

| | | |
|--|----------------------------------|---------------------------------------|
| P6KE6.8 ... P6KE440CA, P6KE520CA Transient Voltage Suppressor Diodes Spannungs-Begrenzer-Dioden | P_{PPM} = 600W | V_{WM} = 5.0 ... 444 V |
| | P_{M(AV)} = 5.0 W | V_{BR} = 6.8 ... 520 V |
| | T_{jmax} = 175°C | |

Version 2016-11-23



Typical Applications

Over-voltage protection
ESD protection
Free-wheeling diodes
Commercial grade ¹⁾

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 ¹⁾

Mechanical Data ¹⁾

| | |
|------------------------------|----------------------|
| 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 ¹⁾

Besonderheiten

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

Mechanische Daten ¹⁾

| | |
|----------------------------|----------------------|
| 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 ²⁾

Grenzwerte ²⁾

| | | |
|--|-----------------------------------|------------------------------|
| Peak pulse power dissipation (10/1000 µs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 µs) | P_{PPM} | 600 W ³⁾ |
| Steady state power dissipation Verlustleistung im Dauerbetrieb | $T_A = 75^\circ C$ $P_{M(AV)}$ | 5 W ⁴⁾ |
| Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwellen | I_{FSM} | 100 A ⁵⁾ |
| 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 ⁵⁾ < 5.0 V ⁵⁾ |
| Thermal resistance junction to ambient Wärmewiderstand Sperrschicht – Umgebung | | | R_{thA} | <30 K/W ⁴⁾ |
| Thermal resistance junction to lead Wärmewiderstand Sperrschicht – Anschlussdraht | | | R_{thL} | <15 K/W |

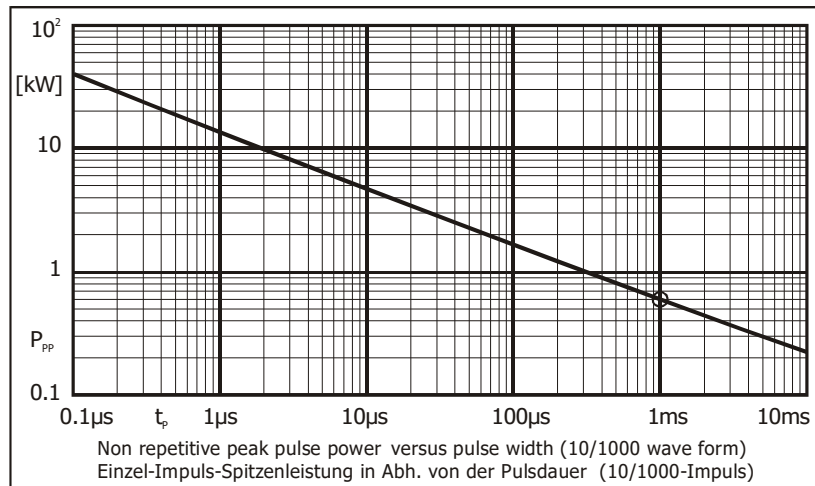
- Please note the [detailed information on our website](#) or at the beginning of the data book
Bitte beachten Sie die [detaillierten Hinweise auf unserer Internetseite](#) bzw. am Anfang des Datenbuches
- $T_A = 25^\circ C$ unless otherwise specified – $T_A = 25^\circ C$ wenn nicht anders angegeben
- Non-repetitive pulse see curve $I_{pp} = f(t) / P_{pp} = f(t)$
Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve $I_{pp} = f(t) / P_{pp} = f(t)$
- 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
- Unidirectional diodes only – Nur für unidirektionale Dioden

Characteristics (T_j = 25°C)
Kennwerte (T_j = 25°C)

| 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 μs) | |
|----------------|---------------|--|----------------|---------------------------------------|--|--|----------------------|
| unidirectional | bidirectional | V _{BR} [V] | | V _{WM} [V] | I _D [μA] | V _C [V] | I _{PPM} [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 ($T_j = 25^\circ\text{C}$)Kennwerte ($T_j = 25^\circ\text{C}$)

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