



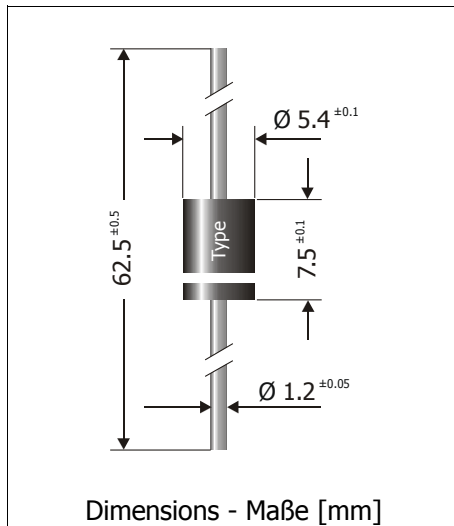
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1.5KE6.8 ... 1.5KE440CA

Unidirectional and bidirectional Transient Voltage Suppressor Diodes Unidirectionale und bidirectionale Spannungs-Begrenzer-Dioden

Version 2006-05-10



Peak pulse power dissipation Maximale Verlustleistung	1500 W
Standard breakdown voltage range Standard Abbruch-Spannungsbereich	6.8...440 V
Plastic case Kunststoffgehäuse	Ø 5.4 x 7.5 [mm]
Weight approx. Gewicht ca.	1.0 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 elektrischen Werte in beiden Richtungen.

Maximum ratings and Characteristics

Grenz- und Kennwerte

Peak pulse power dissipation (10/1000 µs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 µs)	$T_A = 25^\circ\text{C}$	P_{PPM}	1500 W ¹⁾
Steady state power dissipation Verlustleistung im Dauerbetrieb	$T_A = 75^\circ\text{C}$	$P_{M(AV)}$	6.5 W ²⁾
Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwelle	$T_A = 25^\circ\text{C}$	I_{FSM}	200 A ³⁾
Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung	$I_F = 100\text{ A}$	$V_{BR} \leq 200\text{ V}$ $V_{BR} > 200\text{ V}$	$V_F < 3.5\text{ V}$ ³⁾ $V_F < 5\text{ V}$ ³⁾
Junction temperature – Sperrschichttemperatur		T_j	-50...+175°C
Storage temperature – Lagerungstemperatur		T_s	-50...+175°C
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 19 K/W ²⁾
Thermal resistance junction to terminal Wärmewiderstand Sperrschicht – Anschluss		R_{thT}	< 8 K/W

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

Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve $I_{pp} = f(t_r)$ / $P_{pp} = f(t_r)$

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

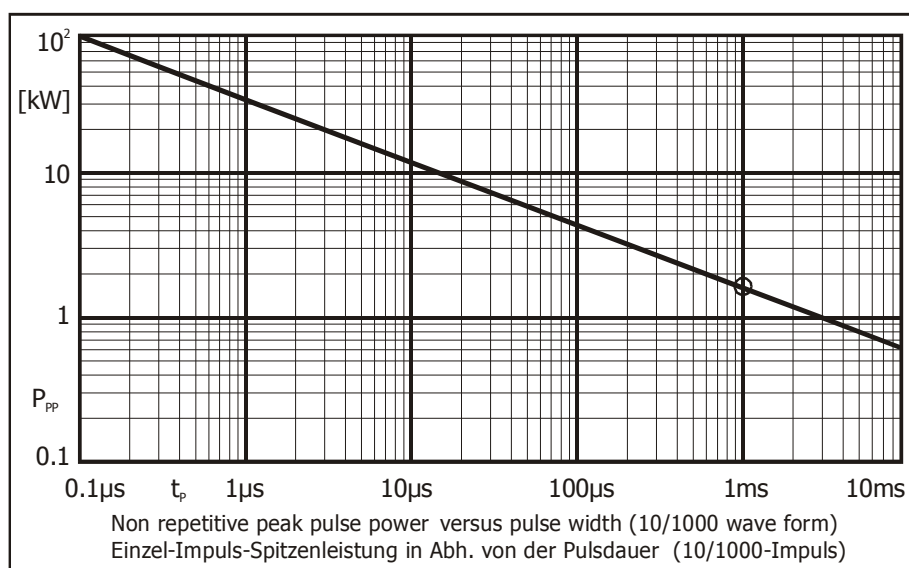
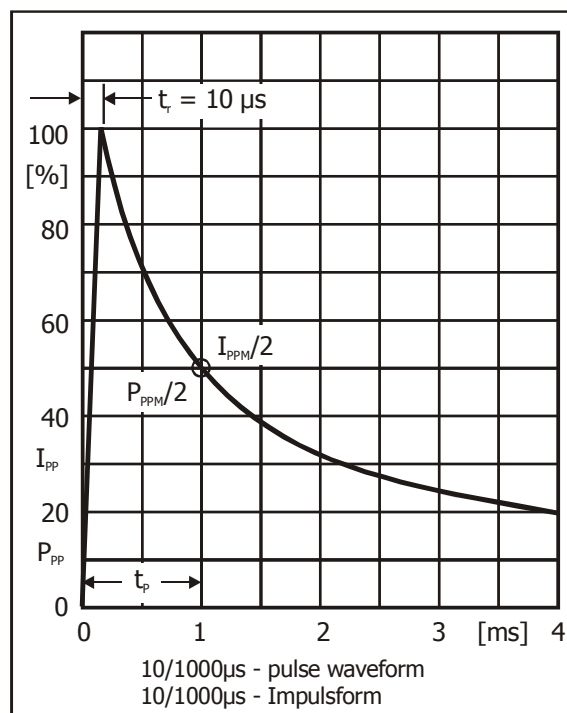
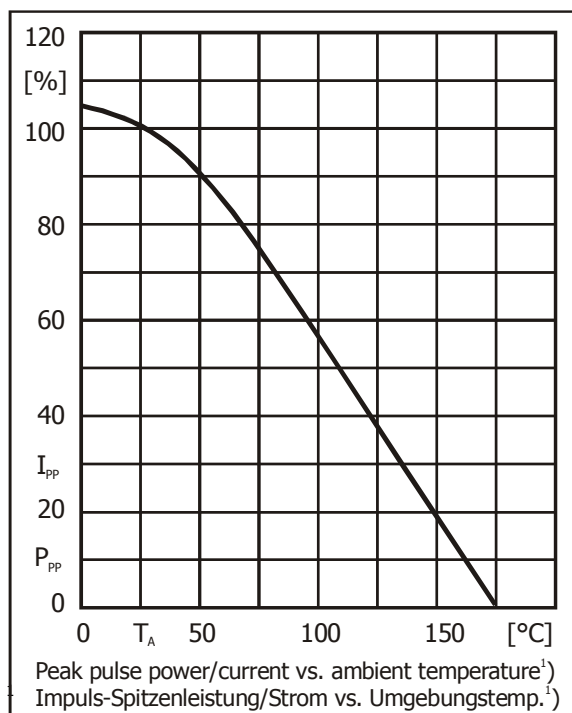
3 Unidirectional diodes only – Nur für unidirektionale Dioden

Maximum ratings
Grenzwerte

Type Typ	Breakdown voltage at $I_T = 1$ mA Abbruch-Spannung bei $I_T = 1$ mA) at / bei $I_T = 10$ mA		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V_{WM}	Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 μ s)	
	V_{BR} [V]		V_{WM} [V]	I_D [μ A]	V_C [V]	I_{PPM} [A]
1.5KE6.8	6.8 $\pm$ 10%	6.12...7.48 *)	5.5	1000	10.8	145
1.5KE6.8A	6.8 $\pm$ 5%	6.45...7.14 *)	5.8	1000	10.5	150
1.5KE7.5	7.5 $\pm$ 10%	6.75...8.25 *)	6.0	500	11.7	134
1.5KE7.5A	7.5 $\pm$ 5%	7.13...7.88 *)	6.4	500	11.3	139
1.5KE8.2	8.2 $\pm$ 10%	7.38...9.02 *)	6.6	200	12.5	126
1.5KE8.2A	8.2 $\pm$ 5%	7.79...8.61 *)	7.0	200	12.1	130
1.5KE9.1	9.1 $\pm$ 10%	8.19...10.0	7.3	50	13.8	114
1.5KE9.1A	9.1 $\pm$ 5%	8.65...9.55	7.7	50	13.4	117
1.5KE10	10 $\pm$ 10%	9.0...11.0	8.1	10	15.0	105
1.5KE10A	10 $\pm$ 5%	9.5...10.5	8.5	10	14.5	108
1.5KE11	11 $\pm$ 10%	9.9...12.1	8.9	5	16.2	97
1.5KE11A	11 $\pm$ 5%	10.5...11.6	9.4	5	15.6	100
1.5KE12	12 $\pm$ 10%	10.8...13.2	9.7	5	17.3	91
1.5KE12A	12 $\pm$ 5%	11.4...12.6	10.2	5	16.7	94
1.5KE13	13 $\pm$ 10%	11.7...14.3	10.5	5	19.0	82
1.5KE13A	13 $\pm$ 5%	12.4...13.7	11.1	5	18.2	86
1.5KE15	15 $\pm$ 10%	13.5...16.5	12.1	5	22.0	71
1.5KE15A	15 $\pm$ 5%	14.3...15.8	12.8	5	21.2	74
1.5KE16	16 $\pm$ 10%	14.4...17.6	12.9	5	23.5	67
1.5KE16A	16 $\pm$ 5%	15.2...16.8	13.6	5	22.5	70
1.5KE18	18 $\pm$ 10%	16.2...19.8	14.5	5	26.5	59
1.5KE18A	18 $\pm$ 5%	17.1...18.9	15.3	5	25.2	60
1.5KE20	20 $\pm$ 10%	18.0...22.0	16.2	5	29.1	54
1.5KE20A	20 $\pm$ 5%	19.0...21.0	17.1	5	27.7	56
1.5KE22	22 $\pm$ 10%	19.8...24.2	17.8	5	31.9	49
1.5KE22A	22 $\pm$ 5%	20.9...23.1	18.8	5	30.6	51
1.5KE24	24 $\pm$ 10%	21.6...26.4	19.4	5	34.7	45
1.5KE24A	24 $\pm$ 5%	22.8...25.2	20.5	5	33.2	47
1.5KE27	27 $\pm$ 10%	24.3...29.7	21.8	5	39.1	40
1.5KE27A	27 $\pm$ 5%	25.7...28.4	23.1	5	37.5	42
1.5KE30	30 $\pm$ 10%	27.0...30.0	24.3	5	43.5	36
1.5KE30A	30 $\pm$ 5%	28.5...31.5	25.6	5	41.4	38
1.5KE33	33 $\pm$ 10%	29.7...36.3	26.8	5	47.7	33
1.5KE33A	33 $\pm$ 5%	31.4...34.7	28.2	5	45.7	34
1.5KE36	36 $\pm$ 10%	32.4...39.6	29.1	5	52.0	30
1.5KE36A	36 $\pm$ 5%	34.2...37.8	30.8	5	49.9	31
1.5KE39	39 $\pm$ 10%	35.1...42.9	31.6	5	56.4	27
1.5KE39A	39 $\pm$ 5%	37.1...41.0	33.3	5	53.9	29
1.5KE43	43 $\pm$ 10%	38.7...47.3	34.8	5	61.9	25
1.5KE43A	43 $\pm$ 5%	40.9...45.2	36.8	5	59.3	26
1.5KE47	47 $\pm$ 10%	42.3...51.7	38.1	5	67.8	23
1.5KE47A	47 $\pm$ 5%	44.7...49.4	40.2	5	64.8	24
1.5KE51	51 $\pm$ 10%	45.9...56.1	41.3	5	73.5	21
1.5KE51A	51 $\pm$ 5%	48.5...53.6	43.6	5	70.1	22

Maximum ratings**Grenzwerte**

Type Typ	Breakdown voltage at $I_T = 1$ mA Abbruch-Spannung bei $I_T = 1$ mA) at / bei $I_T = 10$ mA		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V_{WM}	Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 μ s)	
	V_{BR} [V]		V_{WM} [V]	I_D [μ A]	V_C [V]	I_{PPM} [A]
1.5KE56	56 $\pm$ 10%	50.4...61.6	45.4	5	81	19
1.5KE56A	56 $\pm$ 5%	53.2...58.8	47.8	5	77	20
1.5KE62	62 $\pm$ 10%	55.8...68.8	50.2	5	89	17
1.5KE62A	62 $\pm$ 5%	58.9...65.1	53.0	5	85	18
1.5KE68	68 $\pm$ 10%	61.2...74.8	55.1	5	98	16.0
1.5KE68A	68 $\pm$ 5%	64.6...71.4	58.1	5	92	17.0
1.5KE75	75 $\pm$ 10%	67.5...82.5	60.7	5	108	14.0
1.5KE75A	75 $\pm$ 5%	71.3...78.8	64.1	5	103	15.0
1.5KE82	82 $\pm$ 10%	73.8...90.2	66.4	5	118	13.0
1.5KE82A	82 $\pm$ 5%	77.9...86.1	70.1	5	113	13.9
1.5KE91	91 $\pm$ 10%	81.9...100	73.7	5	131	12.0
1.5KE91A	91 $\pm$ 5%	86.5...95.5	77.8	5	125	12.6
1.5KE100	100 $\pm$ 10%	90.0...110	81.0	5	144	10.9
1.5KE100A	100 $\pm$ 5%	95.0...105	85.5	5	137	11.4
1.5KE110	110 $\pm$ 10%	99.0...121	89.2	5	158	9.9
1.5KE110A	110 $\pm$ 5%	105...116	94.0	5	152	10.3
1.5KE120	120 $\pm$ 10%	108...132	97.2	5	173	9.1
1.5KE120A	120 $\pm$ 5%	114...126	102	5	165	9.5
1.5KE130	130 $\pm$ 10%	117...143	105	5	187	8.4
1.5KE130A	130 $\pm$ 5%	124...137	111	5	179	8.7
1.5KE150	150 $\pm$ 10%	135...165	121	5	215	7.3
1.5KE150A	150 $\pm$ 5%	143...158	128	5	207	7.6
1.5KE160	160 $\pm$ 10%	144...176	130	5	230	6.8
1.5KE160A	160 $\pm$ 5%	152...168	136	5	219	7.1
1.5KE170	170 $\pm$ 10%	153...187	138	5	244	6.4
1.5KE170A	170 $\pm$ 5%	162...179	145	5	234	6.7
1.5KE180	180 $\pm$ 10%	162...198	146	5	258	6.1
1.5KE180A	180 $\pm$ 5%	171...189	154	5	246	6.4
1.5KE200	200 $\pm$ 10%	180...220	162	5	287	5.4
1.5KE200A	200 $\pm$ 5%	190...210	171	5	274	5.7
1.5KE220	220 $\pm$ 10%	198...242	175	5	344	4.5
1.5KE220A	220 $\pm$ 5%	209...231	185	5	328	4.8
1.5KE250	250 $\pm$ 10%	225...275	202	5	360	4.3
1.5KE250A	250 $\pm$ 5%	237...263	214	5	344	4.5
1.5KE300	300 $\pm$ 10%	270...330	243	5	430	3.6
1.5KE300A	300 $\pm$ 5%	285...315	256	5	414	3.8
1.5KE350	335 $\pm$ 10%	315...385	284	5	504	3.1
1.5KE350A	350 $\pm$ 5%	332...368	300	5	482	3.2
1.5KE400	400 $\pm$ 10%	360...440	324	5	574	2.7
1.5KE400A	400 $\pm$ 5%	380...420	342	5	548	2.8
1.5KE440	440 $\pm$ 10%	396...484	356	5	631	2.4
1.5KE440A	440 $\pm$ 5%	418...462	376	5	602	2.6



The range 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 $\pm 5\%$ for the breakdown voltage.

e.g.: 1.5KE51C = bidirectional diode, $V_{BR} = 51 \text{ V}$ ($\pm 10\%$), $V_{WM} \geq 41.3 \text{ V}$ at $I_D = 5 \mu\text{A}$
1.5KE9.1A = unidirectional diode, $V_{BR} = 9.1 \text{ V}$ ($\pm 5\%$), $V_{WM} \geq 7.7 \text{ V}$ at $I_D = 50 \mu\text{A}$

Die Abstufung der Typen innerhalb der Reihe entspricht dem internationalen E 24-Standard. Die Toleranz der Abbruchspannung jedes einzelnen Typs beträgt in der Standardausführung $\pm 10\%$. Suffix "A" kennzeichnet eine Toleranz der Abbruchspannung 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 Umgebungstemperatur gehalten werden