC	4000 mA	89%
TEL 20-4812WIN		12 VDC	1670 mA	90%
TEL 20-4813WIN		15 VDC	1340 mA	89%
TEL 20-4815WIN		24 VDC	835 mA	90%
TEL 20-4822WIN		±12 VDC	±835 mA	89%
TEL 20-4823WIN		±15 VDC	±667 mA	88%

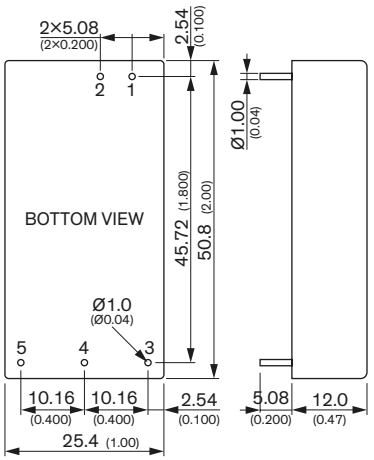
Pinout

Pin	Single	Dual
1	–Vin	
8	ADJ	Common
9	+Vout	
10	–Vout	
16	+Vin	

TRI 20 | 20 W



- Reinforced I/O-isolation 4200 VAC rated for 1000 VAC working voltage
- Ultra-high isolation peak voltage 8000 VDC (1s)
- Common Mode Transient Immunity (dv/dt) 15 kV/µs
- Operating temperature range –40 to +76°C
- Low no-load power consumption 240–480 mW
- Internal EN 55032 class A filter
- High efficiency up to 90%
- 2:1 input voltage range: 9–18, 18–36, 36–75 VDC
- Protection against overload, overvoltage and short circuit
- 3-year product warranty



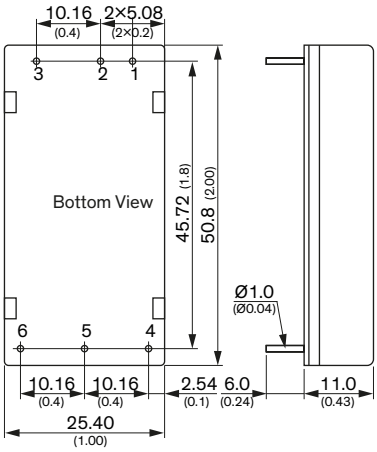
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TRI 20-1211	9–18 VDC (12 VDC nom.)	5.1 VDC	4000 mA	85%
TRI 20-1212		12 VDC	1670 mA	88%
TRI 20-1213		15 VDC	1333 mA	88%
TRI 20-1215		24 VDC	840 mA	89%
TRI 20-1222		±12 VDC	840 mA	89%
TRI 20-1223		±15 VDC	670 mA	89%
TRI 20-2411	18–36 VDC (24 VDC nom.)	5.1 VDC	4000 mA	87%
TRI 20-2412		12 VDC	1670 mA	88%
TRI 20-2413		15 VDC	1333 mA	89%
TRI 20-2415		24 VDC	840 mA	90%
TRI 20-2422		±12 VDC	840 mA	90%
TRI 20-2423		±15 VDC	670 mA	90%
TRI 20-4811	36–75 VDC (48 VDC nom.)	5.1 VDC	4000 mA	87%
TRI 20-4812		12 VDC	1670 mA	88%
TRI 20-4813		15 VDC	1333 mA	90%
TRI 20-4815		24 VDC	840 mA	89%
TRI 20-4822		±12 VDC	840 mA	89%
TRI 20-4823		±15 VDC	670 mA	90%

Pinout

Pin	Single Output	Dual Output
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	No pin	Common
5	–Vout	–Vout

THR 20WI | 20 W





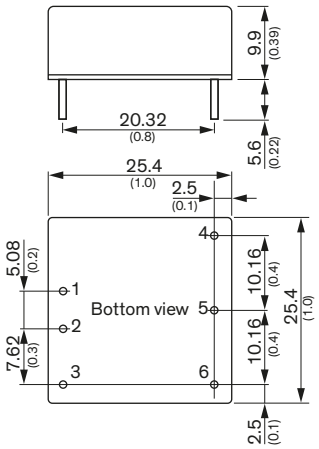
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THR 20-2411WI	9–36 VDC (24 VDC nom.)	5 VDC	4000 mA	87%
THR 20-2412WI		12 VDC	1670 mA	87%
THR 20-2413WI		15 VDC	1330 mA	87%
THR 20-2415WI		24 VDC	833 mA	87%
THR 20-2422WI		±12 VDC	±833 mA	86%
THR 20-2423WI		±15 VDC	±667 mA	86%
THR 20-4811WI	18–75 VDC (48 VDC nom.)	5 VDC	4000 mA	87%
THR 20-4812WI		12 VDC	1670 mA	88%
THR 20-4813WI		15 VDC	1330 mA	88%
THR 20-4815WI		24 VDC	833 mA	88%
THR 20-4822WI		±12 VDC	±833 mA	87%
THR 20-4823WI		±15 VDC	±667 mA	87%
THR 20-7211WI	40–160 VDC (110 VDC nom.)	5 VDC	4000 mA	84%
THR 20-7212WI		12 VDC	1670 mA	86%
THR 20-7213WI		15 VDC	1330 mA	86%
THR 20-7215WI		24 VDC	833 mA	86%
THR 20-7222WI		±12 VDC	±833 mA	86%
THR 20-7223WI		±15 VDC	±667 mA	86%

- Reinforced I/O-isolation 3000 VAC
- Shock and vibration resistance according to EN 61373
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- Operating temperature range –40 to +85°C
- Internal EN 55032 class A filter
- High efficiency up to 88%
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	Trim	Common
6	–Vout	–Vout

THN 20WIR | 20 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 20-2410WIR	9–36 VDC (24 VDC nom.)	3.3 VDC	5500 mA	88%
THN 20-2411WIR		5 VDC	4000 mA	89%
THN 20-2412WIR		12 VDC	1670 mA	89%
THN 20-2413WIR		15 VDC	1330 mA	89%
THN 20-2415WIR		24 VDC	833 mA	91%
THN 20-2422WIR		±12 VDC	±833 mA	89%
THN 20-2423WIR		±15 VDC	±667 mA	90%
THN 20-2425WIR		±24 VDC	±417 mA	91%
THN 20-4810WIR	18–75 VDC (48 VDC nom.)	3.3 VDC	5500 mA	89%
THN 20-4811WIR		5 VDC	4000 mA	90%
THN 20-4812WIR		12 VDC	1670 mA	89%
THN 20-4813WIR		15 VDC	1330 mA	90%
THN 20-4815WIR		24 VDC	833 mA	91%
THN 20-4822WIR		±12 VDC	±833 mA	89%
THN 20-4823WIR		±15 VDC	±667 mA	90%
THN 20-4825WIR		±24 VDC	±417 mA	91%
THN 20-7210WIR	36–160 VDC (110 VDC nom.)	3.3 VDC	5500 mA	89%
THN 20-7211WIR		5 VDC	4000 mA	90%
THN 20-7212WIR		12 VDC	1670 mA	90%
THN 20-7213WIR		15 VDC	1330 mA	90%
THN 20-7215WIR		24 VDC	833 mA	91%
THN 20-7222WIR		±12 VDC	±833 mA	90%
THN 20-7223WIR		±15 VDC	±667 mA	90%
THN 20-7225WIR		±24 VDC	±417 mA	91%

- Compact 1" × 1" metal package
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behavior according to EN 45545-2
- Wide 4:1 input voltage: 9–36, 18–75, 36–160 VDC
- Operating temperature range –40 to +65°C without derating
- High efficiency up to 91%
- 3000 VDC I/O-isolation
- Protection against overload, overvoltage and short circuit
- Remote On/Off and Trim function
- 3-year product warranty

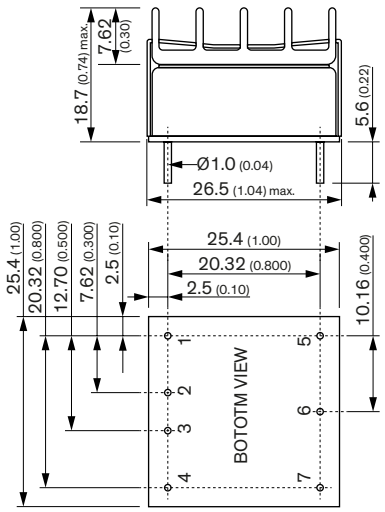
Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	Trim	Common
6	–Vout	–Vout



THN 20UIR | 20 W

NEW!





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 20-3611UIR	9–75 VDC (36 VDC nom.)	5.1 VDC	4'000 mA	87%
THN 20-3612UIR		12 VDC	1'670 mA	88%
THN 20-3613UIR		15 VDC	1'330 mA	88%
THN 20-3615UIR		24 VDC	835 mA	88%
THN 20-3622UIR		+12 VDC	835 mA	88%
THN 20-3623UIR		+15 VDC	667 mA	88%
THN 20-7211UIR	14–160 VDC (72 VDC nom.)	5.1 VDC	4'000 mA	87%
THN 20-7212UIR		12 VDC	1'670 mA	88%
THN 20-7213UIR		15 VDC	1'330 mA	88%
THN 20-7215UIR		24 VDC	835 mA	88%
THN 20-7222UIR		+12 VDC	835 mA	88%
THN 20-7223UIR		+15 VDC	667 mA	88%

- Compact 1" × 1" housing
- Ultra-wide 12:1 input voltage range: 9–75, 14–160 VDC
- –40°C up to +70°C natural convection cooling without derating
- EN 50155, EN 45545-2 and EN 61373 certified
- Dedicated holdup capacitor connection
- Fully encapsulated
- 3000 VDC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP) and overtemperature (OTP)
- 3-year product warranty

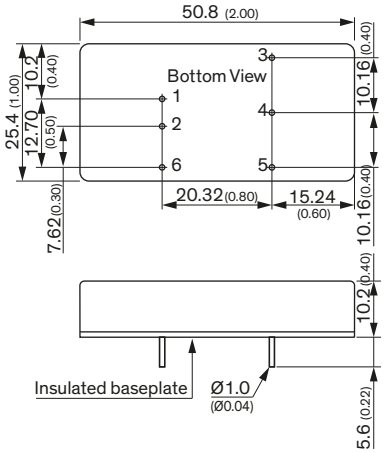
Pinout		
Pin	Single	Dual
1	No Pin* / BUS / UVLO**	
2	+Vin	
3	–Vin	
4	Remote On/Off	
5	+Vout	
6	Trim	Common
7	–Vout	

* If neither BUS nor UVLO is present
**UVLO function is optional



TEN 20WIR | 20 W





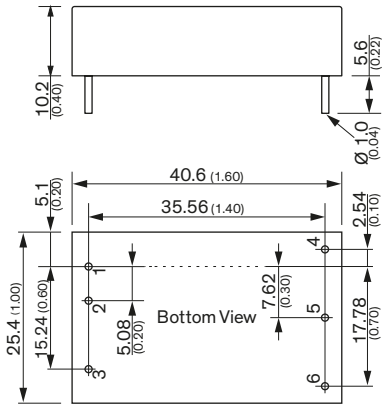
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 20-2410WIR	9–36 VDC (24 VDC nom.)	3.3 VDC	4500 mA	85%
TEN 20-2411WIR		5 VDC	4000 mA	88%
TEN 20-2412WIR		12 VDC	1670 mA	89%
TEN 20-2413WIR		15 VDC	1330 mA	88%
TEN 20-2422WIR		±12 VDC	±833 mA	88%
TEN 20-2423WIR		±15 VDC	±667 mA	89%
TEN 20-4810WIR	18–75 VDC (48 VDC nom.)	3.3 VDC	4500 mA	85%
TEN 20-4811WIR		5 VDC	4000 mA	88%
TEN 20-4812WIR		12 VDC	1670 mA	89%
TEN 20-4813WIR		15 VDC	1330 mA	89%
TEN 20-4822WIR		±12 VDC	±833 mA	88%
TEN 20-4823WIR		±15 VDC	±667 mA	89%
TEN 20-7210WIR	43–160 VDC (110 VDC nom.)	3.3 VDC	4500 mA	85%
TEN 20-7211WIR		5 VDC	4000 mA	87%
TEN 20-7212WIR		12 VDC	1670 mA	88%
TEN 20-7213WIR		15 VDC	1330 mA	88%
TEN 20-7222WIR		±12 VDC	±833 mA	88%
TEN 20-7223WIR		±15 VDC	±667 mA	89%

- 2" × 1" × 0.4" metal package
- Ultra wide 4:1 input voltage range 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Thermal shock and vibration resistant according EN 61373
- Input filter meets EN 55032 class B without external components
- High efficiency up to 89%
- Operating temperature range –40°C to +85°C
- Under voltage lock-out circuit
- Remote On/Off and Output voltage adjustable
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	Remote On/Off

TEN 20WIRH | 20 W





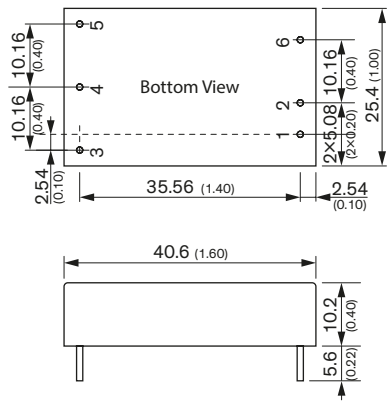
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 20-11011WIRH	36–160 VDC	5.1 VDC	4000 mA	89%
TEN 20-11012WIRH		12 VDC	1670 mA	88.5%
TEN 20-11013WIRH		15 VDC	1330 mA	89%
TEN 20-11015WIRH		24 VDC	833 mA	88.5%
TEN 20-11021WIRH		±5 VDC	±2000 mA	86%
TEN 20-11022WIRH		±12 VDC	±833 mA	88.5%
TEN 20-11023WIRH		±15 VDC	±667 mA	89%

- Fully encapsulated 1" × 1.6" package
- 3000 VAC I/O isolation (reinforced)
- 4:1 input voltage range: 36–160 VDC
- EN 50155 and EN 61373 certified
- Internal class A EMI filter
- –40°C up to +75°C without derating
- EN 45545-2 fire behavior
- Remote on/off function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overtemperature protection (OTP), and overvoltage protection (OVP)
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	–Vout	–Vout
6	Trim	–Vout

THM 20 | 20 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 20-1211	9–18 VDC (12 VDC nom.)	5 VDC	4000 mA	89%
THM 20-1212		12 VDC	1670 mA	89%
THM 20-1213		15 VDC	1330 mA	89%
THM 20-1215		24 VDC	833 mA	89%
THM 20-1221		± 5 VDC	2000 mA	86%
THM 20-1222		±12 VDC	833 mA	89%
THM 20-1223		±15 VDC	667 mA	89%
THM 20-2411	18–36 VDC (24 VDC nom.)	5 VDC	4000 mA	90%
THM 20-2412		12 VDC	1670 mA	90%
THM 20-2413		15 VDC	1330 mA	90%
THM 20-2415		24 VDC	833 mA	90%
THM 20-2421		± 5 VDC	2000 mA	86%
THM 20-2422		±12 VDC	833 mA	90%
THM 20-2423		±15 VDC	667 mA	90%
THM 20-4811	36–75 VDC (48 VDC nom.)	5 VDC	4000 mA	90%
THM 20-4812		12 VDC	1670 mA	89%
THM 20-4813		15 VDC	1330 mA	89%
THM 20-4815		24 VDC	833 mA	89%
THM 20-4821		± 5 VDC	2000 mA	86%
THM 20-4822		±12 VDC	833 mA	89%
THM 20-4823		±15 VDC	667 mA	89%

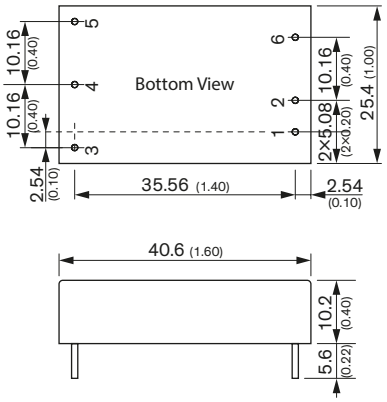
- Wide 2:1 input voltage 20 W DC/DC converter in a 1.6 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 80°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

* If remote is not selected there will be no pin.

THM 20WI | 20 W





- Ultra wide 4:1 input voltage 20 W DC/DC converter in a 1.6 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 80°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

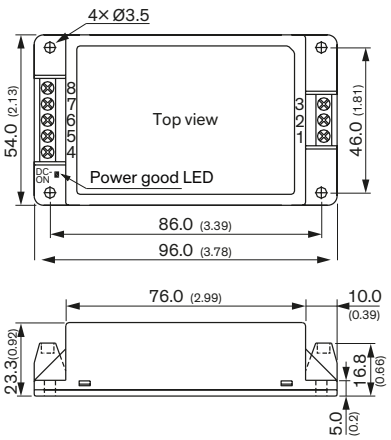
Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 20-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	4000 mA	89%
THM 20-2412WI		12 VDC	1670 mA	89%
THM 20-2413WI		15 VDC	1330 mA	89%
THM 20-2415WI		24 VDC	833 mA	89%
THM 20-2421WI		± 5 VDC	2000 mA	86%
THM 20-2422WI		±12 VDC	833 mA	89%
THM 20-2423WI		±15 VDC	667 mA	89%
THM 20-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	4000 mA	90%
THM 20-4812WI		12 VDC	1670 mA	89%
THM 20-4813WI		15 VDC	1330 mA	89%
THM 20-4815WI		24 VDC	833 mA	89%
THM 20-4821WI		± 5 VDC	2000 mA	86%
THM 20-4822WI		±12 VDC	833 mA	89%
THM 20-4823WI		±15 VDC	667 mA	89%

* If remote is not selected there will be no pin.

TMDC 20 | 20 W





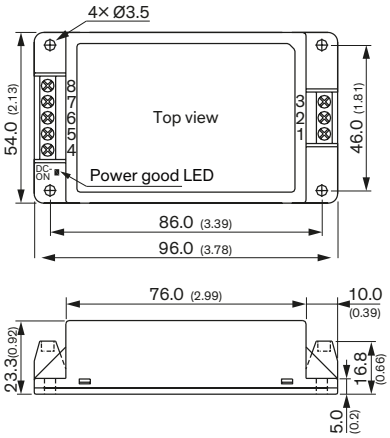
- Fully encapsulated low profile plastic case
- Ultra wide 4:1 input voltage range
- Operating temperature range –40°C to +90°C
- I/O isolation 2500 VDC
- Excellent efficiency up to 91%
- Input filter to meet EN 55022, class A
- Optional DIN-Rail mount adapter
- No minimum load required
- Power good LED indicator and remote on/off function
- 3-year product warranty

Pinout	
Pin	**Function**
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	NC
5	–Vout
6	NC
7	+Vout
8	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 20-2411	**9–36 VDC** (24 VDC nom.)	5.1 VDC	4000 mA	90%
TMDC 20-2412		12 VDC	1670 mA	91%
TMDC 20-2415		24 VDC	835 mA	91%
TMDC 20-2418		48 VDC	420 mA	89%
TMDC 20-4811	**18–75 VDC** (48 VDC nom.)	5.1 VDC	4000 mA	90%
TMDC 20-4812		12 VDC	1670 mA	91%
TMDC 20-4815		24 VDC	835 mA	91%
TMDC 20-4818		48 VDC	420 mA	89%

TMDC 20H | 20 W





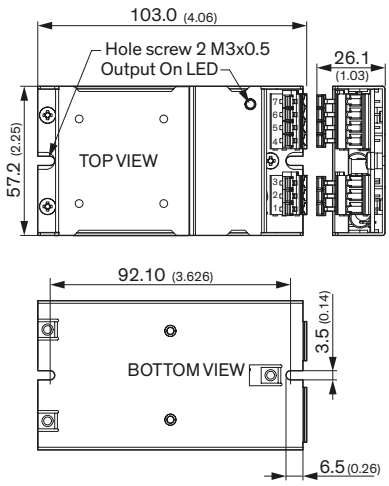
- Fully encapsulated chassis mount modules
- High 2:1 input voltage range: 80–160 VDC
- Reinforced I/O-isolation 3000 VAC
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Operating temperature range –40 to +85°C without derating
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty

Pinout	
Pin	**Function**
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	NC
5	–Vout
6	NC
7	+Vout
8	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 20-7211H		5.1 VDC	4000 mA	87%
TMDC 20-7212H		12 VDC	1670 mA	88%
TMDC 20-7213H		15 VDC	1340 mA	88%
TMDC 20-7215H	**80–160 VDC**	24 VDC	830 mA	88%
TMDC 20-7218H	(110 VDC nom.)	48 VDC	420 mA	86%
TMDC 20-7222H		±12 VDC	±830 mA	87%
TMDC 20-7223H		±15 VDC	±670 mA	87%
TMDC 20-7225H		± 24 VDC	±420 mA	87%

TEQ 20WIR | 20 W





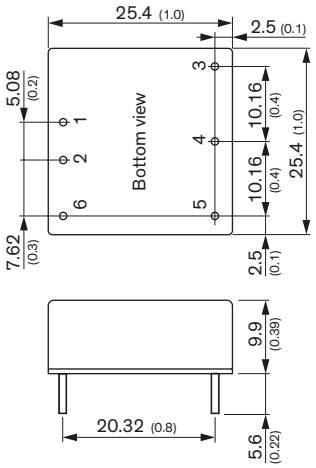
- High power block with excellent thermal convection
- Operating temperature –40°C to +93°C
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 88%
- Input filter meet EN 55032 class B
- I/O isolation up to 1591 VAC
- Under voltage lock-out circuit
- Protection against overvoltage, overtemperature and short circuit
- Output LED indicator
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	–Vin (GND)	–Vin (GND)
3	NC	NC
4	NC	–Vout
5	–Vout	Common
6	+Vout	Common
7	NC	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEQ 20-2411WIR		5 VDC	4000 mA	87%
TEQ 20-2412WIR		12 VDC	1670 mA	88%
TEQ 20-2413WIR	**9–36 VDC**	15 VDC	1330 mA	87%
TEQ 20-2415WIR	(24 VDC nom.)	24 VDC	833 mA	87%
TEQ 20-2422WIR		±12 VDC	833 mA	87%
TEQ 20-2423WIR		±15 VDC	667 mA	88%
TEQ 20-4811WIR		5 VDC	4500 mA	87%
TEQ 20-4812WIR		12 VDC	1670 mA	88%
TEQ 20-4813WIR	**18–75 VDC**	15 VDC	1330 mA	88%
TEQ 20-4815WIR	(48 VDC nom.)	24 VDC	833 mA	87%
TEQ 20-4822WIR		±12 VDC	833 mA	87%
TEQ 20-4823WIR		±15 VDC	667 mA	88%
TEQ 20-7211WIR		5 VDC	4500 mA	86%
TEQ 20-7212WIR		12 VDC	1670 mA	87%
TEQ 20-7213WIR	**43–160 VDC**	15 VDC	1330 mA	87%
TEQ 20-7215WIR	(110 VDC nom.)	24 VDC	833 mA	87%
TEQ 20-7222WIR		±12 VDC	833 mA	87%
TEQ 20-7223WIR		±15 VDC	667 mA	88%

THL 25 | 25 W





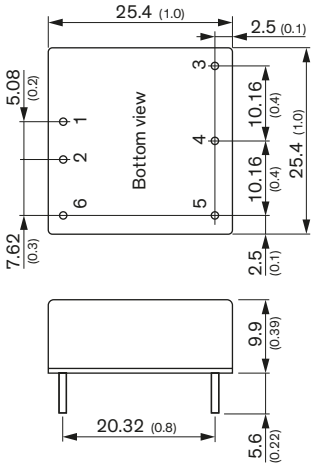
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 25-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	6000 mA	87%
THL 25-1211		5.0 VDC	5000 mA	89%
THL 25-1212		12 VDC	2090 mA	89%
THL 25-1213		15 VDC	1670 mA	89%
THL 25-1222		±12 VDC	±1040 mA	89%
THL 25-1223		±15 VDC	±840 mA	89%
THL 25-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	6000 mA	88%
THL 25-2411		5.0 VDC	5000 mA	90%
THL 25-2412		12 VDC	2090 mA	90%
THL 25-2413		15 VDC	1670 mA	90%
THL 25-2422		±12 VDC	±1040 mA	89%
THL 25-2423		±15 VDC	±840 mA	89%
THL 25-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	6000 mA	88%
THL 25-4811		5.0 VDC	5000 mA	90%
THL 25-4812		12 VDC	2090 mA	90%
THL 25-4813		15 VDC	1670 mA	90%
THL 25-4822		±12 VDC	±1040 mA	89%
THL 25-4823		±15 VDC	±840 mA	89%

- High power density 25 W converter Ultra compact design: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Wide 2:1 input voltage ranges
- Very high efficiency up to 90%
- Output voltage adjustable
- Remote On/Off control
- Operating temp. range –40°C to +80°C and up to +85°C with heat-sink
- I/O isolation voltage 1500 VDC
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

THL 25WI | 25 W





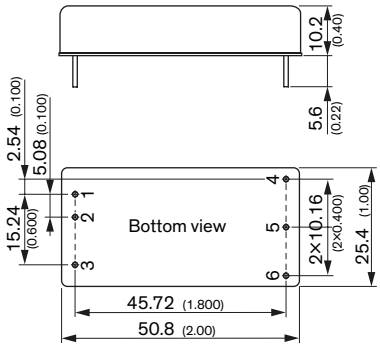
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 25-2410WI	9–36 VDC (24 VDC nominal)	3.3 VDC	6000 mA	87%
THL 25-2411WI		5.0 VDC	5000 mA	89%
THL 25-2412WI		12 VDC	2090 mA	89%
THL 25-2413WI		15 VDC	1670 mA	90%
THL 25-2422WI		±12 VDC	±1040 mA	89%
THL 25-2423WI		±15 VDC	±840 mA	89%
THL 25-4810WI	18–75 VDC (48 VDC nominal)	3.3 VDC	6000 mA	88%
THL 25-4811WI		5.0 VDC	5000 mA	90%
THL 25-4812WI		12 VDC	2090 mA	90%
THL 25-4813WI		15 VDC	1670 mA	90%
THL 25-4822WI		±12 VDC	±1040 mA	89%
THL 25-4823WI		±15 VDC	±840 mA	89%

- High power density 25 W converter Ultra compact design: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Ultra wide 4:1 input voltage ranges
- Very high efficiency up to 90%
- Output voltage adjustable
- Remote On/Off control
- Operating temp. range –40°C to +80°C and up to +85°C with heat-sink
- I/O isolation voltage 1500 VDC
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

TEN 30 | 30 W





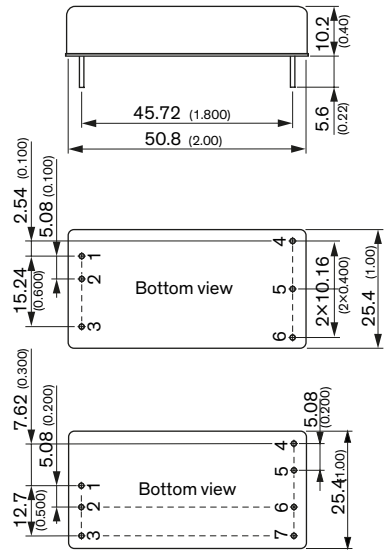
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 30-1210	9–18 VDC (nominal 12 VDC)	3.3 VDC	8000 mA	85%
TEN 30-1211		5.1 VDC	6000 mA	87%
TEN 30-1212		12 VDC	2500 mA	89%
TEN 30-1213		15 VDC	2000 mA	89%
TEN 30-1221		±5 VDC	±3000 mA	87%
TEN 30-1222		±12 VDC	±1250 mA	87%
TEN 30-1223		±15 VDC	±1000 mA	87%
TEN 30-2410	18–36 VDC (nominal 24 VDC)	3.3 VDC	8000 mA	87%
TEN 30-2411		5.1 VDC	6000 mA	90%
TEN 30-2412		12 VDC	2500 mA	91%
TEN 30-2413		15 VDC	2000 mA	91%
TEN 30-2421		±5 VDC	±3000 mA	90%
TEN 30-2422		±12 VDC	±1250 mA	89%
TEN 30-2423		±15 VDC	±1000 mA	90%
TEN 30-4810	36–75 VDC (nominal 48 VDC)	3.3 VDC	7500 mA	87%
TEN 30-4811		5.1 VDC	6000 mA	89%
TEN 30-4812		12 VDC	2500 mA	91%
TEN 30-4813		15 VDC	2000 mA	91%
TEN 30-4821		±5 VDC	±3000 mA	90%
TEN 30-4822		±12 VDC	±1250 mA	88%
TEN 30-4823		±15 VDC	±1000 mA	89%

- 2" × 1" × 0.4" metal package
- Wide 2:1 input range
- Very high efficiency up to 91%
- Operating temperature range –40°C to +80°C
- Over-temperature protection
- I/O isolation 1600 VDC
- Adjustable output voltage
- Remote On/Off
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	
4	+ Vout	+ Vout
5	–Vout	Common
6	Trim	–Vout

TEN 30WIN | 30 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 30-2410WIN	9–36 VDC (24 VDC nominal)	3.3 VDC	7.5 A	86%
TEN 30-2411WIN		5.1 VDC	6 A	88%
TEN 30-2412WIN		12 VDC	2.5 A	89%
TEN 30-2413WIN		15 VDC	2 A	89%
TEN 30-2421WIN		± 5 VDC	3 A	88%
TEN 30-2422WIN		±12 VDC	1.25 A	87%
TEN 30-2423WIN		±15 VDC	1 A	87%
TEN 30-2433WIN		3.3 / ±12 VDC	5 / 0.416 A	86%
TEN 30-2434WIN		3.3 / ±15 VDC	5 / 0.333 A	86%
TEN 30-2431WIN		5 / ±12 VDC	4 / 0.416 A	88%
TEN 30-2432WIN		5 / ±15 VDC	4 / 0.333 A	88%
TEN 30-4810WIN	18–75 VDC (48 VDC nominal)	3.3 VDC	7.5 A	86%
TEN 30-4811WIN		5.1 VDC	6 A	88%
TEN 30-4812WIN		12 VDC	2.5 A	90%
TEN 30-4813WIN		15 VDC	2 A	91%
TEN 30-4821WIN		± 5 VDC	3 A	88%
TEN 30-4822WIN		±12 VDC	1.25 A	88%
TEN 30-4823WIN		±15 VDC	1 A	88%
TEN 30-4833WIN		3.3 / ±12 VDC	5 / 0.416 A	86%
TEN 30-4834WIN		3.3 / ±15 VDC	5 / 0.333 A	86%
TEN 30-4831WIN		5 / ±12 VDC	4 / 0.416 A	88%
TEN 30-4832WIN		5 / ±15 VDC	4 / 0.333 A	88%

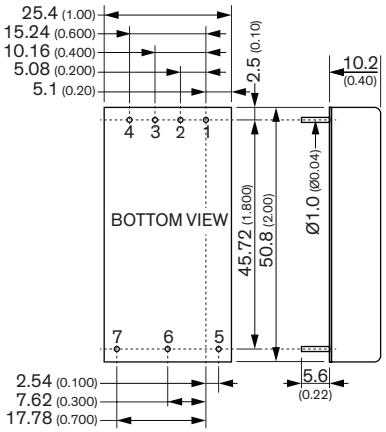
- 2" × 1" × 0.4" shielded metal package
- Ultra wide 4:1 input voltage range
- Single- dual- and triple output models
- Very high efficiency up to 91%
- Operating temperature range –40°C to +75°C
- Over temperature protection
- I/O isolation 1600 VDC
- Remote On/Off
- Adjustable output voltage
- 3-year product warranty

Pinout			
Pin	Single	Dual	Triple
1	+Vin (Vcc)	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)	–Vin (GND)
3	Remote On/Off	Remote On/Off	Remote On/Off
4	+Vout 1	Output 1	Output 2
5	–Vout 1	Common	Output 3
6	Trim	Output 2	Common
7	No pin	No pin	Output 1

TEN 30UIR | 30 W

NEW!





- Compact 2" × 1" housing
- Ultra-wide 12:1 input voltage range: 9–75, 14–160 VDC
- –40°C up to +70°C natural convection cooling without derating
- EN 50155, EN 45545-2 and EN 61373 certified
- Dedicated holdup capacitor connection
- Fully encapsulated
- 3000 VDC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP) and overtemperature (OTP)
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEN 30-3611UIR	9–75 VDC (36 VDC nom.)	5.1 VDC	6000 mA	89%
TEN 30-3612UIR		12 VDC	2500 mA	90%
TEN 30-3613UIR		15 VDC	2000 mA	90%
TEN 30-3615UIR		24 VDC	1250 mA	90%
TEN 30-3622UIR		± 12 VDC	1250 mA	90%
TEN 30-3623UIR		±15 VDC	1000 mA	90%
TEN 30-7211UIR	14–160 VDC (72 VDC nom.)	5.1 VDC	6000 mA	89%
TEN 30-7212UIR		12 VDC	2500 mA	90%
TEN 30-7213UIR		15 VDC	2000 mA	90%
TEN 30-7215UIR		24 VDC	1250 mA	90%
TEN 30-7222UIR		± 12 VDC	1250 mA	90%
TEN 30-7223UIR		±15 VDC	1000 mA	90%

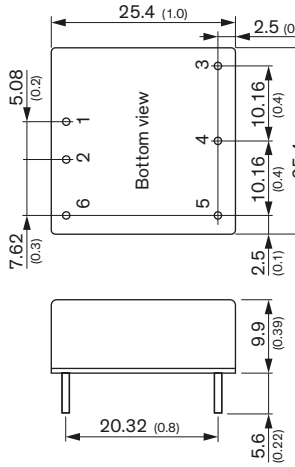
Pinout		
Pin	Single	Dual
1	+Vin	
2	–Vin	
1	No Pin* / BUS / UVLO**	
4	Remote On/Off	
5	+Vout	
6	–Vout	Common
7	Trim	–Vout

* If neither BUS nor UVLO is present
**UVLO function is optional



THN 30 | 30 W





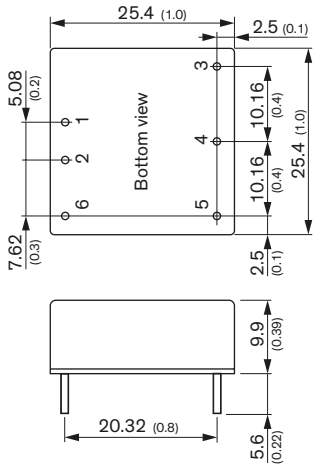
- Highest power density 30 W Converter! Ultra compact size: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Wide 2:1 input voltage range
- Very high efficiency across full load range up to 92%
- Over temperature protection
- Operating temp. range: –40°C to +80°C and up to 85°C with heat sink
- Ultra low no load input current
- Remote On/Off control and output voltage adjustable
- I/O isolation voltage 1600 VDC
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
THN 30-1210	9–18 VDC (12 VDC nominal)	3.3 VDC	7000 mA	86%
THN 30-1211		5.0 VDC	6000 mA	89%
THN 30-1212		12 VDC	2500 mA	89%
THN 30-1213		15 VDC	2000 mA	89%
THN 30-1215		24 VDC	1250 mA	89%
THN 30-1222		±12 VDC	±1250 mA	89%
THN 30-1223		±15 VDC	±1000 mA	90%
THN 30-2410	18–36 VDC (24 VDC nominal)	3.3 VDC	7000 mA	87%
THN 30-2411		5.0 VDC	6000 mA	90%
THN 30-2412		12 VDC	2500 mA	91%
THN 30-2413		15 VDC	2000 mA	91%
THN 30-2415		24 VDC	1250 mA	91%
THN 30-2422		±12 VDC	±1250 mA	91%
THN 30-2423		±15 VDC	±1000 mA	91%
THN 30-4810	36–75 VDC (48 VDC nominal)	3.3 VDC	7000 mA	87%
THN 30-4811		5.0 VDC	6000 mA	89%
THN 30-4812		12 VDC	2500 mA	90%
THN 30-4813		15 VDC	2000 mA	91%
THN 30-4815		24 VDC	1250 mA	91%
THN 30-4822		±12 VDC	±1250 mA	91%
THN 30-4823		±15 VDC	±1000 mA	92%

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

THN 30WI | 30 W





- Highest power density 30 W Converter! Ultra compact size: 1.0" × 1.0" × 0.4"
- Shielded metal case with isolated baseplate
- Ultrawide 4:1 input voltage range
- Very high efficiency across full load range up to 92%
- Over temperature protection
- Operating temp. range: –40°C to +80°C and up to 85°C with heat sink
- Ultra low no load input current
- Remote On/Off control and output voltage adjustable
- I/O isolation voltage 1600 VDC
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	

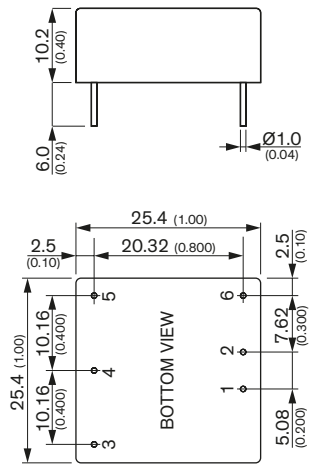
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THN 30-2410WI	**9–36 VDC** (24 VDC nominal)	3.3 VDC	7000 mA	86%
THN 30-2411WI		5.0 VDC	6000 mA	89%
THN 30-2411WI-A1		5.0 VDC*1	6000 mA	89%
THN 30-2412WI		12 VDC	2500 mA	89%
THN 30-2413WI		15 VDC	2000 mA	89%
THN 30-2415WI		24 VDC	1250 mA	89%
THN 30-2425WI*2		48 VDC	625 mA	91%
THN 30-2422WI		±12 VDC	±1250 mA	89%
THN 30-2423WI		±15 VDC	±1000 mA	91%
THN 30-2425WI		±24 VDC	±625 mA	91%
THN 30-4810WI	**18–75 VDC** (48 VDC nominal)	3.3 VDC	7000 mA	87%
THN 30-4811WI		5.0 VDC	6000 mA	90%
THN 30-4811WI-A1		5.0 VDC*1	6000 mA	90%
THN 30-4812WI		12 VDC	2500 mA	90%
THN 30-4813WI		15 VDC	2000 mA	91%
THN 30-4815WI		24 VDC	1250 mA	91%
THN 30-4825WI*2		48 VDC	625 mA	91%
THN 30-4822WI		±12 VDC	±1250 mA	91%
THN 30-4823WI		±15 VDC	±1000 mA	92%
THN 30-4825WI		±24 VDC	±625 mA	92%

*1 Adjustable output up to 6 VDC
*2 This dual ±24 VDC converter can be used as single 48 VDC converter (open common contact)

THL 30WI | 30 W

NEW!





- 30 Watt converter in a 1" × 1" metal package
- Cost efficient design
- Wide 4:1 input voltage range: 9–36 and 18–75 VDC
- Operating temperature range –40 to +60°C without derating
- 1500 VDC I/O-isolation
- Protection against overload, overvoltage and short circuit
- Remote On/Off and Trim function
- Optional heatsink for increased temperature capabilities
- 3-year product warranty

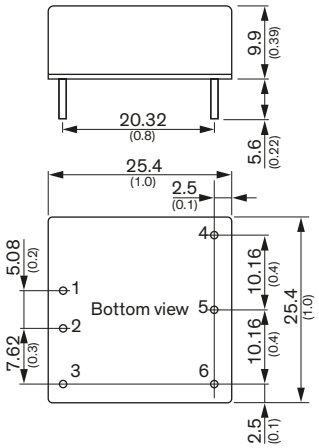
Pinout		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	–Vin	–Vin
3	+Vout	+Vout
4	Trim	Common
5	–Vout	–Vout
6	Remote On/Off	Remot On/Off

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 30-2410WI	**9–36 VDC** (24 VDC nom.)	3.3 VDC	7000 mA	87%
THL 30-2411WI		5 VDC	6000 mA	88%
THL 30-2412WI		12 VDC	2500 mA	88%
THL 30-2413WI		15 VDC	2000 mA	88%
THL 30-2415WI		24 VDC	1250 mA	88%
THL 30-2422WI		±12 VDC	±1250 mA	88%
THL 30-2423WI		±15 VDC	±1000 mA	88%
THL 30-4810WI	**18–75 VDC** (48 VDC nom.)	3.3 VDC	7000 mA	87%
THL 30-4811WI		5 VDC	6000 mA	88%
THL 30-4812WI		12 VDC	2500 mA	90%
THL 30-4813WI		15 VDC	2000 mA	90%
THL 30-4815WI		24 VDC	1250 mA	90%
THL 30-4822WI		±12 VDC	±1250 mA	90%
THL 30-4823WI		±15 VDC	±1000 mA	90%



THN 30WIR | 30 W





- Encapsulated in 1" × 1" metal package
- EN 50155 and EN 61373 certified
- Wide 4:1 input voltage range: 9–36, 18–75, 36–160 VDC
- –40°C up to +65°C without derating
- Up to 92% efficiency
- Up to 3000 VDC I/O-isolation
- EN 45545-2 fire behavior
- Remote on/off and trim function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty

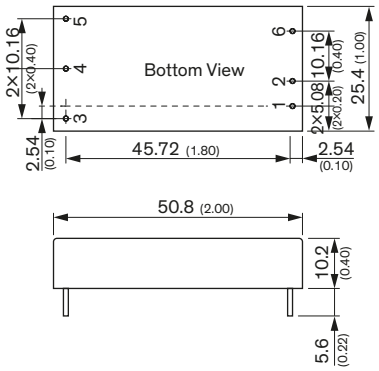
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
THN 30-2410WIR	9–36 VDC (24 VDC nom.)	3.3 VDC	7000 mA	88%
THN 30-2411WIR		5 VDC	6000 mA	89%
THN 30-2412WIR		12 VDC	2500 mA	89%
THN 30-2413WIR		15 VDC	2000 mA	89%
THN 30-2415WIR		24 VDC	1250 mA	90%
THN 30-2422WIR		±12 VDC	±1250 mA	89%
THN 30-2423WIR		±15 VDC	±1000 mA	91%
THN 30-2425WIR		±24 VDC	±625 mA	91%
THN 30-4810WIR	18–75 VDC (48 VDC nom.)	3.3 VDC	7000 mA	88%
THN 30-4811WIR		5 VDC	6000 mA	90%
THN 30-4812WIR		12 VDC	2500 mA	90%
THN 30-4813WIR		15 VDC	2000 mA	91%
THN 30-4815WIR		24 VDC	1250 mA	92%
THN 30-4822WIR		±12 VDC	±1250 mA	91%
THN 30-4823WIR		±15 VDC	±1000 mA	91%
THN 30-4825WIR		±24 VDC	±625 mA	92%
THN 30-7210WIR	36–160 VDC (110 VDC nom.)	3.3 VDC	7000 mA	88%
THN 30-7211WIR		5 VDC	6000 mA	90%
THN 30-7212WIR		12 VDC	2500 mA	90%
THN 30-7213WIR		15 VDC	2000 mA	90%
THN 30-7215WIR		24 VDC	1250 mA	91%
THN 30-7222WIR		±12 VDC	±1250 mA	90%
THN 30-7223WIR		±15 VDC	±1000 mA	90%
THN 30-7225WIR		±24 VDC	±625 mA	91%

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	Trim	Common
6	–Vout	–Vout



THM 30 | 30 W





- Wide 2:1 input voltage 30 W DC/DC converter in a 2 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 80°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

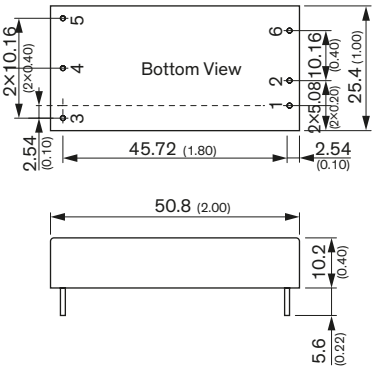
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
THM 30-1211	9–18 VDC (12 VDC nom.)	5 VDC	6000 mA	89%
THM 30-1212		12 VDC	2500 mA	89%
THM 30-1213		15 VDC	2000 mA	90%
THM 30-1215		24 VDC	1250 mA	89%
THM 30-1221		± 5 VDC	3000 mA	86%
THM 30-1222		±12 VDC	1250 mA	89%
THM 30-1223		±15 VDC	1000 mA	89%
THM 30-2411	18–36 VDC (24 VDC nom.)	5 VDC	6000 mA	89%
THM 30-2412		12 VDC	2500 mA	89%
THM 30-2413		15 VDC	2000 mA	91%
THM 30-2415		24 VDC	1250 mA	90%
THM 30-2421		± 5 VDC	3000 mA	86%
THM 30-2422		±12 VDC	1250 mA	90%
THM 30-2423		±15 VDC	1000 mA	90%
THM 30-4811	36–75 VDC (48 VDC nom.)	5 VDC	6000 mA	89%
THM 30-4812		12 VDC	2500 mA	89%
THM 30-4813		15 VDC	2000 mA	90%
THM 30-4815		24 VDC	1250 mA	89%
THM 30-4821		± 5 VDC	3000 mA	87%
THM 30-4822		±12 VDC	1250 mA	90%
THM 30-4823		±15 VDC	1000 mA	90%

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

* If remote is not selected there will be no pin.

THM 30WI | 30 W





- Ultra wide 4:1 input voltage 30 W DC/DC converter in a 2 × 1" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5 µA
- Operating temperature –40°C to 80°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000 m altitude
- 5-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	+Vout	+Vout
4	–Vout	Common
5	Trim	–Vout
6	No pin*/Remote	No pin*/Remote

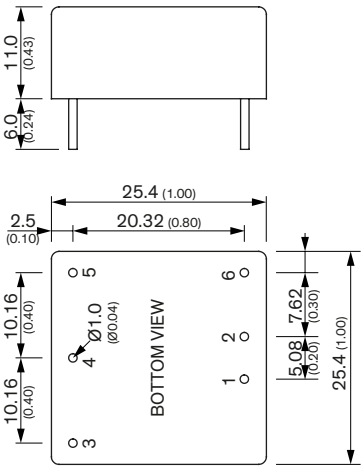
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 30-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	6000 mA	89%
THM 30-2412WI		12 VDC	2500 mA	89%
THM 30-2413WI		15 VDC	2000 mA	91%
THM 30-2415WI		24 VDC	1250 mA	90%
THM 30-2421WI		± 5 VDC	3000 mA	86%
THM 30-2422WI		±12 VDC	1250 mA	90%
THM 30-2423WI		±15 VDC	1000 mA	90%
THM 30-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	6000 mA	89%
THM 30-4812WI		12 VDC	2500 mA	89%
THM 30-4813WI		15 VDC	2000 mA	90%
THM 30-4815WI		24 VDC	1250 mA	89%
THM 30-4821WI		± 5 VDC	3000 mA	87%
THM 30-4822WI		±12 VDC	1250 mA	90%
THM 30-4823WI		±15 VDC	1000 mA	90%

* If remote is not selected there will be no pin.

THL 40WI | 40 W

NEW!





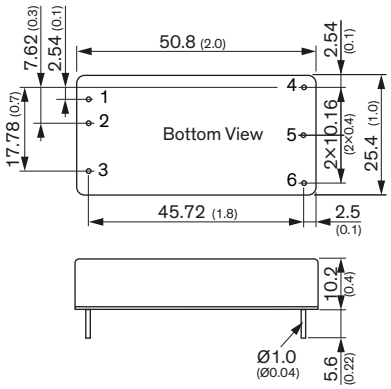
- Highest power density
- 1" × 1" metal package
- Wide 4:1 input voltage range 9–36, 18–75 VDC
- High efficiency up to 92%
- Adjustable output voltage
- Operating temperature range –40°C to +85°C
- Remote On/Off
- Under voltage lockout
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin	
2	–Vin	
3	+Vout	
4	Trim	Common
5	–Vout	Common
6	Remote On/Off	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THL 40-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	8000 mA	90%
THL 40-2412WI		12 VDC	3400 mA	91%
THL 40-2413WI		15 VDC	2700 mA	91%
THL 40-2415WI		24 VDC	1700 mA	90%
THL 40-2422WI		±12 VDC	±1700 mA	90%
THL 40-2423WI		±15 VDC	±1350 mA	90%
THL 40-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	8000 mA	90%
THL 40-4812WI		12 VDC	3400 mA	91%
THL 40-4813WI		15 VDC	2700 mA	91%
THL 40-4815WI		24 VDC	1700 mA	90%
THL 40-4822WI		±12 VDC	±1700 mA	90%
THL 40-4823WI		±15 VDC	±1350 mA	90%

TEN 40E | 40 W





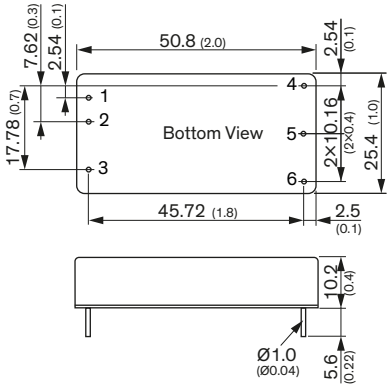
- Developed to maximize quality in a cost efficient design
- Excellent temperature capabilities
- 2" × 1" metal package (6-side shielded)
- Wide 2:1 input voltage range: 9–18, 18–36, 36–75 VDC
- Minimal heat development due to high efficiencies up to 93%
- Operating temperature range –40 to +85°C
- 1600 VDC I/O-isolation
- Remote On/Off and Trim function
- Protection against short circuit, overvoltage and overtemperature
- 3-year product warranty

Pinout / Conecction		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	
4	+Vout	+Vout
5	–Vout	Common
6	Trim	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 40-1210E	**9–18 VDC** (12 VDC nominal)	3.3 VDC	12200 mA	89%
TEN 40-1211E		5 VDC	8000 mA	90%
TEN 40-1212E		12 VDC	3333 mA	91%
TEN 40-1213E		15 VDC	2666 mA	91%
TEN 40-1215E		24 VDC	1666 mA	90%
TEN 40-1222E		±12 VDC	1666 mA	90%
TEN 40-1223E		±15 VDC	1333 mA	90%
TEN 40-1225E		±24 VDC	833 mA	91%
TEN 40-2410E	**18–36 VDC** (24 VDC nominal)	3.3 VDC	12200 mA	90%
TEN 40-2411E		5 VDC	8000 mA	92%
TEN 40-2412E		12 VDC	3333 mA	92%
TEN 40-2413E		15 VDC	2666 mA	93%
TEN 40-2415E		24 VDC	1666 mA	91%
TEN 40-2422E		±12 VDC	1666 mA	91%
TEN 40-2423E		±15 VDC	1333 mA	91%
TEN 40-2425E		±24 VDC	833 mA	91%
TEN 40-4810E	**36–75 VDC** (48 VDC nominal)	3.3 VDC	12200 mA	90%
TEN 40-4811E		5 VDC	8000 mA	91%
TEN 40-4812E		12 VDC	3333 mA	92%
TEN 40-4813E		15 VDC	2666 mA	92%
TEN 40-4815E		24 VDC	1666 mA	92%
TEN 40-4822E		±12 VDC	1666 mA	91%
TEN 40-4823E		±15 VDC	1333 mA	91%
TEN 40-4825E		±24 VDC	833 mA	92%

TEN 40WIE | 40 W





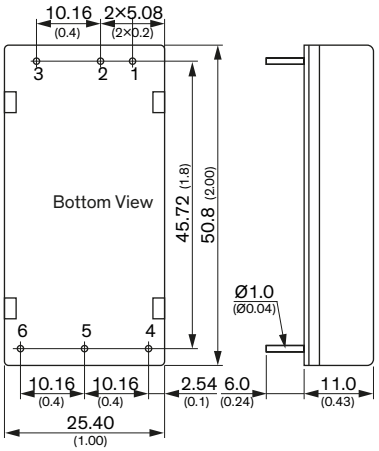
- Developed to maximize quality in a cost efficient design
- Excellent temperature capabilities
- 2" × 1" metal package (6-side shielded)
- Wide 4:1 input voltage range: 9–36, 18–75 VDC
- Minimal heat development due to high efficiencies up to 93%
- Operating temperature range –40 to +85°C
- 1600 VDC I/O-isolation
- Remote On/Off and Trim function
- Protection against short circuit, overvoltage and overtemperature
- 3-year product warranty

Pinout / Conecction		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	
4	+Vout	+Vout
5	–Vout	Common
6	Trim	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 40-2410WIE	**9–36 VDC** (24 VDC nominal)	3.3 VDC	12200 mA	90%
TEN 40-2411WIE		5 VDC	8000 mA	92%
TEN 40-2412WIE		12 VDC	3333 mA	92%
TEN 40-2413WIE		15 VDC	2666 mA	93%
TEN 40-2415WIE		24 VDC	1666 mA	91%
TEN 40-2422WIE		±12 VDC	1666 mA	91%
TEN 40-2423WIE		±15 VDC	1333 mA	91%
TEN 40-2425WIE		±24 VDC	833 mA	91%
TEN 40-4810WIE	**18–75 VDC** (48 VDC nominal)	3.3 VDC	12200 mA	90%
TEN 40-4811WIE		5 VDC	8000 mA	91%
TEN 40-4812WIE		12 VDC	3333 mA	92%
TEN 40-4813WIE		15 VDC	2666 mA	92%
TEN 40-4815WIE		24 VDC	1666 mA	92%
TEN 40-4822WIE		±12 VDC	1666 mA	91%
TEN 40-4823WIE		±15 VDC	1333 mA	91%
TEN 40-4825WIE		±24 VDC	833 mA	92%

THR 40WI | 40 W





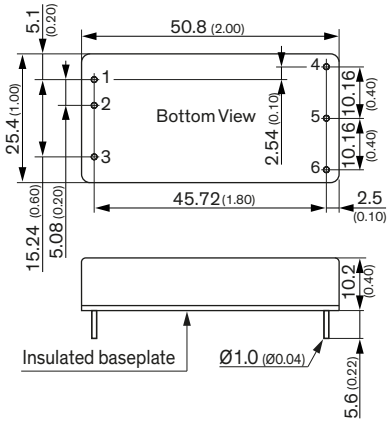
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THR 40-7211WI	36–160 VDC (110 VDC nom.)	5 VDC	8000 mA	88%
THR 40-7212WI		12 VDC	3330 mA	89%
THR 40-7213WI		15 VDC	2670 mA	89%
THR 40-7215WI		24 VDC	1670 mA	89%
THR 40-7222WI		±12 VDC	±1670 mA	89%
THR 40-7223WI		±15 VDC	±1330 mA	89%

- Reinforced I/O-isolation 3000 VAC
- Shock and vibration resistance according to EN 61373
- Wide 4:1 input voltage range: 36–160 VDC
- Operating temperature range –40 to +80°C
- High efficiency up to 90%
- Protection against overload, overvoltage and short circuit
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	–Vout	Common
6	Trim	–Vout

TEN 40WIR | 40 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 40-2410WIR	9–36 VDC (24 VDC nom.)	3.3 VDC	10000 mA	90%
TEN 40-2411WIR		5 VDC	8000 mA	91%
TEN 40-2412WIR		12 VDC	3333 mA	92%
TEN 40-2413WIR		15 VDC	2666 mA	92%
TEN 40-2415WIR		24 VDC	1666 mA	91%
TEN 40-2422WIR		± 12 VDC	±1666 mA	90%
TEN 40-2423WIR		±15 VDC	±1333 mA	90%
TEN 40-2425WIR		±24 (48*) VDC	±833 mA	91%
TEN 40-4810WIR	18–75 VDC (48 VDC nom.)	3.3 VDC	10000 mA	90%
TEN 40-4811WIR		5 VDC	8000 mA	91%
TEN 40-4812WIR		12 VDC	3333 mA	92%
TEN 40-4813WIR		15 VDC	2666 mA	92%
TEN 40-4815WIR		24 VDC	1666 mA	91%
TEN 40-4822WIR		± 12 VDC	±1666 mA	90%
TEN 40-4823WIR		±15 VDC	±1333 mA	90%
TEN 40-4825WIR		±24 (48*) VDC	±833 mA	91%
TEN 40-7210WIR	43–160 VDC (110 VDC nom.)	3.3 VDC	10000 mA	88%
TEN 40-7211WIR		5 VDC	8000 mA	89%
TEN 40-7212WIR		12 VDC	3333 mA	90%
TEN 40-7213WIR		15 VDC	2666 mA	91%
TEN 40-7215WIR		24 VDC	1666 mA	90%
TEN 40-7222WIR		± 12 VDC	±1666 mA	89%
TEN 40-7223WIR		±15 VDC	±1333 mA	89%
TEN 40-7225WIR		±24 (48*) VDC	±833 mA	91%

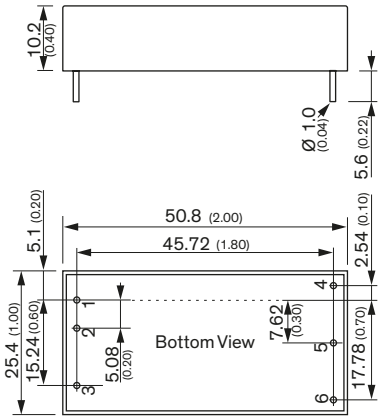
- 2" × 1" × 0.4" metal package
- Ultra wide 4:1 input voltage range 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Thermal shock and vibration resistant according EN 61373
- High efficiency up to 92%
- Operating temperature range –40°C to +85°C
- Under voltage lock-out circuit
- Remote On/Off and Output voltage adjustable
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	–Vout	Common
6	Trim	–Vout

* The outputs can also be used in serial circuit for single 48 VDC operation. Free-wheeling diodes are not necessary but recommended for increased performance for start-up with inductive/capacitive load and at dynamic load operation.

TEN 40WIRH | 40 W





- Fully encapsulated 2" × 1" package
- 3000 VAC I/O isolation (reinforced)
- 4:1 input voltage range: 36–160 VDC
- EN 50155 and EN 61373 certified
- Internal class A EMI filter
- –40°C up to +70°C operating temperature
- EN 45545-2 fire behavior
- Remote on/off function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overtemperature protection (OTP), and overvoltage protection (OVP)
- 3-year product warranty

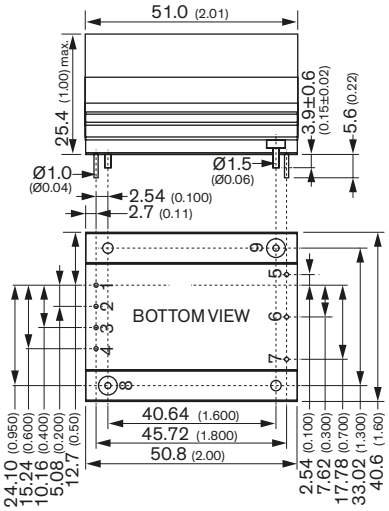
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 40-11011WIRH	36–160 VDC (110 VDC nom.)	5.1 VDC	8000 mA	88%
TEN 40-11012WIRH		12 VDC	3333 mA	89%
TEN 40-11013WIRH		15 VDC	2666 mA	90%
TEN 40-11015WIRH		24 VDC	1666 mA	89%
TEN 40-11022WIRH		±12 VDC	±1666 mA	88%
TEN 40-11023WIRH		±15 VDC	±1333 mA	89%

Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	–Vout	–Vout
6	Trim	–Vout

TEN 40UIR | 40 W

NEW!





- Compact 2" × 1" housing
- Ultra-wide 12:1 input voltage range: 9–75, 14–160 VDC
- –40°C up to +70°C natural convection cooling without derating
- EN 50155, EN 45545-2 and EN 61373 certified
- Dedicated holdup capacitor connection
- Fully encapsulated
- 3000 VDC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP) and overtemperature (OTP)
- 3-year product warranty

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 40-3611UIR	9–75 VDC (36 VDC nom.)	5.1 VDC	8000 mA	89%
TEN 40-3612UIR		12 VDC	3330 mA	90%
TEN 40-3613UIR		15 VDC	2670 mA	90%
TEN 40-3615UIR		24 VDC	1670 mA	90%
TEN 40-3622UIR		±12 VDC	1670 mA	90%
TEN 40-3623UIR		±15 VDC	1330 mA	90%
TEN 40-3611UIR	14–160 VDC (72 VDC nom.)	5.1 VDC	8000 mA	89%
TEN 40-3612UIR		12 VDC	3330 mA	90%
TEN 40-3613UIR		15 VDC	2670 mA	90%
TEN 40-3615UIR		24 VDC	1670 mA	90%
TEN 40-3622UIR		±12 VDC	1670 mA	90%
TEN 40-3623UIR		±15 VDC	1330 mA	90%

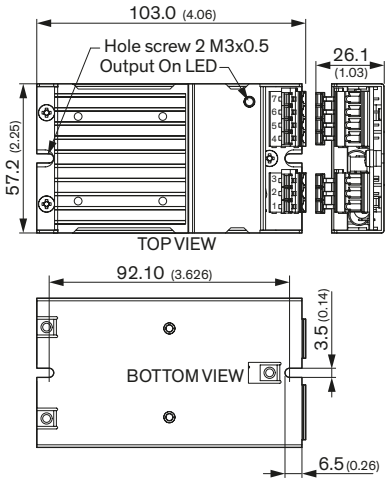
Pinout		
Pin	Single	Dual
1	+Vin	
2	–Vin	
3	No Pin / BUS* / UVLO**	
4	Remote On/Off (CTRL)	
5	+Vout	
6	–Vout	Common
7	Trim	–Vout
8	Heatsink	
9	Heatsink	



* BUS function is optional
** UVLO function is optional

TEQ 40WIR | 40 W





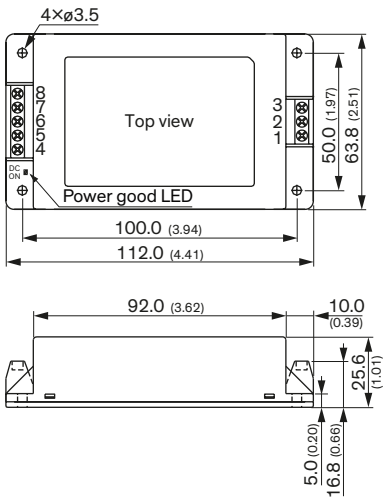
- High power block with excellent thermal convection
- Operating temperature –40°C to +92°C
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 91%
- Input filter meet EN 55032, class B
- I/O isolation up to 2121 VAC
- Under voltage lock-out circuit
- Protection against overvoltage, overtemperature and short circuit
- Output LED indicator
- 3-year product warranty

Pinout		
Pin	**Single Output**	**Dual Output**
1	+Vin	+Vin
2	–Vin (GND)	–Vin (GND)
3	NC	NC
4	NC	–Vout
5	–Vout	Common
6	+Vout	Common
7	NC	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEQ 40-2411WIR	**9–36 VDC** (24 VDC nom.)	5 VDC	8000 mA	90%
TEQ 40-2412WIR		12 VDC	3330 mA	91%
TEQ 40-2413WIR		15 VDC	2670 mA	91%
TEQ 40-2415WIR		24 VDC	1670 mA	90%
TEQ 40-2422WIR		±12 VDC	1670 mA	89%
TEQ 40-2423WIR		±15 VDC	1330 mA	89%
TEQ 40-2425WIR		±24 VDC	830 mA	90%
TEQ 40-4811WIR	**18–75 VDC** (48 VDC nom.)	5 VDC	8000 mA	90%
TEQ 40-4812WIR		12 VDC	3330 mA	91%
TEQ 40-4813WIR		15 VDC	2670 mA	91%
TEQ 40-4815WIR		24 VDC	1670 mA	90%
TEQ 40-4822WIR		±12 VDC	1670 mA	89%
TEQ 40-4823WIR		±15 VDC	1330 mA	89%
TEQ 40-4825WIR		±24 VDC	830 mA	90%
TEQ 40-7211WIR	**43–160 VDC** (110 VDC nom.)	5 VDC	8000 mA	88%
TEQ 40-7212WIR		12 VDC	3330 mA	90%
TEQ 40-7213WIR		15 VDC	2670 mA	90%
TEQ 40-7215WIR		24 VDC	1670 mA	89%
TEQ 40-7222WIR		±12 VDC	1670 mA	88%
TEQ 40-7223WIR		±15 VDC	1330 mA	88%
TEQ 40-7225WIR		±24 VDC	830 mA	90%

TMDC 40 | 40 W





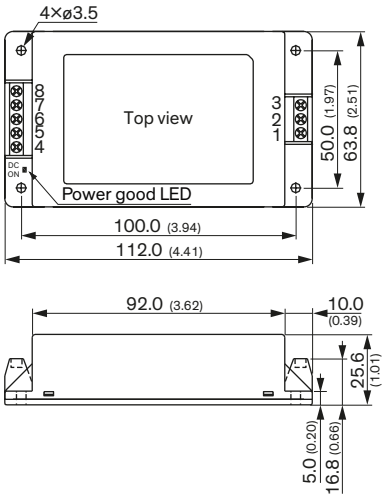
- Fully encapsulated low profile plastic case
- Ultra wide 4:1 input voltage range
- Operating temperature range –40°C to +85°C
- I/O isolation 2500 VDC
- Excellent efficiency up to 92%
- Input filter to meet EN 55022, class A
- Optional DIN-Rail mount adapter
- No minimum load required
- Power good LED indicator and remote on/off function
- 3-year product warranty

Pinout	
Pin	**Function**
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	+Vout
5	NC
6	–Vout
7	NC
8	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 40-2411	**9–36 VDC** (24 VDC nom.)	5.1 VDC	8000 mA	90%
TMDC 40-2412		12 VDC	3330 mA	90%
TMDC 40-2415		24 VDC	1670 mA	90%
TMDC 40-2418		48 VDC	835 mA	89%
TMDC 40-4811	**18–75 VDC** (48 VDC nom.)	5.1 VDC	8000 mA	89%
TMDC 40-4812		12 VDC	3330 mA	91%
TMDC 40-4815		24 VDC	1670 mA	92%
TMDC 40-4818		48 VDC	835 mA	90%

TMDC 40H | 40 W



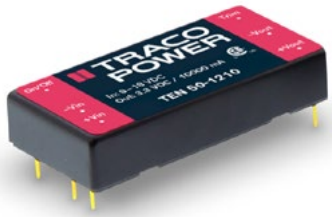


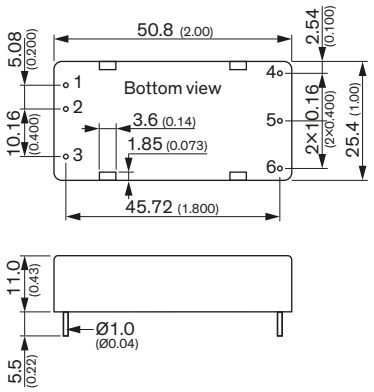
- Fully encapsulated chassis mount modules
- High 2:1 input voltage range: 80–160 VDC
- Reinforced I/O-isolation 3000 VAC
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Operating temperature range –40 to +75°C without derating
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty

Pinout	
Pin	**Function**
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	+Vout
5	NC
6	–Vout
7	NC
8	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 40-7211H	**80–160 VDC** (110 VDC nom.)	5.1 VDC	8000 mA	87%
TMDC 40-7212H		12 VDC	3330 mA	89%
TMDC 40-7213H		15 VDC	2670 mA	89%
TMDC 40-7215H		24 VDC	1670 mA	89%
TMDC 40-7218H		48 VDC	840 mA	87%
TMDC 40-7222H		±12 VDC	±1670 mA	89%
TMDC 40-7223H		±15 VDC	±1330 mA	89%
TMDC 40-7225H		± 24 VDC	±830 mA	87%

TEN 50 | 50 W





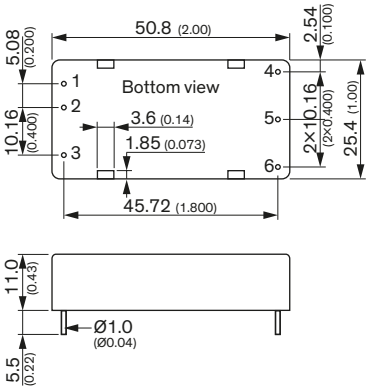
- Highest power density: 50 W in 1" × 2" × 0.4" package
- Excellent efficiency up to 92%
- Operating temperature range –40°C to +85°C
- Output voltage adjustable
- Remote On/Off
- I/O isolation 1500 VDC
- 3-year product warranty

Pinout	
Pin	**Single**
1	+Vin (Vcc)
2	–Vin (GND)
3	Remote On/Off
4	+Vout
5	–Vout
6	Trim

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 50-1210	**9–18 VDC** (nominal 12 VDC)	3.3 VDC	10000 mA	89%
TEN 50-1211		5.0 VDC	10000 mA	90%
TEN 50-1212		12 VDC	4170 mA	91%
TEN 50-1213		15 VDC	3330 mA	91%
TEN 50-1215		24 VDC	2080 mA	91%
TEN 50-2410	**18–36 VDC** (nominal 24 VDC)	3.3 VDC	10000 mA	89%
TEN 50-2411		5.0 VDC	10000 mA	92%
TEN 50-2412		12 VDC	4170 mA	92%
TEN 50-2413		15 VDC	3330 mA	92%
TEN 50-2415		24 VDC	2080 mA	91%
TEN 50-4810	**36–75 VDC** (nominal 48 VDC)	3.3 VDC	10000 mA	89%
TEN 50-4811		5.0 VDC	10000 mA	92%
TEN 50-4812		12 VDC	4170 mA	92%
TEN 50-4813		15 VDC	3330 mA	92%
TEN 50-4815		24 VDC	2080 mA	91%

TEN 50WI | 50 W





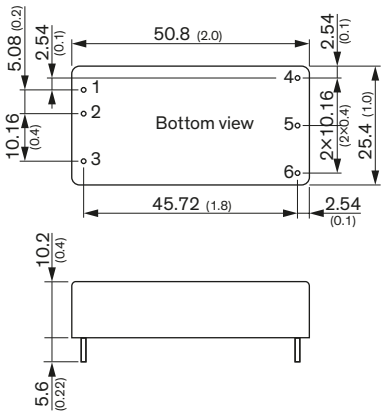
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 50-2410WI	9–36 VDC (nominal 24 VDC)	3.3 VDC	10000 mA	90%
TEN 50-2411WI		5.0 VDC	10000 mA	91%
TEN 50-2412WI		12 VDC	4170 mA	92%
TEN 50-2413WI		15 VDC	3330 mA	92%
TEN 50-2415WI		24 VDC	2080 mA	91%
TEN 50-4810WI	18–75 VDC (nominal 48 VDC)	3.3 VDC	10000 mA	90%
TEN 50-4811WI		5.0 VDC	10000 mA	91%
TEN 50-4812WI		12 VDC	4170 mA	92%
TEN 50-4813WI		15 VDC	3330 mA	92%
TEN 50-4815WI		24 VDC	2080 mA	91%

- Very high power density: 50 W in 1" × 2" × 0.4" package
- Wide 4:1 input range
- Excellent efficiency up to 92%
- Operating temperature range –40°C to +80°C
- Protection against over-temperature
- Output voltage adjustable
- Remote On/Off
- I/O isolation 1500 VDC
- 3-year product warranty

Pinout	
Pin	Single
1	+Vin (Vcc)
2	–Vin (GND)
3	Remote On/Off
4	+Vout
5	–Vout
6	Trim

TEN 60N | 60 W





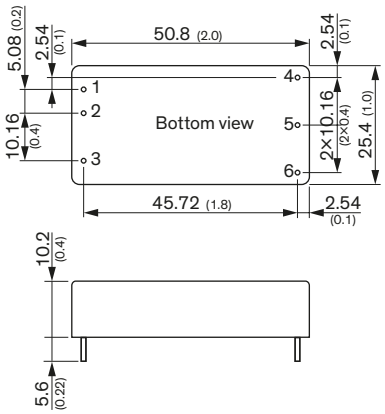
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 60-1211N	9–18 VDC (12 VDC nominal)	5.0 VDC	12000 mA	90.5%
TEN 60-1212N		12 VDC	5000 mA	90.5%
TEN 60-1213N		15 VDC	4000 mA	91.5%
TEN 60-1215N		24 VDC	2500 mA	91.5%
TEN 60-1222N		±12 VDC	±2500 mA	90%
TEN 60-1223N		±15 VDC	±2000 mA	90%
TEN 60-1225N		±24 VDC	±1250 mA	91%
TEN 60-2411N	18–36 VDC (24 VDC nominal)	5.0 VDC	12000 mA	92%
TEN 60-2412N		12 VDC	5000 mA	92%
TEN 60-2413N		15 VDC	4000 mA	92%
TEN 60-2415N		24 VDC	2500 mA	92%
TEN 60-2422N		±12 VDC	±2500 mA	90%
TEN 60-2423N		±15 VDC	±2000 mA	90%
TEN 60-2425N		±24 VDC	±1250 mA	91%
TEN 60-4811N	36–75 VDC (48 VDC nominal)	5.0 VDC	12000 mA	92%
TEN 60-4812N		12 VDC	5000 mA	92%
TEN 60-4813N		15 VDC	4000 mA	92%
TEN 60-4815N		24 VDC	2500 mA	92%
TEN 60-4822N		±12 VDC	±2500 mA	91%
TEN 60-4823N		±15 VDC	±2000 mA	91%
TEN 60-4825N		±24 VDC	±1250 mA	91%

- 2" × 1" metal package
- Wide 2:1 input voltage range 9–18, 18–36, 36–75 VDC
- High efficiency up to 92%
- Adjustable output voltage
- Operating temperature range –40°C to +85°C
- EN 55032 class A (with external components)
- Remote On/Off
- Under voltage lockout
- RoHS compliant
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	
4	+Vout	+Vout
5	–Vout	Common
6	TRIM	–Vout

TEN 60WIN | 60 W



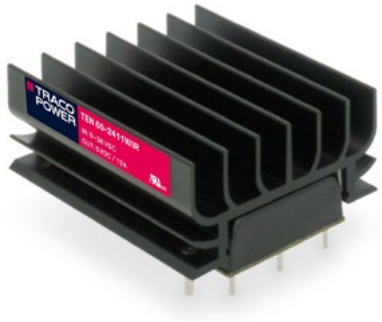


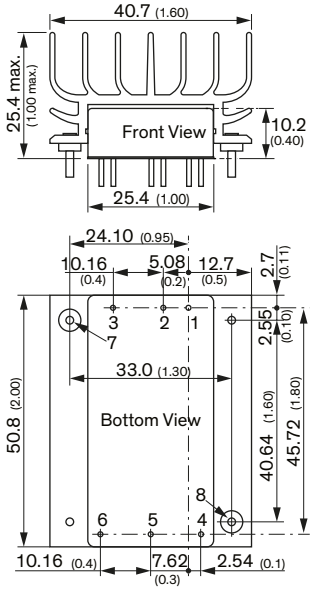
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 60-2411WIN	9–36 VDC (24 VDC nominal)	5.0 VDC	12000 mA	92%
TEN 60-2412WIN		12 VDC	5000 mA	92%
TEN 60-2413WIN		15 VDC	4000 mA	92%
TEN 60-2415WIN		24 VDC	2500 mA	92%
TEN 60-2422WIN		±12 VDC	±2500 mA	91%
TEN 60-2423WIN		±15 VDC	±2000 mA	91%
TEN 60-2425WIN		±24 VDC	±1250 mA	91%
TEN 60-4811WIN	18–75 VDC (48 VDC nominal)	5.0 VDC	12000 mA	92%
TEN 60-4812WIN		12 VDC	5000 mA	92%
TEN 60-4813WIN		15 VDC	4000 mA	92%
TEN 60-4815WIN		24 VDC	2500 mA	91%
TEN 60-4822WIN		±12 VDC	±2500 mA	91%
TEN 60-4823WIN		±15 VDC	±2000 mA	91%
TEN 60-4825WIN		±24 VDC	±1250 mA	91%

- 2" × 1" metal package
- Wide 4:1 input voltage range 9–36, 18–75 VDC
- High efficiency up to 92%
- Adjustable output voltage
- Operating temperature range –40°C to +85°C
- EN 55032 class A (with external components)
- Remote On/Off
- Under voltage lockout
- RoHS compliant
- 3-year product warranty

Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Off	
4	+Vout	+Vout
5	–Vout	Common
6	TRIM	–Vout

TEN 60WIR | 60 W





Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 60-2411WIR	9–36 VDC (24 VDC nom.)	5 VDC	12 A	91%
TEN 60-2412WIR		12 VDC	5 A	93%
TEN 60-2413WIR		15 VDC	4 A	93%
TEN 60-2415WIR		24 VDC	2.5 A	91%
TEN 60-2418WIR		48 VDC	1.25 A	92%
TEN 60-2422WIR		±12 VDC	±2.5 A	91%
TEN 60-2423WIR		±15 VDC	±2 A	91%
TEN 60-2425WIR		±24 VDC	±1.25 A	92%
TEN 60-4811WIR	18–75 VDC (48 VDC nom.)	5 VDC	12 A	92%
TEN 60-4812WIR		12 VDC	5 A	93%
TEN 60-4813WIR		15 VDC	4 A	94%
TEN 60-4815WIR		24 VDC	2.5 A	92%
TEN 60-4818WIR		48 VDC	1.25 A	92%
TEN 60-4822WIR		±12 VDC	±2.5 A	92%
TEN 60-4823WIR		±15 VDC	±2 A	92%
TEN 60-4825WIR		±24 VDC	±1.25 A	92%
TEN 60-7211WIR	36–160 VDC (110 VDC nom.)	5 VDC	12 A	91%
TEN 60-7212WIR		12 VDC	5 A	92%
TEN 60-7213WIR		15 VDC	4 A	92%
TEN 60-7215WIR		24 VDC	2.5 A	91%
TEN 60-7218WIR		48 VDC	1.25 A	91%
TEN 60-7222WIR		±12 VDC	±2.5 A	91%
TEN 60-7223WIR		±15 VDC	±2 A	91%
TEN 60-7225WIR		±24 VDC	±1.25 A	91%

- Compact 2" × 1" package (without heatsink)
- Wide 4:1 input voltage range: 9–36, 18–75, 36–160 VDC
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behavior according to EN 45545-2
- Operating temperature range –40°C to +85°C
- I/O-isolation 3000 VDC
- High efficiency up to 92%
- Under voltage lock out circuit
- Adjustable output voltage and Remote On/Off
- 3-year product warranty

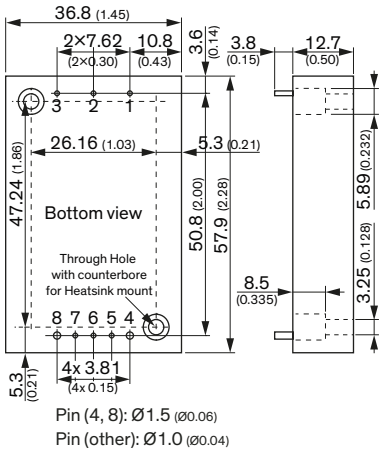
Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
3	Remote On/Of	Remote On/Of
4	+Vout	+Vout
5	–Vout	Common
6	Trim	–Vout
7	Heatsink	
8	Heatsink	



THM 60WI | 60 W



- Wide 4:1 input voltage 60 W DC/DC converter in a compact 2.3 × 1.45" plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <4.5 µA
- Operating temperature range: –40 to +75°C
- EMC compliance according to IEC 60601-1-2 4th edition
- Operating up to 5000 m altitude
- 5-year product warranty



Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
THM 60-2411WI	9–36 VDC (24 VDC nom.)	5.1 VDC	12.0 A	90%
THM 60-2412WI		12.0 VDC	5.0 A	92%
THM 60-2413WI		15.0 VDC	4.0 A	90%
THM 60-2415WI		24.0 VDC	2.5 A	89%
THM 60-2422WI		±12.0 VDC	±2.5 A	89%
THM 60-2423WI		±15.0 VDC	±2.0 A	90%
THM 60-4811WI	18–75 VDC (48 VDC nom.)	5.1 VDC	12.0 A	90%
THM 60-4812WI		12.0 VDC	5.0 A	92%
THM 60-4813WI		15.0 VDC	4.0 A	93%
THM 60-4815WI		24.0 VDC	2.5 A	90%
THM 60-4822WI		±12.0 VDC	±2.5 A	90%
THM 60-4823WI		±15.0 VDC	±2.0 A	90%

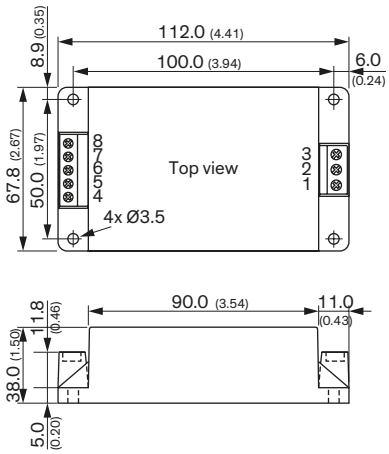
Pinout		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	Remote On/Off	Remote On/Off
3	+Vin (Vcc)	+Vin (Vcc)
4	–Vout	–Vout
5	–Sense	–Sense
6	Trim	Common
7	+Sense	+Sense
8	+Vout	+Vout



TMDC 60 | 60 W



- Fully encapsulated low profile plastic case
- Ultra wide 4:1 input voltage range
- Operating temperature range –40°C to +85°C
- I/O isolation 2500 VDC
- Excellent efficiency up to 92%
- Input filter to meet EN 55022, class A
- Optional DIN-Rail mount adapter
- Power good LED indicator
- Remote on/off function
- 3-year product warranty

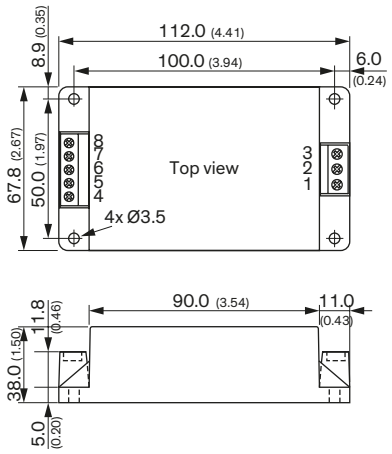


Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 60-2411	9–36 VDC (24 VDC nom.)	5.1 VDC	12000 mA	90%
TMDC 60-2412		12 VDC	5000 mA	91%
TMDC 60-2415		24 VDC	2500 mA	91%
TMDC 60-2418		48 VDC	1250 mA	91%
TMDC 60-4811	18–75 VDC (48 VDC nom.)	5.1 VDC	12000 mA	91%
TMDC 60-4812		12 VDC	5000 mA	92%
TMDC 60-4815		24 VDC	2500 mA	91%
TMDC 60-4818		48 VDC	1250 mA	91%

Pinout	
Pin	Function
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	NC
5	+Vout
6	NC
7	–Vout
8	NC

TMDC 60H | 60 W





- Fully encapsulated chassis mount modules
- High 2:1 input voltage range: 80–160 VDC
- Reinforced I/O-isolation 3000 VAC
- Harsh industrial EMC capabilities: Integrated filters for emission (EN 55032) & immunity (EN 55035)
- Operating temperature range –40 to +75°C without derating
- Protection against overload, undervoltage and short circuit
- DC-OK (LED) and Remote On/Off function
- IEC/EN/UL 62368-1 safety approvals
- 3-year product warranty

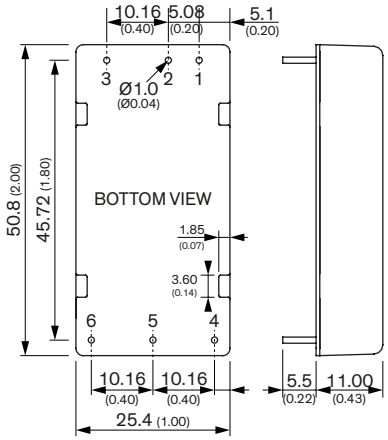
Pinout	
Pin	**Function**
1	Remote
2	–Vin (GND)
3	+Vin (Vcc)
4	NC
5	+Vout
6	NC
7	–Vout
8	NC

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TMDC 60-7211H	**80–160 VDC** (110 VDC nom.)	5.1 VDC	12000 mA	88%
TMDC 60-7212H		12 VDC	5000 mA	89%
TMDC 60-7213H		15 VDC	4000 mA	89%
TMDC 60-7215H		24 VDC	2500 mA	88%
TMDC 60-7218H		48 VDC	1250 mA	88%
TMDC 60-7222H		±12 VDC	±2500 mA	88%
TMDC 60-7223H		±15 VDC	±2000 mA	88%
TMDC 60-7225H		± 24 VDC	±1250 mA	88%

TEN 80WI | 80 W

NEW!





- Highest power density
- 2" × 1" metal package
- Wide 4:1 input voltage range 9 – 36, 18 – 75 VDC
- High efficiency up to 92%
- Adjustable output voltage
- Operating temperature range –40°C to +85°C
- Remote On/Off
- Under voltage lockout
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	+Vin	
2	–Vin	
3	Remote On/Off	
4	+Vout	
5	–Vout	Common
6	Trim	–Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEN 80-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	16000 mA	92%
TEN 80-2412WI		12 VDC	6600 mA	92%
TEN 80-2413WI		15 VDC	5300 mA	92%
TEN 80-2415WI		24 VDC	3300 mA	92%
TEN 80-2418WI		54 VDC	1480 mA	90%
TEN 80-2422WI		±12 VDC	±3300 mA	92%
TEN 80-2423WI		±15 VDC	±2660 mA	92%
TEN 80-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	16000 mA	92%
TEN 80-4812WI		12 VDC	6600 mA	92%
TEN 80-4813WI		15 VDC	5300 mA	92%
TEN 80-4815WI		24 VDC	3300 mA	92%
TEN 80-4818WI		54 VDC	1480 mA	90%
TEN 80-4822WI		±12 VDC	±3300 mA	92%
TEN 80-4823WI		±15 VDC	±2660 mA	92%

High Power DC/DC Converters/RIA12 Surge Filters

40–300 watt

The new TEP and TEQ series are ranges of compact high power DC/DC converter modules with 75 up to 240 Watt. They meet the stringent requirements for mobile and stationary railway applications in accordance to EN50155 Standard. The series comprise models with nominal 110 VDC input voltage (43–160 VDC). The rugged construction enables a reliable use in harsh industrial Environment and any transportation. Excellent efficiency and thermal management allow operation at high temperature without forced air cooling.

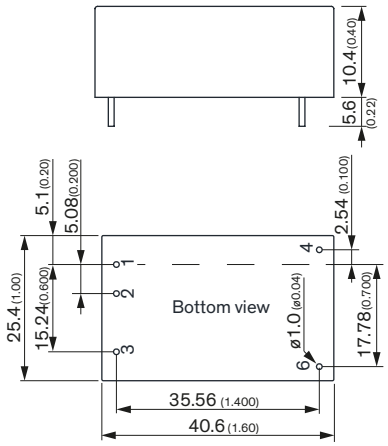






TFI | 0–300 Watt





Model	Input voltage	Power max.
TFI 20*	43–160 VDC	20 W
TFI 150	43–160 VDC	150 W
TFI 300	43–160 VDC	300 W

- Clamps over voltage transients (up to 385 VDC) at 168 VDC
- Universal use: Can be used with any DC/DC converter
- Complies with RIA12, NF F 01-510 Surge susceptibilities
- Power range: 0–300 Watt
- Wide input voltage range: 43–160 VDC
- Brownout voltage 36 VDC min.
- Operating temperature range –40 to +95°C
- 3-year product warranty

Pinout	
Pin	**Function**
1	+Vin
2	NC
3	–Vin
4	+Vout
6	–Vout

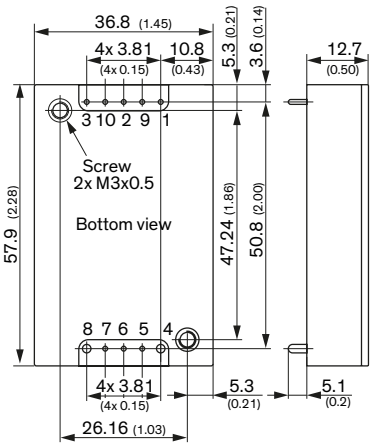
Note:
Dimension drawing and pinout is only for TFI 150 and TFI 300.
TFI 20 comes in a DIP-24 package

* DIP-24 footprint

TEP 40UIR | 40 W



- Ultra-wide 12:1 input voltage range 9–75, 14–160 VDC
- Compact 2.3" × 1.45" × 0.5" standard package (quarter brick)
- Bus pin to easily extend hold-up time
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behavior according to EN 45545-2
- Operating temperature range –40°C to +85°C
- I/O-isolation 3000 VAC
- High efficiency up to 91%
- Adjustable output voltage, Remote On/Off and adjustable under voltage lockout
- 3-year product warranty



Pin (4, 8): 1.5 (0.06)
Pin (other): 1.0 (0.04)
Pin diameter ±0.1 (±0.004)
Screw lock torque: Max. 0.34 N·m (3.5 kgf·cm)

Pin Connection

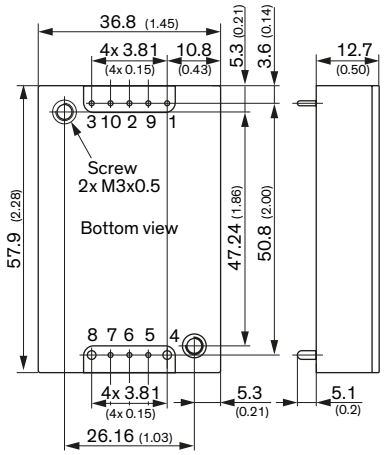
Pin	Function	Diameter
1	–Vin	0.04 Inch
2	Remote On/Off	0.04 Inch
3	+Vin	0.04 Inch
4	–Vout	0.06 Inch
5	–Sense	0.04 Inch
6	Trim	0.04 Inch
7	+Sense	0.04 Inch
8	+Vout	0.06 Inch
9	Bus	0.04 Inch
10	UVLO	0.04 Inch

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 40-3611UIR	9–75 VDC (36 VDC nom.)	5VDC	8 A	89%
TEP 40-3612UIR		12 VDC	3.33 A	91%
TEP 40-3613UIR		15 VDC	2.67 A	91%
TEP 40-3615UIR		24 VDC	1.67 A	90%
TEP 40-3618UIR		48 VDC	0.83 A	91%
TEP 40-7211UIR	14–160 VDC (110 VDC nom.)	5 VDC	8 A	89%
TEP 40-7212UIR		12 VDC	3.33 A	91%
TEP 40-7213UIR		15 VDC	2.67 A	91%
TEP 40-7215UIR		24 VDC	1.67 A	90%
TEP 40-7218UIR		48 VDC	0.83 A	90%

TEP 60UIR | 60 W



- Ultra-wide 12:1 input voltage range 9–75, 14–160 VDC
- Compact 2.3" × 1.45" × 0.5" standard package (quarter brick)
- Bus pin to easily extend hold-up time
- EN 50155 and EN 61373 approval for railway applications
- Qualification for fire behavior according to EN 45545-2
- Operating temperature range –40°C to +85°C
- I/O-isolation 3000 VAC
- High efficiency up to 91%
- Adjustable output voltage, Remote On/Off and adjustable under voltage lockout
- 3-year product warranty



Pin (4, 8): 1.5 (0.06)
Pin (other): 1.0 (0.04)
Pin diameter ±0.1 (±0.004)
Screw lock torque: Max. 0.34 N·m (3.5 kgf·cm)

Pin Connection

Pin	Function	Diameter
1	–Vin	0.04 Inch
2	Remote On/Off	0.04 Inch
3	+Vin	0.04 Inch
4	–Vout	0.06 Inch
5	–Sense	0.04 Inch
6	Trim	0.04 Inch
7	+Sense	0.04 Inch
8	+Vout	0.06 Inch
9	Bus	0.04 Inch
10	UVLO	0.04 Inch

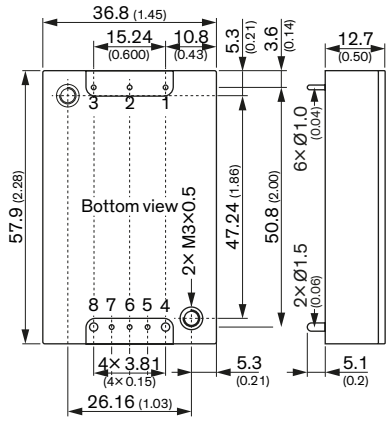
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 60-3611UIR	9–75 VDC (36 VDC nom.)	5VDC	12 A	89%
TEP 60-3612UIR		12 VDC	5 A	89%
TEP 60-3613UIR		15 VDC	4 A	90%
TEP 60-3615UIR		24 VDC	2.5 A	90%
TEP 60-3618UIR		48 VDC	1.25 A	91%
TEP 60-7211UIR	14–160 VDC (110 VDC nom.)	5 VDC	12 A	89%
TEP 60-7212UIR		12 VDC	5 A	89%
TEP 60-7213UIR		15 VDC	4 A	89%
TEP 60-7215UIR		24 VDC	2.5 A	90%
TEP 60-7218UIR		48 VDC	1.25 A	90%

TER 75WIR | 75 W

NEW under development



- Compact quarter-brick package 2.28" × 1.45" × 0.5"
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- EN 50155 and EN 61373 certified
- Operating temperature range –40°C to +85°C
- Up to 3000 VAC I/O-isolation
- EN 45545-2 fire behavior
- High efficiency up to 92%
- Remote on/off and trim function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty



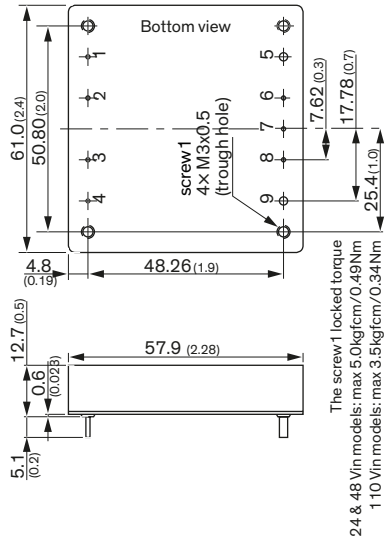
Pinout	
1	**Function**
2	–Vin
3	Remote On/Off
4	+Vin
5	–Sense
6	Trim
7	+Sense
8	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TER 75-2410WIR	**9–36 VDC** (24 VDC nom.)	3.3 VDC	20 A	89%
TER 75-2411WIR		5 VDC	15 A	90%
TER 75-2412WIR		12 VDC	6.3 A	91%
TER 75-2413WIR		15 VDC	5 A	92%
TER 75-2415WIR		24 VDC	3.2 A	91%
TER 75-2418WIR		48 VDC	1.6 A	90%
TER 75-4810WIR	**18–75 VDC** (48 VDC nom.)	3.3 VDC	20 A	89%
TER 75-4811WIR		5 VDC	15 A	90%
TER 75-4812WIR		12 VDC	6.3 A	91%
TER 75-4813WIR		15 VDC	5 A	91%
TER 75-4815WIR		24 VDC	3.2 A	91%
TER 75-4818WIR		48 VDC	1.6 A	90%
TER 75-7210WIR	**40–160 VDC** (110 VDC nom.)	3.3 VDC	20 A	89%
TER 75-7211WIR		5 VDC	15 A	90%
TER 75-7212WIR		12 VDC	6.3 A	91%
TER 75-7213WIR		15 VDC	5 A	91%
TER 75-7215WIR		24 VDC	3.2 A	91%
TER 75-7218WIR		48 VDC	1.6 A	90%

TEP 75WI | 75 W



- Rugged, compact metal case
- Screw terminal adaptor available for easy connection
- EN 50155 approval for railway applications
- Ultra wide 4:1 input voltage range
- Full load operation up to +60°C with convection cooling
- Undervoltage lockout
- Input protection filter
- 3-year product warranty



Pinout	
Pin	**Function**
1	–Vin (GND)
2	Case
3	Remote
4	+Vin (Vcc)
5	–Vout
6	–Sense*
7	Trim
8	+Sense*
9	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 75-2411WI	**9–36 VDC** (24 VDC nom.)	5 VDC	15'000 mA	88%
TEP 75-2412WI		12 VDC	6300 mA	88%
TEP 75-2413WI		15 VDC	5000 mA	88%
TEP 75-2415WI		24 VDC	3200 mA	87%
TEP 75-2416WI		28 VDC	2700 mA	87%
TEP 75-2418WI		48 VDC	1600 mA	87%
TEP 75-4811WI	**18–75 VDC** (48 VDC nom.)	5 VDC	15'000 mA	90%
TEP 75-4812WI		12 VDC	6300 mA	90%
TEP 75-4813WI		15 VDC	5000 mA	89%
TEP 75-4815WI		24 VDC	3200 mA	88%
TEP 75-4816WI		28 VDC	2700 mA	88%
TEP 75-4818WI		48 VDC	1600 mA	87%
TEP 75-7211WI	**43–160 VDC** (110 VDC nom.)	5 VDC	15'000 mA	91%
TEP 75-7212WI		12 VDC	6300 mA	91%
TEP 75-7213WI		15 VDC	5000 mA	91%
TEP 75-7215WI		24 VDC	3200 mA	90%
TEP 75-7216WI		28 VDC	2700 mA	90%
TEP 75-7218WI		48 VDC	1600 mA	90%

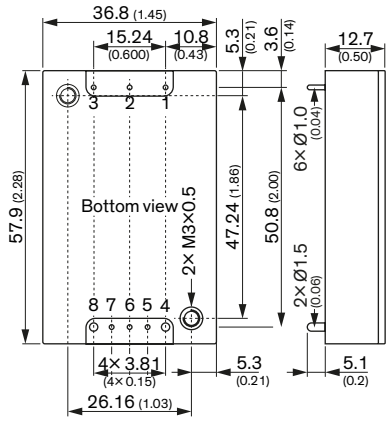
* Sense line to be conneced to the output either at the module or at the load under regard of polarity.

TER 100WIR | 100 W

NEW under development



- Compact quarter-brick package 2.28" × 1.45" × 0.5"
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- EN 50155 and EN 61373 certified
- Operating temperature range –40°C to +85°C
- Up to 3000 VAC I/O-isolation
- EN 45545-2 fire behavior
- High efficiency up to 92%
- Remote on/off and trim function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty



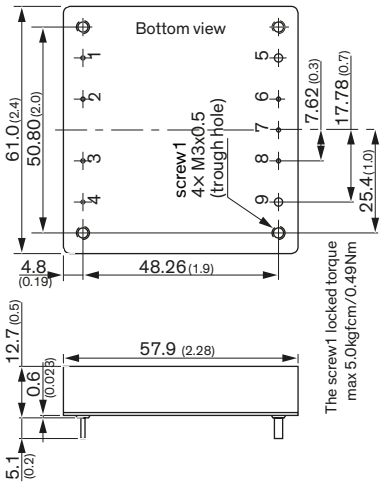
Pinout	
1	**Function**
2	–Vin
3	Remote On/Off
4	+Vin
5	–Sense
6	Trim
7	+Sense
8	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TER 100-2411WIR	**9–36 VDC** (24 VDC nom.)	5 VDC	20 A	91%
TER 100-2412WIR		12 VDC	8.33 A	92%
TER 100-2413WIR		15 VDC	6.67 A	92%
TER 100-2415WIR		24 VDC	4.16 A	92%
TER 100-2418WIR		48 VDC	2.08 A	92%
TER 100-4811WIR	**18–75 VDC** (48 VDC nom.)	5 VDC	20 A	91%
TER 100-4812WIR		12 VDC	8.33 A	92%
TER 100-4813WIR		15 VDC	6.67 A	92%
TER 100-4815WIR		24 VDC	4.16 A	92%
TER 100-4818WIR		48 VDC	2.08 A	92%
TER 100-7211WIR	**40–160 VDC** (110 VDC nom.)	5 VDC	20 A	91%
TER 100-7212WIR		12 VDC	8.33 A	92%
TER 100-7213WIR		15 VDC	6.67 A	92%
TER 100-7215WIR		24 VDC	4.16 A	92%
TER 100-7218WIR		48 VDC	2.08 A	91%

TEP 100 | 100 W



- Rugged, compact metal case
- Screw terminal adaptor available for easy connection
- Wide 2:1 input voltage range
- Full load operation up to 60°C with convection cooling
- Soft start
- Under voltage lock-out circuit
- Input protection filter
- 3-year product warranty



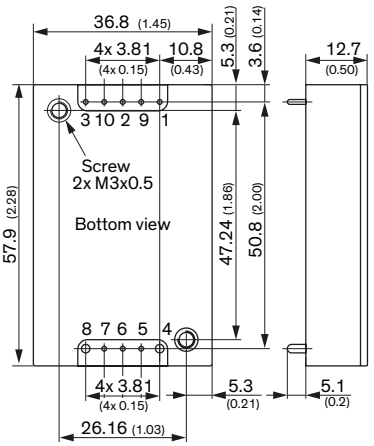
Pinout	
Pin	**Function**
1	–Vin (GND)
2	Case
3	Remote
4	+Vin (Vcc)
5	–Vout
6	–Sense
7	Trim
8	+Sense
9	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 100-1210	**9–18 VDC** (12 VDC nom.)	3.3 VDC	25000 mA	90%
TEP 100-1211		5 VDC	20000 mA	91%
TEP 100-1212		12 VDC	8400 mA	91%
TEP 100-1213		15 VDC	6700 mA	91%
TEP 100-1215		24 VDC	4200 mA	90%
TEP 100-1216		28 VDC	3600 mA	90%
TEP 100-1218		48 VDC	2100 mA	90%
TEP 100-2410	**18–36 VDC** (24 VDC nom.)	3.3 VDC	25000 mA	91%
TEP 100-2411		5 VDC	20000 mA	93%
TEP 100-2412		12 VDC	8400 mA	93%
TEP 100-2413		15 VDC	6700 mA	93%
TEP 100-2415		24 VDC	4200 mA	92%
TEP 100-2416		28 VDC	3600 mA	92%
TEP 100-2418		48 VDC	2100 mA	92%
TEP 100-4810	**36–75 VDC** (48 VDC nom.)	3.3 VDC	25000 mA	91%
TEP 100-4811		5 VDC	20000 mA	93%
TEP 100-4812		12 VDC	8400 mA	93%
TEP 100-4813		15 VDC	6700 mA	93%
TEP 100-4815		24 VDC	4200 mA	92%
TEP 100-4816		28 VDC	3600 mA	92%
TEP 100-4818		48 VDC	2100 mA	92%

TEP 100UIR | 100 W



- Ultra-wide 12:1 input voltage range: 9–75, 14–160 VDC
- EN 50155 and EN 61373 certified
- Encapsulated quarter-brick (2.3" × 1.45" × 0.5") package
- Extended holdup time with lowest capacitor volume
- EN 45545-2 fire behavior
- –40°C to +85°C operating temperature
- Up to 3000 VAC I/O-isolation
- Remote on/off and trim function
- Adjustable undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty



Pin (4, 8): 1.5 (0.06)
Pin (other): 1.0 (0.04)

Pin diameter ±0.1 (±0.004)
Screw lock torque: Max. 0.34 N·m (3.5 kgf·cm)

Pin Connection

Pin	Function	Diameter
1	–Vin	1.0 mm (0.04)
2	Ctrl	1.0 mm (0.04)
3	+Vin	1.0 mm (0.04)
4	–Vout	1.5 mm (0.06)
5	–Sense	1.0 mm (0.04)
6	Trim	1.0 mm (0.04)
7	+Sense	1.0 mm (0.04)
8	+Vout	1.5 mm (0.06)
9	Bus (option)	1.0 mm (0.04)
10	UVLO (option)	1.0 mm (0.04)

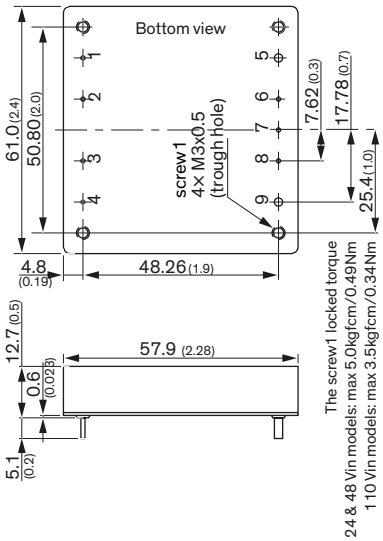
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 100-3611UIR	9–75 VDC (36 VDC nom.)	5VDC	20 A	88%
TEP 100-3612UIR		12 VDC	8.35 A	88%
TEP 100-3613UIR		15 VDC	6.7 A	89%
TEP 100-3615UIR		24 VDC	4.2 A	88%
TEP 100-3618UIR		48 VDC	2.1 A	90%
TEP 100-7211UIR	14–160 VDC (110 VDC nom.)	5 VDC	20 A	88%
TEP 100-7212UIR		12 VDC	8.35 A	88%
TEP 100-7213UIR		15 VDC	6.7 A	88%
TEP 100-7215UIR		24 VDC	4.2 A	88%
TEP 100-7218UIR		48 VDC	2.1 A	89%



TEP 100WIR | 100 W



- Compact metal package
- Ultra wide 4:1 input voltage ranges 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Very high efficiency up to 93%
- No minimum load
- Soft start
- Adjustable output voltage +10/–20%
- Sense line
- Remote On/Off input
- Under voltage lock-out circuit
- 3-year product warranty



Pinout

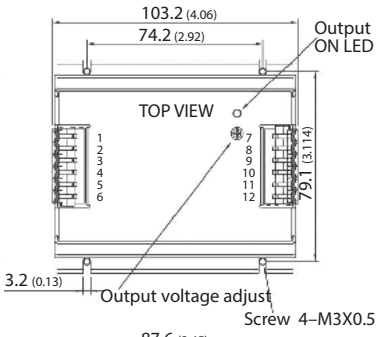
Pin	Function
1	–Vin (GND)
2	Case
3	Remote
4	+Vin (Vcc)
5	–Vout
6	–Sense
7	Trim
8	+Sense
9	+Vout

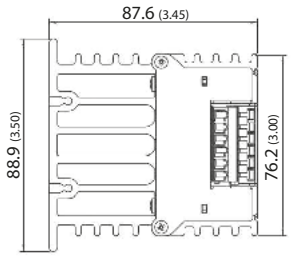
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 100-2411WIR	9–36 VDC (24 VDC nom.)	5 VDC	20'000 mA	93%
TEP 100-2412WIR		12 VDC	8400 mA	90%
TEP 100-2415WIR		24 VDC	4200 mA	90%
TEP 100-2416WIR		28 VDC	3600 mA	90%
TEP 100-2418WIR		48 VDC	2100 mA	90%
TEP 100-4812WIR	18–75 VDC (48 VDC nom.)	12 VDC	8400 mA	90%
TEP 100-4815WIR		24 VDC	4200 mA	90%
TEP 100-4816WIR		28 VDC	3600 mA	92%
TEP 100-4818WIR		48 VDC	2100 mA	91%
TEP 100-7212WIR	43–160 VDC (110 VDC nom.)	12 VDC	8400 mA	90%
TEP 100-7215WIR		24 VDC	4200 mA	90%
TEP 100-7216WIR		28 VDC	3600 mA	90%
TEP 100-7218WIR		48 VDC	2100 mA	91%

TEQ 100WIR | 100 W



- High power block with excellent thermal convection
- Operating temperature –40°C to +85°C without derating
- Increased shock & vibration resistance
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 90%
- Input filter meet EN 55022, class A
- I/O isolation 1591 VAC
- Under voltage lock-out circuit
- 3-year product warranty





Pinout		
Terminal	**Pin Function**	**Recommended Wire**
1, 2	–Vin	12 AWG
3	NC	NC
4	On/Off Ctrl	14–18 AWG
5, 6	+Vin	12 AWG
7, 8	–Vout	12 AWG
9	–Sense*	14–18 AWG
10	+Sense*	14–18 AWG
11, 12	+Vout	12 AWG

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEQ 100-2412WIR	**10–36 VDC** (24 VDC nom.)	12 VDC	8400 mA	90%
TEQ 100-2415WIR		24 VDC	4200 mA	90%
TEQ 100-2416WIR		28 VDC	3600 mA	90%
TEQ 100-2418WIR		48 VDC	2100 mA	90%
TEQ 100-4812WIR	**19–75 VDC** (48 VDC nom.)	12 VDC	8400 mA	90%
TEQ 100-4815WIR		24 VDC	4200 mA	90%
TEQ 100-4816WIR		28 VDC	3600 mA	90%
TEQ 100-4818WIR		48 VDC	2100 mA	90%
TEQ 100-7212WIR	**43–160 VDC** (110 VDC nom.)	12 VDC	8400 mA	89%
TEQ 100-7215WIR		24 VDC	4200 mA	90%
TEQ 100-7216WIR		28 VDC	3600 mA	90%
TEQ 100-7218WIR		48 VDC	2100 mA	90%

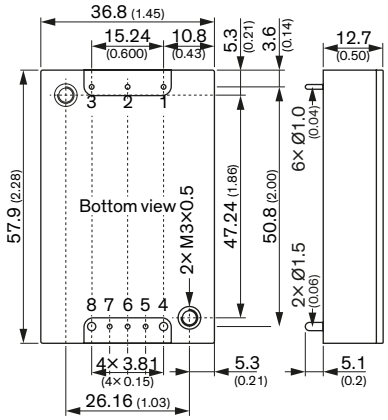
* Sense line to be connected to the output either at the module or at the load under regard of polarity.
– The current rating of the terminal block is 15 A/pole.
– Using 2 poles in parallel if the peak output current can exceed 15 A.
– Wire size shall be selected to withstand the peak output current (Iout max + Current limitation).

TER 150WIR | 150 W

NEW under development



- Compact quarter-brick package 2.28" × 1.45" × 0.5"
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- EN 50155 and EN 61373 certified
- Operating temperature range –40°C to +85°C
- Up to 3000 VAC I/O-isolation
- EN 45545-2 fire behavior
- High efficiency up to 92%
- Remote on/off and trim function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty



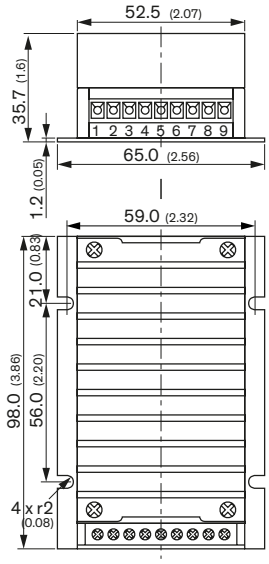
Pinout	
1	**Function**
2	–Vin
3	Remote On/Off
4	+Vin
5	–Sense
6	Trim
7	+Sense
8	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TER 150-2412WIR	**9–36 VDC** (24 VDC nom.)	12 VDC	12.5 A	91%
TER 150-2413WIR		15 VDC	10 A	91%
TER 150-2415WIR		24 VDC	6.3 A	91%
TER 150-2418WIR		48 VDC	3.15 A	91%
TER 150-4812WIR	**18–75 VDC** (48 VDC nom.)	12 VDC	12.5 A	91%
TER 150-4813WIR		15 VDC	10 A	91%
TER 150-4815WIR		24 VDC	6.3 A	91%
TER 150-4818WIR		48 VDC	3.15 A	91%
TER 150-7212WIR	**40–160 VDC** (110 VDC nom.)	12 VDC	12.5 A	91%
TER 150-7213WIR		15 VDC	10 A	91%
TER 150-7215WIR		24 VDC	6.3 A	91%
TER 150-7218WIR		48 VDC	3.15 A	91%

TEP 150WI | 150 W



- Shielded metal case with screw terminals
- Ultra wide 4:1 input voltage ranges 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Very high efficiency up to 89%
- Constant current output characteristic for battery load applications
- Optional with input filter to meet EN 55032 class B
- Wide Operating temperature range: –40°C to +75°C
- Under voltage lock-out & overtemperature protection
- Easy chassis and wall mounting
- 3-year product warranty



Pinout		
Pin	**Function**	**Recommended Wire**
1	+Vin	14–16 AWG
2	+Vin	14–16 AWG
3	–Vin	14–16 AWG
4	–Vin	14–16 AWG
5	Remote	14–24 AWG
6	+Vout	14–16 AWG
7	–Vout	14–16 AWG
8	Trim	14–24 AWG
9	Trim	14–24 AWG

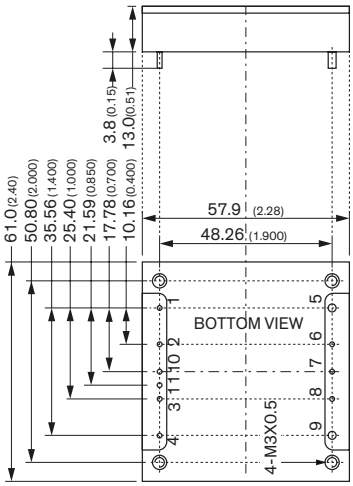
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 150-2412WI	**9–36 VDC** (24 VDC nom.)	12 VDC	12'500 mA	86%
TEP 150-2413WI		15 VDC	10'000 mA	86%
TEP 150-2415WI		24 VDC	6300 mA	87%
TEP 150-2416WI		28 VDC	5400 mA	87%
TEP 150-2418WI		48 VDC	3200 mA	86%
TEP 150-4812WI	**18–75 VDC** (48 VDC nom.)	12 VDC	12'500 mA	88%
TEP 150-4813WI		15 VDC	10'000 mA	89%
TEP 150-4815WI		24 VDC	6300 mA	89%
TEP 150-4816WI		28 VDC	5400 mA	89%
TEP 150-4818WI		48 VDC	3200 mA	88%
TEP 150-7212WI	**43–160 VDC** (110 VDC nom.)	12 VDC	12'500 mA	88%
TEP 150-7213WI		15 VDC	10'000 mA	89%
TEP 150-7215WI		24 VDC	6300 mA	89%
TEP 150-7216WI		28 VDC	5400 mA	89%
TEP 150-7218WI		48 VDC	3200 mA	88%

TEP 150UIR | 150 W

NEW!



- Compact half-brick housing
- Ultra-wide 12:1 input: 14–160 VDC
- –40°C to +105°C operating temperature
- Fully encapsulated
- Dedicated holdup capacitor connection
- EN 50155, EN 45545-2, and EN 61373 certifications
- Reinforced 3000 VAC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP), overtemperature (OTP)
- 3-year product warranty



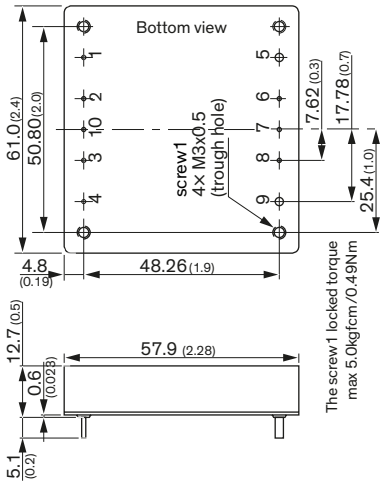
Pinout	
Pin	**Single**
1	–Vin
2	BUS
3	Ctrl
4	+Vin
5	–Vout
6	–Sense
7	Trim
8	+Sense
9	+Vout
10	UVLO
11	Pulse Out

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 150-7211UIR	**16–160 VDC** (72 VDC nom.)	5 VDC	30'000 mA	91%
TEP 150-7212UIR		12 VDC	12'500 mA	93%
TEP 150-7213UIR		15 VDC	10'000 mA	92%
TEP 150-7215UIR		24 VDC	6300 mA	89%
TEP 150-7218UIR		48 VDC	3200 mA	93%



TEP 160 | 160 W





- Compact metal package
- Wide 2:1 input voltage ranges 16.5–36, 33–75 VDC
- Very high efficiency up to 93%
- No minimum load
- Soft start
- Adjustable output voltage +10/–20%
- Sense line
- Remote On/Off input
- Over temperature protection
- 3-year product warranty

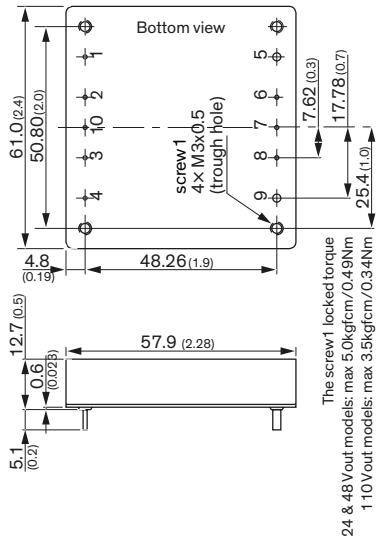
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 160-2412	16.5–36 VDC (24 VDC nom.)	12 VDC	13000 mA	92%
TEP 160-2413		15 VDC	10000 mA	92%
TEP 160-2415		24 VDC	6500 mA	93%
TEP 160-2416		28 VDC	5500 mA	93%
TEP 160-2418		48 VDC	3300 mA	92%
TEP 160-4812	33–75 VDC (48 VDC nom.)	12 VDC	16000 mA	92%
TEP 160-4813		15 VDC	13000 mA	93%
TEP 160-4815		24 VDC	8000 mA	92%
TEP 160-4816		28 VDC	7000 mA	92%
TEP 160-4818		48 VDC	4000 mA	92%
TEP 160-48153		53 VDC	3700 mA	92%

Pinout

Pin	Function
1	–Vin (GND)
2	Case
3	Remote
4	+Vin (Vcc)
5	–Vout
6	–Sense
7	Trim
8	+Sense
9	+Vout
10	Sync (on demand)

TEP 160WIR | 160 W





- Compact metal package
- Ultra wide 4:1 input voltage ranges 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Very high efficiency up to 91%
- No minimum load
- Soft start
- Adjustable output voltage +10/–20%
- Sense line
- Remote On/Off input
- Under voltage lock-out circuit
- 3-year product warranty

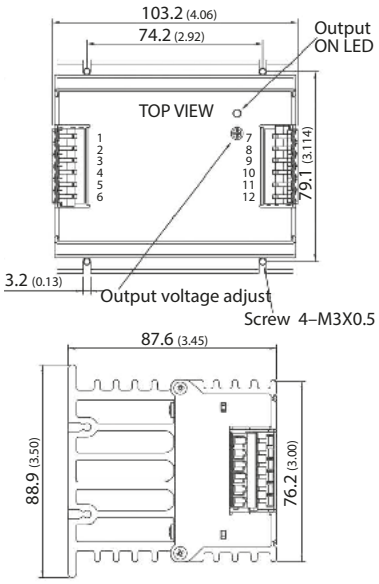
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 160-2412WIR	9–36 VDC (24 VDC nom.)	12 VDC	12000 mA	90%
TEP 160-2413WIR		15 VDC	9500 mA	91%
TEP 160-2415WIR		24 VDC	6000 mA	90%
TEP 160-2416WIR		28 VDC	5000 mA	90%
TEP 160-2418WIR		48 VDC	3000 mA	90%
TEP 160-4812WIR	18–75 VDC (48 VDC nom.)	12 VDC	13000 mA	91%
TEP 160-4813WIR		15 VDC	10000 mA	91%
TEP 160-4815WIR		24 VDC	6500 mA	91%
TEP 160-4816WIR		28 VDC	5500 mA	91%
TEP 160-4818WIR		48 VDC	3200 mA	91%
TEP 160-7212WIR	43–160 VDC (110 VDC nom.)	12 VDC	15000 mA	90%
TEP 160-7213WIR		15 VDC	12000 mA	90%
TEP 160-7215WIR		24 VDC	7500 mA	90%
TEP 160-7216WIR		28 VDC	6500 mA	90%
TEP 160-7218WIR		48 VDC	3800 mA	90%

Pinout

Pin	Function	Pin Diameter
1	–Vin (GND)	1 mm (0.04)
2	Case	1 mm (0.04)
3	Remote	1 mm (0.04)
4	+Vin (Vcc)	1 mm (0.04)
5	–Vout	2 mm (0.08)
6	–Sense	1 mm (0.04)
7	Trim	1 mm (0.04)
8	+Sense	1 mm (0.04)
9	+Vout	2 mm (0.08)
10	Sync (on demand)	1 mm (0.04)

TEQ 160WIR | 160 W





- High power block with excellent thermal convection
- Operating temperature –40°C to +75°C without derating
- Increased shock & vibration resistance
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 90%
- Input filter meet EN 55022, class A
- I/O insulation 1591 VAC
- Under voltage lock-out circuit
- 3-year product warranty

Pinout		
Terminal	**Pin Function**	**Recommended Wire**
1, 2	–Vin	12 AWG
3	NC	NC
4	On/Off Ctrl	14–18 AWG
5, 6	+Vin	12 AWG
7, 8	–Vout	12 AWG
9	–Sense*	14–18 AWG
10	+Sense*	14–18 AWG
11, 12	+Vout	12 AWG

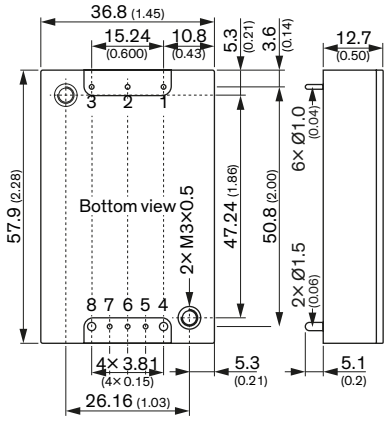
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEQ 160-4812WIR	**19–75 VDC** (48 VDC nom.)	12 VDC	13'000 mA	90%
TEQ 160-4815WIR		24 VDC	6500 mA	90%
TEQ 160-4816WIR		28 VDC	5500 mA	90%
TEQ 160-4818WIR		48 VDC	3200 mA	90%
TEQ 160-7212WIR	**43–160 VDC** (110 VDC nom.)	12 VDC	15'000 mA	89%
TEQ 160-7215WIR		24 VDC	7500 mA	89%
TEQ 160-7216WIR		28 VDC	6500 mA	89%
TEQ 160-7218WIR		48 VDC	3800 mA	89%

* Sense line to be connected to the output either at the module or at the load under regard of polarity.
– The current rating of the terminal block is 15 A/pole.
– Using 2 poles in parallel if the peak output current can exceed 15 A.
– Wire size shall be selected to withstand the peak output current (Iout max + Current limitation).

TER 200WIR | 200 W

NEW under development





- Compact quarter-brick package 2.28" × 1.45" × 0.5"
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- EN 50155 and EN 61373 certified
- Operating temperature range –40°C to +85°C
- Up to 3000 VAC I/O-isolation
- EN 45545-2 fire behavior
- High efficiency up to 92%
- Remote on/off and trim function
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty

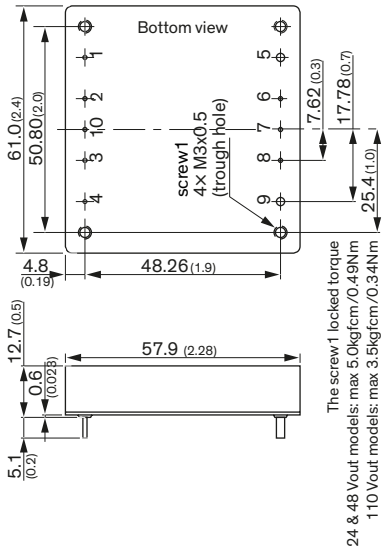
Pinout	
1	**Function**
2	–Vin
3	Remote On/Off
4	+Vin
5	–Sense
6	Trim
7	+Sense
8	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TER 200-2412WIR	**9–36 VDC** (24 VDC nom.)	12 VDC	16.7 A	92%
TER 200-2413WIR		15 VDC	13.4 A	92%
TER 200-2415WIR		24 VDC	8.4 A	92%
TER 200-2418WIR		48 VDC	4.2 A	92%
TER 200-4812WIR	**18–75 VDC** (48 VDC nom.)	12 VDC	16.7 A	92%
TER 200-4813WIR		15 VDC	13.4 A	92%
TER 200-4815WIR		24 VDC	8.4 A	92%
TER 200-4818WIR		48 VDC	4.2 A	92%
TER 200-7212WIR	**40–160 VDC** (110 VDC nom.)	12 VDC	16.7 A	92%
TER 200-7213WIR		15 VDC	13.4 A	92%
TER 200-7215WIR		24 VDC	8.4 A	92%
TER 200-7218WIR		48 VDC	4.2 A	92%

TEP 200WIR | 200 W



- Compact metal package
- Ultra wide 4:1 input voltage ranges 9–36, 18–75, 43–160 VDC
- EN 50155 approval for railway applications
- Very high efficiency up to 91%
- No minimum load
- Soft start
- Under voltage lock-out circuit
- Adjustable output voltage +10/–20%
- Sense line
- 3-year product warranty



Pinout	
Pin	**Function**
1	–Vin (GND)
2	NC
3	Remote
4	+Vin (Vcc)
5	–Vout
6	–Sense
7	Trim
8	+Sense
9	+Vout

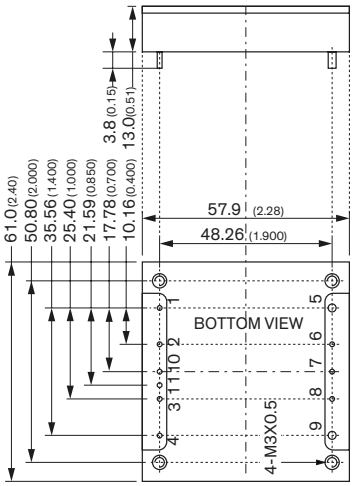
Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 200-2412WIR	**9–36 VDC** (24 VDC nom.)	12 VDC	15'000 mA	89%
TEP 200-2413WIR		15 VDC	12'000 mA	90%
TEP 200-2415WIR		24 VDC	7500 mA	90%
TEP 200-2416WIR		28 VDC	6500 mA	90%
TEP 200-2418WIR		48 VDC	3700 mA	89%
TEP 200-4812WIR	**18–75 VDC** (48 VDC nom.)	12 VDC	18'000 mA	90%
TEP 200-4813WIR		15 VDC	14'000 mA	91%
TEP 200-4815WIR		24 VDC	9000 mA	90%
TEP 200-4816WIR		28 VDC	7500 mA	91%
TEP 200-4818WIR		48 VDC	4500 mA	90%
TEP 200-7212WIR	**43–160 VDC** (110 VDC nom.)	12 VDC	20'000 mA	89%
TEP 200-7213WIR		15 VDC	16'000 mA	90%
TEP 200-7215WIR		24 VDC	10'000 mA	89%
TEP 200-7216WIR		28 VDC	8500 mA	90%
TEP 200-7218WIR		48 VDC	5000 mA	89%

TEP 200UIR | 200 W

NEW!



- Compact half-brick housing
- Ultra-wide 12:1 input: 14–160 VDC
- –40°C to +105°C operating temperature
- Fully encapsulated
- Dedicated holdup capacitor connection
- EN 50155, EN 45545-2 and EN 61373 certified
- Reinforced 3000 VAC I/O isolation
- Remote on/off and trim function
- Protection against short-circuit (SCP), overvoltage (OVP), overtemperature (OTP)
- 3-year product warranty



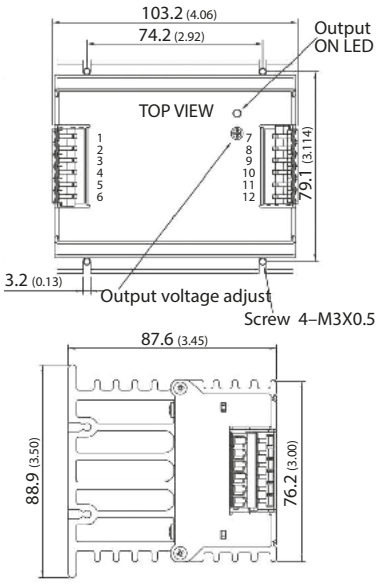
Pinout		
Pin	**A-Type**	**B-Type**
1	–Vin	–Vin
2	BUS	BUS
3	Ctrl	UVLO
4	+Vin	+Vin
5	–Vout	–Vout
6	–Sense	–Sense
7	Trim	Trim
8	+Sense	+Sense
9	+Vout	+Vout
10	UVLO	Ctrl
11	Pulse Out	Pulse Out

Model	Input Voltage Range	Output Vnom	Output Imax	Output Efficiency
TEP 200-7211UIR	**16–160 VDC** (72 VDC nom.)	5 VDC	40'000 mA	91%
TEP 200-7212UIR		12 VDC	16'800 mA	93%
TEP 200-7213UIR		15 VDC	13'400 mA	92%
TEP 200-7215UIR		24 VDC	8400 mA	89%
TEP 200-7218UIR		48 VDC	4200 mA	93%



TEQ 200WIR | 200 W





- High power block with excellent thermal convection
- Operating temperature –40°C to +70°C without derating
- Increased shock & vibration resistance
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 90%
- Input filter meet EN 55032, class A
- I/O insulation 1591 VAC
- Under voltage lock-out circuit
- 3-year product warranty

Pinout		
Terminal	**Pin Function**	**Recommended Wire**
1, 2	–Vin	12 AWG
3	NC	NC
4	Remote	14–18 AWG
5, 6	+Vin	12 AWG
7, 8	–Vout	12 AWG
9	–Sense*	14–18 AWG
10	+Sense*	14–18 AWG
11, 12	+Vout	12 AWG

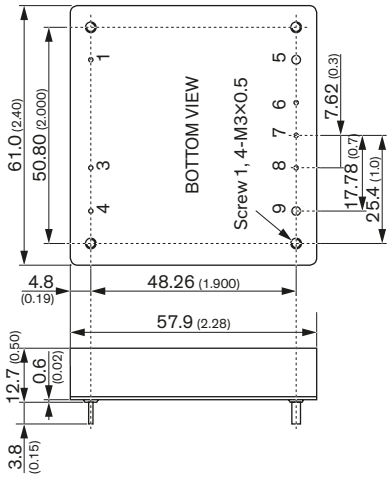
Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency typ.
TEQ 200-4812WIR	**19–75 VDC** (48 VDC nom.)	12 VDC	18'000 mA	89%
TEQ 200-4815WIR		24 VDC	9000 mA	89%
TEQ 200-4816WIR		28 VDC	7500 mA	90%
TEQ 200-4818WIR		48 VDC	4500 mA	89%
TEQ 200-7212WIR	**43–160 VDC** (110 VDC nom.)	12 VDC	20'000 mA	88%
TEQ 200-7215WIR		24 VDC	10'000 mA	88%
TEQ 200-7216WIR		28 VDC	8500 mA	89%
TEQ 200-7218WIR		48 VDC	5000 mA	88%

* Sense line to be connected to the output either at the module or at the load under regard of polarity.
– The current rating of the terminal block is 15 A/pole.
– Using 2 poles in parallel if the peak output current can exceed 15 A.
– Wire size shall be selected to withstand the peak output current (Iout max + Current limitation).

TEP 300WIR | 300 W

NEW under development





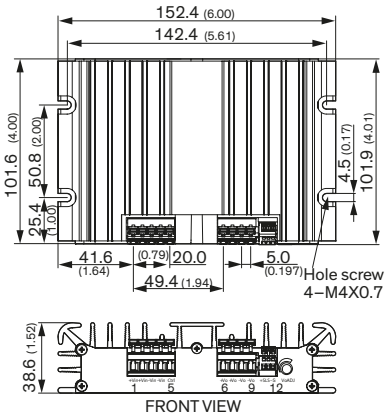
- Compact half-brick package 2.28" × 2.4" × 0.5"
- Wide 4:1 input voltage range: 9–36, 18–75, 40–160 VDC
- EN 50155 and EN 61373 certified
- Operating temperature range –40°C to +85°C
- Up to 3000 VAC I/O-isolation
- EN 45545-2 fire behavior
- High efficiency up to 93%
- Remote on/off and trim functio
- Undervoltage lockout (UVLO), short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 3-year product warranty

Pinout	
1	**Function**
2	–Vin
3	Remote On/Off
4	+Vin
5	–Sense
6	Trim
7	+Sense
8	+Vout

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency
TEP 300-2412WIR	**9–36 VDC** (24 VDC nom.)	12 VDC	25 A	91%
TEP 300-2413WIR		15 VDC	20 A	91%
TEP 300-2415WIR		24 VDC	12.5 A	91%
TEP 300-2418WIR		48 VDC	6.2 A	89%
TEP 300-4812WIR	**18–75 VDC** (48 VDC nom.)	12 VDC	25 A	92%
TEP 300-4813WIR		15 VDC	20 A	91%
TEP 300-4815WIR		24 VDC	12.5 A	92.5%
TEP 300-4818WIR		48 VDC	6.2 A	89%
TEP 300-7212WIR	**40–160 VDC** (110 VDC nom.)	12 VDC	25 A	91%
TEP 300-7213WIR		15 VDC	20 A	91%
TEP 300-7215WIR		24 VDC	12.5 A	90%
TEP 300-7218WIR		48 VDC	6.2 A	90%

TEQ 300WIR | 300 W





- High power block with excellent thermal convection
- Operating temperature –40°C to +80°C
- Increased shock & vibration resistance
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 92%
- Constant current output characteristic for battery load applications
- Power sharing (up to 3 pcs in parallel)
- Input filter meet EN 55022, class A
- Under voltage lock-out circuit
- 3-year product warranty

Pinout		
Terminal	**Pin Function**	**Recommended Wire**
1, 2	+Vin	12–16 AWG
3, 4	–Vin (GND)	12–16 AWG
5	On/Off Ctrl	12–16 AWG
6, 7	+Vout	12–16 AWG
8, 9	–Vout	12–16 AWG
10	+Sense*	20–28 AWG
11	LS (Loadshare)	20–28 AWG
12	–Sense*	20–28 AWG

Model	Input Voltage Range	Output Vnom	Output Imax	Efficiency typ.
TEQ 300-4812WIR	**19–75 VDC** (48 VDC nom.)	12 VDC	25'000 mA	89%
TEQ 300-4815WIR		24 VDC	12'500 mA	92%
TEQ 300-4816WIR		28 VDC	10'800 mA	91%
TEQ 300-4818WIR		48 VDC	6300 mA	92%
TEQ 300-7212WIR	**43–160 VDC** (110 VDC nom.)	12 VDC	25'000 mA	89%
TEQ 300-7215WIR		24 VDC	12'500 mA	91%
TEQ 300-7216WIR		28 VDC	10'800 mA	91%
TEQ 300-7218WIR		48 VDC	6300 mA	92%

* Sense line to be connected to the output either at the module or at the load under regard of polarity.
– Wire size shall be selected to withstand the peak current (Iout max + Current limitation).

Industrial DIN-Rail DC/DC Converters

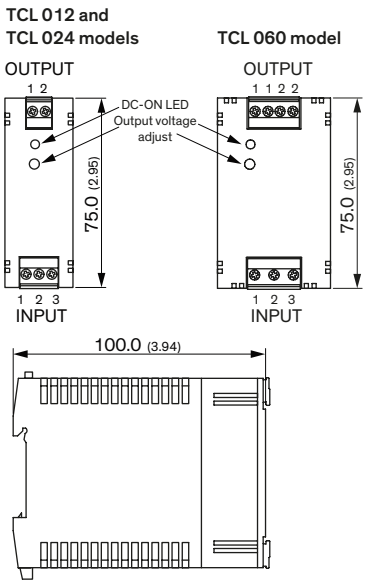
24–60 watt

In the TCL range of DIN-rail power supplies are 6 models for DC input voltage available. The wide input ranges of 9.5–18 VDC resp. 18–75 VDC means these models can be operated from all popular DC supply voltage systems. With tightly regulated output voltage these DC/DC converters provide a reliable power source for sensitive loads in industrial process controls, factory automation and other equipment exposed to a critical industrial environment. Further applications for these converters are isolation of a specific load or refreshing the 24 V bus voltage. Easy installation is provided with snap-on mounting on DIN-rails and detachable screw terminal block.



TCL-DC | 24–60 W





Model	Input Voltage Range	Output Voltage	Output Current max.
TCL 012-124 DC	9.5–18.0 VDC	24 VDC	1.0 A
TCL 024-105 DC	18–75 VDC	5 VDC	5.0 A
TCL 024-112 DC		12 VDC	2.0 A
TCL 024-124 DC		24 VDC	1.0 A
TCL 060-112 DC	18–75 VDC	12 VDC	5.0 A
TCL 060-124 DC		24 VDC	2.5 A

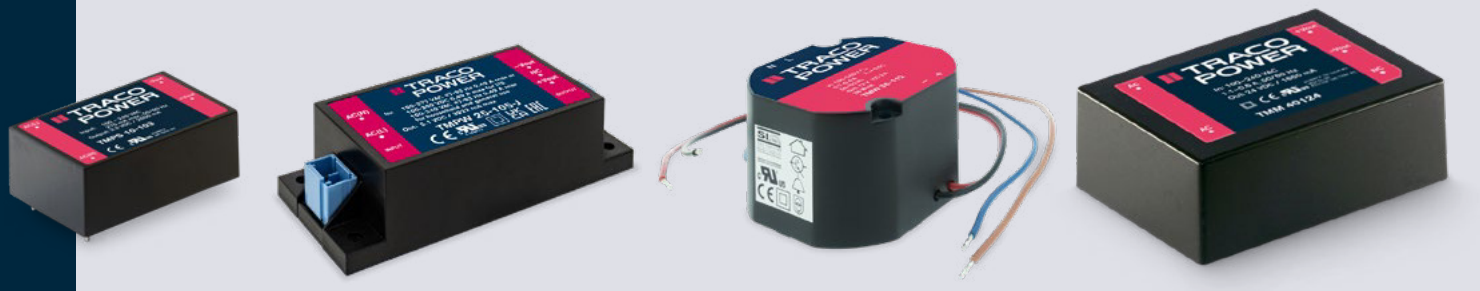
- Ultra-wide input voltage range
- Output voltage adjustable
- Overload and short circuit protection
- Low ripple and noise
- I/O isolation 1500 VDC
- Compact, slim plastic case
- Reliable snap-on mount on DIN-rail
- Bracket for wall mount included
- product warranty 3-year

Pinout		
Turminal	Output	Input
1	+ Vout	Functional Ground
2	– Vout	–Vin
3	–	+Vin

Encapsulated AC/DC Power Modules

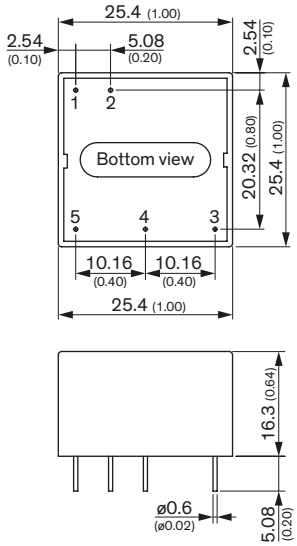
3 –100 watt

Traco Power offers a large range of fully encapsulated power modules with more than 200 standard models. They are available for PCB mount, chassis mount with screw terminal block or blade connector or with flying leads for installation into standard flush boxes.



TMPS 03 | 3 W





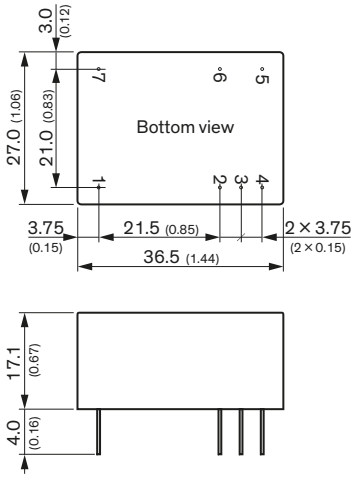
Model	Output Voltage nom.	Output Current max.	Output Current peak	Efficiency typ.
TMPS 03-103	3.3 VDC	900 mA	1170 mA	70%
TMPS 03-105	5 VDC	600 mA	780 mA	72%
TMPS 03-109	9 VDC	333 mA	430 mA	77%
TMPS 03-112	12 VDC	250 mA	320 mA	78%
TMPS 03-115	15 VDC	200 mA	260 mA	78%
TMPS 03-124	24 VDC	125 mA	160 mA	78%

- PCB Power module in 1" × 1" package
- No load input power <150 mW, to comply with ErP directive
- Operating temperature range –25°C to +70°C
- Certified to IEC/EN 60335-1 for household appliance
- EMI meets EN 55032, class B
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Function**
1	AC (N)
2	AC (L)
3	NC
4	–Vout
5	+Vout

TMLM 04 | 4 W





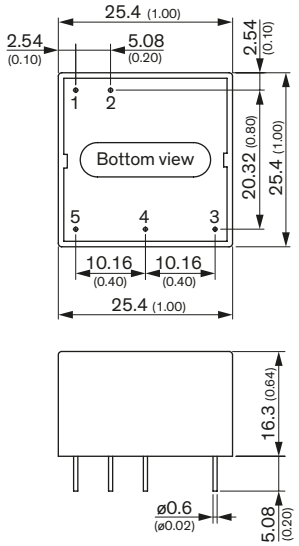
Model	Output Voltage nom.	Output Current max.	Efficiency
TMLM 04103	3.3 VDC	1200 mA	67%
TMLM 04105	5 VDC	800 mA	69%
TMLM 04109	9 VDC	444 mA	72%
TMLM 04112	12 VDC	333 mA	70%
TMLM 04115	15 VDC	267 mA	74%
TMLM 04124	24 VDC	167 mA	73%
TMLM 04253	±5 VDC	600 mA	69%
TMLM 04225	±12 VDC	250 mA	69%

- 4 Watt AC/DC power module
- Fully encapsulated plastic case
- Universal input 90–264 VAC, 47–440 Hz
- EMI meets EN 55022, class B and FCC, level B
- Low ripple and noise
- Short circuit and overload protection
- 3-year product warranty

Pinout		
Pin	**Single**	**Dual**
1	NC	NC
2	+ Vout	+ Vout 1
3	GND	Common
4	NV	+ Vout 2
5	AC (L)	AC (L)
6	AC (N)	AC (N)
7	NC	NC

TMPS 05 | 5 W





Model	Output Voltage nom.	Output Current max.	Output Current peak	Efficiency typ.
TMPS 05-103	3.3 VDC	1515 mA	1970 mA	74%
TMPS 05-105	5 VDC	1000 mA	1300 mA	80%
TMPS 05-109	9 VDC	555 mA	721 mA	82%
TMPS 05-112	12 VDC	416 mA	540 mA	82%
TMPS 05-115	15 VDC	333 mA	433 mA	83%
TMPS 05-124	24 VDC	208 mA	270 mA	83%
TMPS 05-148	48 VDC	104 mA	135 mA	85%

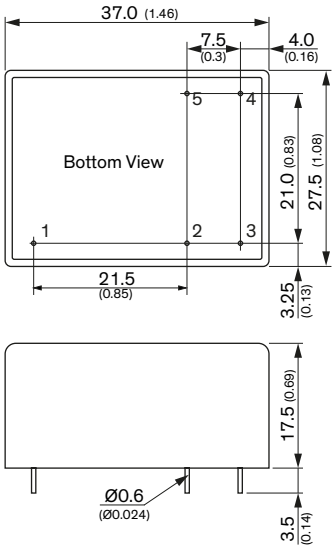
- PCB Power module in 1" × 1" package
- Certified to IEC/EN 60335-1 for household appliance
- No load input power <300 mW to comply with ErP directive
- Operating temperature range –25°C to +70°C
- EMI meets EN 55032 class B and EN 55014-1
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Function**
1	AC (N)
2	AC (L)
3	NC*
4	–Vout
5	+Vout

* Internally not connected but keep it isolated from primary circuit

TMPW 5 | 5 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 5-103	3.3 VDC	1515 mA	73%
TMPW 5-105	5 VDC	1000 mA	77%
TMPW 5-112	12 VDC	420 mA	81%
TMPW 5-124	24 VDC	210 mA	83%

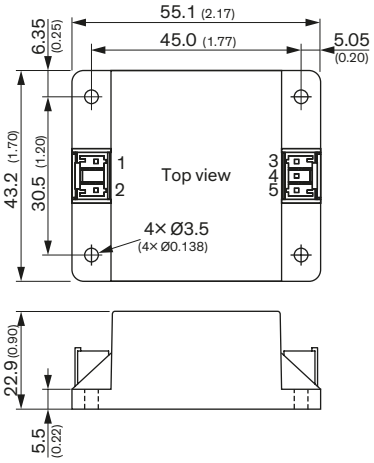
- Compact PCB power module in 1.46" × 1.08" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Single**
1	NC
2	+Vout
3	–Vout
4	AC (L)
5	AC (N)



TMPW 5-J/-T | 5 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 5-103-J/-T*	3.3 VDC	1515 mA	73%
TMPW 5-105-J/-T*	5 VDC	1000 mA	77%
TMPW 5-112-J/-T*	12 VDC	420 mA	81%
TMPW 5-124-J/-T*	24 VDC	210 mA	83%

* -J = JST connector
-T = Screw Terminal

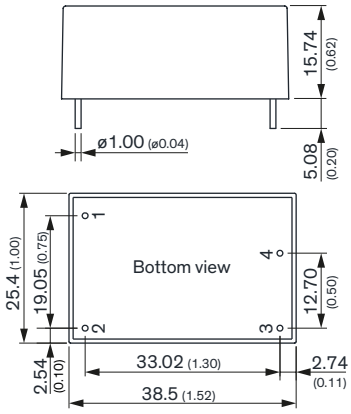
- Compact chassis mount power module in 2.17" × 1.70" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Single**
1	AC (L)
2	AC (N)
3	–Vout
4	NC
5	+Vout



TMPS 10 | 10 W





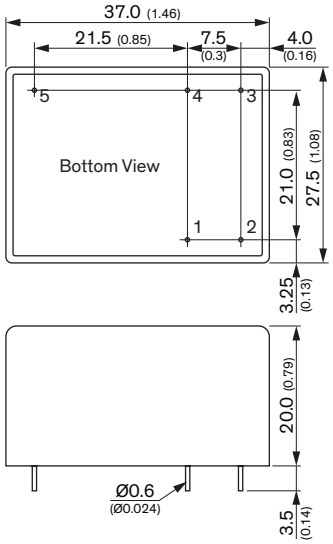
Model	Output Voltage nom.	Output Current max.	Output Current peak	Efficiency typ.
TMPS 10-103	3.3 VDC	2600 mA	3380 mA	77%
TMPS 10-105	5 VDC	2000 mA	2600 mA	80%
TMPS 10-109	9 VDC	1100 mA	1440 mA	83%
TMPS 10-112	12 VDC	830 mA	1080 mA	84%
TMPS 10-115	15 VDC	660 mA	860 mA	84%
TMPS 10-124	24 VDC	410 mA	530 mA	86%
TMPS 10-148	48 VDC	210 mA	270 mA	84%

- Ultra Compact 10 Watt PCB Power module in 1" × 1.5" package
- Certified to IEC/EN 60335-1 and UL 62368-1 for household and industrial appliance
- Reinforced I/O isolation 4000 VAC
- Operating temperature range –25°C to +70°C
- Allows 130% peak current up to 30 s
- Ready to meet ErP directive, <0.15 W no load power consumption
- EMI meets EN 55032 class B and EN 55014-1
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	Function
1	AC (N)
2	AC (L)
3	–Vout
4	+Vout

TMPW 10 | 10 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 10-105	5 VDC	2000 mA	81%
TMPW 10-112	12 VDC	833 mA	85%
TMPW 10-115	15 VDC	667 mA	86%
TMPW 10-124	24 VDC	417 mA	86%

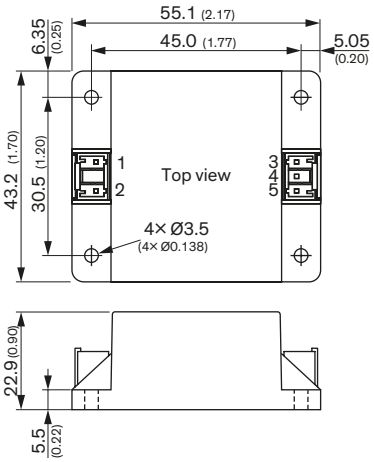
- Compact PCB power module in 1.46" × 1.08" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 86%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	Single
1	+Vout
2	–Vout
3	AC IN (L)
4	AC IN (N)
5	NC



TMPW 10-J/-T | 10 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 10-105-J/-T*	5 VDC	2000 mA	81%
TMPW 10-112-J/-T*	12 VDC	833 mA	85%
TMPW 10-115-J/-T*	15 VDC	667 mA	86%
TMPW 10-124-J/-T*	24 VDC	417 mA	86%

* -J = JST connector
-T = Screw Terminal

- Compact chassis mount power module in 2.17" × 1.70" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 86%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

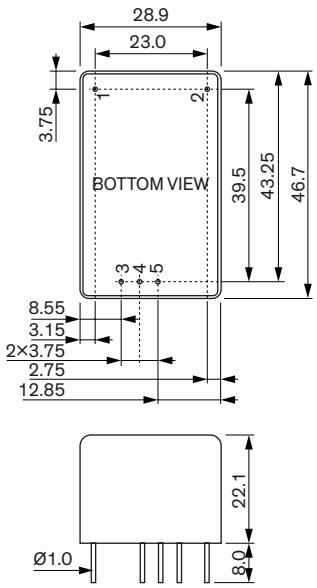
Pin Connections	
Pin	**Single**
1	AC (L)
2	AC (N)
3	–Vout
4	NC
5	+Vout



TMPW 15 | 15 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 15-105	5 VDC	3000 mA	81%
TMPW 15-112	12 VDC	1250 mA	85%
TMPW 15-115	15 VDC	1000 mA	85%
TMPW 15-124	24 VDC	625 mA	86%
TMPW 15-148	48 VDC	312.5 mA	87%
TMPW 15-212	±12 VDC	±625 mA	84%
TMPW 15-215	±15 VDC	±500 mA	84%

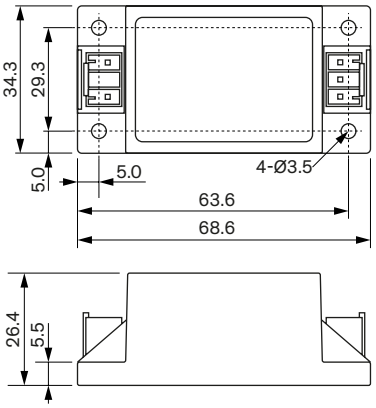
- Compact PCB power module in 1.84" × 1.14" package
- Wide input voltage range 90 – 305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

Pinout		
Pin	**Single**	**Dual**
1	AC (N)	
2	AC (L)	
3	–Vout	
4	No Pin	Common
5	+Vout	

TMPW 15-J/-T | 15 W

NEW!





- Compact Chassis mount power module in 2.7" × 1.35" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 15-105-J/-T*	5 VDC	3000 mA	81%
TMPW 15-112-J/-T*	12 VDC	1250 mA	85%
TMPW 15-115-J/-T*	15 VDC	1000 mA	85%
TMPW 15-124-J/-T*	24 VDC	625 mA	86%
TMPW 15-148-J/-T*	48 VDC	312.5 mA	87%
TMPW 15-212-J/-T*	±12 VDC	±625 mA	84%
TMPW 15-215-J/-T*	±15 VDC	±500 mA	84%

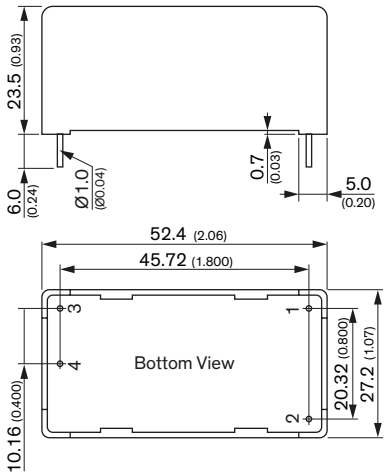
* -J = JST connector
-T = Screw Terminal

Pinout		
Pin	**Single**	**Dual**
1	AC (L)	
2	AC (N)	
3	+Vout	
4	NC	Common
5	–Vout	

- **J Input/Output:** B03B-PSILE-A1
  mates w/ crimp terminal: SPSI-41T-M1.1 or SPS1-001T-M1.1
  and terminal housing: PSIP-03V-LE-A
- **T Input/Output:** EK381V-03P

TMPS 15 | 15 W





- Fully encapsulated 1.07" × 2.06" × 0.93" package
- ErP-ready (<100 mW no-load power)
- EN 60335 certified (household)
- UL 62368-1 certified (IT and industrial)
- –25°C up to +70°C operating temperature
- 130% peak power (for up to 30 s)
- Integrated class B EMI filter
- 3000 VAC I/O isolation (reinforced)
- Protection class II prepared
- 3-year product warranty

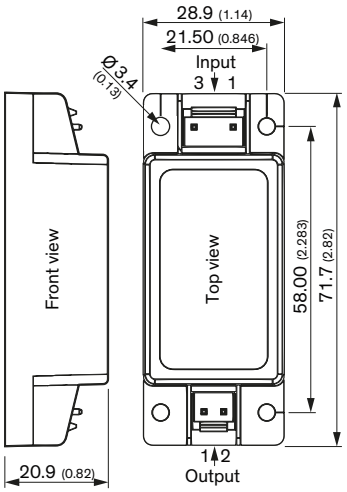
Model	Output Voltage nom.	Output Current max.	Output Current peak	Efficiency typ.
TMPS 15-105	5 VDC	3000 mA	3900 mA	79%
TMPS 15-112	12 VDC	1250 mA	1625 mA	82%
TMPS 15-115	15 VDC	1000 mA	1300 mA	82%
TMPS 15-124	24 VDC	625 mA	813 mA	84%
TMPS 15-148	48 VDC	313 mA	407 mA	82%

Pin Connections	
Pin	**Function**
1	AC (N)
2	AC (L)
3	+Vout
4	–Vout

TPP 15-J | 15 W



- High power density power supply (encapsulated)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <100 mW
- 5-year product warranty



Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TPP 15-103-J	3.3 VDC	4000 mA	84%
TPP 15-105-J	5 VDC	3000 mA	86%
TPP 15-109-J	9 VDC	1670 mA	86%
TPP 15-112-J	12 VDC	1250 mA	87%
TPP 15-115-J	15 VDC	1000 mA	87%
TPP 15-124-J	24 VDC	625 mA	88%
TPP 15-136-J	36 VDC	417 mA	88%
TPP 15-148-J	48 VDC	313 mA	89%

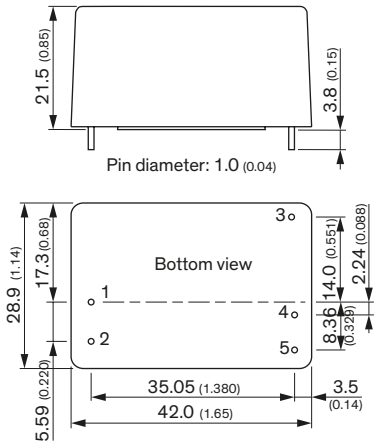
Pin Connectors

Input		Output	
Pin	Function	Pin	Function
1	AC (L)	1	–Vout
3	AC (N)I	2	+Vout

TPP 15-D | 15 W



- High power density power supply (encapsulated)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <100 mW
- 5-year product warranty



Model	Output Voltage nom. *	*adjustable	Output Current max.	Efficiency typ.
TPP 15-103-D	3.3 VDC	2.97–3.63 VDC	4000 mA	84%
TPP 15-105-D	5 VDC	4.5–5.5 VDC	3000 mA	86%
TPP 15-109-D	9 VDC	8.1–9.9 VDC	1670 mA	86%
TPP 15-112-D	12 VDC	10.8–13.2 VDC	1250 mA	87%
TPP 15-115-D	15 VDC	13.5–16.5 VDC	1000 mA	87%
TPP 15-124-D	24 VDC	21.6–26.4 VDC	625 mA	88%
TPP 15-136-D	36 VDC	32.4–39.6 VDC	417 mA	88%
TPP 15-148-D	48 VDC	43.2–52.8 VDC	313 mA	89%

Pin Connections

Pin	Function
1	AC (N)
2	AC (L)
3	Trim
4	–Vout
5	+Vout

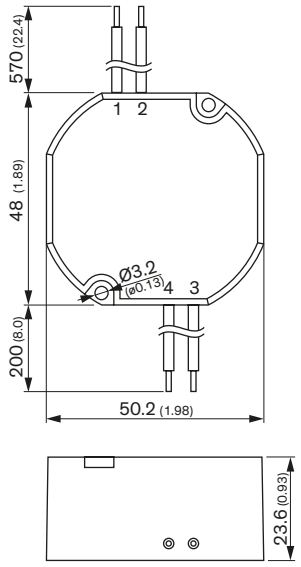
TIW | 4–24 Watt

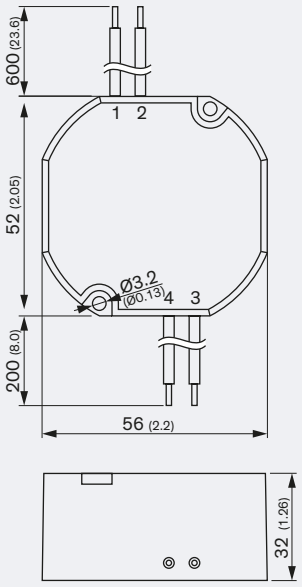


Pinout				
Pin	Wire TIW 6/12	Wire TIW 24	Color	Type
1	AC (N)	Vac IN (N)	Blue	20AWG/ 0.52mm²
2	AC (L)	Vac IN (L)	Brown	20AWG/ 0.52mm²
3	–Vout	–Vout	Black	20AWG/ 0.52mm²
4	+Vout	+Vout	Red	20AWG/ 0.52mm²

Model	Output Voltage	Output Current	Efficiency typ.
TIW 06-103	3.3 VDC	1.2 A	75%
TIW 06-105	5 VDC	1.0 A	75%
TIW 06-106	6 VDC	1.0 A	80%
TIW 12-112	12 VDC	1.0 A	80%
TIW 12-115	15 VDC	0.8 A	80%
TIW 12-124	24 VDC	0.5 A	80%
TIW 24-112	12 VDC	2.0 A	83%
TIW 24-124	24 VDC	1.0 A	85%

- High efficiency switching power supplies
- Easy installation into standard flush boxes
- Fully encapsulated plastic housing
- Dust and waterproof to IP 67
- Protection class II
- Safety approval to IEC/EN 60950-1 EN 50178, EN 60335-1, UL 1310 class 2
- Approved for mounting onto wood or materials with unknown flammability
- Ready to meet ErP directive
- Universal input range 93 to 264 VAC
- Operating temp. range –25°C to +50°C
- Short circuit and overload protection
- 3-year product warranty

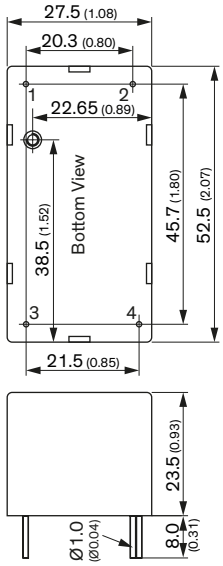




TMPW 25 | 25 W

NEW MODELS





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 25-105	5.1 VDC	3922 mA	84%
TMPW 25-112	12 VDC	2083 mA	88%
TMPW 25-115	15 VDC	1666 mA	88%
TMPW 25-124	24 VDC	1042 mA	87%
TMPW 25-212	±12 VDC	±1042 mA	87%
TMPW 25-215	±15 VDC	±833 mA	87%

- Compact PCB power module in 2.07" × 1.08" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 88%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

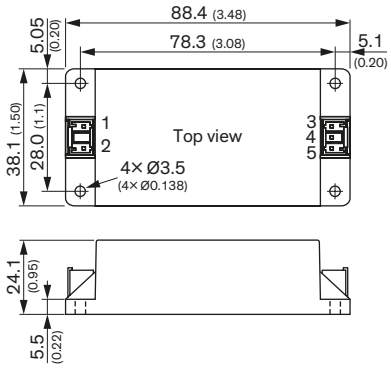
Pin Connections	
Pin	Function
1	AC (L)
2	AC (N)
3	+Vout
4	–Vout



TMPW 25-J/-T | 25 W

NEW MODELS





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 25-105-J/-T*	5.1 VDC	3922 mA	84%
TMPW 25-112-J/-T*	12 VDC	2083 mA	88%
TMPW 25-115-J/-T*	15 VDC	1666 mA	88%
TMPW 25-124-J/-T*	24 VDC	1042 mA	87%
TMPW 25-212-J/-T*	±12 VDC	±1042 mA	87%
TMPW 25-215-J/-T*	±15 VDC	±833 mA	87%

* -J = JST connector
-T = Screw Terminal

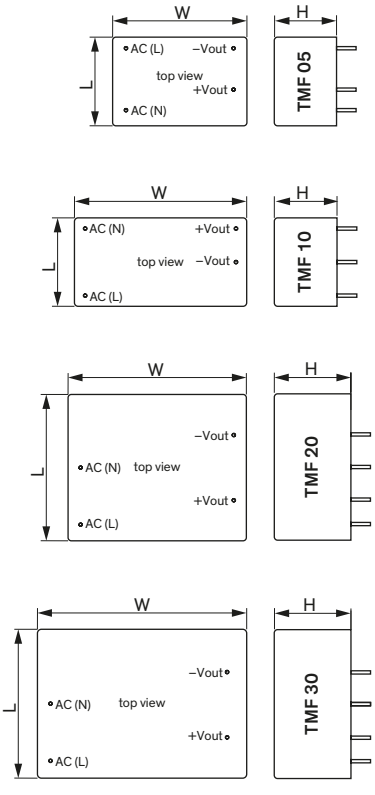
- Compact chassis mount power module in 3.48" × 1.50" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 88%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	Single
1	AC IN (N)
2	AC IN (L)
3	–Vout
4	NC
5	+Vout



TMF | 5–30 W





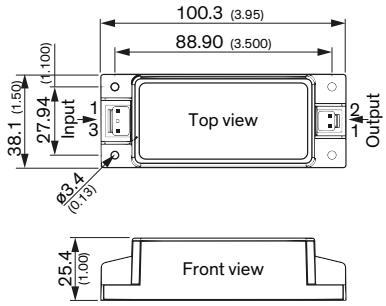
Model	Output Power max.	Output Vnom	Output Imax	Efficiency
TMF 05105	5 Watt	5 VDC	1000 mA	77%
TMF 05112		12 VDC	417 mA	82%
TMF 05115		15 VDC	333 mA	82%
TMF 05124		24 VDC	208 mA	82%
TMF 10105	10 Watt	5 VDC	2000 mA	79%
TMF 10112		12 VDC	833 mA	84%
TMF 10115		15 VDC	666 mA	84%
TMF 10124		24 VDC	417 mA	84%
TMF 20105	18 Watt	5 VDC	3600 mA	78%
TMF 20112	20 Watt	12 VDC	1667 mA	84%
TMF 20115		15 VDC	1333 mA	84%
TMF 20124		24 VDC	833 mA	84%
TMF 30105	25 Watt	5 VDC	5000 mA	82%
TMF 30112	30 Watt	12 VDC	2500 mA	88%
TMF 30115		15 VDC	2000 mA	86%
TMF 30124		24 VDC	1250 mA	85%

- Certification according to IEC/EN/ES 60601-1 3rd edition for 2× MOPP
- Risk management process according to ISO 14971 including risk management file
- Acceptance criteria for electronic assemblies according to IPC-A-610 Level 3
- Low leakage current <100 µA rated for BF applications
- Operating temperature range: –25°C to +70°C max.
- Protection against short-circuit, overload and over voltage
- Protection class II prepared
- product warranty 5-year

Dimensions				
Series	W	L	H	Ø Pin
TMF 05	41.2	27.2	19.1	1.0
TMF 10	52.2	26.8	19.0	1.0
TMF 20	54.7	44.9	23.5	1.0
TMF 30	64.1	45.6	23.5	1.0

TPP 30-J | 30 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TPP 30-103-J	3.3 VDC (2.97–3.63 VDC)	6000 mA	84%
TPP 30-105-J	5 VDC (4.5–5.5 VDC)	6000 mA	87%
TPP 30-109-J	9 VDC (8.1–9.9 VDC)	3340 mA	88%
TPP 30-112-J	12 VDC (10.8–13.2 VDC)	2500 mA	91%
TPP 30-115-J	15 VDC (13.5–16.5 VDC)	2000 mA	91%
TPP 30-124-J	24 VDC (21.6–26.4 VDC)	1250 mA	90%
TPP 30-136-J	36 VDC (32.4–39.6 VDC)	840 mA	90%
TPP 30-148-J	48 VDC (43.2–52.8 VDC)	630 mA	92%

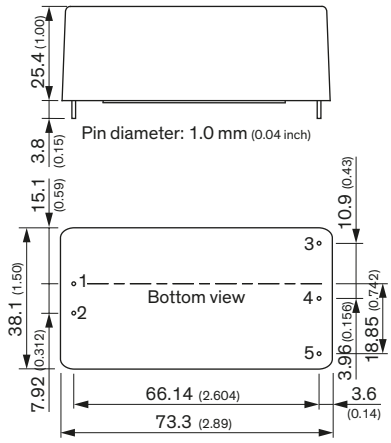
- High power density power supply (encapsulated)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <60 mW
- 5-year product warranty

Pin Connectors

Input		Output	
Pin	Function	Pin	Function
1	AC (L)	1	+Vout
3	AC (N)	2	–Vout

TPP 30-D | 30 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 30-103-D	3.3 VDC (2.97–3.63 VDC)	6000 mA	84%
TPP 30-105-D	5 VDC (4.5–5.5 VDC)	6000 mA	87%
TPP 30-109-D	9 VDC (8.1–9.9 VDC)	3340 mA	88%
TPP 30-112-D	12 VDC (10.8–13.2 VDC)	2500 mA	91%
TPP 30-115-D	15 VDC (13.5–16.5 VDC)	2000 mA	91%
TPP 30-124-D	24 VDC (21.6–26.4 VDC)	1250 mA	90%
TPP 30-136-D	36 VDC (32.4–39.6 VDC)	840 mA	90%
TPP 30-148-D	48 VDC (43.2–52.8 VDC)	630 mA	92%

- High power density power supply (encapsulated)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <60 mW
- 5-year product warranty

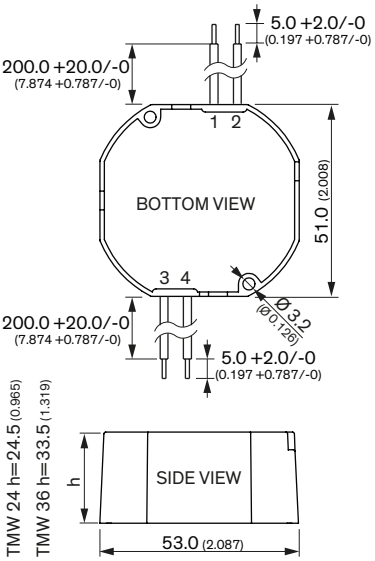
Pinout

Pin	Function
1	AC (N)
2	AC (L)
3	+Vout
4	–Vout
5	Trim

TMW | 24–36 W



- Fully encapsulated, dust resistant, and waterproof (IP68 certified)
- Operating temperature range –20° to +80°C
- Mountable in wall outlet boxes
- Screw mountable on wood and inside furniture
- Safety approval IEC/EN 62368-1 and IEC/EN 60335-1
- 2× MOPP certified according to IEC/EN 60601-1 3rd edition
- Leakage current <100 µA for body-floating (BF) applications
- I/O isolation 4000 VAC (reinforced)
- Short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- product warranty 5-year



Model *	Output Voltage nom.	Output Current max.	Efficiency typ.
TMW 24-105	5 VDC	4000 mA	85%
TMW 24-112	12 VDC	2000 mA	85%
TMW 24-124	24 VDC	1000 mA	90%
TMW 36-112	12 VDC	3.0 A	87%
TMW 36-124	24 VDC	1.5 A	88%

* Also available as pin version: suffix -P

Pinout / Conecction			
Pin	Wire	Color	Type
1	Vac IN (N)	Blue	20AWG/0.52mm²
2	Vac IN (L)	Brown	20AWG/0.52mm²
3	–Vout	Black	20AWG/0.52mm²
4	+Vout	Red	20AWG/0.52mm²

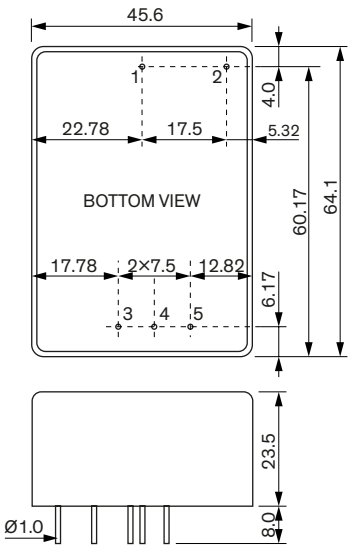


TMPW 40 | 40 W

NEW!



- Compact PCB power module in 2.52" × 1.8" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty



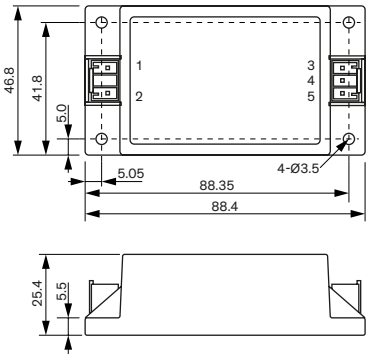
Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 40-105	5 VDC	7000 mA	87%
TMPW 40-112	12 VDC	3333 mA	90%
TMPW 40-115	15 VDC	2666 mA	90%
TMPW 40-124	24 VDC	1666 mA	89%
TMPW 40-148	48 VDC	833 mA	89%
TMPW 40-212	±12 VDC	±1666 mA	88%
TMPW 40-215	±15 VDC	±1333 mA	88%

Pinout	
Pin	Single
1	AC IN (N)
2	AC IN (L)
3	–Vout
4	+Vout

TMPW 40-J/-T | 40 W

NEW!





- Compact Chassis mount power module in 3.48" × 1.84" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 40-105-J/-T*	5 VDC	7000 mA	87%
TMPW 40-112-J/-T*	12 VDC	3333 mA	90%
TMPW 40-115-J/-T*	15 VDC	2666 mA	90%
TMPW 40-124-J/-T*	24 VDC	1666 mA	89%
TMPW 40-148-J/-T*	48 VDC	833 mA	89%
TMPW 40-212-J/-T*	±12 VDC	±1666 mA	88%
TMPW 40-215-J/-T*	±15 VDC	±1333 mA	88%

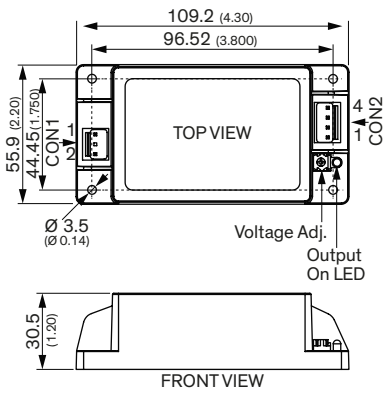
* -J = JST connector
-T = Screw Terminal

Pinout		
Pin	**Single**	**Dual**
1	AC (N)	
2	AC (L)	
3	–Vout	
4	NC	Common
5	+Vout	

- **J Input/Output:** B03B-PSILE-A1
  mates w/ crimp terminal: SPSI-41T-M1.1 or SPS1-001T-M1.1
  and terminal housing: PSIP-03V-LE-A
- **T Input/Output:** EK381V-03P

TPP 40E-J | 40 W





- Compact encapsulated 40 Watt Chassis mount module (4.3" × 2.2")
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <100 µA rated for BF applications
- Operating temperature –40°C to 80°C
- EMC compliance according to IEC 60601-1-2 4th edition and EN55032 class B
- Operating up to 5000 m altitude
- 5-year product warranty

Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 40-105E-J	5 VDC (4.5–5.5 VDC)	8000 mA	90%
TPP 40-112E-J	12 VDC (10.8–13.2 VDC)	3340 mA	92%
TPP 40-115E-J	15 VDC (13.5–16.5 VDC)	2670 mA	92%
TPP 40-124E-J	24 VDC (21.6–26.4 VDC)	1670 mA	92%
TPP 40-136E-J	36 VDC (32.4–39.6 VDC)	1120 mA	92%
TPP 40-148E-J	48 VDC (43.2–52.8 VDC)	840 mA	93%

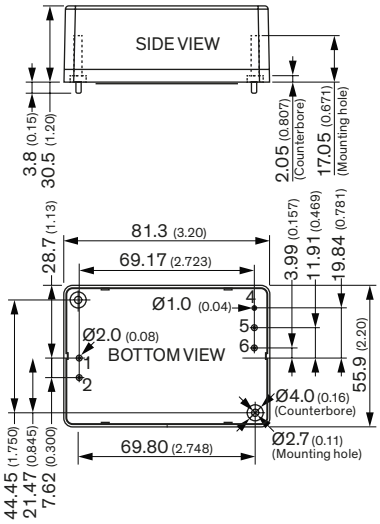
Pin connectors			
Input (CON1)		**Output (CON2)**	
Pin	**Function**	**Pin**	**Function**
1	Line	**1, 2**	–Vout
3	Neutral	**3, 4**	+Vout



TPP 40E-D | 40 W



- Compact encapsulated 40 Watt PCB module (3.2" × 2.2")
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <100 µA rated for BF applications
- Operating temperature –40°C to 80°C
- EMC compliance according to IEC 60601-1-2 4th edition and EN55032 class B
- Operating up to 5000 m altitude
- 5-year product warranty



Pinout	
Pin	**Function**
1	AC (N)
2	AC (L)
4	Trim
5	–Vout
6	+Vout

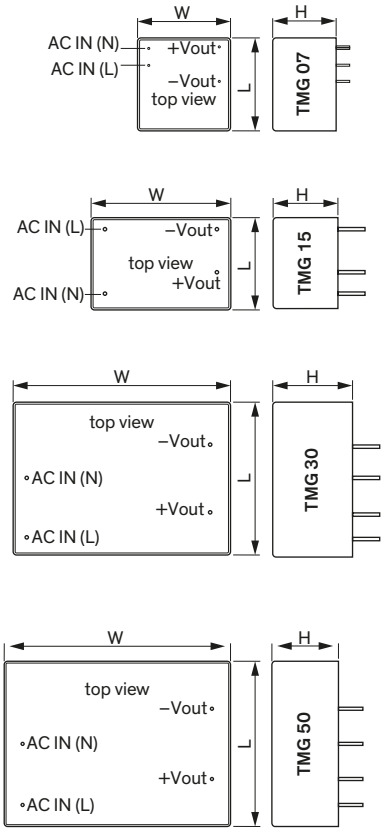
Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 40-105E-D	5 VDC (4.5–5.5 VDC)	8000 mA	90%
TPP 40-112E-D	12 VDC (10.8–13.2 VDC)	3340 mA	92%
TPP 40-115E-D	15 VDC (13.5–16.5 VDC)	2670 mA	92%
TPP 40-124E-D	24 VDC (21.6–26.4 VDC)	1670 mA	92%
TPP 40-136E-D	36 VDC (32.4–39.6 VDC)	1120 mA	92%
TPP 40-148E-D	48 VDC (43.2–52.8 VDC)	840 mA	93%



TMG | 7–50 W



- Fully encapsulated power supplies in plastic casing for PCB mount
- Low output ripples and noise
- Fully regulated outputs
- 4242 VDC I/O-isolation
- High efficiency up to 90%
- Universal input range 90 to 264 VAC
- Operating temperature range: –25°C to +70°C max.
- Safety class II prepared
- Short circuit and over voltage protection
- product warranty 3-year

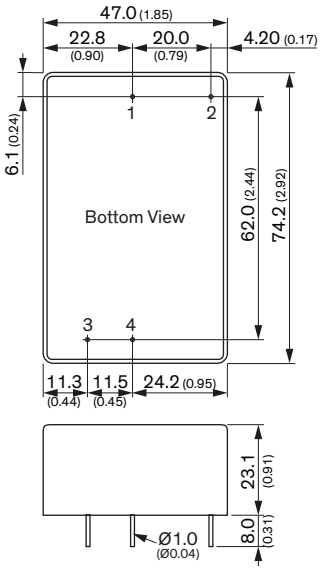


Model	Output Power max.	Output Vnom	Output Imax	Efficiency
TMG 07105	6.3 Watt	5 VDC	1260 mA	77%
TMG 07112	7 Watt	12 VDC	583 mA	80%
TMG 07115		15 VDC	466 mA	80%
TMG 07124		24 VDC	292 mA	80%
TMG 15105	13.5 Watt	5 VDC	2700 mA	80%
TMG 15112	15 Watt	12 VDC	1250 mA	84%
TMG 15115		15 VDC	1000 mA	84%
TMG 15124		24 VDC	625 mA	85%
TMG 30103	16.5 Watt	3.3 VDC	5000 mA	80%
TMG 30105	25 W	5 VDC	5000 mA	84%
TMG 30112	30 W	12 VDC	2500 mA	89%
TMG 30115		15 VDC	2000 mA	86%
TMG 30124		24 VDC	1250 mA	86%
TMG 50105	40 Watt	5 VDC	8000 mA	86%
TMG 50112	50 Watt	12 VDC	4167 mA	90%
TMG 50115		15 VDC	3333 mA	87%
TMG 50124		24 VDC	2083 mA	88%
TMG 50148		48 VDC	1040 mA	89%

Dimensions				
Series	**W**	**L**	**H**	**Ø Pin**
TMG 07	27.4	27.4	18.7	0.6
TMG 15	41.2	27.2	19.1	1.0
TMG 30	64.0	45.0	23.5	1.0
TMG 50	74.1	54.1	21.8	1.0

TMPW 50 | 50 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 50-112	12 VDC	4167 mA	89%
TMPW 50-115	15 VDC	3333 mA	88%
TMPW 50-124	24 VDC	2083 mA	88%

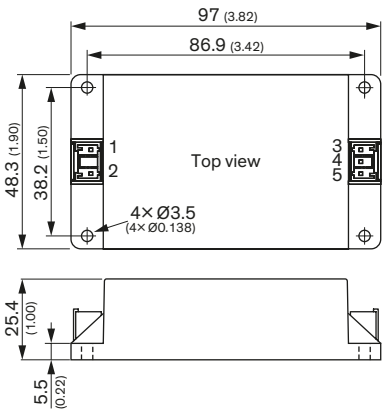
- Compact PCB power module in 2.92" × 1.85" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 89%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Single**
1	AC (N)
2	AC (L)
3	–Vout
4	+Vout



TMPW 50-J/-T | 50 W





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 50-112-J/-T*	12 VDC	4167 mA	89%
TMPW 50-115-J/-T*	15 VDC	3333 mA	88%
TMPW 50-124-J/-T*	24 VDC	2083 mA	88%

* -J = JST connector
-T = Screw Terminal

- Compact chassis mount power module in 3.82" × 1.90" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 89%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Pin Connections	
Pin	**Single**
1	AC (N)
2	AC (L)
3	–Vout
4	NC
5	+Vout



TMP / TMP-C | 7–60 Watt





- Ultra compact, low profile plastic casing
- Fully encapsulated (pollution/dust)
- Single-, dual- and triple output models
- 2 standard package versions:
  –Screw terminal block for chassis mount
  –Solder pins for direct PCB mount
  –Optional pin-connector on request
- DIN-rail mount adaptor (optional)
- Universal input 85-264 VAC, 47-440 Hz
- Protection class II
- IEC/EN/UL 60950-1 approval, CB-report
- Over-temperature protection
- Protection against short circuit and overload
- 3-year product warranty

Model

For models and outline dimensions please visit our website and download

datasheet for **TMP** on:
https://www.tracopower.com/products/browse-by-category/find/tmp-tmpm/3/

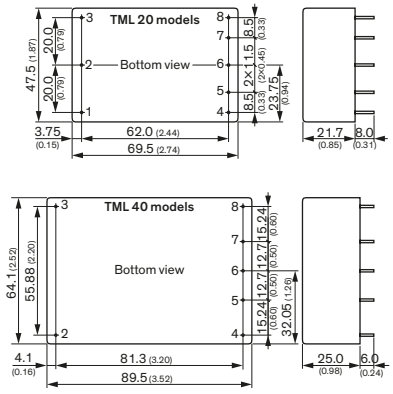
datasheet for **TMP-C** on:
https://www.tracopower.com/products/browse-by-category/find/tmp-c/3/

Dimensions

	Type	Length	Width	Height
PCB mount	TMP 15×xx	74.0 (2.91)	54.0 (2.13)	19.3 (0.76)
	TMP 30×xx	89.0 (3.50)	63.5 (2.50)	21.5 (0.85)
	TMP 60×xx	89.0 (3.50)	67.5 (2.66)	34.0 (1.34)
	TMP 15×xxC	96 (3.78)	54.0 (2.13)	23.3 (0.88)
	TMP 30×xxC	112 (4.41)	63.8 (2.51)	25.6 (1.01)
	TMP 60×xxC	112 (4.41)	67.8 (2.67)	38.0 (1.50)

TML / TML-C | 20–40 Watt





- Encapsulated power supplies with increased power density
- PCB mount or chassis mount with screw terminals
- Single, dual and triple output models
- Universal input 90–264 VAC, 47–440 Hz
- EMI meets EN 55032, class B and FCC, level B
- Protection class II for TML 40 models
- Short circuit and overload protection
- 3-year product warranty

TML 20 Models *	Output Power max.	Output Vnom	Output Imax
TML 20103	**14.9 W**	3.3 VDC	4500 mA
TML 20105	**20 W**	5 VDC	4000 mA
TML 20112		12 VDC	1670 mA
TML 20115		15 VDC	1340 mA
TML 20124		24 VDC	840 mA
TML 20205		±5 VDC	2000 mA
TML 20212		±12 VDC	833 mA
TML 20215		±15 VDC	667 mA
TML 20512		*5/±12 VDC	2800/250 mA
TML 20515		*5/±15 VDC	2800/200 mA

TML 40 Models *	Output Power max.	Output Vnom	Output Imax
TML 40103	**26.4 W**	3.3 VDC	8000 mA
TML 40105	**40 W**	5 VDC	8000 mA
TML 40112		12 VDC	3333 mA
TML 40115		15 VDC	2666 mA
TML 40124		24 VDC	1667 mA
TML 40205		±5 VDC	4000 mA
TML 40212		±12 VDC	1666 mA
TML 40215		±15 VDC	1333 mA
TML 40252		*5/*12 VDC	5000/1250 mA
TML 40254		*5/*24 VDC	5000/625 mA
TML 40512		*5/±12 VDC	5000/600 mA
TML 40515		*5/±15 VDC	5000/500 mA

* Also available as chassis mount version

Pinout

Pin	Single	Dual symmetric	Dual assymmetric	Triple
1	NC			
2	AC in (L)			
3	AC in (N)			
4	+Vout 1	Vout 1	+Vout 2	Vout 2
5	NC	NC	+Vout 1	+Vout 1
6	–Vout 1	com. 1/2	–Vout 2	com. 2/3
7	NC	NC	–Vout 1	–Vout 1
8	NC	Vout 2	NC	Vout 3

TMM / TMM-C | 24–60 Watt





Model

For models and outline dimensions please visit our website and download

datasheet for **TMM 24/24C Series** on:
https://www.tracopower.com/products/browse-by-category/find/tmm-24/3/

datasheet for **TMM 40/40C Series** on:
https://www.tracopower.com/products/browse-by-category/find/tmm-40/3/

datasheet for **TMM 60/60C Series** on:
https://www.tracopower.com/products/browse-by-category/find/tmm-60/3/

- Fully encapsulated low profile plastic casing in PCB or chassis mount version
- 2×MOPP Medical safety according to
- AAMI/ANSI ES 60601-1:2005(R) and IEC/EN 60601-1 3rd edition
- IT and industrial safety according to IEC/EN/UL 60950-1 and UL 508
- Ready to meet ErP directive <0.3 W noload power consumption
- –40°C start-up temperature
- Safety class II prepared
- Protection against over-temperature, overload and short circuit
- 3-year product warranty

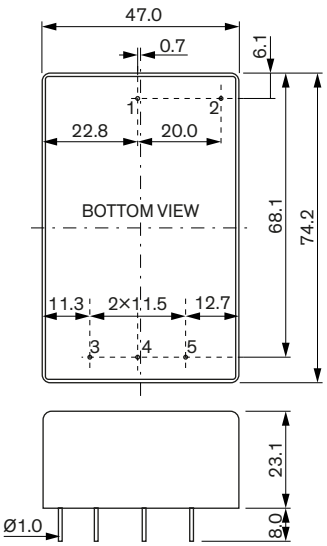
Dimensions

	Type	Length	Width	Height
	TMM 24×xx	74.0 (2.91)	54.0 (2.13)	19.3 (0.76)
	TMM 40×xx	88.9 (3.50)	63.5 (2.50)	30.0 (1.18)
	TMM 60×xx	89.0 (3.50)	67.5 (2.66)	34.0 (1.34)
	TMM 24×xxC	96.0 (3.78)	54.0 (2.13)	23.3 (0.92)
	TMM 40×xxC	112.0 (4.41)	63.8 (2.51)	34.1 (1.34)
	TMM 60×xxC	112.0 (4.41)	67.8 (2.67)	38.0 (1.50)

TMPW 60 | 60 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 60-112	12 VDC	5000 mA	90%
TMPW 60-115	15 VDC	4000 mA	90%
TMPW 60-124	24 VDC	2500 mA	89%
TMPW 60-148	48 VDC	1250 mA	89%
TMPW 60-212	±12 VDC	±2500 mA	89%
TMPW 60-215	±15 VDC	±2000 mA	89%

- Compact PCB power module in 2.92" × 1.85" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 89%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 -year product warranty

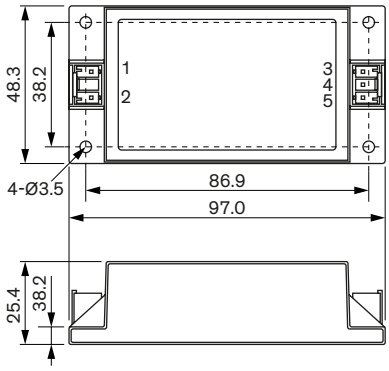
Pinout

Pin	Single	Dual
1	AC (N)	
2	AC (L)	
3	–Vout	
4	+Vout	Common
5	No Pin	+Vout

TMPW 60-J/-T | 60 W

NEW!





- Compact chassis mount power module in 3.82" × 1.90" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 88%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

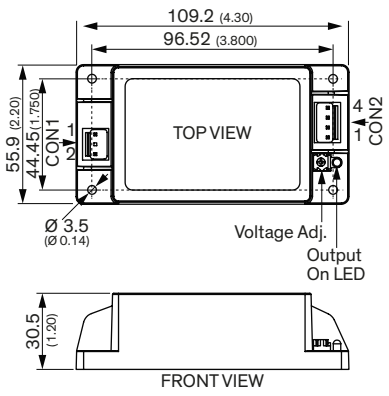
Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 60-112-J/-T*	12 VDC	5000 mA	90%
TMPW 60-115-J/-T*	15 VDC	4000 mA	90%
TMPW 60-124-J/-T*	24 VDC	2500 mA	89%
TMPW 60-148-J/-T*	48 VDC	1250 mA	89%
TMPW 60-212-J/-T*	±12 VDC	±2500 mA	89%
TMPW 60-215-J/-T*	±15 VDC	±2000 mA	89%

* -J = JST connector
-T = Screw Terminal

Pinout		
Pin	**Single**	**Dual**
1	AC (N)	
2	AC (L)	
3	–Vout	
4	NC	Common
5	+Vout	

TPP 65E-J | 65 W





- Compact encapsulated 65 Watt Chassis mount module (4.3" × 2.2")
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <100 µA rated for BF applications
- Operating temperature –40°C to 80°C
- EMC compliance according to IEC 60601-1-2 4th edition and EN55032 class B
- Operating up to 5000 m altitude
- 5-year product warranty

Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 65-105E-J	5 VDC (4.5–5.5 VDC)	10000 mA	90%
TPP 65-112E-J	12 VDC (10.8–13.2 VDC)	5420 mA	93%
TPP 65-115E-J	15 VDC (13.5–16.5 VDC)	4340 mA	94%
TPP 65-124E-J	24 VDC (21.6–26.4 VDC)	2710 mA	94%
TPP 65-136E-J	36 VDC (32.4–39.6 VDC)	1810 mA	93%
TPP 65-148E-J	48 VDC (43.2–52.8 VDC)	1360 mA	93%

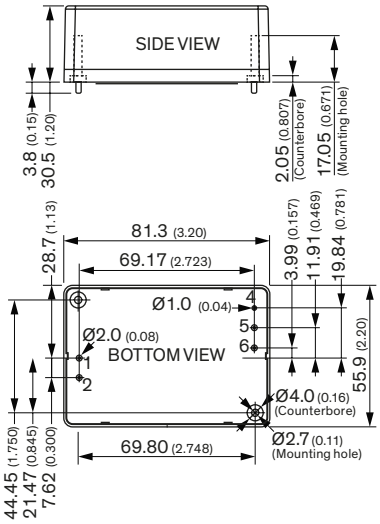
Pin connectors			
Input (CON1)		**Output (CON2)**	
Pin	**Function**	**Pin**	**Function**
1	Line	**1, 2**	–Vout
3	Neutral	**3, 4**	+Vout



TPP 65E-D | 65 W



- Compact encapsulated 65 Watt PCB module (3.2" × 2.2")
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <100 µA rated for BF applications
- Operating temperature –40°C to 80°C
- EMC compliance according to IEC 60601-1-2 4th edition and EN 55032 class B
- Operating up to 5000 m altitude
- 5-year product warranty



Pinout	
Pin	**Function**
1	AC (N)
2	AC (L)
4	Trim
5	–Vout
6	+Vout

Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 65-105E-D	5 VDC (4.5–5.5 VDC)	10000 mA	90%
TPP 65-112E-D	12 VDC (10.8–13.2 VDC)	5420 mA	93%
TPP 65-115E-D	15 VDC (13.5–16.5 VDC)	4340 mA	94%
TPP 65-124E-D	24 VDC (21.6–26.4 VDC)	2710 mA	94%
TPP 65-136E-D	36 VDC (32.4–39.6 VDC)	1810 mA	93%
TPP 65-148E-D	48 VDC (43.2–52.8 VDC)	1360 mA	93%

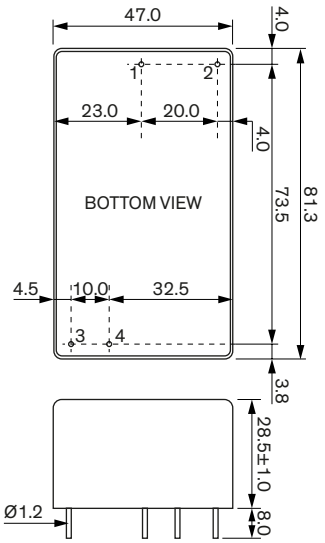


TMPW 80 | 80 W

NEW under development



- Compact PCB power module in 3.2" × 1.85" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty



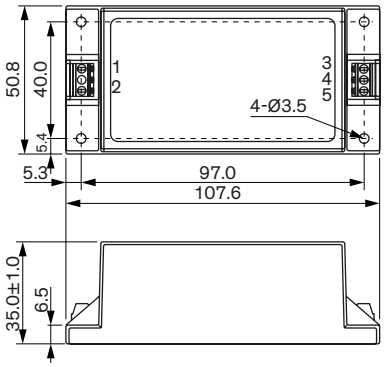
Pinout	
Pin	**Single**
1	AC (N)
2	AC (L)
3	+Vout
4	–Vout

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 80-112	12 VDC	6666 mA	89.5%
TMPW 80-115	15 VDC	5333 mA	89.5%
TMPW 80-124	24 VDC	3333 mA	90.5%
TMPW 80-148	48 VDC	1667 mA	90.5%

TMPW 80-J/-T | 80 W

NEW under development





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 80-112-J/-T*	12 VDC	5000 mA	90%
TMPW 80-115-J/-T*	15 VDC	4000 mA	90%
TMPW 80-124-J/-T*	24 VDC	2500 mA	89%
TMPW 80-148-J/-T *	48 VDC	1250 mA	89%

* -J = JST connector
-T = Screw Terminal

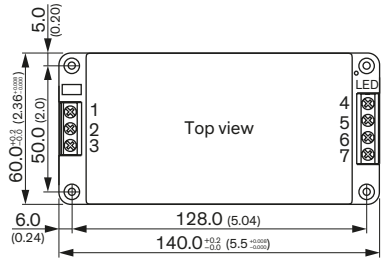
- Compact Chassis mount power module in 4.24" × 2.0" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

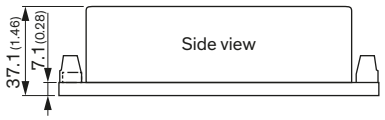
Pinout	
Pin	**Function**
1	AC (N)
2	AC (L)
3	+Vout
4	NC
5	–Vout

- **J Input/Output:** B03B-PSILE-A1
  mates w/ crimp terminal: SPSI-41T-M1.1 or SPS1-001T-M1.1
  and terminal housing: PSIP-03V-LE-A
- **T Input/Output:** EK381V-03P

TML 100C | 100 W







Model	Input Voltage Range	Output		
		Vnom	Imax	Efficiency
TML 100-112C	85	12 VDC	7080 mA	90%
TML 100-115C	85	15 VDC	5660 mA	90%
TML 100-124C	100	24 VDC	4200 mA	92%
TML 100-148C	100	48 VDC	2100 mA	93%

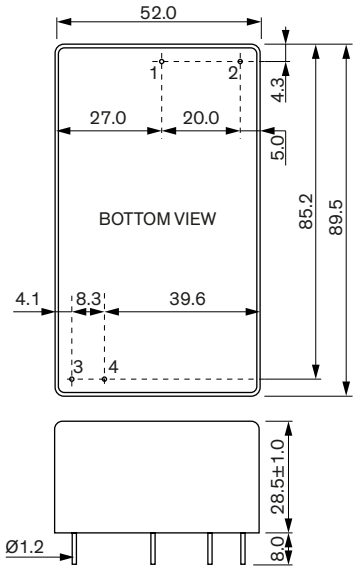
- Very compact power modules with screw terminal connection
- Active PFC, power factor >0.95 (230VAC), >0.99 (115 VAC)
- High efficiency up to 93% typ.
- Remote On/Off input
- Adjustable output voltage ±5%
- LED output indicator
- Universal input 100–240 VAC nominal
- Low leakage current
- EMI meets EN 55032, class B
- Protection class II prepared
- 3-year product warranty

Pinout	
Pin	**Output**
1	AC in (L)
2	AC in (N)
3	FG
4	Remote On/Off
5	+Vout
6	–Vout
7	Trim

TMPW 100 | 100 W

NEW under development





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 100-112	12 VDC	8333 mA	88.5%
TMPW 100-115	15 VDC	6666 mA	90%
TMPW 100-124	24 VDC	4166 mA	88.5%
TMPW 100-148	48 VDC	2083 mA	90%

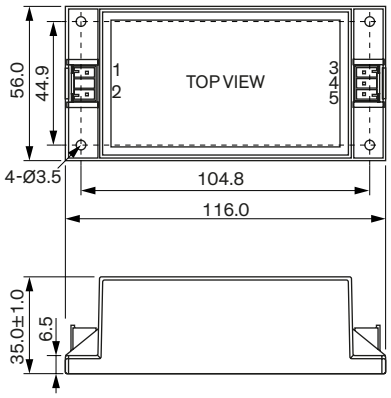
- Compact PCB power module in 3.5"×2.05" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

Pinout	
Pin	**Single**
1	AC (N)
2	AC (L)
3	+Vout
4	–Vout

TMPW 100-J/-T | 100 W

NEW under development





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 100-112-J/-T*	12 VDC	8333 mA	88.5%
TMPW 100-115-J/-T*	15 VDC	6666 mA	90%
TMPW 100-124-J/-T*	24 VDC	4166 mA	88.5%
TMPW 100-148-J/-T*	48 VDC	2083 mA	90%

* -J = JST connector
-T = Screw Terminal

- Compact PCB power module in 4.57"×2.2" package
- Wide input voltage range 90–305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4000 VAC
- Operating temperature range –40°C to +70°C
- No load input power <0.1 W (acc. ErP directive)
- High efficiency up to 83%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

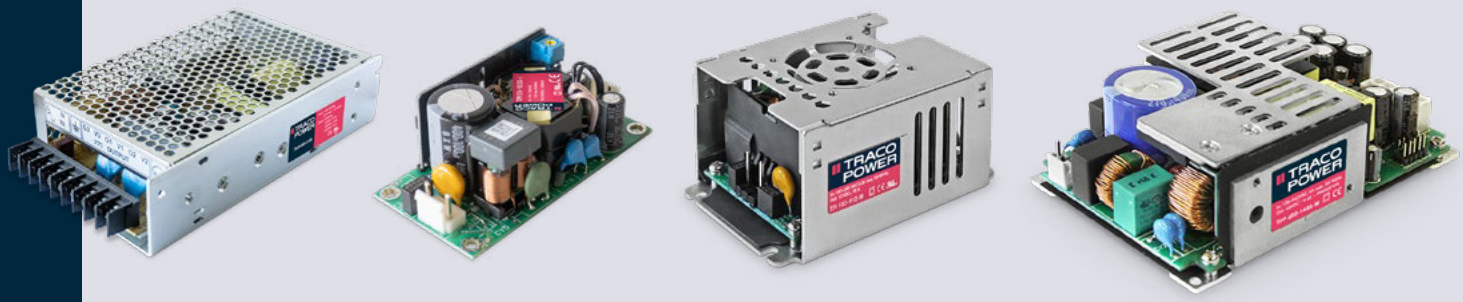
Pinout	
Pin	**Function**
1	AC (N)
2	AC (L)
3	+Vout
4	NC
5	–Vout

- **J Input/Output:** B03B-PSILE-A1
  mates w/ crimp terminal: SPSI-41T-M1.1 or SPS1-001T-M1.1
  and terminal housing: PSIP-03V-LE-A
- **T Input/Output:** EK381V-03P

Metal Enclosure and Open Frame Power Supplies

15–850 Watt

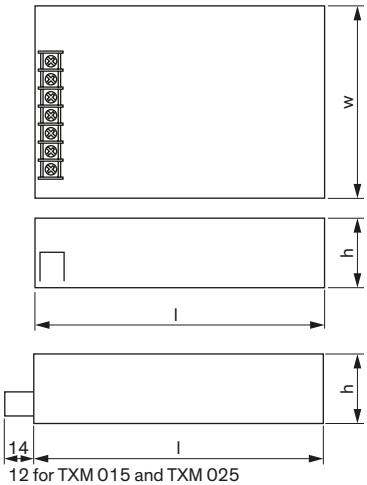
For general purpose applications we offer a range of cost-effective power supplies in low profile metal case with screw terminal block. There are models available with single-, dual-, or triple-output.



TXM | 15–200 W



- Very compact metal cased power supplies
- Cost optimized design
- High operating temperature up to 70°C
- Low no load power consumption <0.5 W up to 75 W units
- Screw terminal block
- No internal fan up to 150 W models
- Universal input AC input, full range
- Withstand 300 VAC surge input for 5 sec.
- Adjustable output voltage
- product warranty 3-year



12 for TXM 015 and TXM 025

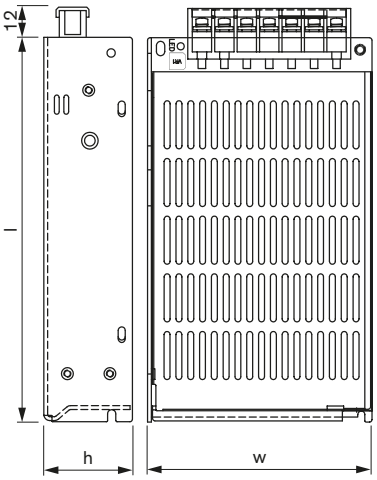
Dimensions			
Type	Length l	Width w	Height h
TXM 015	79 (3.11)	51 (2.01)	29 (1.14)
TXM 025	79 (3.11)	51 (2.01)	29 (1.14)
TXM 035	102 (4.02)	64 (2.52)	33 (1.30)
TXM 050	99 (3.90)	82 (3.23)	35 (1.38)
TXM 075	129 (5.08)	99 (3.90)	38 (1.50)
TXM 100	179 (7.05)	99 (3.90)	50 (1.97)
TXM 150	160 (6.30)	98 (3.96)	38 (1.50)
TXM 200	199.0 (7.83)	99.0 (3.90)	50.3 (1.98)

Model	Output Power max.	Output Vnom	Output Imax	Efficiency
TXM 015-103		3.3 VDC	4.0 A	71%
TXM 015-105		5 VDC	3.0 A	78%
TXM 015-112	15 Watt	12 VDC	1.3 A	82%
TXM 015-115		15 VDC	1.0 A	83%
TXM 015-124		24 VDC	0.7 A	85%
TXM 025-103		3.3 VDC	6.0 A	71%
TXM 025-105		5 VDC	5.0 A	77%
TXM 025-112	25 Watt	12 VDC	2.1 A	82%
TXM 025-115		15 VDC	1.7 A	83%
TXM 025-124		24 VDC	1.1 A	84%
TXM 035-105		5 VDC	6.0 A	80%
TXM 035-112		12 VDC	3.0 A	84%
TXM 035-115	35 Watt	15 VDC	2.4 A	86%
TXM 035-124		24 VDC	1.5 A	87%
TXM 035-148		48 VDC	0.75 A	88%
TXM 075-105	60 Watt	5 VDC	12.0 A	80%
TXM 075-112		12 VDC	6.0 A	85%
TXM 075-115	75 Watt	15 VDC	5.0 A	86%
TXM 075-124		24 VDC	3.2 A	88%
TXM 075-148		48 VDC	1.6 A	89%
TXM 100-105		5 VDC	20.0 A	84%
TXM 100-112		12 VDC	8.5 A	87%
TXM 100-115	100 Watt	15 VDC	7.0 A	87%
TXM 100-124		24 VDC	4.2 A	88%
TXM 100-148		48 VDC	2.2 A	88%
TXM 150-112		12 VDC	12.5 A	86%
TXM 150-115	150 Watt	15 VDC	10.0 A	87%
TXM 150-124		24 VDC	6.3 A	88%
TXM 150-148		48 VDC	3.2 A	88%
TXM 200-112		12 VDC	16.7 A	87%
TXM 200-124	200 Watt	24 VDC	8.4 A	88%
TXM 200-148		48 VDC	4.2 A	89%

TXLN | 18–960 W



- Compact metal case with screw terminal block
- Single and multiple output models with isolated outputs
- Active power factor correction >0.95
- High efficiency up to 91%
- Up to 200 Watt all models without fan
- EMI/EMC compliance with EN 61000-6-3 and EN 61000-6-1
- Compliance to EN 61000-3-2
- Short circuit, overvoltage and overload protection
- IEC/EN/UL 62368-1 safety approvals
- product warranty 3-year



Dimensions			
Type	Length l	Width w	Height h
TXLN 018	62 (xx)	50.8 (xx)	28 (xx)
TXLN 025	79 (3.11)	51 (2.01)	29 (1.14)
TXLN 035	99 (3.90)	82 (3.23)	35 (1.38)
TXLN 060	99 (3.90)	82 (3.23)	35 (1.38)
TXLN 080	159 (xx)	95 (xx)	38 (xx)
TXLN 110	159 (xx)	95 (xx)	38 (xx)
TXLN 150	188 (xx)	99 (xx)	30 (xx)
TXLN 200	212 (xx)	115 (xx)	30 (xx)
TXLN 320	212 (xx)	115 (xx)	30 (xx)
TXLN 500	230 (xx)	127 (xx)	40.6 (xx)
TXLN 750	275 (10.83)	125 (4.92)	63 (2.48)
TXLN 960	275 (10.83)	125 (4.92)	63 (2.48)

Series	Output Power	Output Voltage	Efficiency
TXLN 018	18 Watt	3.3, 5, 12, 15, 24 VDC	73–85%
TXLN 025	25 Watt	3.3, 5, 12, 15, 24, 48 VDC	72–88%
TXLN 035	35 Watt	3.3, 5, 12, 15, 24, 48 VDC	74–86%
TXLN 060	60 Watt	3.3, 5, 12, 15, 24, 48 VDC	72–86%
TXLN 080	80Watt	dual/triple 5,12,15,24 VDC	79–82%
TXLN 110	110 Watt	5, 12, 15, 24, 48 VDC	83–87%
TXLN 150	150 Watt	5, 12, 24, 48 VDC	86–90%
TXLN 200	200 Watt	5, 12, 24, 48 VDC	83–89%
TXLN 320	320 Watt	12, 24, 48 VDC	86–89%
TXLN 500	500 Watt	12, 24, 48 VDC	88–91%
TXLN 750	750 Watt	12, 24, 48 VDC	88–90%
TXLN 960	960 Watt	12, 15, 24, 48 VDC	87–89%

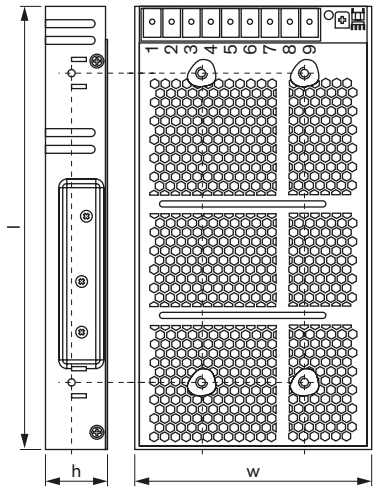


TXN | 25–1000 Watt

NEW!



- Cost optimized design
- Compact metal case with screw terminal block
- Active power factor correction >0.95
- High efficiency up to 91%
- Up to 200 Watt all models without fan
- EMI/EMC compliance with EN 61000-6-3 and EN 61000-6-1
- Short circuit, overvoltage and overload protection
- IEC/ENUL 62368-1 safety approvals
- 3 year product warranty



Dimensions			
Type	Length l	Width w	Height h
TXN 25	99	82	30
TXN 35	99	82	30
TXN 50	99	82	30
TXN 75	99	85	30
TXN 100	129	85	30
TXN 100PF	129	85	30
TXN 150	199	99	30
TXN 200	215	115	30
TXN 350	215	115	30
TXN 500	230	127	40.5
TXN 800	230	127	40.5
TXN 1000	230	127	40.5

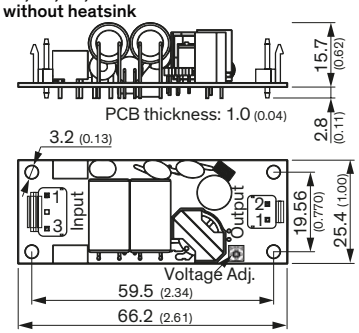
Series	Output Power	Output Voltage	Efficiency
TXN 25	25 Watt	3.3, 5.0, 12, 15, 24, 48 VDC	tbd
TXN 35	35 Watt	3.3, 5.0, 12, 15, 24, 48 VDC	82–86%
TXN 50	50 Watt	3.3, 5.0, 12, 15, 24, 48 VDC	83–86%
TXN 75	75 Watt	5.0, 12, 15, 24, 48 VDC	83–86%
TXN 100	100 Watt	5.0, 12, 15, 24, 48 VDC	83–86%
TXN 100PF	100 Watt	5.0, 12, 15, 24, 48 VDC	tbd
TXN 150	150 Watt	5.0, 12, 15, 24, 48 VDC	84–88%
TXN 200	200 Watt	12, 15, 24, 48 VDC	87–89%
TXN 350	350 Watt	12, 15, 24, 48 VDC	86–89%
TXN 500	500 Watt	12, 15, 24, 48 VDC	90–93%
TXN 800	800 Watt	12, 15, 24, 48 VDC	90–93%
TXN 1000	1000 Watt	12, 15, 24, 48 VDC	90–93%

TPP 15A-J | 15 W

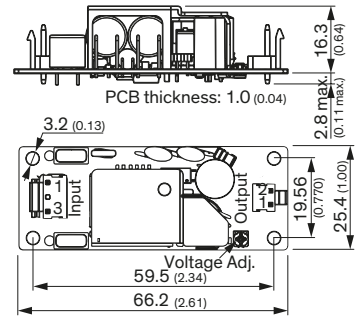


- High power density power supply (open frame)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class I and II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <100 mW
- 5-year product warranty

12, 15, 24, 36 and 48 VDC models – without heatsink



3.3, 5 and 9 VDC models – with heatsink



Pin Connectors

Input		Output	
Pin	**Function**	**Pin**	**Function**
1	AC (L)	**1**	–Vout
3	AC (N)	**2**	+Vout

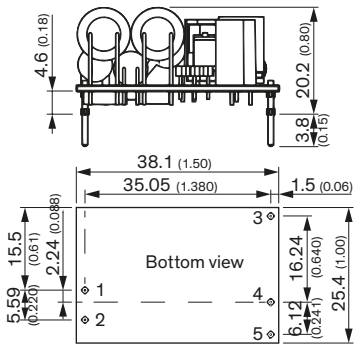
Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 15-103A-J	3.3 VDC (2.97–3.63 VDC)	4000 mA	84%
TPP 15-105A-J	5 VDC (4.5–5.5 VDC)	3000 mA	86%
TPP 15-109A-J	9 VDC (8.1–9.9 VDC)	1670 mA	86%
TPP 15-112A-J	12 VDC (10.8–13.2 VDC)	1250 mA	87%
TPP 15-115A-J	15 VDC (13.5–16.5 VDC)	1000 mA	87%
TPP 15-124A-J	24 VDC (21.6–26.4 VDC)	625 mA	88%
TPP 15-136A-J	36 VDC (32.4–39.6 VDC)	417 mA	88%
TPP 15-148A-J	48 VDC (43.2–52.8 VDC)	313 mA	89%

TPP 15A-D | 15 W

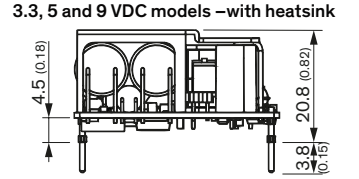


- High power density power supply (open frame)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <100 mW
- 5-year product warranty

12, 15, 24, 36 and 48 VDC models – without heatsink



3.3, 5 and 9 VDC models –with heatsink



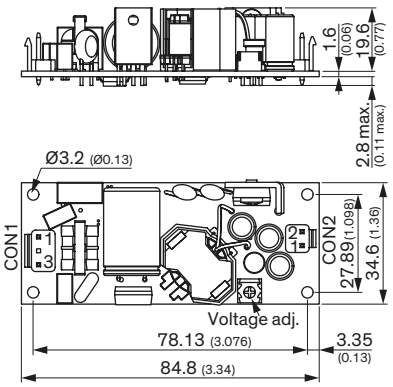
Pinout

Pin	Function
1	AC (N)
2	AC (L)
3	Trim
4	–Vout
5	+Vout

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 15-103A-D	3.3 VDC (2.97–3.63 VDC)	4000 mA	84%
TPP 15-105A-D	5 VDC (4.5–5.5 VDC)	3000 mA	86%
TPP 15-109A-D	9 VDC (8.1–9.9 VDC)	1670 mA	86%
TPP 15-112A-D	12 VDC (10.8–13.2 VDC)	1250 mA	87%
TPP 15-115A-D	15 VDC (13.5–16.5 VDC)	1000 mA	87%
TPP 15-124A-D	24 VDC (21.6–26.4 VDC)	625 mA	88%
TPP 15-136A-D	36 VDC (32.4–39.6 VDC)	417 mA	88%
TPP 15-148A-D	48 VDC (43.2–52.8 VDC)	313 mA	89%

TPI 30A-J | 30 W





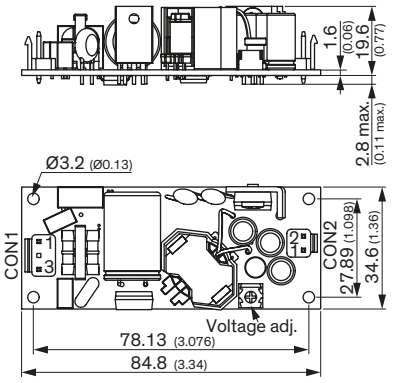
- 30 Watt open frame power supplies in a 3.34" × 1.36" package
- Compact and cost efficient design
- Peak power function up to 130%
- I/O reinforced isolation 4000 VDC
- Operating temperature range –40°C to +85°C
- No load input power <0.3 W (acc. ErP directive)
- High efficiency up to 90%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TPI 30-103A-J	3.3 VDC	6000 mA	83%
TPI 30-105A-J	5 VDC	6000 mA	86%
TPI 30-109A-J	9 VDC	3340 mA	87%
TPI 30-112A-J	12 VDC	2500 mA	88.5%
TPI 30-115A-J	15 VDC	2000 mA	88.5%
TPI 30-124A-J	24 VDC	1250 mA	88%
TPI 30-136A-J	36 VDC	840 mA	89%
TPI 30-148A-J	48 VDC	630 mA	90.5%

Connectors – Connection	
CON1 – Input Connector	
Pin 1	Line
Pin 3	Neutral
CON2 – Output Connector	
Pin 1	+Vout
Pin 2	–Vout

TPP 30A-J | 30 W





- High power density power supply (open frame)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class I and II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <60 mW
- 5-year product warranty

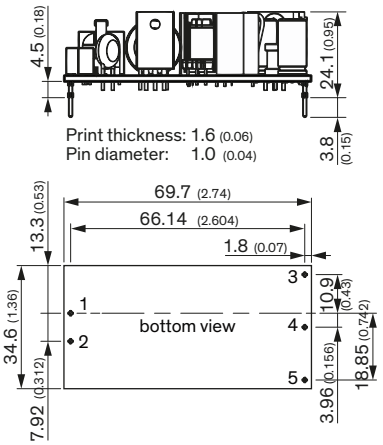
Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 30-103A-J	3.3 VDC (2.97–3.63 VDC)	6000 mA	84%
TPP 30-105A-J	5 VDC (4.5–5.5 VDC)	6000 mA	87%
TPP 30-109A-J	9 VDC (8.1–9.9 VDC)	3340 mA	88%
TPP 30-112A-J	12 VDC (10.8–13.2 VDC)	2500 mA	91%
TPP 30-115A-J	15 VDC (13.5–16.5 VDC)	2000 mA	91%
TPP 30-124A-J	24 VDC (21.6–26.4 VDC)	1250 mA	90%
TPP 30-136A-J	36 VDC (32.4–39.6 VDC)	840 mA	90%
TPP 30-148A-J	48 VDC (43.2–52.8 VDC)	630 mA	92%

Pin Connectors			
Input (CON1)		**Output (CON2)**	
Pin	**Function**	**Pin**	**Function**
1	AC (L)	**1**	+Vout
3	AC (N)	**2**	–Vout

TPP 30A-D | 30 W



- High power density power supply (open frame)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- EMC compliance to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Protection class II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, no load power consumption <60 mW
- 5-year product warranty



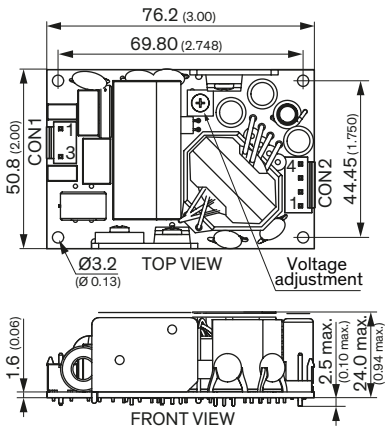
Pinout	
Pin	**Function**
1	AC (N)
2	AC (L)
3	+Vout
4	–Vout
5	Trim

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 30-103A-D	3.3 VDC (2.97–3.63 VDC)	6000 mA	84%
TPP 30-105A-D	5 VDC (4.5–5.5 VDC)	6000 mA	87%
TPP 30-109A-D	9 VDC (8.1–9.9 VDC)	3340 mA	88%
TPP 30-112A-D	12 VDC (10.8–13.2 VDC)	2500 mA	91%
TPP 30-115A-D	15 VDC (13.5–16.5 VDC)	2000 mA	91%
TPP 30-124A-D	24 VDC (21.6–26.4 VDC)	1250 mA	90%
TPP 30-136A-D	36 VDC (32.4–39.6 VDC)	840 mA	90%
TPP 30-148A-D	48 VDC (43.2–52.8 VDC)	630 mA	92%

TPP 40A | 40 W



- Open frame power supply with pin connector
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- EMC compliance to IEC 60601-1-2 ed. 4
- Protection class I and II prepared
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.15 W no load power consumption
- 5-year product warranty



Pin connectors			
Input (CON1)		**Output (CON2)**	
Pin	**Function**	**Pin***	**Function**
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 40-105A-J	5 VDC (4.5–5.5 VDC)	8000 mA	90%
TPP 40-112A-J	12 VDC (10.8–13.2 VDC)	3340 mA	92%
TPP 40-124A-J	24 VDC (21.6–26.4 VDC)	1670 mA	92%
TPP 40-148A-J	48 VDC (43.2–52.8 VDC)	840 mA	93%

Note
– Other output models are available on request.

* Terminal rated for 7 A max. (at higher current connection has to be split)

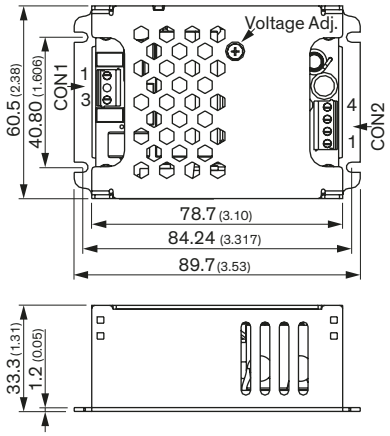
CON1: JST series
mates with JST crimp terminal: BVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: BVH-21T-P1.1
and terminal housing: VHR-4N

TPP 40 | 40 W



- Enclosed power supply with screw terminal connection
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- EMC compliance to IEC 60601-1-2 ed. 4
- Protection class I and II prepared
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.15 W no load power consumption
- 5-year product warranty



Model	Vout	Iout	Efficiency
TPP 40-105	5 VDC	8.00 A	90%
TPP 40-112	12 VDC	3.34 A	92%
TPP 40-115	15 VDC	2.67 A	92%
TPP 40-124	24 VDC	1.67 A	92%
TPP 40-221	+12/+5 VDC	3.34/6.00 A	89%
TPP 40-231	+15/+5 VDC	2.67/6.00 A	89%
TPP 40-251	+24/+5 VDC	1.67/6.00 A	86%
TPP 40-321M2	+12/+5/–12 VDC	3.34/6.00/0.50 A	88%
TPP 40-331M3	+15/+5/–15 VDC	2.67/6.00/0.50 A	88%
TPP 40-3512	+24/+5/+12 VDC	1.67/6.00/0.50 A	86%

Note
– Total Power must not exceed 40 W.
– Other output models are available on request.
– Multi output models have a common ground.

Note (Dimensions)
– Multi output models 102.4 (4.03) length, 34.5 (1.36) height

Screw Terminal (Single Output Models)			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

Screw Terminal (Multi Output Models)			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1	Vout 3
3	AC (N)	2, 3	COM
		4, 5	Vout 2
		6	Vout 1

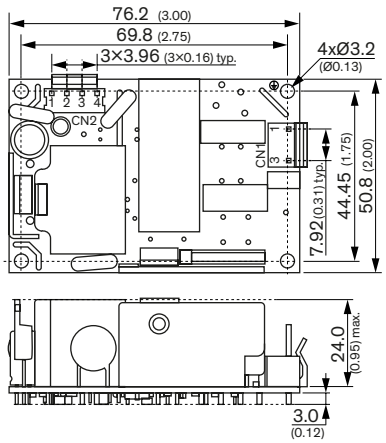
* Terminal rated for 10 A max.
(at higher current connection has to be split)

TXO 45 | 45 W

NEW!



- Compact open frame power supply with pin connectors
- Universal input range 85 to 264 VAC
- Convection cooled (no-fan)
- Operating temperature range: –20°C to +70°C
- High efficiency up to 85%
- Short circuit, overvoltage and overload protection
- IEC/EN/UL 62368-1 safety approvals
- Compliance to EN 61000-3-2
- 3-year product warranty



Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 45-112-J	12 VDC	3800 mA	
TXO 45-115-J	15 VDC	3000 mA	
TXO 45-124-J	24 VDC	1900 mA	
TXO 45-148-J	48 VDC	940 mA	

Pin Connectors			
Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (L)	1	–Vout
3	AC (N)	2	
		3	+Vout
		4	



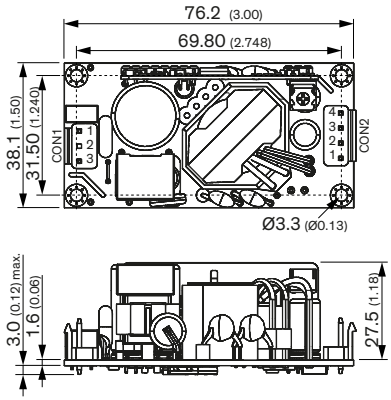
Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

Output: WAFER 4PIN P
mates with 3.96mm JST B4P-VH

TPI 50A-J | 50 W

NEW!





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 50-105A-J	5 VAC (4.5–5.5 VAC)	8000 mA	90.5%
TPI 50-112A-J	12 VAC (9.6–14.4 VAC)	4170 mA	92.5%
TPI 50-115A-J	15 VAC (12–18 VAC)	3340 mA	92.5%
TPI 50-124A-J	24 VAC (19.2–28.8 VAC)	2085 mA	92.5%
TPI 50-136A-J	36 VAC (28.8–43.2 VAC)	1390 mA	91.5%
TPI 50-148A-J	48 VAC (38.4–57.6 VAC)	1045 mA	91.5%
TPI 50-153A-J	53 VAC (42.4–63.6 VAC)	950 mA	91.5%

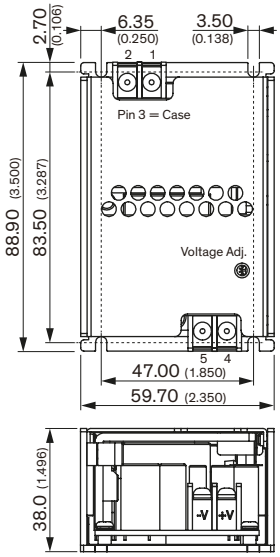
- 50 Watt open frame power supplies in a 3" × 1.5" package
- Compact and cost efficient design
- Peak power function up to 140%
- I/O reinforced isolation 3000 VAC
- Operating temperature range –40°C to +85°C
- No load input power <0.3 W (acc. ErP directive)
- High efficiency up to 93%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Connectors – Connection			
Input (CON1)		Output (CON2)	
Pin	Function	Pin	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout



TXH 060 | 60 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TXH 060-105	5 VDC (4.8–5.3 VDC)	10'000 mA	81%
TXH 060-112	12 VDC (11.4–12.6 VDC)	5000 mA	87%
TXH 060-115	15 VDC (14.3–15.8 VDC)	4000 mA	87%
TXH 060-124	24 VDC (22.8–25.2 VDC)	2500 mA	88%
TXH 060-148	48 VDC (45.6–50.4 VDC)	1250 mA	88%

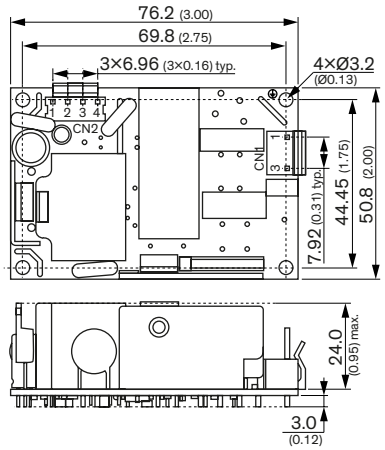
- Enclosed power supplies with screw terminal block
- Universal input range 90 to 264 VAC
- Ready to meet ErP directive, <0.3 W no load power consumption
- Adjustable output voltage
- 4242 VDC I/O-isolation
- High efficiency up to 88%
- Operating temperature range: –30°C to +70°C max.
- Short circuit and over voltage protection
- 3-year product warranty

Pinout	
Pin	Function
1	AC IN (N)
2	AC IN (L)
3	PE
4	+Vout
5	–Vout

TXO 60 | 60 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 60-112-J	12 VDC	5000 mA	
TXO 60-115-J	15 VDC	4000 mA	
TXO 60-124-J	24 VDC	2500 mA	
TXO 60-148-J	48 VDC	1250 mA	

- Cost optimized design
- Open frame power supply in 3" × 2" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty

Pin Connectors			
Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (L)	1	–Vout
3	AC (N)	2	
		3	+Vout
		4	

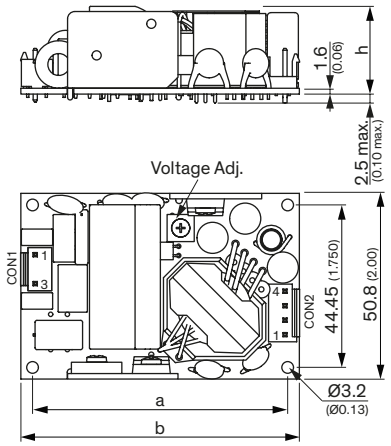


Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

Output: WAFER 4PIN P
mates with 3.96mm JST B4P-VH

TPI 65A-J | 65 W





Single model
h: 24.0 (0.94)
a: 76.2 (3.00)
b: 69.8 (2.748)

Multi model
h: 24.9 (0.98)
a: 88.9 (3.50)
b: 82.50 (3.248)

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TPI 65-105A-J	5 VDC	10 A	90%
TPI 65-109A-J	9 VDC	7.23 A	91%
TPI 65-112A-J	12 VDC	5.42 A	92.5%
TPI 65-115A-J	15 VDC	4.34 A	93.5%
TPI 65-124A-J	24 VDC	2.71 A	93.5%
TPI 65-136A-J	36 VDC	1.81 A	92.5%
TPI 65-148A-J	48 VDC	1.36 A	93%

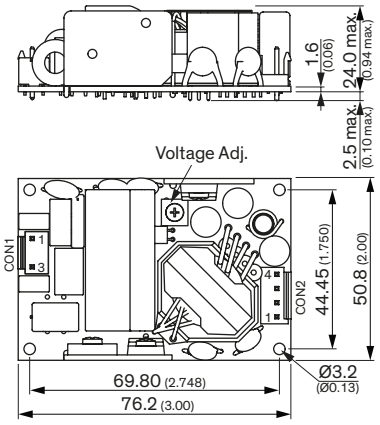
- 65 Watt open frame power supplies in a 3" × 2" package
- Compact and cost efficient design
- Peak power function up to 140%
- I/O reinforced isolation 3000 VAC
- Operating temperature range –40°C to +85°C
- No load input power <0.3 W (acc. ErP directive)
- High efficiency up to 93%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Connectors – Connection			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	Line	1, 2	–Vout
3	Neutral	3, 4	+Vout

TPP 65A | 65 W



- Open frame power supply with pin connection
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- EMC compliance to IEC 60601-1-2 ed. 4
- Protection class I and II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.15 W no load power consumption
- 5-year product warranty



Pin connectors			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

Model	Output Voltage nom. (adjustable)	Output 2	Efficiency
TPP 65-105A-J	5 VDC (4.5–5.5 VDC)	10000 mA	90%
TPP 65-112A-J	12 VDC (10.8–13.2 VDC)	5420 mA	93%
TPP 65-124A-J	24 VDC (21.6–26.4 VDC)	2710 mA	94%
TPP 65-148A-J	48 VDC (43.2–52.8 VDC)	1360 mA	93%

Note
– Other output models are available on request.

* Terminal rated for 10 A max. (at higher current connection has to be split)

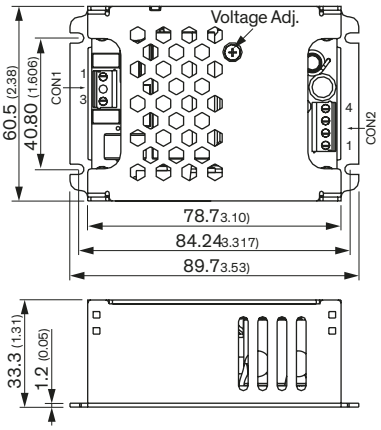
CON1: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-4N

TPP 65 | 65 W



- Enclosed power supply with screw terminal connection
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- EMC compliance to IEC 60601-1-2 ed. 4
- Protection class I and II
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.15 W no load power consumption
- 5-year product warranty



Screw Terminal (Single Output Models)			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

Screw Terminal (Multi Output Models)			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1	Vout 3
3	AC (N)	2, 3	COM
		4, 5	Vout 2
		6	Vout 1

Model	Vout	Iout	Efficiency
TPP 65-105	5 VDC	10.00 A	90%
TPP 65-112	12 VDC	5.42 A	93%
TPP 65-115	15 VDC	4.34 A	94%
TPP 65-124	24 VDC	2.71 A	94%
TPP 65-221	+12/+5 VDC	5.42/8.00 A	90%
TPP 65-231	+15/+5 VDC	4.34/8.00 A	91%
TPP 65-251	+24/+5 VDC	2.71/8.00 A	89%
TPP 65-321M2	+12/+5/–12 VDC	5.42/8.00/0.60 A	89%
TPP 65-331M3	+15/+5/–15 VDC	4.34/8.00/0.60 A	90%
TPP 65-3512	+24/+5/+12 VDC	2.71/8.00/0.60 A	89%

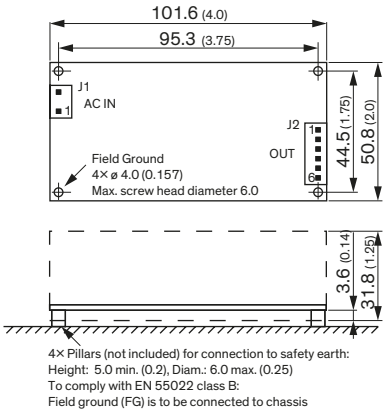
Note
– Total Power must not exceed 65 W.
– Other output models are available on request.
– Multi output models have a common ground.

Note (Dimensions)
– Multi output models 102.4 (4.03) length, 34.5 (1.36) height

* Terminal rated for 10 A max. (at higher current connection has to be split)

TOP 100 | 100 W





Model	Output Voltage (Adjustment Range)	Output Current max.
TOP 100-105	5.0 VDC (5.0–5.2)	20.0 A
TOP 100-112	12 VDC (12.0–13.0)	8.3 A
TOP 100-115	15 VDC (15.0–16.0)	6.7 A
TOP 100-124	24 VDC (24.0–26.0)	4.2 A
TOP 100-148	48 VDC (48.0–52.0)	2.1 A

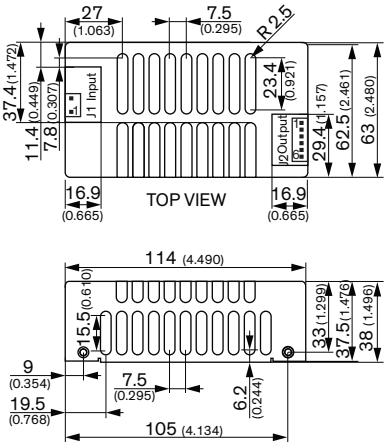
- 100 W power supply in 2.0"x 4.0" footprint!
- Full load operation up to +50°C with convection cooling
- Highest efficiency, 90% typ.
- EMI filter meets EN 55032, level B
- Compliance with EN 61000-3-2
- Low leakage current
- Safety class I and class II operation
- 3-year product warranty

Output	
Pin	**J2**
1	– Vout
2	– Vout
3	– Vout
4	+ Vout
5	+ Vout
6	+ Vout

Input	
Pin	**J1**
1	AC in
2	AC in

TOP 100C | 100 W





Model	Output Voltage (Adjustment Range)	Output Current max.
TOP 100-105C	**5.0 VDC** (5.0–5.2)	20.0 A
TOP 100-112C	**12 VDC** (12.0–13.0)	8.3 A
TOP 100-124C	**24 VDC** (24.0–26.0)	4.2 A
TOP 100-148C	**48 VDC** (48.0–52.0)	2.1 A

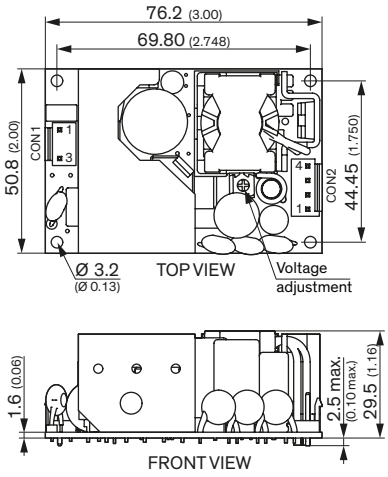
- 100 W power supply in 2.0"x 4.0" footprint!
- Full load operation up to +50°C with convection cooling
- Highest efficiency, 90% typ.
- EMI filter meets EN 55032, level B
- Compliance with EN 61000-3-2
- Low leakage current
- Safety class I and class II operation
- 3-year product warranty

Output	
Pin	**J2**
1	– Vout
2	– Vout
3	– Vout
4	+ Vout
5	+ Vout
6	+ Vout

Input	
Pin	**J1**
1	AC in
2	AC in

TPI 100A | 100 W





- Highest power density 100 W open frame power supply in 2" × 3" package
- I/O reinforced isolation 3000 VAC
- Ready to meet ErP directive, <0.3 W no load power consumption
- Highest efficiency 91%–92% across 10%–100% load range
- Active power factor correction >95
- Protection class II prepared
- Operating up to 5000 m altitude
- Adjustable output voltage
- 3-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 100-112A-J	12 VDC (10.8–13.2 VDC)	8340 mA	91%
TPI 100-115A-J	15 VDC (13.5–16.5 VDC)	6670 mA	92%
TPI 100-124A-J	24 VDC (21.6–26.4 VDC)	4170 mA	92%
TPI 100-128A-J	28 VDC (25.2–30.8 VDC)	3580 mA	92%
TPI 100-136A-J	36 VDC (32.4–39.6 VDC)	2780 mA	91%
TPI 100-148A-J	48 VDC (43.2–52.8 VDC)	2090 mA	91%

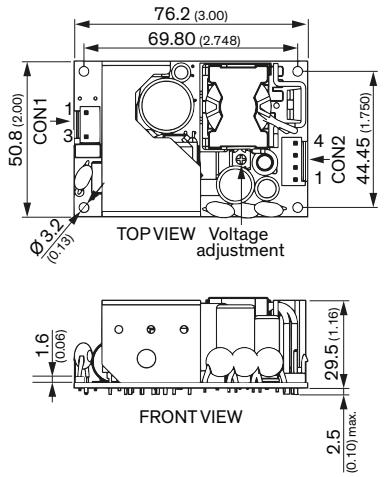
Pin connectors

Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	Line	1,2	–Vout
3	Neutral	3,4	+Vout

* Terminal rated for 10 A max.
(at higher current connection has to be split)

TPP 100A-J | 100 W





- Open frame 100 W power supply with JST connection in 2.0" × 3.0" package
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Active power factor correction >0.95
- Protection class I and II prepared
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.3 W no load power consumption
- 5-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 100-112A-J	12 VDC (10.8–13.2 VDC)	8340 mA	91%
TPP 100-115A-J	15 VDC (13.5–16.5 VDC)	6670 mA	92%
TPP 100-124A-J	24 VDC (21.6–26.4 VDC)	4170 mA	92%
TPP 100-128A-J	28 VDC (25.2–30.8 VDC)	3580 mA	92%
TPP 100-136A-J	36 VDC (32.4–39.6 VDC)	2780 mA	91%
TPP 100-148A-J	48 VDC (43.2–52.8 VDC)	2090 mA	91%

Pin connectors

Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

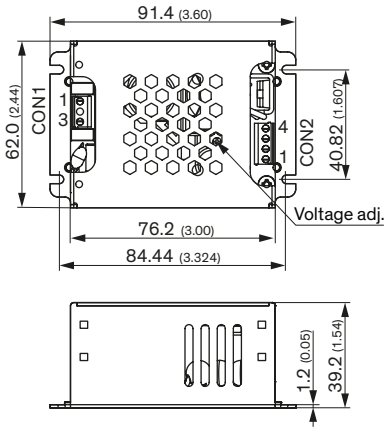
* Terminal rated for 7 A max. (at higher current connection has to be split)

CON1: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-4N

TPP 100 | 100 W





- Encased 100 W power supply with screw connection in 2.44" × 3.6" package
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <75 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Active power factor correction >0.95
- Protection class I and II prepared
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.3 W no load power consumption
- 5-year product warranty

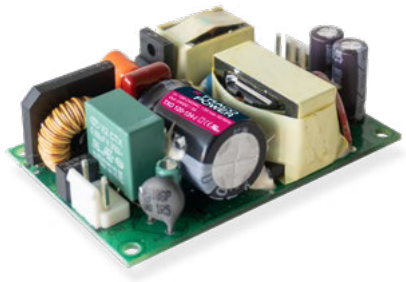
Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 100-112	12 VDC (10.8–13.2 VDC)	8340 mA	91%
TPP 100-115	15 VDC (13.5–16.5 VDC)	6670 mA	92%
TPP 100-124	24 VDC (21.6–26.4 VDC)	4170 mA	92%
TPP 100-128	28 VDC (25.2–30.8 VDC)	3580 mA	92%
TPP 100-136	36 VDC (32.4–39.6 VDC)	2780 mA	91%
TPP 100-148	48 VDC (43.2–52.8 VDC)	2090 mA	91%

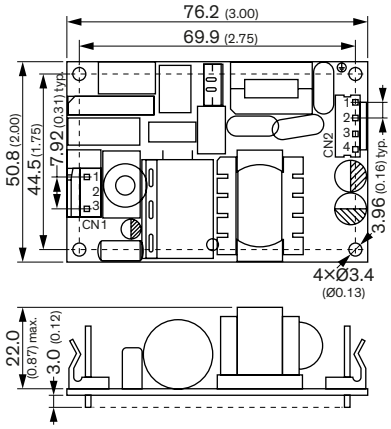
Screw Terminal

Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

TXO 120 | 120 W

NEW!





- Cost optimized design
- Open frame power supply in 3" × 2" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 120-112-J	12 VDC	10'000 mA	
TXO 120-115-J	15 VDC	8000 mA	
TXO 120-124-J	24 VDC	5000 mA	
TXO 120-148-J	48 VDC	2500 mA	

Pin Connectors

Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (N)	1	+Vout
3	AC (L)	2	
		3	–Vout
		4	

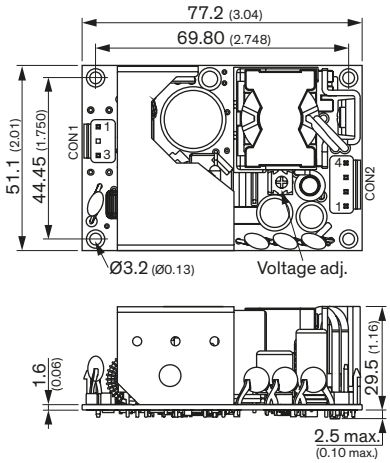


Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

Output: WAFER 4PIN P
mates with 3.96mm JST B4P-VH

TPI 125A-J | 125 W





- 125 Watt open frame power supplies in a 3" × 2" package
- Compact and cost efficient design
- Peak power function up to 120%
- I/O reinforced isolation 4000 VAC
- Operating temperature range –40°C to +85°C
- No load input power <0.3 W (acc. ErP directive)
- High efficiency up to 92%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 125-112A-J	12 VDC (9.6–13.2 VDC)	8340 mA	91%
TPI 125-115A-J	15 VDC (12.0–16.5 VDC)	6670 mA	92%
TPI 125-124A-J	24 VDC (19.2–26.4 VDC)	4170 mA	92%
TPI 125-136A-J	36 VDC (28.8–39.6 VDC)	2780 mA	91%
TPI 125-148A-J	48 VDC (38.4–52.8 VDC)	2090 mA	91%

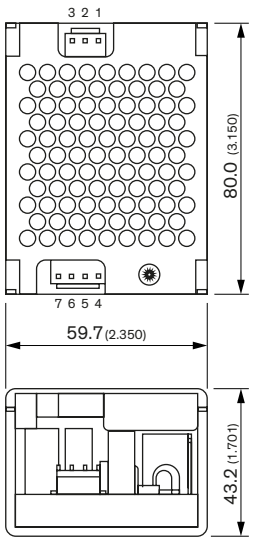
Connectors – Connection

Input (CON1)		Output (CON2)	
Pin	Function	Pin	Function
1	AC (L)	1, 2	–Vout
3	AC (N)	3, 4	+Vout

TCI 130 | 130 W

NEW!





- Conduction cooled design approach
- Fanless operation with up to 100% output power
- Operating temperature range –30°C to +80°C
- I/O reinforced isolation 4250 VAC
- Over voltage category (OVC III)
- High efficiency up to 92%
- Operating up to 5000 m altitude
- Internal EN 55032 conducted class B filter
- Protection class I prepared
- 3-year product warranty

Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TCI 130-112-J	12 VDC	10833 mA	90%
TCI 130-124-J	24 VDC	5417 mA	90%
TCI 130-148-J	48 VDC	2708 mA	91%



Mating input connector:
JST housing: VHR-3N
JST crimp terminals: SVH-41T-P1.1

Mating output connector:
JST housing: VHR-4N
JST crimp terminals: SVH-41T-P1.1

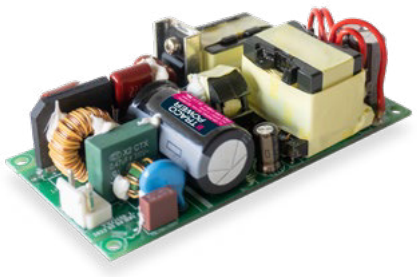
Pin Connectors

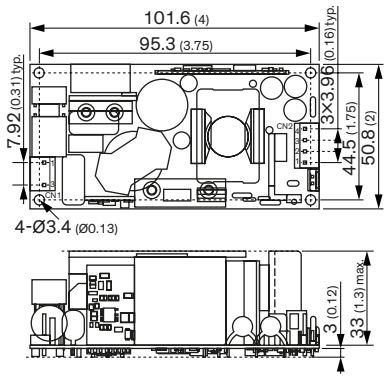
Input		Output	
Pin	Function	Pin	Function
1	AC IN (N)	4, 5	+Vout
2	No Pin	6, 7	–Vout
3	AC IN (L)		

Case	
Pin	Function
8	PE

TXO 150 | 150 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 150-112-J	12 VDC	10000 mA	
TXO 150-115-J	15 VDC	10000 mA	
TXO 150-124-J	24 VDC	6250 mA	
TXO 150-148-J	48 VDC	3200 mA	

- Cost optimized design
- Open frame power supply in 4" × 2" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty

Pin Connectors			
Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (N)	1	+Vout
3	AC (L)	2	
		3	–Vout
		4	

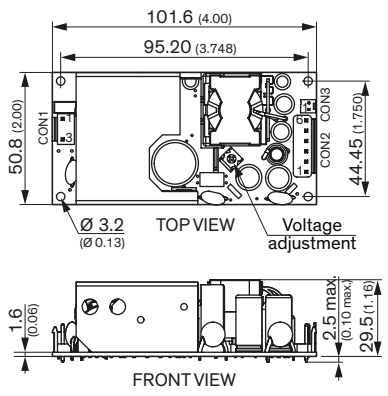


Input: WAFER 3-1PIN(NC2)P
mates w/ 3.96mm JST B3P-VH

Output: WAFER 4PIN P
mates w/ 3.96mm JST VH TYPE AW3961 WV-4P

TPI 150A | 150 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 150-112A-J	12 VDC (10.8–13.2 VDC)	12500 mA	91%
TPI 150-115A-J	15 VDC (13.5–16.5 VDC)	10000 mA	92%
TPI 150-124A-J	24 VDC (21.6–26.4 VDC)	6250 mA	92%
TPI 150-128A-J	28 VDC (25.2–30.8 VDC)	5360 mA	92%
TPI 150-136A-J	36 VDC (32.4–39.6 VDC)	4170 mA	92%
TPI 150-148A-J	48 VDC (43.2–52.8 VDC)	3130 mA	92%

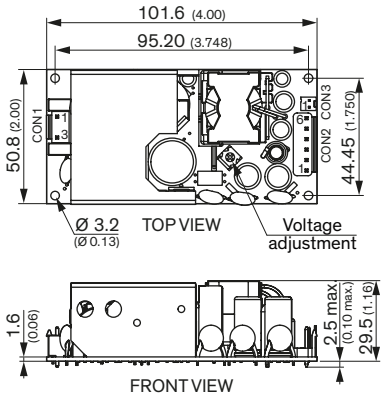
- Highest power density 150 W open frame power supply in 2" × 4" package
- I/O reinforced isolation 3000 VAC
- Ready to meet ErP directive, <0.3 W no load power consumption
- Highest efficiency 91–92% across 10%–100% load range
- Active power factor correction >95
- Protection class II prepared
- Operating up to 5000 m altitude
- Adjustable output voltage
- 3-year product warranty

Pin connectors					
Input (CON1)		Output (CON2)		Fan (CON3)	
Pin	Function	Pin*	Function	Pin	Function
1	Line	1–3	–Vout	1	–Fan
3	Neutral	4–6	+Vout	2	+Fan

* Terminal rated for 10 A max.
(at higher current connection has to be split)

TPP 150A-J | 150 W





- Open frame 150 W power supply with JST connection in 2.0" × 4.0" package
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Active power factor correction >0.95
- Protection class I and II prepared
- Operating up to 5000 m altitude
- Ready to meet ErP directive, <0.3 W no load power consumption
- 5-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max. (Forced air cooling)	Efficiency typ.
TPP 150-112A-J	12 VDC (10.8–13.2 VDC)	12500 mA	91%
TPP 150-115A-J	15 VDC (13.5–16.5 VDC)	10000 mA	92%
TPP 150-124A-J	24 VDC (21.6–26.4 VDC)	6250 mA	92%
TPP 150-128A-J	28 VDC (25.2–30.8 VDC)	5360 mA	92%
TPP 150-136A-J	36 VDC (32.4–39.6 VDC)	4170 mA	92%
TPP 150-148A-J	48 VDC (43.2–52.8 VDC)	3130 mA	92%

Output Current max. (Natural convection):
8340 mA
7340 mA
4590 mA
3930 mA
3060 mA
2090 mA

Pin connectors

Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1–3	–Vout
3	AC (N)	4–6	+Vout

Fan (CON3)	
Pin	Function
1	–Fan
2	+Fan

* Terminal rated for 7 A max.
(at higher current connection has to be split)

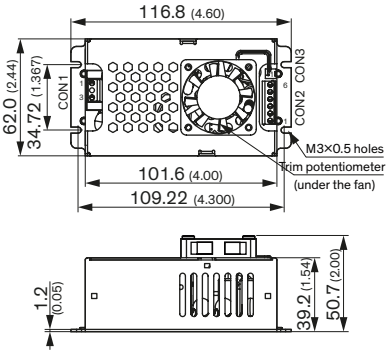
CON1: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-6N

CON3: Molex series
mates with Molex crimp terminals: 2759
and Molex housing: 22-01-1022

TPP 150 | 150 W





- Encased 150 W power supply with screw connection 2.44" × 4.6" package
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Low leakage current <100 µA rated for BF applications
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Active power factor correction >0.95
- Protection class I and II prepared
- Operating up to 5000 m altitude
- 5-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 150-112	12 VDC (10.8–13.2 VDC)	12500 mA	91%
TPP 150-115	15 VDC (13.5–16.5 VDC)	10000 mA	92%
TPP 150-124	24 VDC (21.6–26.4 VDC)	6250 mA	92%
TPP 150-128	28 VDC (25.2–30.8 VDC)	5360 mA	92%
TPP 150-136	36 VDC (32.4–39.6 VDC)	4170 mA	92%
TPP 150-148	48 VDC (43.2–52.8 VDC)	3130 mA	92%

Connections

Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (L)	1–3	–Vout
3	AC (N)	4–6	+Vout

Fan (CON3)	
Pin	Function
1	–Fan
2	+Fan

* Terminal rated for 7 A max.
(at higher current connection has to be split)

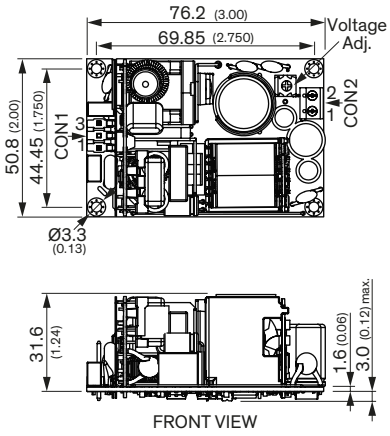
CON1: Screw Terminal

CON2: Screw Terminal

CON3: Molex series
mates with Molex crimp terminals: 2759
and Molex housing: 22-01-1022

TPI 180A-M | 180 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 180-112A-M	12 VDC (11.0–13.0 VDC)	15 A	92%
TPI 180-115A-M	15 VDC (13.8–16.2 VDC)	12 A	92%
TPI 180-124A-M	24 VDC (22.1–25.9 VDC)	7.5 A	94%
TPI 180-136A-M	36 VDC (33.1–38.9 VDC)	5 A	93%
TPI 180-148A-M	48 VDC (44.2–51.8 VDC)	3.75 A	93%
TPI 180-153A-M	53 VDC (48.8–57.2 VDC)	3.40 A	93%

- High power-density: 180 Watt in 3" × 2" package (open frame)
- I/O isolation 3000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/UL 62368-1
- Peak power operation up to 220 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- High efficiency up to 94%
- Protection class II prepared
- 3-year product warranty

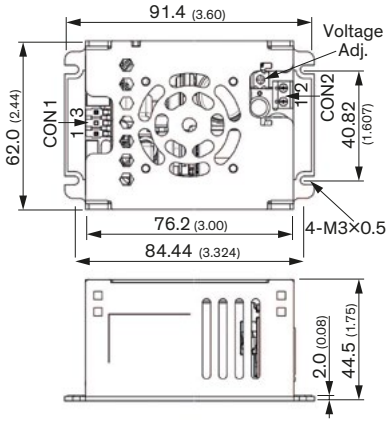
Pin connectors

Input (CON1)		Output (CON2)	
Pin	Function	Pin	Function
1	AC (N) / DC–	1	+Vout
3	AC (L) / DC+	2	–Vout



TPI 180-M | 180 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 180-112-M	12 VDC (11.0–13.0 VDC)	15 A	92%
TPI 180-115-M	15 VDC (13.8–16.2 VDC)	12 A	92%
TPI 180-124-M	24 VDC (22.1–25.9 VDC)	7.5 A	94%
TPI 180-136-M	36 VDC (33.1–38.9 VDC)	5 A	93%
TPI 180-148-M	48 VDC (44.2–51.8 VDC)	3.75 A	93%
TPI 180-153-M	53 VDC (48.8–57.2 VDC)	3.40 A	93%

- High power-density: 180 Watt in 3.6" × 2.44" package (encased)
- I/O isolation 3000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/UL 62368-1
- Peak power operation up to 220 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- High efficiency up to 94%
- Protection class II prepared
- 3-year product warranty

Pinout

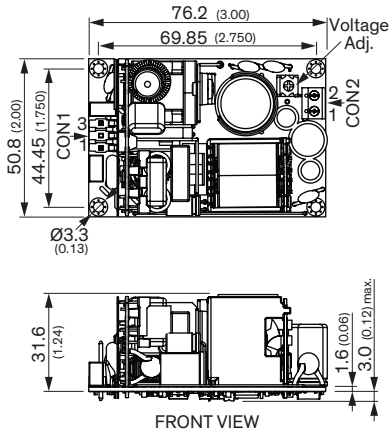
CON1		CON2	
Pin	Function	Pin	Function
1	AC (N) / DC–	1	+Vout
3	AC (L) / DC+	2	–Vout



TPP 180A-M | 180 W



- High power-density: 180 Watt in 3" × 2" package (open frame)
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Peak power operation up to 220 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- 5-year product warranty



Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TPP 180-112A-M	12 VDC (11.0–13.0 VDC	15 A	92%
TPP 180-115A-M	15 VDC (13.8–16.2 VDC)	12 A	92%
TPP 180-124A-M	24 VDC (22.1–25.9 VDC)	7.5 A	94%
TPP 180-136A-M	36 VDC (33.1–38.9 VDC)	5 A	93%
TPP 180-148A-M	48 VDC (44.2–51.8 VDC)	3.75 A	93%
TPP 180-153A-M	53 VDC (48.8–57.2 VDC)	3.40 A	93%

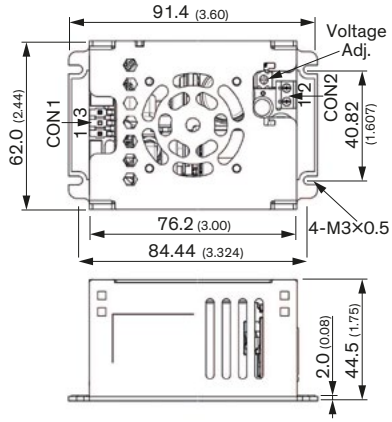
Pin connectors			
Input (CON1)		Output (CON2)	
Pin	Function	Pin*	Function
1	AC (N) / DC–	1	+Vout
3	AC (L) / DC+	2	–Vout



TPP 180-M | 180 W



- High power-density: 180 Watt in 3.6" × 2.44" package (encased)
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Peak power operation up to 220 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- 5-year product warranty



Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 180-112-M	12 VDC (11.0–13.0 VDC)	15 A	92%
TPP 180-115-M	15 VDC (13.8–16.2 VDC)	12 A	92%
TPP 180-124-M	24 VDC (22.1–25.9 VDC)	7.5 A	94%
TPP 180-136-M	36 VDC (33.1–38.9 VDC)	5 A	93%
TPP 180-148-M	48 VDC (44.2–51.8 VDC)	3.75 A	93%
TPP 180-153-M	53 VDC (48.8–57.2 VDC)	3.40 A	93%

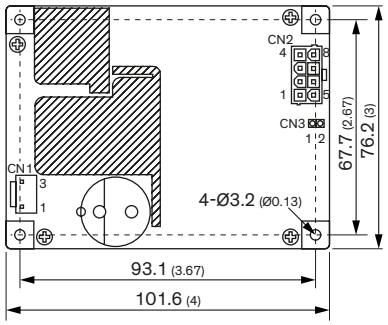
Pinout			
Input (CON1)		Output (CON2)	
Pin	Function	Pin	Function
1	AC (N) / DC–	1	+Vout
3	AC (L) / DC+	2	–Vout

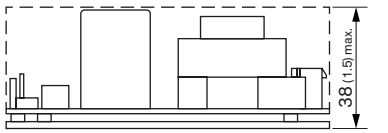


TXO 200 | 200 W

NEW!







Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 200-112-J	12 VDC	16700 mA	
TXO 200-124-J	24 VDC	8300 mA	
TXO 200-148-J	48 VDC	4200 mA	

- Cost optimized design
- Open frame power supply in 4" × 3" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty

Pin Connectors

Input (CN1)		Output (CN2)	
Pin	**Function**	**Pin**	**Function**
1	AC (L)	1	–Vout
3	AC (N)	2	
		3	+Vout
		4	
		5	–Vout
		6	
		7	+Vout
		8	

AUX (CN3)			
Pin	**Function**	**Pin**	**Function**
1	+Fan	2	GND



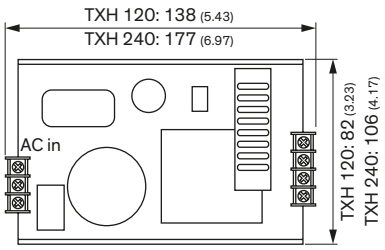
Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

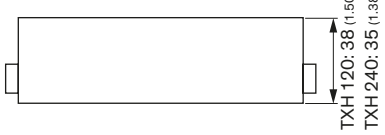
Output: Molex 39-28-1083 Mini-Fit Jr. Vertical Header, 2×4 pins, 4.20mm pitch

AUX: Molex 22-27-2021 Wafer, 2.54 mm pitch
mates with Molex 22-01-2021

TXH | 240 W





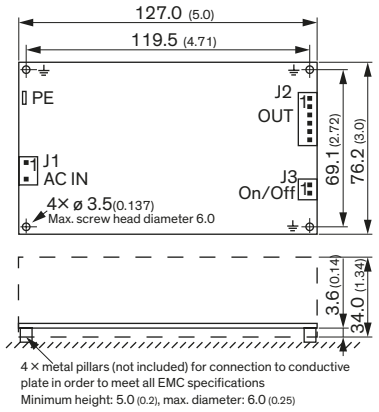


Model	Output Voltage nom.	Output Current max.	Efficiency
TXH 120-112	12 VDC	10000 mA	90%
TXH 120-124	24 VDC	5000 mA	93%
TXH 120-148	48 VDC	2500 mA	93%
TXH 240-112	12 VDC	20000 mA	90%
TXH 240-124	24 VDC	10000 mA	92%
TXH 240-148	48 VDC	5000 mA	93%

- Compact U-bracket and enclosed power supplies
- Screw terminal block
- Very high efficiency up to 93%
- No internal fan for 120 W & 240 W models.
- Universal input 90–264 VAC
- Adjustable output voltage
- EMI/EMC compliance with EN 61000-6-3 and EN 61000-6-1
- Compliance to EN 61000-3-2 (PFC)
- Short circuit and overvoltage protection
- product warranty 3-year

TOP 200 | 200 W





Model	Output Power max.	Output Voltage (fixed)	Output Current max.
TOP 200-112	200 W	12 VDC	16 A
TOP 200-115		15 VDC	13 A
TOP 200-124		24 VDC	8.3 A
TOP 200-148		48 VDC	4.2 A

- Highest power density in 5.0" × 3.0" footprint
- Supplies 200 W (convection cooling!)
- Highest efficiency up to 95%
- Operating temperature range –25°C to +70°C
- Universal input 85–264 VAC
- Compliance with EN 61000-3-2
- Power Back immunity
- Low leakage current
- Protection class I and class II
- 3-year product warranty

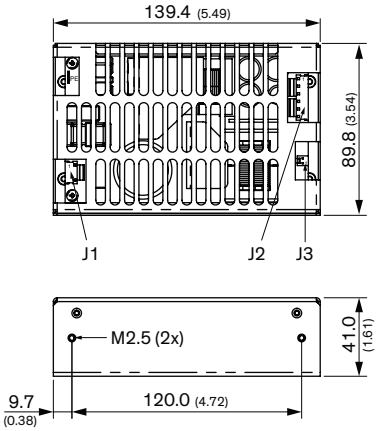
J1	
Pin	Input
1	AC in L
2	AC in N

J2	
Pin	Output
1	+ Vout
2	+ Vout
3	+ Vout
4	– Vout
5	– Vout
6	– Vout

J3	
Pin	Remote
1	–
2	+

TOP 200C | 200 W





Model	Output Power max.	Output Voltage (fixed)	Output Current max.
TOP 200-112C	200 W	12 VDC	16 A
TOP 200-115C		15 VDC	13 A
TOP 200-124C		24 VDC	8.3 A
TOP 200-148C		48 VDC	4.2 A

- Highest power density in 5.0" × 3.0" footprint
- Supplies 200 W (convection cooling!)
- Highest efficiency up to 95%
- Operating temperature range –25°C to +70°C
- Universal input 85–264 VAC
- Compliance with EN 61000-3-2
- Power Back immunity
- Low leakage current
- Protection class I and class II
- 3-year product warranty

J1	
Pin	Input
1	AC in L
2	AC in N

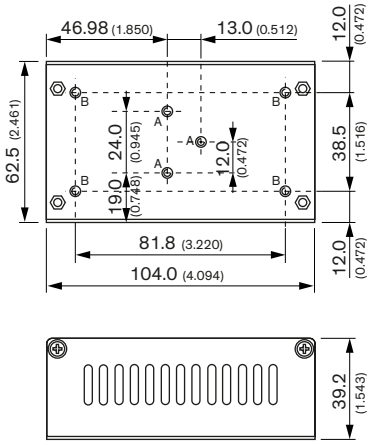
J2	
Pin	Output
1	+ Vout
2	+ Vout
3	+ Vout
4	– Vout
5	– Vout
6	– Vout

J3	
Pin	Remote
1	–
2	+

TCI 240 | 240 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TCI 240-112-J	12 VDC	20000 mA	92.5%
TCI 240-124-J	24 VDC	10000 mA	93%
TCI 240-148-J	48 VDC	5000 mA	94%

- Conduction cooled design approach
- Fanless operation with up to 100% output power
- Operating temperature range –30°C to +80°C
- I/O reinforced isolation 4250 VAC
- Over voltage category (OVC III)
- High efficiency up to 92%
- Operating up to 5000 m altitude
- Internal EN 55032 conducted class B filter
- Protection class I prepared
- 3-year product warranty



Mating input connector:
JST housing: VHR-3N
JST crimp terminals: SVH-41T-P1.1

Mating output connector:
JST housing: VHR-4N
JST crimp terminals: SVH-41T-P1.1

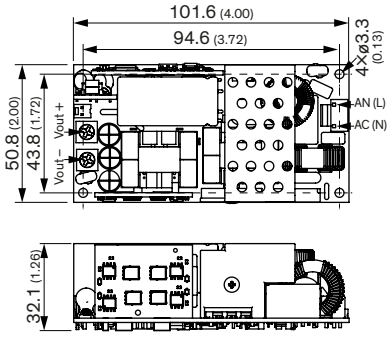
Pin Connectors			
Input		Output	
Pin	Function	Pin	Function
1	AC IN (N)	4, 5, 6	+Vout
2	No Pin	7, 8, 9	–Vout
3	AC IN (L)		

Case	
Pin	Function
10	PE

TPP 250A | 250 W

NEW!





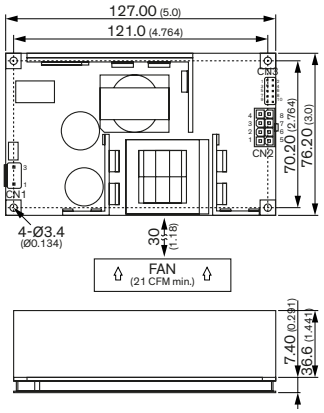
Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 250-112A	12 VDC (12–12.36 VDC)	20.8 A	tbd
TPP 250-124A	24 VDC (24–24.72 VDC)	10.4 A	tbd
TPP 250-128A	28 VDC (28–28.84 VDC)	8.9 A	tbd
TPP 250-136A	36 VDC (36–37.08 VDC)	7 A	tbd
TPP 250-148A	48 VDC (48–49.44 VDC)	5.2 A	tbd

- 250 Watt open frame power supply in 4" × 2" package
- Industrial (62368-1), Medical (60601-1, 2 × MOPP) and Household (60335-1) approvals
- EMC compliance to IEC/EN 60601-1-2 4th edition
- Operating temperature range –40°C to +70°C
- Active PFC >0.95
- High efficiency up to 94%
- Isolation (4000 VAC) and leakage current (<100 µA) rated for BF applications
- Operating up to 5000 m altitude
- 5-year product warranty

TXO 300 | 300 W

NEW!





Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 300-112-J	12 VDC	25000 mA	
TXO 300-124-J	24 VDC	12500 mA	
TXO 300-148-J	48 VDC	6250 mA	

- Cost optimized design
- Open frame power supply in 5" × 3" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty

Pin Connectors

Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (N)	1	–Vout
3	AC (L)	2	
		3	+Vout
		4	
		5	–Vout
		6	
		7	+Vout
		8	

AUX (CN4)			
Pin	Function	Pin	Function
1	+Fan	2	GND
3	+Standby	4	
5	+Remote	6	
7	Power Good	8	
9	+Sense	10	–Sense



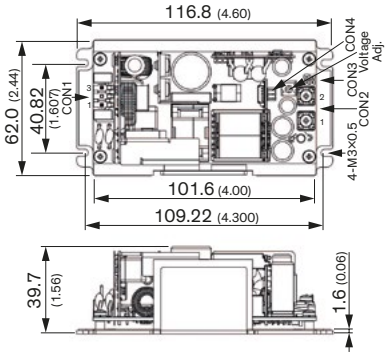
Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

Output: Molex 39-28-1163 Mini-Fit Jr. Vertical Header,
2×4 pins, 4.20mm pitch

AUX: Pin header 2×5 pins, 2.54mm pitch
mates with JST RF

TPI 300L-M | 300 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 300-112L-M	12 VDC (10.8–13.2 VDC)	25 A	91%
TPI 300-115L-M	15 VDC (13.5–16.5 VDC)	20 A	92%
TPI 300-124L-M	24 VDC (21.6–26.4 VDC)	12.5 A	93%
TPI 300-136L-M	36 VDC (32.4–39.6 VDC)	8.3 A	93%
TPI 300-148L-M	48 VDC (43.2–52.8 VDC)	6.25 A	93%
TPI 300-153L-M	53 VDC (47.7–58.3 VDC)	5.67 A	93%



CON1:
Molex housing 09-50-8031
Molex crimp terminals 2478,6838,45570

CON2:
KST ring terminal RVS2-3.7

CON3:
Molex housing 90143-004
Molex crimp terminals 90119

CON4:
Molex housing 51021-0500
Molex crimp terminals 50058, 50078

- High power-density: 300 Watt in 4.6" × 2.44" package (open frame)
- I/O isolation 3000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/UL 62368-1
- Peak power operation up to 360 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- High efficiency up to 93%
- Protection class II prepared
- 3-year product warranty

Max. screw penetration depth: 3.3 (0.130)
Setup screw locked torque: max. 5 kgfcm / 0.49 Nm
CON2 screw locked torque: max. 16.8 kgfcm / 1.65 Nm
wires 24 –14 AWG

Connectors – Connection

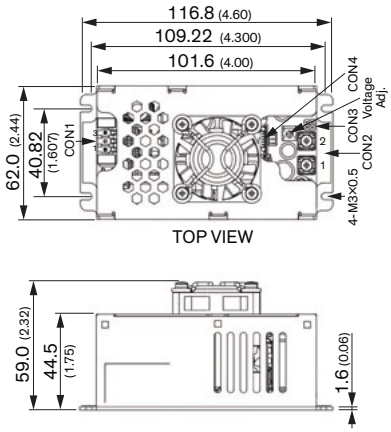
Input (CON1)		Output (CON2)	
Pin	Function	Pin	Function
1	AC (L) / DC (+)	1	+Vout
3	AN (N) / DC (–)	2	–Vout

Auxiliary

CON3		(CON4	
Pin	Function	Pin	Function
1	+Fan	1	+Standby
2	–Fan	2	–Standby
3	+Sense	3	+PG
4	–Sense	4	–Remote
		5	+Remote

TPI 300-M | 300 W





- High power-density: 300 Watt in 4.6" × 2.44" package (encased)
- I/O isolation 3000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/UL 62368-1
- Peak power operation up to 360 Watt for 5s
- Operating temperature –40°C to 80°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- High efficiency up to 93%
- Protection class II prepared
- 3-year product warranty

Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 300-112-M	12 VDC (10.8–13.2 VDC)	25 A	91%
TPI 300-115-M	15 VDC (13.5–16.5 VDC)	20 A	92%
TPI 300-124-M	24 VDC (21.6–26.4 VDC)	12.5 A	93%
TPI 300-136-M	36 VDC (32.4–39.6 VDC)	8.3 A	93%
TPI 300-148-M	48 VDC (43.2–52.8 VDC)	6.25 A	93%
TPI 300-153-M	53 VDC (47.7–58.3 VDC)	5.67 A	93%



Max. screw penetration depth: 3.3 (0.130)

Setup screw locked torque: max. 2.5 kgfcm / 0.25 Nm

CON2 screw locked torque: max. 16.8 kgfcm / 1.65 Nm wires 24–14 AWG

Input	
CON1	
Pin	Function
1	AC (L) / DC (+)
3	AC (N) / DC (–)

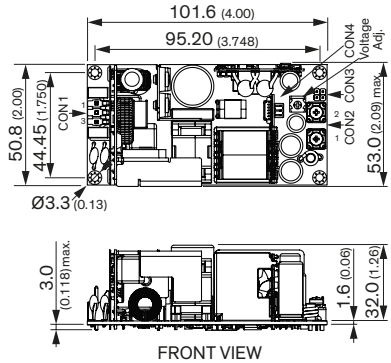
Output	
CON2	
Pin	Function
1	+Vout
2	–Vout

Auxiliary	
CON3	
Pin	Function
1	+Fan
2	–Fan
3	+V Sense
4	–V Sense

Auxiliary	
CON4	
Pin	Function
1	+Standby
2	–Standby
3	+PG
4	–Remote
5	+Remote

TPP 300A-M | 300 W





- High power-density: 300 Watt in 4" × 2" package (open frame)
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Peak power operation up to 360 Watt for 5s
- Operating temperature –40°C to 85°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- 5-year product warranty

Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 300-112A-M	12 VDC (10.8–13.2 VDC)	25 A	91%
TPP 300-115A-M	15 VDC (13.5–16.5 VDC)	20 A	92%
TPP 300-124A-M	24 VDC (21.6–26.4 VDC)	12.5 A	93%
TPP 300-136A-M	36 VDC (32.4–39.6 VDC)	8.3 A	93%
TPP 300-148A-M	48 VDC (43.2–52.8 VDC)	6.25 A	93%
TPP 300-153A-M	53 VDC (47.7–58.3 VDC)	5.67 A	93%



Input	
CON1	
Pin	Function
1	AC (L) / DC (+)
3	AC (N) / DC (–)

Output	
CON2	
Pin	Function
1	+Vout
2	–Vout

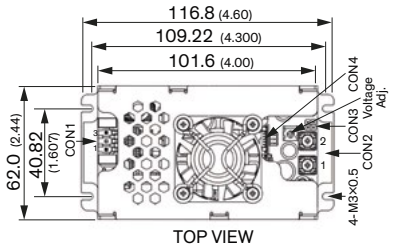
Auxiliary	
CON3	
Pin	Function
1	+Fan
2	–Fan
3	+Sense
4	–Sense

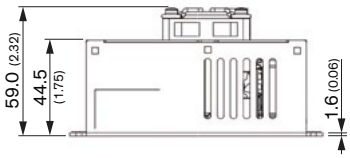
Auxiliary	
CON4	
Pin	Function
1	+Standby
2	–Standby
3	PG
4	–Remote
5	+Remote

TPP 300-M | 300 W



- High power-density: 300 Watt in 4.6" × 2.44" package (encased)
- I/O isolation 4000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 × MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Peak power operation up to 360 Watt for 5s
- Operating temperature –40°C to 80°C
- Active power factor correction >0.9
- Operating up to 5000 m altitude
- 5-year product warranty





Input	
CON1	
Pin	Function
1	AN (N)
2	–
3	AC (L)

Output	
CON2	
Pin	Function
1	+Vout
2	–Vout

Auxiliary	
CON3	
Pin	Function
1	+Fan
2	–Fan
3	+Sense
4	–Sense

Auxiliary	
CON4	
Pin	Function
1	+Standby
2	–Standby
3	PG
4	Control
5	Remote

Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 300-112-M	12 VDC (10.8–13.2 VDC)	25 A	91%
TPP 300-115-M	15 VDC (13.5–16.5 VDC)	20 A	91%
TPP 300-124-M	24 VDC (21.6–26.4 VDC)	12.5 A	93%
TPP 300-136-M	36 VDC (32.4–39.6 VDC)	8.3 A	93%
TPP 300-148-M	48 VDC (43.2–52.8 VDC)	6.25 A	93%
TPP 300-153-M	53 VDC (47.7–58.3 VDC)	5.67 A	93%



Max. screw penetration depth: 3.3 (0.130)

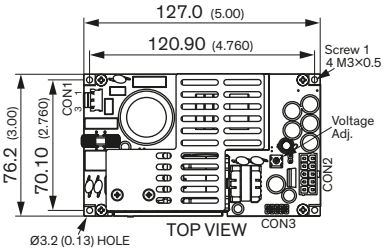
Setup screw locked torque: max. 2.5 kgfcm / 0.25 Nm

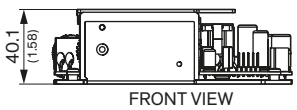
CON2 screw locked torque: max. 16.8 kgfcm / 1.65 Nm wires 24–14 AWG

TPP 450BA | 450 W



- 450 Watt open frame power supply in 5" × 3" package
- 450 Watt with forced air cooling, up to 320 Watt convection cooled without derating up to 50°C
- Industrial (62368-1) and Medical (60601-1, 2 × MOPP) approvals
- EMC compliance to IEC/EN 60601-1-2 4th edition
- Protection Class II prepared
- Risk management process according to ISO 14971 incl. risk management file
- Isolation (4000 VAC) and leakage current (<100 µA) rated for BF applications
- 5 V standby output, Remote On/Off, DC-OK Signal, variable fan speed
- Operating up to 5000 m altitude
- 5-year product warranty





Input	
CON1	
Pin	Function
1	AC (L)
3	AC (N)

Output	
CON2	
Pin*	Function
1–5	+Vout
6–10	–Vout

Auxiliary	
CON3	
Pin	Function
1	+Fan
2	+Sense
3	+Remote
4	PG
5	+Standby
6	–Fan
7	–Sense
8	–Remote
9	No Pin
10	–Standby

Model	Output Voltage nom. (adjustable)	Output Current max. (Forced air cooling)	Efficiency typ.
TPP 450-112BA-M	12 VDC (11.0–13.0 VDC)	37500 mA	91%
TPP 450-115BA-M	15 VDC (13.8–16.2 VDC)	30000 mA	92%
TPP 450-124BA-M	24 VDC (22.1–25.9 VDC)	18750 mA	93%
TPP 450-128BA-M	28 VDC (25.8–30.2 VDC)	16100 mA	93%
TPP 450-136BA-M	36 VDC (33.1–38.9 VDC)	12500 mA	93%
TPP 450-148BA-M	48 VDC (44.2–51.8 VDC)	9400 mA	94%
TPP 450-153BA-M	53 VDC (48.8–57.2 VDC)	8550 mA	94%

Output Current max. (Natural convection):
20800 mA
16600 mA
13300 mA
11400 mA
8900 mA
6650 mA
6050 mA



* Terminal rated for 13 A max.
(at higher current connection has to be split)

CON1:
Molex housing:
09-50-8031
Molex crimp terminals:
2478,6838,45570

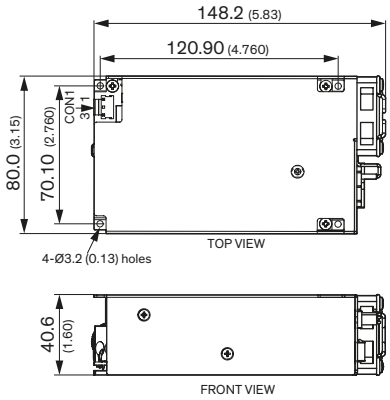
CON2:
Molex housing:
39-01-2105
Molex crimp terminals:
5556,45750

CON3:
Molex housing:
90143-0010
Molex crimp terminals:
90119

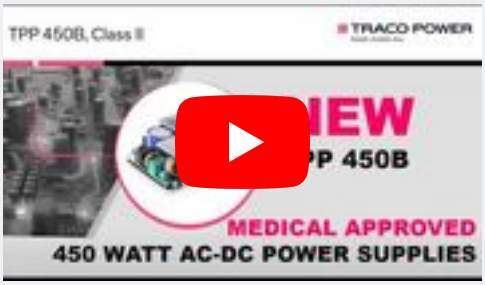
TPP 450B | 450 W



- 450 Watt encased power supply in 5.8" × 3" package
- 450 Watt with forced air cooling, up to 320 Watt convection cooled without derating up to 50°C
- Industrial (62368-1) and Medical (60601-1, 2 × MOPP) approvals
- EMC compliance to IEC/EN 60601-1-2 4th edition
- Protection Class II prepared
- Risk management process according to ISO 14971 incl. risk management file
- Isolation (4000 VAC) and leakage current (<100 µA) rated for BF applications
- 5 V standby output, Remote On/Off, DC-OK Signal, variable fan speed
- Operating up to 5000 m altitude
- 5-year product warranty



Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 450-112B-M	12 VDC (11.0–13.0 VDC)	37500 mA	91%
TPP 450-115B-M	15 VDC (13.8–16.2 VDC)	30000 mA	92%
TPP 450-124B-M	24 VDC (22.1–25.9 VDC)	18750 mA	93%
TPP 450-128B-M	28 VDC (25.8–30.2 VDC)	16100 mA	93%
TPP 450-136B-M	36 VDC (33.1–38.9 VDC)	12500 mA	93%
TPP 450-148B-M	48 VDC (44.2–51.8 VDC)	9400 mA	94%
TPP 450-153B-M	53 VDC (48.8–57.2 VDC)	8550 mA	94%



Input	
CON1	
Pin	Function
1	AC (L)
3	AC (N)

Output	
CON2	
Pin*	Function
1–5	–Vout
6–10	+Vout

Auxiliary	
CON3	
Pin	Function
1	+Fan
2	+Sense
3	+Remote
4	PG
5	+Standby
6	–Fan
7	–Sense
8	–Remote
9	No Pin
10	–Standby

* Terminal rated for 13 A max.
(at higher current connection has to be split)

CON1:
Molex housing:
09-50-8031
Molex crimp terminals:
2478,6838,45570

CON2:
Molex housing:
39-01-2105
Molex crimp terminals:
5556,45750

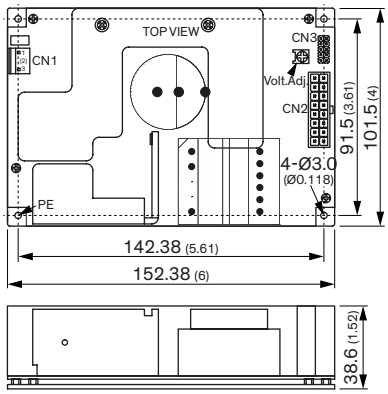
CON3:
Molex housing:
90143-0010
Molex crimp terminals:
90119

TXO 500 | 500 W

NEW!



- Cost optimized design
- Open frame power supply in 6" × 4" package
- I/O reinforced isolation 4000 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Efficiency up to 93%
- Protection class II prepared
- Adjustable output voltage
- 3-year product warranty



Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 500-112-J	12 VDC	37500 mA	
TXO 500-124-J	24 VDC	20840 mA	
TXO 500-148-J	48 VDC	10420 mA	

Pin Connectors			
Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (L)	1–4	–Vout
3	AC (N)	9–12	
		5–8	+Vout
		13–16	

AUX (CN3)			
Pin	Function	Pin	Function
1	–Sense	2	+Sense
3	GND	4	Power Good
5	–Remote	6	+Remote
7	Standby GND	8	+Standby
9	Fan GND	10	+Fan

Input: WAFER 3-1PIN(NC2)P
mates with 3.96mm JST B3P-VH

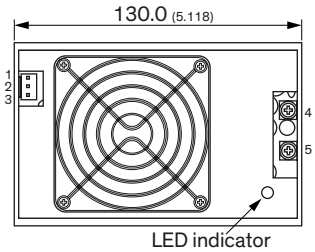
Output: Molex 39-28-1163 Mini-Fit Jr. Vertical Header,
2×8 pins, 4.20mm pitch
mates with Molex 39-01-2160

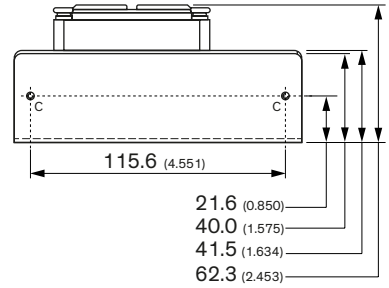
AUX: Pin header 2×5 pins, 2.54mm pitch
mates with JST RF

TCI 500 | 500 W

NEW!







Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TCI 500-112-T	12 VDC	41500 mA	90%
TCI 500-124-T	24 VDC	20800 mA	90.5%
TCI 500-148-T	48 VDC	10410 mA	91.5%

- Forced air cooled design approach
- Operating temperature range –30°C to +70°C
- I/O reinforced isolation 4250 VAC
- Over voltage category (OVC III)
- High efficiency up to 92%
- Operating up to 5000 m altitude
- Internal EN 55032 conducted class B filter
- Protection class I prepared
- 3-year product warranty



Pinout			
Pin	Screw Terminals	Pin	Connector CN1
1	AC IN (N)	1	–5V Standby Power
2	No Pin	2	+5V Standby Power
3	AC IN (L)	3	GND
4	+ Vout	4	Power Good
5	– Vout	5	–Remote On/Off
		6	+Remote On/Off
		7	–Sense
		8	+Sense

NC: Not connected

Output Screw Terminals:
M3.5 Pan head screw, max. Torque: 0.9 Nm

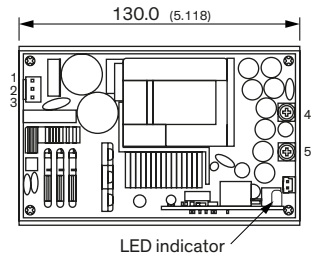
Connector CN1: JST series
mates with JST crimp terminal: SPHD-001T-P0.5
and terminal housing: PHDR-08VS

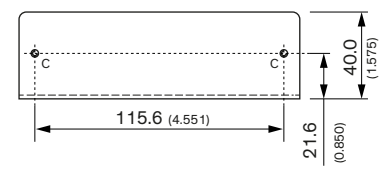
Case	
Pin	Function
A, B	PE

TCI 500U | 500 W

NEW!







Model	Output Voltage nom.	Output Current max.	Efficiency typ.
TCI 500-112U-T	12 VDC	41500 mA	90.5%
TCI 500-124U-T	24 VDC	20800 mA	91%
TCI 500-148U-T	48 VDC	10410 mA	92%

- Conduction cooled design approach
- Fanless operation with up to 90% output power
- Operating temperature range –30°C to +80°C
- I/O reinforced isolation 4250 VAC
- Over voltage category (OVC III)
- High efficiency up to 92%
- Operating up to 5000 m altitude
- Internal EN 55032 conducted class B filter
- Protection class I prepared
- 3-year product warranty



Pinout			
Pin	Screw Terminals	Pin	Connector CN1
1	AC IN (N)	1	–5V Standby Power
2	No Pin	2	+5V Standby Power
3	AC IN (L)	3	GND
4	+ Vout	4	Power Good
5	– Vout	5	–Remote On/Off
		6	+Remote On/Off
		7	–Sense
		8	+Sense

Output Screw Terminals:
M3.5 Pan head screw, max. Torque: 0.9 Nm

Input: JST series
mates with JST crimp terminal: SVH-41T-P1.1
and terminal housing: VHR-3N

Connector CN1: JST series
mates with JST crimp terminals: SPHD-001T-P0.5
and terminal housing: PHDR-08VS

Connector FAN: JST series
mates with JST crimp terminals: SXH-002T-P0.6
and terminal housing: XHP-2

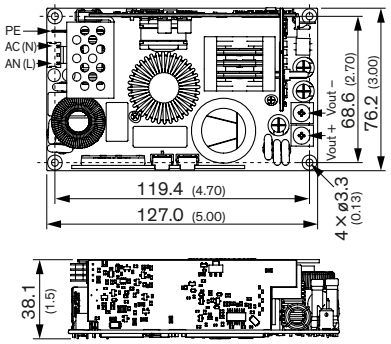
Connector FAN	
Pin	+12 V
A, B	GND

Case	
Pin	PE
A, B	

TPP 600A | 600 W

NEW!





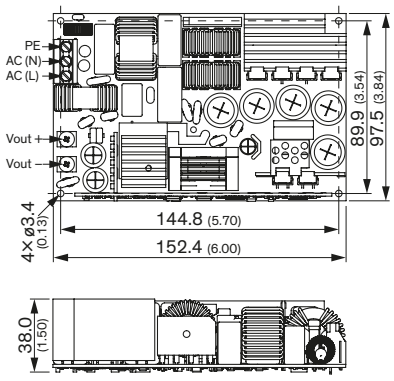
Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 600-124A	24 VDC (24–24.72 VDC)	25 A	tbd
TPP 600-128A	28 VDC (28–28.84 VDC)	21.4 A	tbd
TPP 600-136A	36 VDC (36–37.08 VDC)	16.7 A	tbd
TPP 600-148A	48 VDC (48–49.44 VDC)	12.5 A	tbd

- 600 Watt open frame power supply in 5" × 3" package
- Industrial (62368-1), Medical (60601-1, 2 × MOPP) and Household (60335-1) approvals
- EMC compliance to IEC/EN 60601-1-2 4th edition
- Operating temperature range –40°C to +70°C
- Active PFC >0.95
- High efficiency up to 94%
- Isolation (4000 VAC) and leakage current (<100 µA) rated for BF applications
- Operating up to 5000 m altitude
- 5-year product warranty

TPP 850L | 850 W

NEW!





Model	Output Voltage nom. (ajustable)	Output Current max.	Efficiency typ.
TPP 850-124L	24 VDC (24–24.72 VDC)	35.4 A	tbd
TPP 850-128L	28 VDC (28–28.84 VDC)	30.4 A	tbd
TPP 850-136L	36 VDC (36–37.08 VDC)	23.6 A	tbd
TPP 850-148L	48 VDC (48–49.44 VDC)	17.7 A	tbd

- 850 Watt open frame power supply in 6" × 4" package
- Industrial (62368-1), Medical (60601-1, 2 × MOPP) and Household (60335-1) approvals
- EMC compliance to IEC/EN 60601-1-2 4th edition
- Operating temperature range –40°C to +70°C
- Active PFC > 0.95
- High efficiency up to 94%
- Isolation (4000 VAC) and leakage current (<100 µA) rated for BF applications
- Operating up to 5000 m altitude
- 5-year product warranty

Outdoor Power Supply

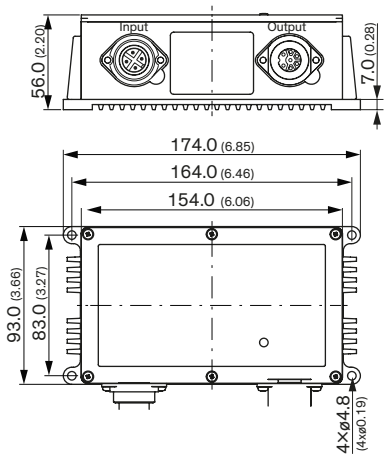
120 watt

The TEX series are industrial power supplies in a rugged die-cast aluminium enclosure. The design is water (incl. sea water), ice, oil and dust proof and complies with IP67 and NEMA 4X standards. They feature a high operating temperature range from –40°C up to 85°C. Safety approval includes ATEX 94/9/EC and IECEx for applications in hazardous locations.



TEX 120 | 120 W





Model	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TEX 120-112	12 VDC	8.0 A	87%
TEX 120-124	24 VDC	5.0 A	87%

- Rugged isolated power supplies for harsh outdoor environments
- Dust, water (incl. salt water), ice and oil resistant enclosure
- IP67 and NEMA 4X rated
- Connection via waterproof I/O plug-connectors
- Shock & vibration proof construction
- Operating temp. range –40°C to +85°C
- DC-OK indicator, voltage adjust
- Low ripple and noise
- Class I, zone 2 approval incl. ATEX certification
- 3-year product warranty

DIN-Rail Power Supplies

15–600 watt

Standard DIN-rail power supplies for Industrial, automotive, commercial and communications applications, from 6 Watt up to 600 Watt, worldwide safety approvals, hazloc models with limited power or ATEX certification.



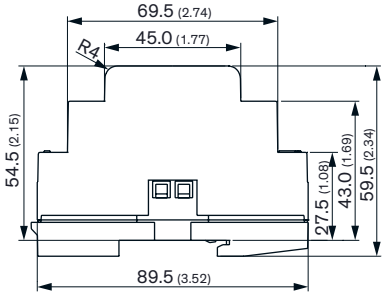


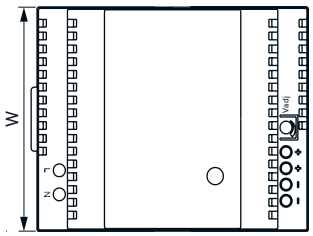


TBL | 15–150 W



- Low profile case, module depth only 55 mm
- Fits into flat control panels used in building automation
- Safety class II product
- UL 1310 class II, NEC class 2 compliance (models up to 90 W)
- UL 508 listed
- 5 power ranges from 15 to 150 W
- Universal input range 85 to 264 VAC
- Operating temperature range: –25°C to +70°C max.
- Adjustable output voltage
- Short circuit and overload protection
- product warranty 3-year





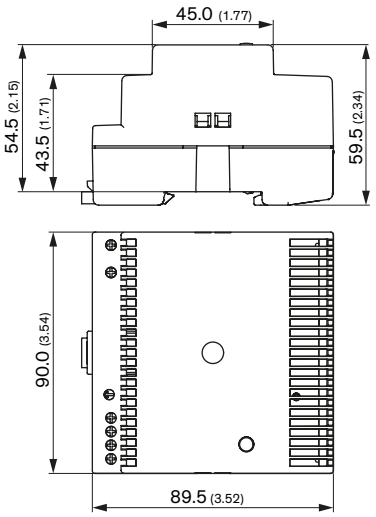
Dimension Table		Weigth
Model	Width [W]	[g]
TBL 015	26.3 mm (1.04)	100
TBL 030	52.5 mm (2.07)	160
TBL 060	70.0 mm (2.76)	230
TBL 090	105 mm (4.13)	340
TBL 150	175 mm (6.89)	625

Model	Output Power (max.)	Output Voltage* (nom.) (adjust.)	Output Current (max.)	Efficiency (typ.)
TBL 015-105	12 W	5.0 VDC	2.4 A	73%
TBL 015-112	15 W	12 VDC	1.25 A	79%
TBL 015-124	15 W	24 VDC	0.63 A	81%
TBL 030-112	30 W	12 VDC	2.5 A	81%
TBL 030-124	30 W	24 VDC	1.25 A	83%
TBL 060-112	54 W	12 VDC	4.5 A	83%
TBL 060-124	60 W	24 VDC	2.5 A	85%
TBL 090-112	72 W	12 VDC	6.0 A	84%
TBL 090-124	90 W	24 VDC	3.75 A	86%
TBL 150-112	120 W	12 VDC	10 A	84%
TBL 150-124	150 W	24 VDC	6.25 A	87%

TBLC | 6–90 W



- High power density in low profile case, module depth only 55 mm
- For distributed power, suitable for mounting in domestic installation panels
- Low output ripples and spikes
- Very high efficiency and low standby current → compliance to ECO-Standard
- Suitable for household appliance and industrial applications
- UL 1310 class II, NEC class 2 compliance and UL 508 listed
- Universal input range 85 to 264 VAC
- Operating temperature range: –25°C to +70°C max.
- Short circuit and overload protection
- Adjustable output voltage and DC-OK indicator LED
- product warranty 3-year



Dimension Table		Weigth
Model	Width [W]	[g]
TBLC 06	18 mm (0.71)	60
TBLC 15	27 mm (1.08)	80
TBLC 25	36 mm (1.42)	110
TBLC 50	54 mm (2.13)	180
TBLC 75	72 mm (2.83)	220
TBLC 90	90 mm (3.54)	280

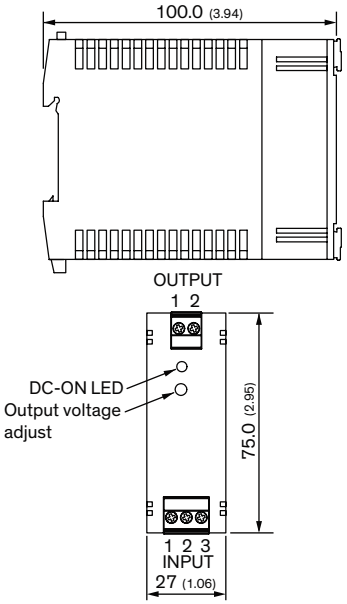
Model	Output Power (max.)	Output Voltage* (nom.) (adjust.)	Output Current (max.)	Efficiency (typ.)
TBLC 06-105	6 W	5.0 VDC	1.2 A	74%
TBLC 06-112	6 W	12 VDC	0.5 A	81%
TBLC 06-124	6 W	24 VDC	0.25 A	79%
TBLC 15-105	12 W	5.0 VDC	2.4 A	81%
TBLC 15-112	15 W	12 VDC	1.25 A	85%
TBLC 15-124	15 W	24 VDC	0.63 A	85%
TBLC 25-105	20 W	5.0 VDC	4.0 A	82%
TBLC 25-112	24 W	12 VDC	2.0 A	86%
TBLC 25-124	25 W	24 VDC	1.05 A	87%
TBLC 50-112	48 W	12 VDC	4.0 A	88%
TBLC 50-124	50 W	24 VDC	2.1 A	89%
TBLC 75-112	72 W	12 VDC	6.0 A	89%
TBLC 75-124	75 W	24 VDC	3.1 A	89%
TBLC 90-112	90 W	12 VDC	7.5 A	90%
TBLC 90-124	90 W	24 VDC	3.75 A	90%

* Output voltage can be adjusted as indicated. However, output power has to be maintained at nominal value. This means the output nominal current has to be reduced in accordance with the increase of output voltage.

TCL | 24–240 W



- For industrial, office and residential applications
- Ultracompact plastic housing
- Connection by spring clamp terminals or detachable screw terminal block
- Reliable snap-on mounting on DIN-rails
- Adaptor for wall mounting
- Universal input 85–264 VAC, 50/60 Hz
- Output voltage adjustable
- Power OK signal
- Low ripple and noise
- Overload and short-circuit protection
- product warranty 3-year



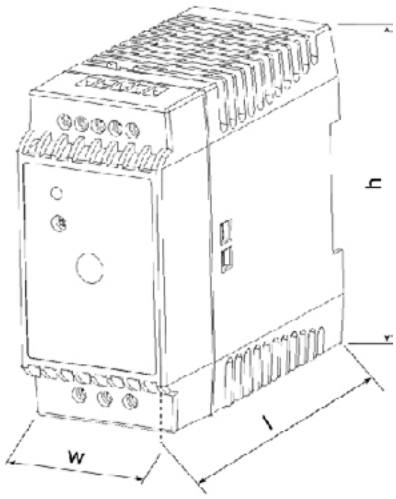
Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TCL 024	27 mm (1.06)	100 mm (3.94)	75 mm (2.95)
TCL 60	45 mm (1.77)	100 mm (3.94)	75 mm (2.95)
TCL 120	85 mm (3.35)	100 mm (3.94)	75 mm (2.95)
TCL 240	85 mm (3.35)	125 mm (4.92)	110 mm (4.33)

Model	Input Voltage Ranges	Output Power max.	Output Voltage nom.	Output Current (max.)	Connection
TCL 024–105	85–264 VAC Universal Input 50/60 Hz 85–375 VDC	20 W	5 VDC	4.0 A	Detachable screw terminal blocks
TCL 024–112		24 W	24 VDC	2.0 A	
TCL 024–124				1.0 A	
TCL 060–112		48 W	12 VDC	4.0 A	
TCL 060–124		60 W	24 VDC	2.5 A	
TCL 060–148			48 VDC	1.25 A	
TCL 120–112		96 W	12 VDC	8.0 A	
TCL 120–124		120 W	24 VDC	5.0 A	
TCL 240–124	85–132 / 187–264 VAC	240 W	24 VDC	10.0 A	
TCL 024–124C	85–264 VAC Universal Input 50/60 Hz 85–375 VDC	24 W	24 VDC	1.0 A	Spring clamp terminals
TCL 060–112C		48 W	12 VDC	4.0 A	
TCL 060–124C		60 W	24 VDC	2.5 A	
TCL 060–148C			48 VDC	1.25 A	
TCL 120–112C		96 W	12 VDC	8.0 A	
TCL 120–124C		120 W	24 VDC	5.0 A	

TPC | 30–120 W



- For industrial, office and residential environments
- Meets European ErP directive (green mode), <0.3 W no load power consumption
- High efficiency across full load range
- Compact plastic case
- Reliable snap-on mounting on DIN-rails or with wall mounting bracket (not included)
- Output voltage adjustable
- Power good signal
- Low ripple and noise
- Overload and short-circuit protection
- Optional module for parallel and redundant operation
- product warranty 3-year



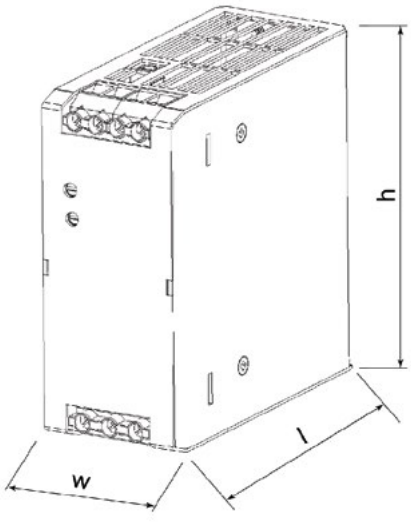
Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TPC 30	26.5 mm (1.04)	96.5 mm (3.80)	90 mm (3.54)
TPC 55	45 mm (1.77)	96.5 mm (3.80)	90 mm (3.54)
TPC 80	63 mm (2.48)	96.5 mm (3.80)	90 mm (3.54)
TPC 120	72 mm (2.83)	110 mm (4.33)	90 mm (3.54)

Model	Input Voltage Ranges	Output Power max.	Output Voltage nom./adj. range	Output Current (max.)
TPC 030–105	85–264 VAC Universal Input 47/63 Hz	20 W	5.0 VDC/5.0–6.0 VDC	4.0 A
TPC 030–112		26 W	12 VDC/12–15 VDC	2.2 A
TPC 030–124		30 W	24 VDC/24–28.8 VDC	1.25 A
TPC 030–148		30 W	48 VDC/48–56 VDC	0.6 A
TPC 055–112		42 W	12 VDC/12–15 VDC	3.5 A
TPC 055–124		55 W	24 VDC/24–28.8 VDC	2.3 A
TPC 055–148		55 W	48 VDC/48–56 VDC	1.15 A
TPC 080–112	90–375 VDC	72 W	12 VDC/12–15 VDC	6.0 A
TPC 080–124		80 W	24 VDC/24–28.8 VDC	3.3 A
TPC 080–148		80 W	48 VDC/48–56 VDC	1.7 A
TPC 120–112		96 W	12 VDC/12–15 VDC	8.0 A
TPC 120–124		120 W	24 VDC/24–28.8 VDC	5.0 A
TPC 120–148		120 W	48 VDC/48–56 VDC	2.5 A

TIB | 80–480 W



- Slim profile, for DIN-rail mounting
- Alternative side-mounting for flat panels
- High power factor by active power correction
- Very high efficiency up to 94.5%
- Power Back immunity
- 150% peak current for 4 sec.
- Operating temperature range: –40°C to +70°C max.
- Adjustable output voltage
- Short circuit and overload protection
- DC–OK indicator
- product warranty 3-year



Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TIB 080	32 mm	99 mm	114 mm
TIB 120	36 mm	119 mm	125 mm
TIB 240	48 mm	119 mm	125 mm
TIB 480	82 mm	119 mm	125 mm

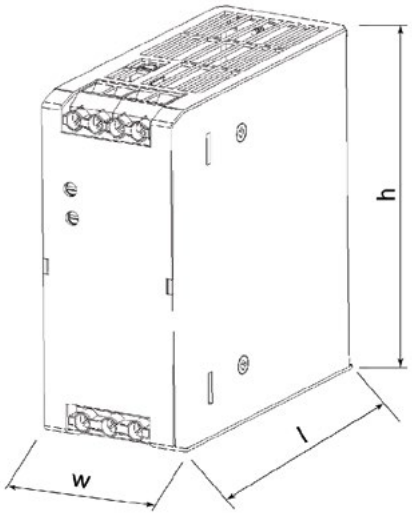
Model	Output Voltage nom. Range	Output Current max.	Output Current peak	Efficiency
TIB 080-112	12 VDC	6700 mA	10050 mA	88%
TIB 080-124	24 VDC	3400 mA	5100 mA	90%
TIB 080-148	48 VDC	1700 mA	2550 mA	90%
TIB 120-112	12 VDC	10000 mA	15000 mA	94%
TIB 120-124	24 VDC	5000 mA	7500 mA	94%
TIB 120-148	48 VDC	2500 mA	3750 mA	94%
TIB 240-124	24 VDC	10000 mA	15000 mA	95%
TIB 240-148	48 VDC	5000 mA	7500 mA	95%
TIB 480-124	24 VDC	20000 mA	30000 mA	95%
TIB 480-148	48 VDC	10000 mA	15000 mA	95%



TIB-EX | 80–480 W



- UL Hazloc Class I, division 2 approval and ATEX certification for EX-models
- Efficiency 90–94% typical, model dependent
- 150% peak power for 4 seconds
- Rugged metal case with optional side-mounting
- Back power immunity/short-circuit/ overload protection
- SEMI F47 compliant for voltage sag immunity
- Operating Temp –40°C to +70°C (full load up to 60°C)
- High Reliability: MTBF 1 mill hrs per IEC 61709
- product warranty 3-year



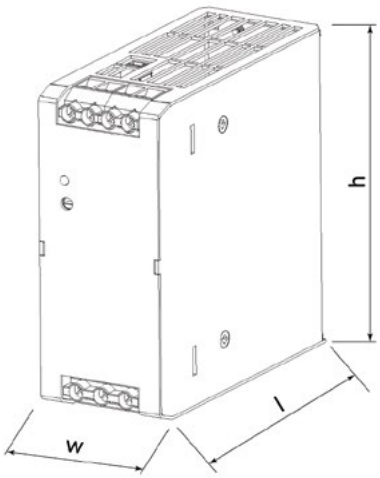
Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TIB 080-EX	32 mm	99 mm	114 mm
TIB 120-EX	36 mm	119 mm	125 mm
TIB 240-EX	48 mm	119 mm	125 mm
TIB 480-EX	82 mm	119 mm	125 mm

Model	Output Voltage nom. Range	Output Current max.	Output Current peak	Efficiency
TIB 080-112EX	12 VDC	6700 mA	10050 mA	88%
TIB 080-124EX	24 VDC	3400 mA	5100 mA	90%
TIB 080-148EX	48 VDC	1700 mA	2550 mA	90%
TIB 120-112EX	12 VDC	10000 mA	15000 mA	94%
TIB 120-124EX	24 VDC	5000 mA	7500 mA	94%
TIB 120-148EX	48 VDC	2500 mA	3750 mA	94%
TIB 240-124EX	24 VDC	10000 mA	15000 mA	95%
TIB 240-148EX	48 VDC	5000 mA	7500 mA	95%
TIB 480-124EX	24 VDC	20000 mA	30000 mA	95%
TIB 480-148EX	48 VDC	10000 mA	15000 mA	95%

TSPC | 50–480 W



- Rugged metal case for harsh industrial environments
- Industrial operating temperature range: –25°C to +70°C
- Overload and and overtemperature protection
- Power boost up to 120%
- Power-Good signal
- Shock and vibration proof
- International safety approval package
- ATEX certification for hazardous locations
- Decoupling module for redundant operation (optional)
- Wall mounting (opt.)
- product warranty 3-year



Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TSPC 050	35 mm	87 mm	110 mm
TSPC 080	40 mm	110 mm	110 mm
TSPC 120	46 mm	110 mm	110 mm
TSPC 240	60 mm	110 mm	110 mm
TSPC 480	150 mm	115 mm	115 mm

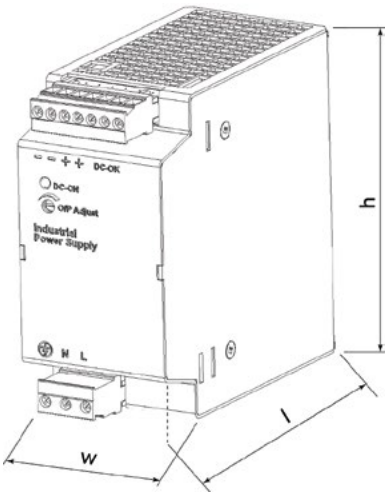
Model	Output power nominal	Output voltage nominal	Output Current max.
TSPC 050-112	50 W	12 VDC	4.0 A
TSPC 050-124HL*	50 W	24 VDC	2.1 A
TSPC 050-124	50 W	24 VDC	2.1 A
TSPC 080-112	80 W	12 VDC	6.6 A
TSPC 080-124	80 W	24 VDC	3.3 A
TSPC 120-124	120 W	24 VDC	5.0 A
TSPC 120-148	120 W	48 VDC	2.5 A
TSPC 240-124	240 W	24 VDC	10 A
TSPC 240-148	240 W	48 VDC	5.0 A
TSPC 480-124	480 W	24 VDC	20 A
TSPC 480-148	480 W	48 VDC	10 A

* Additionally complies with UL hazloc

TSP | 72–600 W



- Rugged metal case for harsh industrial environments
- Shock and vibration proof
- Worlwide Safety approval package.
- ATEX certification tested in accordance to IECEX (opt. EX)
- Model TSP 090-124N meets NEC class 2
- Industrial operating temperature range: –25°C to +70°C
- Adjustable output voltage
- Protection against short-circuit, overvoltage and over-temperature
- Power OK signal, Remote On/Off
- Wall mounting (opt.)
- 3-year product warranty



Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TSP 070/090	35 mm	110 mm	110 mm
TSP 140/180	54 mm	110 mm	110 mm
TSP 360	80 mm	125 mm	125 mm
TSP 600	165 mm	125 mm	125 mm

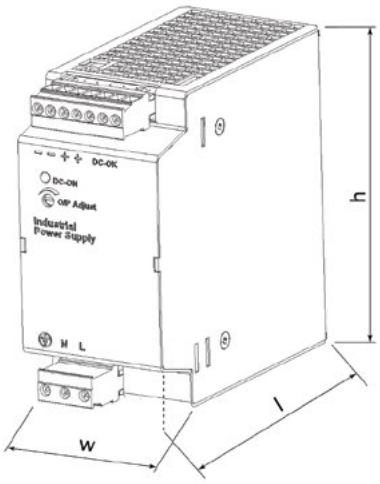
Model	Output Power (Pmax)	**Output Voltage (Vnom)	***Output Current (Imax)
TSP 070–112*	72 W	12 VDC	6.0 A
TSP 090–124*	90 W	24 VDC	3.75 A
TSP 090–124N	90 W	24 VDC	3.75 A
TSP 090–148*	96 W	48 VDC	2.0 A
TSP 140–112*	144 W	12 VDC	12.0 A
TSP 180–124*	180 W	24 VDC	7.5 A
TSP 180–148*	192 W	48 VDC	4.0 A
TSP 360–124*	360 W	24 VDC	15.0 A
TSP 360–148*		48 VDC	7.5 A
TSP 600–124*	600 W	24 VDC	25.0 A
TSP 600–136		36 VDC	16.5 A
TSP 600–148*		48 VDC	12.5 A

* For ATEX compliant models add appendix -EX to order code.

TSP-WR | 180–600 W



- For global use with single- and two phase wide-range input 100/230–500 VAC
- Rugged metal case for harsh industrial environments
- Industrial operating temperature range: –25°C to +70°C
- Power OK signal
- Remote On/Off
- Shock and vibration-proof
- Indefinite short circuit, overvoltage and overtemperature protection
- Redundancy module
- Buffer module for power backup
- Battery controller module
- product warranty 3-year



Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TSP 180-WR	54 mm	110 mm	110 mm
TSP 360-WR	80 mm	125 mm	125 mm
TSP 600-WR	190 mm	125 mm	125 mm

Model	Output Voltage (Vnom)	*Output Current (Imax)	Output Power (Pmax)
TSP 180-124WR	24 VDC (adjustable 24–28 VDC)	7.5 A	180 W
TSP 360-124WR		15.0 A	360 W
TSP 600-124WR		25.0 A	600 W

UPS Systems and Function Modules (DIN-Rail and Industrial Cabinets)

Standard DIN-rail power supplies for Industrial, automotive, commercial and communications applications, from 6 Watt up to 600 Watt, worldwide safety approvals, hazloc models with limited power or ATEX certification.

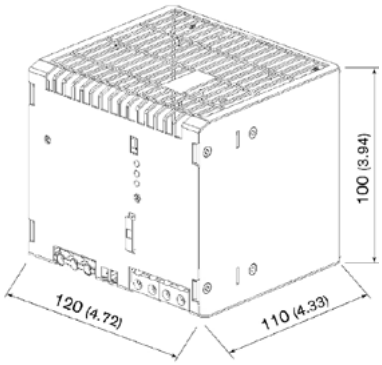






UPS SYSTEM | TSPC-240-124UPS | 240 W





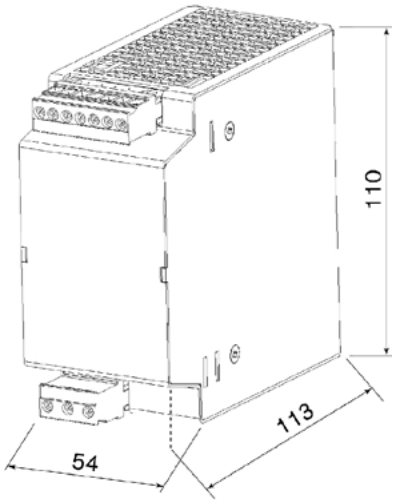
- Compact universal power supply for uniterruptable 24 VDC output voltage
- Battery protection for over voltage, deep discharge, short circuit and reverse connection
- Alarm outputs for input, output and battery condition
- Remote On/Off for UPS function and power supply
- Controlled end of charge voltage by battery temperature sensor
- International safety approval package
- Suitable for various external 12 VDC lead acid batteries
- 3-year product warranty

Model	Input Voltage Range	Outpur Current max.*	Back up Battery
TSPC 240-124 UPS	Low Line: 85–132 VAC High Line: 187–264 VAC	24 VDC / 12 A	12 V lead acid battery (to purchase on local market)

* Maximum current at nominal Vout

BATTERY CONTROLLER MODULES | TSP-BCMU | 360 W





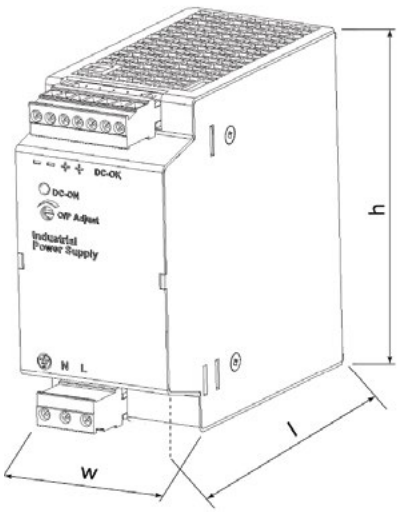
Model	Inputs	Input Voltage Range	Output Current max.*	Back up Battery
TSP-BCMU360	2 × 360 W, for any single or two identical 24 VDC or 48 VDC sources	24–28 or 48–56 VDC (range selection with jumper)	24 VDC/15 A 48 VDC/7.5 A	12V lead acid battery (to purchase on local market, or TRACO POWER battery pack)

* Maximum current at nominal Vout

- Battery controller module (BCM)
- Redundant inputs for two independant sources
- Alarm signals
- Input for 12 V battery
- Battery protection system
- Remote On/Off
- 3-year product warranty

BATTERY CONTROLLER MODULES | TSP-BCM | 12–48 VDC





Model	Input	Max. Power per Input	Output Voltage	Output Current max.	Output Power max.
TSP-BCM12	12 VDC	144 W	12 VDC	12.0 A	144 W
TSP-BCM24	24 VDC	360 W	24 VDC	15.0 A	360 W
TSP-BCM48	48 VDC	360 W	48 VDC	7.5 A	360 W
TSP-BCM24A	24 VDC	600 W	24 VDC	25.0 A	600 W
TSP-BCM48A	48 VDC	600 W	48 VDC	12.5 A	600 W

- Battery protection for over voltage, deep discharge, short circuit and reverse connection
- Alarm outputs for input, output and battery condition
- Remote On/Off for battery and power supply
- Controlled end of charge voltage by temperature sensor
- International safety approval package
- 3-year product warranty

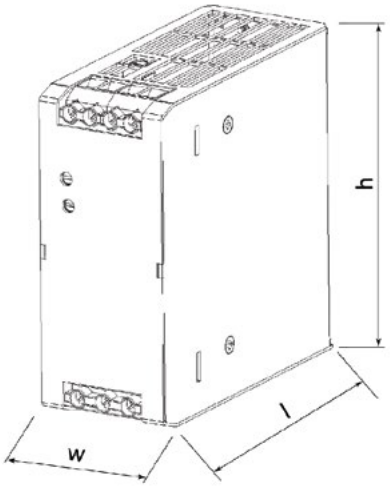
Dimension Table

Model	Width [W]	Length[l]	Heigth[h]
TSP-BCM 144–360 Watt	35 mm	110 mm	110 mm
TSP-BCM 600 Watt	54 mm	110 mm	110 mm

BATTERY CONTROLLER MODULES | TIB-BCMU | 240 W

NEW!





Model	Input Voltage nom.	Output Voltage nom.	Output Current max.
TIB240-124BCMU	24.0–28.0 VDC		10 A

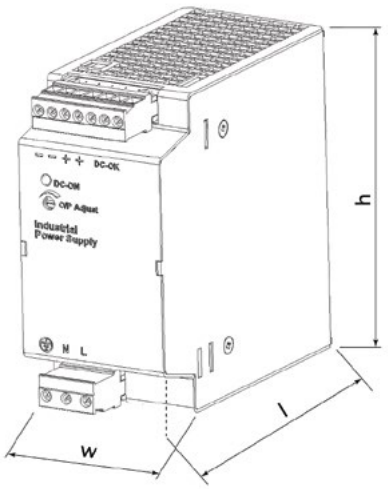
- Compact metal enclosure with DIN-rail mount
- Uninterruptible power supply (UPS) function
- For use with 24V lead-acid batteries
- Constant output voltage
- >96% efficiency during battery operation
- >98% efficiency during pass-through operation
- Integrated EN 55011 class B EMI filter
- Battery OK, input OK, output OK signals
- Protection against: short circuit, reverse polarity, overload, deep-discharge protection
- 3-year product warranty

Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TIB240-124UPS	48.0 mm	114.2 mm	124.2 mm



BUFFER MODULE | TSP-BFM | 600 W





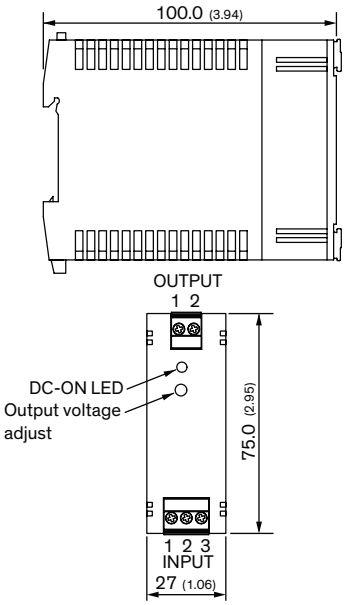
Model	Input	Buffer Time	Output Voltage adjust.	Output Current max.*	Output Power- max.
TSP–BFM24	24 VDC	200 ms typ. @ 25 A max. 4 s max. @ 1.2 A	24 VDC	25.0 A	600 W

* Maximum current at nominal Vout

- Capacitor bank for energy storage, no battery needed!
- Guaranteed Hold-up-time 200 ms/25 A to 4 s/1.2 A max.
- Output 24 to 28 VDC, 600 W max.
- Active ready and inhibit signals
- Maintenance free, long lifetime, performance also at low temperature
- 3-year product warranty

REDUNDANCY & CURRENT SHARE MODULES | TCL-REM | 480 W



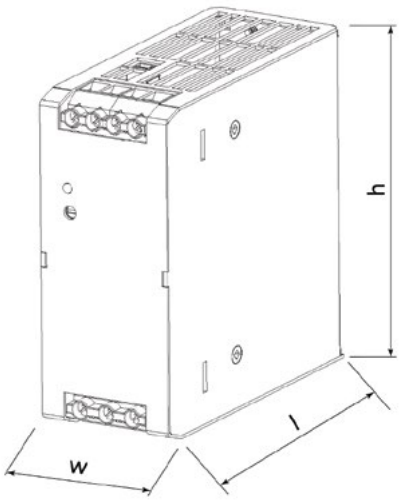


- For industrial, office and residential applications
- Ultracompact plastic housing
- Connection by spring clamp terminals or detachable screw terminal block
- Reliable snap-on mounting on DIN-rails
- Adaptor for wall mounting
- Universal input 85–264 VAC, 50/60 Hz
- Output voltage adjustable
- Power OK signal
- Overload and short-circuit protection
- Parallel operation possible
- 3-year product warranty

Model	Nominal Input Voltage	Input Voltage Range	Max Power per Input	Outplut Voltage	Output Current max.
TCL-REM240	5...48 VDC	5...60 VDC	200 W	Vin–0.9 VDC	8 A

REDUNDANCY & CURRENT SHARE MODULES | TPC-REM | 240 W



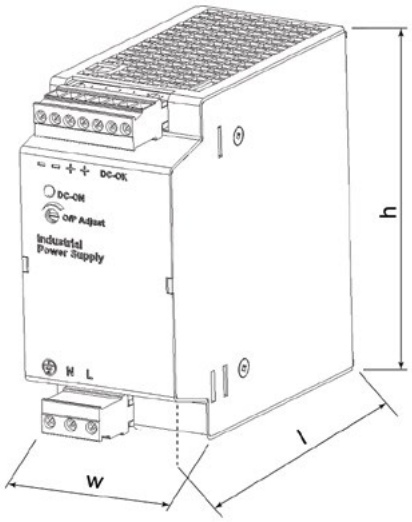


- For industrial, office and residential environments
- Meets European ErP directive (green mode), <0.3 W no load power consumption
- High efficiency across full load range
- Universal input 85–264 VAC, 47–63 Hz
- Output voltage adjustable
- Power good signal
- Overload and short-circuit protection
- Optional module for parallel and redundant operation
- 3-year product warranty

Model	Nominal Input Voltage	Max Power per Input	Output Voltage adjustable	Output Current max.
TPC-REM240-24	24 VDC	120 W	24 – 27 VDC	10 A
TPC-REM240-48	48 VDC		48 – 55 VDC	5 A

REDUNDANCY & CURRENT SHARE MODULES | TSP-REM | 600 W





Model	Input Voltage Range	Max Power per Input	Output Voltage adjust.	Output Current max. **
TSP-REM360*	2 × 24 VDC	2 × 360 W	24 VDC	15.0 A
TSP-REM600*	2 × Control input	2 × 600 W	(24–27 VDC)	25.0 A

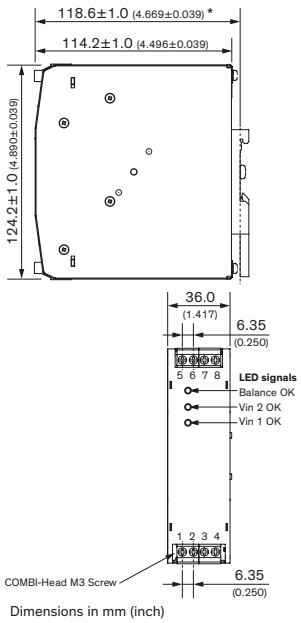
* For ATEX / IECEx compliant model add appendix -EX to order code.
**Maximum current at nominal Vout

- Module for true current sharing operation
- Alarm outputs, redundancy OK signal
- Hot swappable inputs
- Remote On/Off
- International safety approval package
- 3-year product warranty

Dimension Table			
Model	Width [W]	Length[l]	Heigth[h]
TSP-REM360	35 mm	110 mm	110 mm
TSP-REM600	54 mm	110 mm	110 mm

REDUNDANCY & CURRENT SHARE MODULES | TIB-REM | 480 W NEW!





Dimensions in mm (inch)
* Measurement from front panel to DIN-Rail

Model	Nominal Power	Nominal Current	Operating Voltage	Measurements (L × B × H)
TIB-REM480	1120 W	20 A	11 – 54 VDC	118.6 mm × 36 mm × 124.2 mm

- Compact 118.6 mm × 36 mm × 124.2 mm metal enclosure
- DIN-rail mounting bracket
- 60A boost current
- >99% efficiency
- Low standby power
- “Input OK” indicators
- “Balance OK” indicators
- Convection cooled
- UL/IEC/EN 606010-1 approvals
- Designed for use with Traco Power’s TIB line

Pin connectors			
Input		Output	
Pin	Function	Pin	Function
1	–Vin 1	5	–Vout
2	+Vin 1	6	
3	–Vin 2	7	+Vout
4	+Vin 2	8	

Notes

TRACO POWER

PP2025030
Order Code: PP-2025 INDUSTRIAL

TRACO POWER dedicated to design and production of high quality, state-of-the-art DC / DC & AC / DC power conversion products. Our mission is to provide optimal power supply solutions for specific applications with regard to performance, quality, cost and functionality.

TRACO POWER stocks an average of USD 25+ million in available finished goods inventory for immediate shipment through our distribution partners.

TRACO POWER offers extended product life-cycles, typically 10+ years, and our products are supported by a 3 or 5 year product warranty. We understand our customers require a high quality solution as well as a diverse product offering, availability from stock, extended life-cycles and a strong commitment to quality in the form of extended warranty to support their business.

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Railway Power Solutions

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