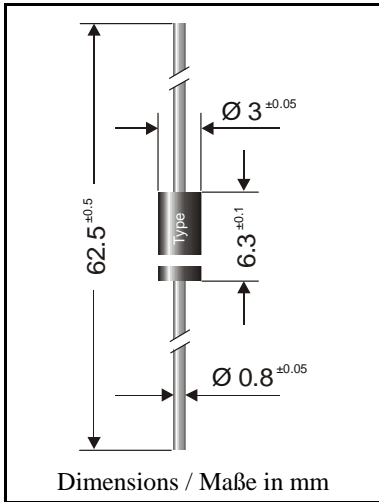


**Unidirectional and bidirectional
 Transient Voltage Suppressor Diodes**
**Unidirektionale und bidirektionale
 Spannungs-Begrenzer-Dioden**

Version 2004-10-01



Peak pulse power dissipation Impuls-Verlustleistung	400 W
Nominal breakdown voltage Nominale Abbruch-Spannung	6.8...440 V
Plastic case Kunststoffgehäuse	DO-15 (DO-204AC)
Weight approx. – Gewicht ca.	0.4 g
Plastic material has UL classification 94V-0 Gehäusematerial UL94V-0 klassifiziert	
Standard packaging taped in ammo pack Standard Lieferform gegurtet in Ammo-Pack	

For bidirectional types (suffix “C” or “CA”), electrical characteristics apply in both directions.
 Für bidirektionale Dioden (Suffix “C” oder “CA”) gelten die el. Werte in beiden Richtungen.

Maximum ratings and Characteristics
Kenn- und Grenzwerte

Peak pulse power dissipation (10/1000 μ s waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 μ s)	$T_A = 25^\circ\text{C}$	P_{PPM}	400 W ¹⁾
Steady state power dissipation Verlustleistung im Dauerbetrieb	$T_A = 75^\circ\text{C}$	$P_{M(AV)}$	1 W ²⁾
Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwellen	$T_A = 25^\circ\text{C}$	I_{FSM}	40 A ³⁾
Max. instantaneous forward voltage Augenblickswert der Durchlaßspannung	$I_F = 25\text{ A}$	$V_{BR} \leq 200\text{ V}$ $V_{BR} > 200\text{ V}$	$V_F < 3.0\text{ V}^3)$ $V_F < 6.5\text{ V}^3)$
Operating junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_s	– 50...+175°C – 50...+175°C
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 45 K/W ²⁾
Thermal resistance junction to lead Wärmewiderstand Sperrschicht – Anschlußdraht		R_{thL}	< 15 K/W

¹⁾ Non-repetitive pulse see curve $I_{PPM} = f(t_r) / P_{PPM} = f(t_r)$

 Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve $I_{PPM} = f(t_r) / P_{PPM} = f(t_r)$
²⁾ Valid, if leads are kept at ambient temperature at a distance of 10 mm from case

Gültig, wenn die Anschlußdrähte in 10 mm Abstand von Gehäuse auf Umgebungstemperatur gehalten werden

³⁾ Unidirectional diodes only – Nur für unidirektionale Dioden

Maximum ratings

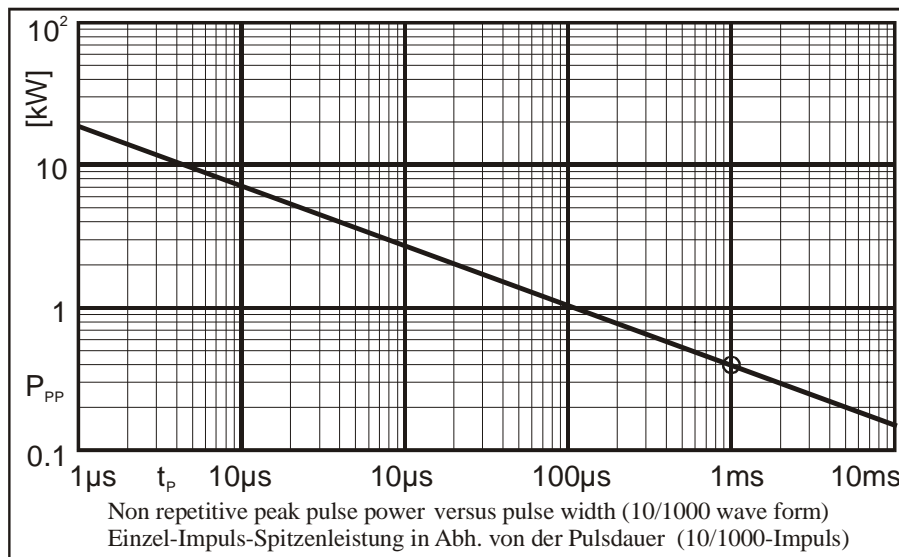
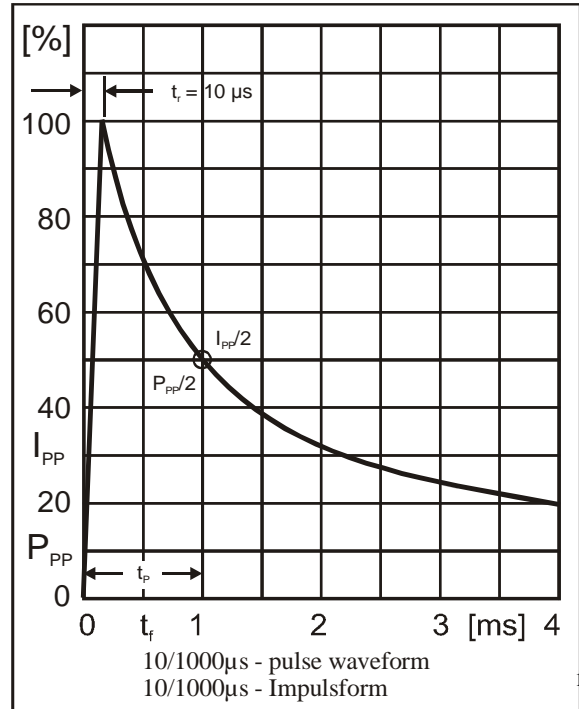
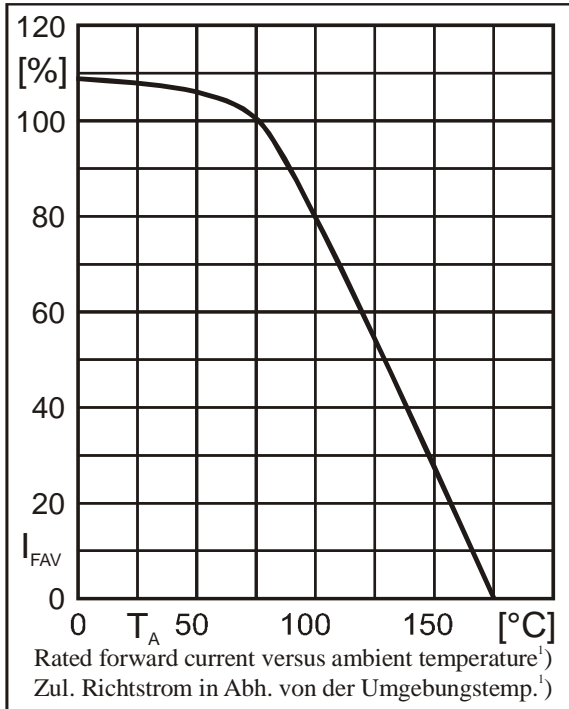
Grenzwerte

Type Typ	Breakdown voltage at $I_T = 1$ mA Abbruch-Spanng. bei $I_T = 1$ mA) at / bei $I_T = 10$ mA		Stand-off voltage Sperrspg. V_{WM} [V]	Max. rev. current Max. Sperrstrom at / bei V_{WM} I_D [μ A]	Max. clamping voltage Max. Begrenzerspanng. at / bei I_{PPM} (10/1000 μ s) V_C [V] I_{PPM} [A]	
	V_{BR} [V]					
P4KE6.8	6.8 \pm 10%	6.12...7.48 *)	5.5	1000	10.8	38.0
P4KE6.8A	6.8 \pm 5%	6.45...7.14 *)	5.8	1000	10.5	40.0
P4KE7.5	7.5 \pm 10%	6.75...8.25 *)	6.0	500	11.7	35.0
P4KE7.5A	7.5 \pm 5%	7.13...7.88 *)	6.4	500	11.3	37.0
P4KE8.2	8.2 \pm 10%	7.38...9.02 *)	6.6	200	12.5	33.0
P4KE8.2A	8.2 \pm 5%	7.79...8.61 *)	7.0	200	12.1	34.0
P4KE9.1	9.1 \pm 10%	8.19...10.0	7.3	50	13.8	30.0
P4KE9.1A	9.1 \pm 5%	8.65...9.55	7.7	50	13.4	31.0
P4KE10	10 \pm 10%	9.0...11.0	8.1	10	15.0	28.0
P4KE10A	10 \pm 5%	9.5...10.5	8.5	10	14.5	29.0
P4KE11	11 \pm 10%	9.9...12.1	8.9	5	16.2	26.0
P4KE11A	11 \pm 5%	10.5...11.6	9.4	5	15.6	27.0
P4KE12	12 \pm 10%	10.8...13.2	9.7	5	17.3	24.0
P4KE12A	12 \pm 5%	11.4...12.6	10.2	5	16.7	25.0
P4KE13	13 \pm 10%	11.7...14.3	10.5	5	19.0	22.0
P4KE13A	13 \pm 5%	12.4...13.7	11.1	5	18.2	23.0
P4KE15	15 \pm 10%	13.5...16.5	12.1	5	22.0	19.0
P4KE15A	15 \pm 5%	14.3...15.8	12.8	5	21.2	21.0
P4KE16	16 \pm 10%	14.4...17.6	12.9	5	23.5	17.8
P4KE16A	16 \pm 5%	15.2...16.8	13.6	5	22.5	18.6
P4KE18	18 \pm 10%	16.2...19.8	14.5	5	26.5	16.0
P4KE18A	18 \pm 5%	17.1...18.9	15.3	5	25.5	16.5
P4KE20	20 \pm 10%	18.0...22.0	16.2	5	29.1	14.0
P4KE20A	20 \pm 5%	19.0...21.0	17.1	5	27.7	15.0
P4KE22	22 \pm 10%	19.8...24.2	17.8	5	31.9	13.0
P4KE22A	22 \pm 5%	20.9...23.1	18.8	5	30.6	13.7
P4KE24	24 \pm 10%	21.6...26.4	19.4	5	34.7	12.0
P4KE24A	24 \pm 5%	22.8...25.2	20.5	5	33.2	12.6
P4KE27	27 \pm 10%	24.3...29.7	21.8	5	39.1	10.7
P4KE27A	27 \pm 5%	25.7...28.4	23.1	5	37.5	11.0
P4KE30	30 \pm 10%	27.0...33.0	24.3	5	43.5	9.6
P4KE30A	30 \pm 5%	28.5...31.5	25.6	5	41.4	10.0
P4KE33	33 \pm 10%	29.7...36.3	26.8	5	47.7	8.8
P4KE33A	33 \pm 5%	31.4...34.7	28.2	5	45.7	9.0
P4KE36	36 \pm 10%	32.4...39.6	29.1	5	52.0	8.0
P4KE36A	36 \pm 5%	34.2...37.8	30.8	5	49.9	8.4
P4KE39	39 \pm 10%	35.1...42.9	31.6	5	56.4	7.4
P4KE39A	39 \pm 5%	37.1...41.0	33.3	5	53.9	7.7
P4KE43	43 \pm 10%	38.7...47.3	34.8	5	61.9	6.7
P4KE43A	43 \pm 5%	40.9...45.2	36.8	5	59.3	7.0
P4KE47	47 \pm 10%	42.3...51.7	38.1	5	67.8	6.2
P4KE47A	47 \pm 5%	44.7...49.4	40.2	5	64.8	6.4
P4KE51	51 \pm 10%	45.9...56.1	41.3	5	73.5	5.7

Maximum ratings

Grenzwerte

Type Typ	Breakdown voltage at $I_T = 1 \text{ mA}$ Abbruch-Spanng. bei $I_T = 1 \text{ mA}$		Stand-off voltage Sperrspg. $V_{WM} \text{ [V]}$	Max. rev. current Max. Sperrstrom at / bei V_{WM} $I_D \text{ [}\mu\text{A]}$	Max. clamping voltage Max. Begrenzerspanng. at / bei $I_{PPM} (10/1000\mu\text{s})$ $V_C \text{ [V]}$ $I_{PPM} \text{ [A]}$	
	$V_{BR} \text{ [V]}$					
P4KE51A	51 ± 5%	48.5...53.6	43.6	5	70.1	6.0
P4KE56	56 ± 10%	50.4...61.6	45.4	5	80.5	5.2
P4KE56A	56 ± 5%	53.2...58.8	47.8	5	77.0	5.4
P4KE62	62 ± 10%	55.8...68.8	50.2	5	89.0	4.7
P4KE62A	62 ± 5%	58.9...65.1	53.0	5	85.0	5.0
P4KE68	68 ± 10%	61.2...74.8	55.1	5	98.0	4.2
P4KE68A	68 ± 5%	64.6...71.4	58.1	5	92.0	4.5
P4KE75	75 ± 10%	67.5...82.5	60.7	5	108	3.8
P4KE75A	75 ± 5%	71.3...78.8	64.1	5	103	4.0
P4KE82	82 ± 10%	73.8...90.2	66.4	5	118	3.5
P4KE82A	82 ± 5%	77.9...86.1	70.1	5	113	3.7
P4KE91	91 ± 10%	81.9...100	73.7	5	131	3.2
P4KE91A	91 ± 5%	86.5...95.5	77.8	5	125	3.3
P4KE100	100 ± 10%	90.0...110	81.0	5	144	2.9
P4KE100A	100 ± 5%	95.0...105	85.5	5	137	3.0
P4KE110	110 ± 10%	99.0...121	89.2	5	158	2.6
P4KE110A	110 ± 5%	105...116	94.0	5	152	2.7
P4KE120	120 ± 10%	108...132	97.2	5	173	2.4
P4KE120A	120 ± 5%	114...126	102	5	165	2.5
P4KE130	130 ± 10%	117...143	105	5	187	2.2
P4KE130A	130 ± 5%	124...137	111	5	179	2.3
P4KE150	150 ± 10%	135...165	121	5	215	1.9
P4KE150A	150 ± 5%	143...158	128	5	207	2.0
P4KE160	160 ± 10%	144...176	130	5	230	1.8
P4KE160A	160 ± 5%	152...168	136	5	219	1.9
P4KE170	170 ± 10%	153...187	138	5	244	1.7
P4KE170A	170 ± 5%	162...179	145	5	234	1.8
P4KE180	180 ± 10%	162...198	146	5	258	1.6
P4KE180A	180 ± 5%	171...189	154	5	246	1.7
P4KE200	200 ± 10%	180...220	162	5	287	1.4
P4KE200A	200 ± 5%	190...210	171	5	274	1.5
P4KE220	220 ± 10%	198...242	175	5	344	1.2
P4KE220A	220 ± 5%	209...231	185	5	328	1.3
P4KE250	250 ± 10%	225...275	202	5	360	1.1
P4KE250A	250 ± 5%	237...263	214	5	344	1.2
P4KE300	300 ± 10%	270...330	243	5	430	0.97
P4KE300A	300 ± 5%	285...315	256	5	414	1.0
P4KE350	350 ± 10%	315...385	284	5	504	0.83
P4KE350A	350 ± 5%	332...368	300	5	482	0.87
P4KE400	400 ± 10%	360...440	324	5	574	0.73
P4KE400A	400 ± 5%	380...420	342	5	548	0.76
P4KE440	440 ± 10%	396...484	356	5	631	0.66
P4KE440A	440 ± 5%	418...462	376	5	602	0.69



The order of type numbers is graded to the international E 24 standard. The standard tolerance of the breakdown voltage for each type is $\pm 10\%$. Suffix “A” denotes a tolerance of $\pm 5\%$.

Die Abstufung der Typen innerhalb der Reihe entspricht dem internationalen E 24-Standard. Die Toleranz der Arbeitsspannung jedes einzelnen Typs beträgt in der Standardausführung $\pm 10\%$. Suffix “A” kennzeichnet eine Toleranz von $\pm 5\%$.

¹⁾ Valid, if leads are kept at ambient temperature at a distance of 10 mm from case
Gültig, wenn die Anschlußdrähte in 10 mm Abstand von Gehäuse auf Umgebungstemp. gehalten werden