

<b>P6KE6.8 ... P6KE440CA, P6KE520CA</b> <b>Transient Voltage Suppressor Diodes</b> <b>Spannungs-Begrenzer-Dioden</b>	<b>P<sub>PPM</sub> = 600W</b>	<b>V<sub>WM</sub> = 5.0 ... 444 V</b>
	<b>P<sub>M(AV)</sub> = 5.0 W</b>	<b>V<sub>BR</sub> = 6.8 ... 520 V</b>
	<b>T<sub>jmax</sub> = 175°C</b>	

Version 2016-11-23



**Typical Applications**

Over-voltage protection  
ESD protection  
Free-wheeling diodes  
Commercial grade <sup>1)</sup>

**Features**

Uni- and Bidirectional versions  
Peak pulse power of 600 W  
(10/1000 µs waveform)  
Very fast response time  
Compliant to RoHS, REACH,  
Conflict Minerals <sup>1)</sup>

**Mechanical Data <sup>1)</sup>**

Taped in ammo pack	4000
Weight approx.	0.4 g
Case material	UL 94V-0
Solder & assembly conditions	260°C/10s MSL N/A



**Typische Anwendungen**

Schutz gegen Überspannung  
ESD-Schutz  
Freilauf-Dioden  
Standardausführung <sup>1)</sup>

**Besonderheiten**

Uni- und Bidirektionale Versionen  
600 W Impuls-Verlustleistung  
(10/1000 µs Strom-Impuls)  
Sehr schnelle Ansprechzeit  
Konform zu RoHS, REACH,  
Konfliktmineralien <sup>1)</sup>

**Mechanische Daten <sup>1)</sup>**

Gegurtet in Ammo-Pack	
Gewicht ca.	0.4 g
Gehäusematerial	UL 94V-0
Löt- und Einbaubedingungen	260°C/10s MSL N/A

For bidirectional types (add suffix "B"), electrical characteristics apply in both directions.  
Für bidirektionale Dioden (ergänze Suffix "B") gelten die elektrischen Werte in beiden Richtungen.

**Maximum ratings <sup>2)</sup>**

**Grenzwerte <sup>2)</sup>**

Peak pulse power dissipation (10/1000 µs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 µs)	$P_{PPM}$	600 W <sup>3)</sup>
Steady state power dissipation Verlustleistung im Dauerbetrieb	$T_A = 75^\circ C$ $P_{M(AV)}$	5 W <sup>4)</sup>
Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwellen	$I_{FSM}$	100 A <sup>5)</sup>
Operating junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur	$T_j$ $T_s$	-50...+175°C -50...+175°C

**Characteristics**

**Kennwerte**

Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung	$I_F = 25 A$ $T_j = 25^\circ C$	$V_{BR} \leq 200 V$ $V_{BR} > 200 V$	$V_F$ $V_F$	< 3.5 V <sup>5)</sup> < 5.0 V <sup>5)</sup>
Thermal resistance junction to ambient Wärmewiderstand Sperrschicht – Umgebung			$R_{thA}$	<30 K/W <sup>4)</sup>
Thermal resistance junction to lead Wärmewiderstand Sperrschicht – Anschlussdraht			$R_{thL}$	<15 K/W

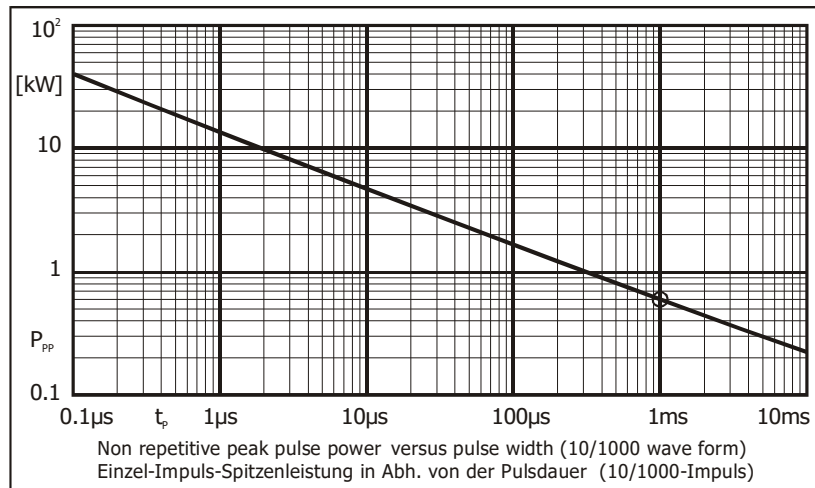
1 Please note the [detailed information on our website](#) or at the beginning of the data book  
Bitte beachten Sie die [detaillierten Hinweise auf unserer Internetseite](#) bzw. am Anfang des Datenbuches  
2  $T_A = 25^\circ C$  unless otherwise specified –  $T_A = 25^\circ C$  wenn nicht anders angegeben  
3 Non-repetitive pulse see curve  $I_{pp} = f(t) / P_{pp} = f(t)$   
Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve  $I_{pp} = f(t) / P_{pp} = f(t)$   
4 Valid, if leads are kept at ambient temperature at a distance of 10 mm from case  
Gültig, wenn die Anschlussdrähte in 10 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden  
5 Unidirectional diodes only – Nur für unidirektionale Dioden

**Characteristics (T<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

Type Typ		Breakdown voltage at I <sub>T</sub> = 1 mA Abbruch-Spannung bei I <sub>T</sub> = 1 mA *) at / bei I <sub>T</sub> = 10 mA		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V <sub>WM</sub>	Max. clamping voltage Max. Begrenzer-Spannung at / bei I <sub>PPM</sub> (10/1000 μs)	
unidirectional	bidirectional	V <sub>BR</sub> [V]		V <sub>WM</sub> [V]	I <sub>D</sub> [μA]	V <sub>C</sub> [V]	I <sub>PPM</sub> [A]
P6KE6.8	P6KE6.8C	6.8 ± 10%	6.12...7.48 *)	5.5	1000	10.8	58.0
P6KE6.8A	P6KE6.8CA	6.8 ± 5%	6.45...7.14 *)	5.8	1000	10.5	60.0
P6KE7.5	P6KE7.5C	7.5 ± 10%	6.75...8.25 *)	6.0	500	11.7	53.0
P6KE7.5A	P6KE7.5CA	7.5 ± 5%	7.13...7.88 *)	6.4	500	11.3	55.0
P6KE8.2	P6KE8.2C	8.2 ± 10%	7.38...9.02 *)	6.6	200	12.5	50.0
P6KE8.2A	P6KE8.2CA	8.2 ± 5%	7.79...8.61 *)	7.0	200	12.1	52.0
P6KE9.1	P6KE9.1C	9.1 ± 10%	8.19...10.0	7.3	50	13.8	45.0
P6KE9.1A	P6KE9.1CA	9.1 ± 5%	8.65...9.55	7.7	50	13.4	47.0
P6KE10	P6KE10C	10 ± 10%	9.0...11.0	8.1	10	15.0	42.0
P6KE10A	P6KE10CA	10 ± 5%	9.5...10.5	8.5	10	14.5	43.0
P6KE11	P6KE11C	11 ± 10%	9.9...12.1	8.9	5	16.2	38.0
P6KE11A	P6KE11CA	11 ± 5%	10.5...11.6	9.4	5	15.6	40.0
P6KE12	P6KE12C	12 ± 10%	10.8...13.2	9.7	5	17.3	36.0
P6KE12A	P6KE12CA	12 ± 5%	11.4...12.6	10.2	5	16.7	37.0
P6KE13	P6KE13C	13 ± 10%	11.7...14.3	10.5	5	19.0	33.0
P6KE13A	P6KE13CA	13 ± 5%	12.4...13.7	11.1	5	18.2	34.0
P6KE15	P6KE15C	15 ± 10%	13.5...16.5	12.1	5	22.0	28.0
P6KE15A	P6KE15CA	15 ± 5%	14.3...15.8	12.8	5	21.2	29.0
P6KE16	P6KE16C	16 ± 10%	14.4...17.6	12.9	5	23.5	26.0
P6KE16A	P6KE16CA	16 ± 5%	15.2...16.8	13.6	5	22.5	28.0
P6KE18	P6KE18C	18 ± 10%	16.2...19.8	14.5	5	26.5	23.0
P6KE18A	P6KE18CA	18 ± 5%	17.1...18.9	15.3	5	25.2	25.0
P6KE20	P6KE20C	20 ± 10%	18.0...22.0	16.2	5	29.1	21.0
P6KE20A	P6KE20CA	20 ± 5%	19.0...21.0	17.1	5	27.7	22.0
P6KE22	P6KE22C	22 ± 10%	19.8...24.2	17.8	5	31.9	19.0
P6KE22A	P6KE22CA	22 ± 5%	20.9...23.1	18.8	5	30.6	20.0
P6KE24	P6KE24C	24 ± 10%	21.6...26.4	19.4	5	34.7	18.0
P6KE24A	P6KE24CA	24 ± 5%	22.8...25.2	20.5	5	33.2	19.0
P6KE27	P6KE27C	27 ± 10%	24.3...29.7	21.8	5	39.1	16.0
P6KE27A	P6KE27CA	27 ± 5%	25.7...28.4	23.1	5	37.5	16.8
P6KE30	P6KE30C	30 ± 10%	27.0...33.0	24.3	5	43.5	14.0
P6KE30A	P6KE30CA	30 ± 5%	28.5...31.5	25.6	5	41.4	15.0
P6KE33	P6KE33C	33 ± 10%	29.7...36.3	26.8	5	47.7	13.0
P6KE33A	P6KE33CA	33 ± 5%	31.4...34.7	28.2	5	45.7	13.8
P6KE36	P6KE36C	36 ± 10%	32.4...39.6	29.1	5	52.0	12.0
P6KE36A	P6KE36CA	36 ± 5%	34.2...37.8	30.8	5	49.9	12.6
P6KE39	P6KE39C	39 ± 10%	35.1...42.9	31.6	5	56.4	11.1
P6KE39A	P6KE39CA	39 ± 5%	37.1...41.0	33.3	5	53.9	11.6
P6KE43	P6KE43C	43 ± 10%	38.7...47.3	34.8	5	61.9	10.0
P6KE43A	P6KE43CA	43 ± 5%	40.9...45.2	36.8	5	59.3	10.6
P6KE47	P6KE47C	47 ± 10%	42.3...51.7	38.1	5	67.8	9.2
P6KE47A	P6KE47CA	47 ± 5%	44.7...49.4	40.2	5	64.8	9.7
P6KE51	P6KE51C	51 ± 10%	45.9...56.1	41.3	5	73.5	8.5
P6KE51A	P6KE51CA	51 ± 5%	48.5...53.6	43.6	5	70.1	8.9

**Characteristics (T<sub>j</sub> = 25°C)****Kennwerte (T<sub>j</sub> = 25°C)**

Type Typ		Breakdown voltage at I <sub>T</sub> = 1 mA Abbruch-Spannung bei I <sub>T</sub> = 1 mA ) at / bei I <sub>T</sub> = 10 mA		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V <sub>WM</sub>	Max. clamping voltage Max. Begrenzer-Spannung at / bei I <sub>PPM</sub> (10/1000 μs)	
unidirectional	bidirectional	V <sub>BR</sub> [V]		V <sub>WM</sub> [V]	I <sub>D</sub> [μA]	V <sub>C</sub> [V]	I <sub>PPM</sub> [A]
P6KE56	P6KE56C	56 ± 10%	50.4...61.6	45.4	5	81	7.8
P6KE56A	P6KE56CA	56 ± 5%	53.2...58.8	47.8	5	77	8.1
P6KE62	P6KE62C	62 ± 10%	55.8...68.8	50.2	5	89	7.0
P6KE62A	P6KE62CA	62 ± 5%	58.9...65.1	53.0	5	85	7.4
P6KE68	P6KE68C	68 ± 10%	61.2...74.8	55.1	5	98	6.4
P6KE68A	P6KE68CA	68 ± 5%	64.6...71.4	58.1	5	92	6.8
P6KE75	P6KE75C	75 ± 10%	67.5...82.5	60.7	5	108	5.8
P6KE75A	P6KE75CA	75 ± 5%	71.3...78.8	64.1	5	103	6.1
P6KE82	P6KE82C	82 ± 10%	73.8...90.2	66.4	5	118	5.3
P6KE82A	P6KE82CA	82 ± 5%	77.9...86.1	70.1	5	113	5.5
P6KE91	P6KE91C	91 ± 10%	81.9...100	73.7	5	131	4.8
P6KE91A	P6KE91CA	91 ± 5%	86.5...95.5	77.8	5	125	5.0
P6KE100	P6KE100C	100 ± 10%	90.0...110	81.0	5	144	4.3
P6KE100A	P6KE100CA	100 ± 5%	95.0...105	85.5	5	137	4.5
P6KE110	P6KE110C	110 ± 10%	99.0...121	89.2	5	158	3.9
P6KE110A	P6KE110CA	110 ± 5%	105...116	94.0	5	152	4.1
P6KE120	P6KE120C	120 ± 10%	108...132	97.2	5	173	3.6
P6KE120A	P6KE120CA	120 ± 5%	114...126	102	5	165	3.8
P6KE130	P6KE130C	130 ± 10%	117...143	105	5	187	3.3
P6KE130A	P6KE130CA	130 ± 5%	124...137	111	5	179	3.5
P6KE150	P6KE150C	150 ± 10%	135...165	121	5	215	2.9
P6KE150A	P6KE150CA	150 ± 5%	143...158	128	5	207	3.0
P6KE160	P6KE160C	160 ± 10%	144...176	130	5	230	2.7
P6KE160A	P6KE160CA	160 ± 5%	152...168	136	5	219	2.8
P6KE170	P6KE170C	170 ± 10%	153...187	138	5	244	2.5
P6KE170A	P6KE170CA	170 ± 5%	162...179	145	5	234	2.6
P6KE180	P6KE180C	180 ± 10%	162...198	146	5	258	2.4
P6KE180A	P6KE180CA	180 ± 5%	171...189	154	5	246	2.5
P6KE200	P6KE200C	200 ± 10%	180...220	162	5	287	2.1
P6KE200A	P6KE200CA	200 ± 5%	190...210	171	5	274	2.2
P6KE220	P6KE220C	220 ± 10%	198...242	175	5	344	1.8
P6KE220A	P6KE220CA	220 ± 5%	209...231	185	5	328	1.9
P6KE250	P6KE250C	250 ± 10%	225...275	202	5	360	1.7
P6KE250A	P6KE250CA	250 ± 5%	237...263	214	5	344	1.8
P6KE300	P6KE300C	300 ± 10%	270...330	243	5	430	1.4
P6KE300A	P6KE300CA	300 ± 5%	285...315	256	5	414	1.5
P6KE350	P6KE350C	350 ± 10%	315...385	284	5	504	1.2
P6KE350A	P6KE350CA	350 ± 5%	332...368	300	5	482	1.3
P6KE400	P6KE400C	400 ± 10%	360...440	324	5	574	1.0
P6KE400A	P6KE400CA	400 ± 5%	380...420	342	5	548	1.1
P6KE440	P6KE440C	440 ± 10%	396...484	356	5	631	0.99
P6KE440A	P6KE440CA	440 ± 5%	418...462	376	5	602	1.04
P6KE520C	P6KE520C	520 ± 10%	470...570	423	5	745	0.81
P6KE520A	P6KE520CA	520 ± 5%	494...546	444	5	711	0.84



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.: P6KE51C = bidirectional diode,  $V_{BR} = 51 \text{ V } (\pm 10\%)$ ,  $V_{WM} \geq 41.3 \text{ V}$  at  $I_D = 5 \mu\text{A}$   
P6KE9.1A = 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  $\pm 5\%$ .

**Disclaimer:** See data book page 2 or [website](#)  
**Haftungsausschluss:** Siehe Datenbuch Seite 2 oder [Internet](#)

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