

PolySwitch TSM600 Resettable Overcurrent Protection Device

Surface-mount products for overcurrent protection of communications equipment



Benefits:

- Provides resettable overcurrent protection even at low current fault conditions
- Lower energy let-through than typical SMT telecom fuses
- Low series resistance leads to minimal attenuation on data transmission
- Resistance-matched PPTC elements in each package reduce line imbalance
- Reduced number of installation steps with dual package
- High density placement in multi-port system designs
- Assists equipment to comply with Telcordia GR-1089 with no additional series components (see circuit diagram)

Features:

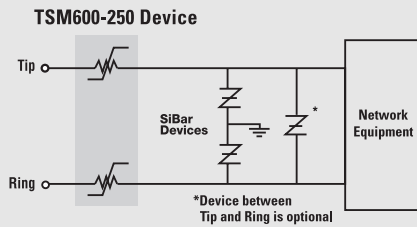
- SMT form factor
- Maximum interrupt fault voltage rating of 600V_{AC}
- Lightning surge capability of 1kV, 100A, 10/1000µsec
- Low resistance
- Hold current of 250mA
- Two resistance-matched PPTC protection components per package
- Small footprint

Tyco Electronics announces the introduction of a new Raychem Circuit Protection PolySwitch® TSM600-250 overcurrent protection device for DSL and other telecommunications network equipment applications. The small-footprint, low-resistance, surface-mount device provides tandem resettable overcurrent circuit protection for use in high-density multi-port linecards and other telecommunications network equipment. The TSM600-250 device incorporates two resistance-matched, low-resistance PPTC (polymeric positive temperature co-efficient) components into a single device yielding balanced protection on tip-and-ring lines with minimal attenuation of data transmission.

Target Applications:

- xDSL and ADSL linecards
- T1/E1 systems
- Twisted pair telecom ports requiring Telcordia GR-1089 compliance

Network equipment protected with PolySwitch TSM600-250 device and SiBar devices



Note: One TSM600-250 device contains two PPTC components.

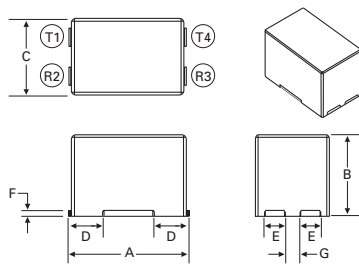
Electrical Characteristics (at 20° C)

Part number	I _H (A)	Max. operating voltage (V)	Max. interrupt voltage (V)	Max. interrupt current (A)	Min. resistance (Ω)	Typ. resistance (Ω)	R _{1,max} (Ω)	Resistance match (Ω)	Typical power dissipation in the tripped state (W)
TSM600-250-2	0.250	250	600	3	1.0	3.5	7.0	0.5	2
TSM600-250-RA-2	0.250	250	600	3	1.0	3.0	5.0	0.5	2

- I_H = Hold current—maximum current the device will pass without interruption in 20°C still air.
- R_{1,max} = Maximum device resistance at 20°C measured 1 hour post trip or post reflow.
- Resistance Match = Maximum difference in resistance between the two PPTC components in one TSM600-250 device after reflow.

Product Dimensions

TSM600 devices have been designed to be compatible with automated pick-and-place equipment for easy installation. All devices are symmetrical and can be oriented in either direction during installation.



Terminal Description

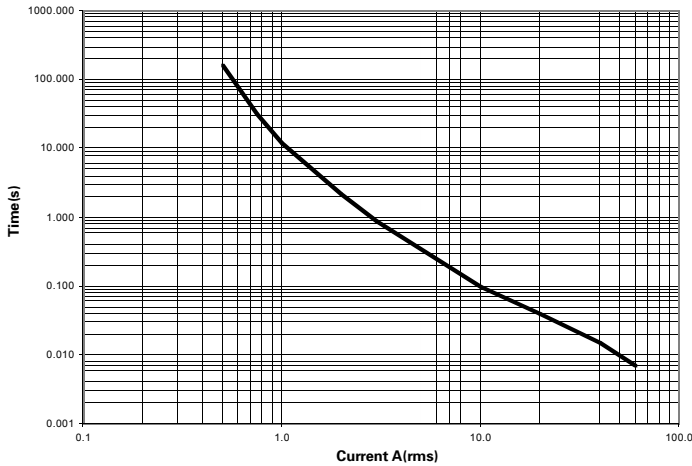
T1 = Tip in	R2 = Ring in
T4 = Tip out	R3 = Ring out

Dimensions in millimeters (inches)

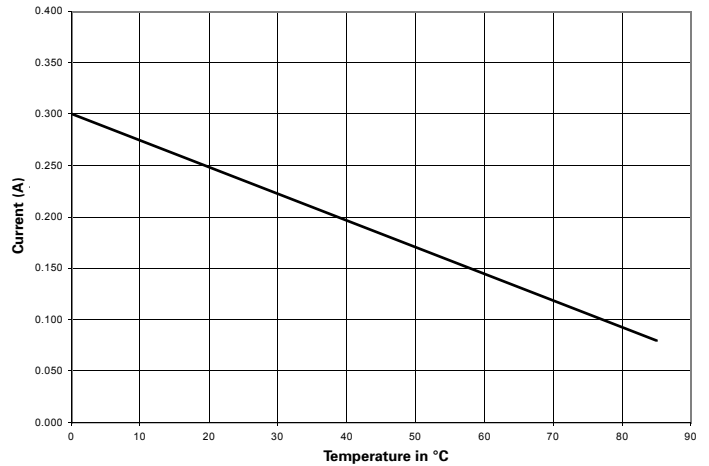
A (Max.)	B (Max.)	C (Max.)	D (Max.)	E (Max.)	F (Min.)	G (Min.)
17.6 (0.69)	11.7 (0.46)	11.2 (0.44)	5.2 (0.20)	2.8 (0.11)	0.6 (0.02)	2.0 (0.08)

Details	
Lead material	Tin-plated brass
Case material	Nylon resin (UL94 V-0), 1000 V dielectric rating
Lead solderability	EIC60068-2-58, Method 7
Solder heat withstand	IEC-STD 68-2-20, Test Tb, Section 5, Method 1A
Solvent resistance	MIL-STD-202, Method 215J
Flammability rating	IEC 695-2-2 Needle Flame Test for 20 s
Storage temperature	-40/+85°C
Storage humidity	Per IPC/JEDEC J-STD-020A Level 2a

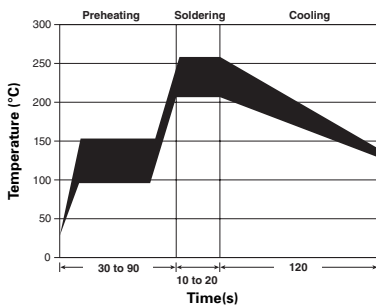
Typical Time-to-Trip Characteristics (at 20° C)



Thermal Derating Curve



Solder Reflow Recommendations



Solder Reflow

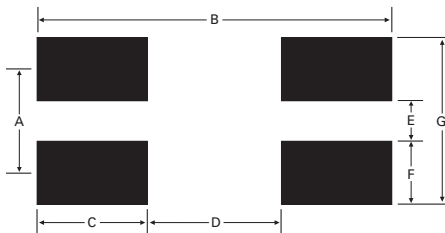
- Recommended reflow methods: IR, vapor phase oven, hot air oven.
- Not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness of 0.25mm (0.010 in).
- Devices can be cleaned using standard industry methods and solvents.

Ordering Information

Part numbers	TSM600-250-2 TSM600-250-RA-2
Devices per reel	200/reel
Standard box quantity	1000/box
Average box weight	14 lbs (6.350 kg)

Recommended Pad Layout

The dimensions in the table below provide the recommended pad layout for each TSM600 device.



Pad Dimensions

	A		B		C		D		E		F		G	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
mm	5.13	5.28	17.72	17.88	5.46	5.61	6.65	6.80	2.00	2.16	3.05	3.18	8.31	8.46
inches	0.202	0.208	0.698	0.704	0.215	0.221	0.262	0.268	0.079	0.085	0.120	0.125	0.327	0.333

Agency Recognitions

UL	File #E74889
CSA	File #CA78165

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