

P4KE-G Series


Breakdown Voltage: 6.8 to 600 Volts

Peak Pulse Power: 400 Watts

RoHS Device



Features

- Glass passivated chip.
- 400W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- UL recognized file # E349157  Range: P4KE6.8(C)A thru. P4KE33(C)A

Mechanical Data

- Case: Molded plastic DO-41.
- Epoxy: UL 94V-0 rate flame retardant.
- Lead: Solderable per MIL-STD-202, method 208 guaranteed.
- Polarity: Color band denotes cathode end except Bipolar.
- Mounting position: Any.
- Weight: 0.321 gram (approx.)



Maximum Ratings (TA=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|----------------|------|
| Peak power dissipation with a 10/1000 μ s waveform (Note 1) | PPP | 400 | W |
| Peak pulse current with a 10/1000 μ s waveform (Note 1) | I _{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at T _L =75°C | P _D | 1.0 | W |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2) | I _{FSM} | 40 | A |
| Maximum instantaneous forward voltage at 25 A for unidirectional only (Note 3) | V _F | 3.5/5.0 | V |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

NTOES:

- (1) Non-repetitive current pulse per fig.5 and derated above TA=25°C per fig.1
- (2) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
- (3) V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

Company reserves the right to improve product design , functions and reliability without notice.

REV:D

Rating and Characteristic Curves (P4KE-G Series)

Fig.1 - Pulse Derating Curve



Fig.2 - Maximum Non-Repetitive Surge Current



Fig.3 - Steady State Power Derating Curve



Fig.4 - Peak Pulse Power Rating Curve



Fig.5 - Pulse Waveform



Fig.6 - Typical Junction Capacitance



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400W Transient Voltage Suppressor

Electrical Characteristics (P4KE-G Series)

| Part No. | Breakdown voltage VBR @ IT | | | Maximum Reverse Leakage @VRWM IR (uA) | Working Peak Reverse Voltage VRWM (V) | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage @IPP Vc (V) | Marking Code | |
|---------------|-------------------------------|----------|---------|---|--|--|--|--------------|-----------|
| | Min. (V) | Max. (V) | IT (mA) | | | | | UNI | BI |
| P4KE6.8(C)A-G | 6.46 | 7.14 | 10 | 1000 | 5.8 | 38.10 | 10.5 | P4KE6.8A | P4KE6.8CA |
| P4KE7.5(C)A-G | 7.13 | 7.88 | 10 | 500 | 6.4 | 35.40 | 11.3 | P4KE7.5A | P4KE7.5CA |
| P4KE8.2(C)A-G | 7.79 | 8.61 | 10 | 200 | 7.0 | 33.06 | 12.1 | P4KE8.2A | P4KE8.2CA |
| P4KE9.1(C)A-G | 8.65 | 9.56 | 1 | 50 | 7.8 | 29.85 | 13.4 | P4KE9.1A | P4KE9.1CA |
| P4KE10(C)A-G | 9.50 | 10.50 | 1 | 10 | 8.6 | 27.59 | 14.5 | P4KE10A | P4KE10CA |
| P4KE11(C)A-G | 10.45 | 11.55 | 1 | 5.0 | 9.4 | 25.64 | 15.6 | P4KE11A | P4KE11CA |
| P4KE12(C)A-G | 11.40 | 12.60 | 1 | 5.0 | 10.2 | 23.95 | 16.7 | P4KE12A | P4KE12CA |
| P4KE13(C)A-G | 12.35 | 13.65 | 1 | 1 | 11.1 | 21.98 | 18.2 | P4KE13A | P4KE13CA |
| P4KE15(C)A-G | 14.25 | 15.75 | 1 | 1 | 12.8 | 18.87 | 21.2 | P4KE15A | P4KE15CA |
| P4KE16(C)A-G | 15.20 | 16.80 | 1 | 1 | 13.6 | 17.78 | 22.5 | P4KE16A | P4KE16CA |
| P4KE18(C)A-G | 17.10 | 18.90 | 1 | 1 | 15.3 | 15.87 | 25.2 | P4KE18A | P4KE18CA |
| P4KE20(C)A-G | 19.00 | 21.00 | 1 | 1 | 17.1 | 14.44 | 27.7 | P4KE20A | P4KE20CA |
| P4KE22(C)A-G | 20.90 | 23.10 | 1 | 1 | 18.8 | 13.07 | 30.6 | P4KE22A | P4KE22CA |
| P4KE24(C)A-G | 22.80 | 25.20 | 1 | 1 | 20.5 | 12.05 | 33.2 | P4KE24A | P4KE24CA |
| P4KE27(C)A-G | 25.65 | 28.35 | 1 | 1 | 23.1 | 10.67 | 37.5 | P4KE27A | P4KE27CA |
| P4KE30(C)A-G | 28.50 | 31.50 | 1 | 1 | 25.6 | 9.66 | 41.4 | P4KE30A | P4KE30CA |
| P4KE33(C)A-G | 31.35 | 34.65 | 1 | 1 | 28.2 | 8.75 | 45.7 | P4KE33A | P4KE33CA |
| P4KE36(C)A-G | 34.20 | 37.80 | 1 | 1 | 30.8 | 8.02 | 49.9 | P4KE36A | P4KE36CA |
| P4KE39(C)A-G | 37.05 | 40.95 | 1 | 1 | 33.3 | 7.42 | 53.9 | P4KE39A | P4KE39CA |
| P4KE43(C)A-G | 40.85 | 45.15 | 1 | 1 | 36.8 | 6.75 | 59.3 | P4KE43A | P4KE43CA |
| P4KE47(C)A-G | 44.65 | 49.35 | 1 | 1 | 40.2 | 6.17 | 64.8 | P4KE47A | P4KE47CA |
| P4KE51(C)A-G | 48.45 | 53.55 | 1 | 1 | 43.6 | 5.71 | 70.1 | P4KE51A | P4KE51CA |
| P4KE56(C)A-G | 53.20 | 58.80 | 1 | 1 | 47.8 | 5.19 | 77.0 | P4KE56A | P4KE56CA |
| P4KE62(C)A-G | 58.90 | 65.10 | 1 | 1 | 53.0 | 4.71 | 85.0 | P4KE62A | P4KE62CA |
| P4KE68(C)A-G | 64.60 | 71.40 | 1 | 1 | 58.1 | 4.35 | 92.0 | P4KE68A | P4KE68CA |
| P4KE75(C)A-G | 71.25 | 78.75 | 1 | 1 | 64.1 | 3.88 | 103.0 | P4KE75A | P4KE75CA |
| P4KE82(C)A-G | 77.90 | 86.10 | 1 | 1 | 70.1 | 3.54 | 113.0 | P4KE82A | P4KE82CA |
| P4KE91(C)A-G | 86.45 | 95.55 | 1 | 1 | 77.8 | 3.20 | 125.0 | P4KE91A | P4KE91CA |
| P4KE100(C)A-G | 95.00 | 105.00 | 1 | 1 | 85.5 | 2.92 | 137.0 | P4KE100A | P4KE100CA |
| P4KE110(C)A-G | 104.50 | 115.50 | 1 | 1 | 94.0 | 2.63 | 152.0 | P4KE110A | P4KE110CA |
| P4KE120(C)A-G | 114.00 | 126.00 | 1 | 1 | 102.0 | 2.42 | 165.0 | P4KE120A | P4KE120CA |
| P4KE130(C)A-G | 123.50 | 136.50 | 1 | 1 | 111.0 | 2.23 | 179.0 | P4KE130A | P4KE130CA |
| P4KE150(C)A-G | 142.50 | 157.50 | 1 | 1 | 128.0 | 1.93 | 207.0 | P4KE150A | P4KE150CA |
| P4KE160(C)A-G | 152.00 | 168.00 | 1 | 1 | 136.0 | 1.83 | 219.0 | P4KE160A | P4KE160CA |
| P4KE170(C)A-G | 161.50 | 178.50 | 1 | 1 | 145.0 | 1.71 | 234.0 | P4KE170A | P4KE170CA |
| P4KE180(C)A-G | 171.00 | 189.00 | 1 | 1 | 154.0 | 1.63 | 246.0 | P4KE180A | P4KE180CA |
| P4KE200(C)A-G | 190.00 | 210.00 | 1 | 1 | 171.0 | 1.46 | 274.0 | P4KE200A | P4KE200CA |
| P4KE220(C)A-G | 209.00 | 231.00 | 1 | 1 | 185.0 | 1.22 | 328.0 | P4KE220A | P4KE220CA |
| P4KE250(C)A-G | 237.50 | 262.50 | 1 | 1 | 214.0 | 1.16 | 344.0 | P4KE250A | P4KE250CA |
| P4KE300(C)A-G | 285.00 | 315.00 | 1 | 1 | 256.0 | 0.97 | 414.0 | P4KE300A | P4KE300CA |
| P4KE350(C)A-G | 332.50 | 367.50 | 1 | 1 | 299.3 | 0.83 | 482.0 | P4KE350A | P4KE350CA |
| P4KE380(C)A-G | 361.00 | 399.00 | 1 | 1 | 324.9 | 0.76 | 524.4 | P4KE380A | P4KE380CA |
| P4KE400(C)A-G | 380.00 | 420.00 | 1 | 1 | 342.0 | 0.72 | 552.0 | P4KE400A | P4KE400CA |
| P4KE440(C)A-G | 418.00 | 462.00 | 1 | 1 | 376.2 | 0.66 | 607.2 | P4KE440A | P4KE440CA |
| P4KE500(C)A-G | 475.00 | 525.00 | 1 | 1 | 427.5 | 0.58 | 690.0 | P4KE500A | P4KE500CA |
| P4KE520(C)A-G | 494.00 | 546.00 | 1 | 1 | 444.6 | 0.56 | 717.6 | P4KE520A | P4KE520CA |
| P4KE550(C)A-G | 522.50 | 577.50 | 1 | 1 | 470.3 | 0.53 | 759.0 | P4KE550A | P4KE550CA |
| P4KE600(C)A-G | 570.00 | 630.00 | 1 | 1 | 513.0 | 0.48 | 828.0 | P4KE600A | P4KE600CA |

- Note: 1) Suffix A denotes 5% tolerance devices.
 2) Add suffix "C" or "CA" after part number to specify Bi-directional devices.
 3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

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