

## P6KE-G Series


**Breakdown Voltage: 6.8 to 600 Volts**

**Peak Pulse Power: 600 Watts**

**RoHS Device**

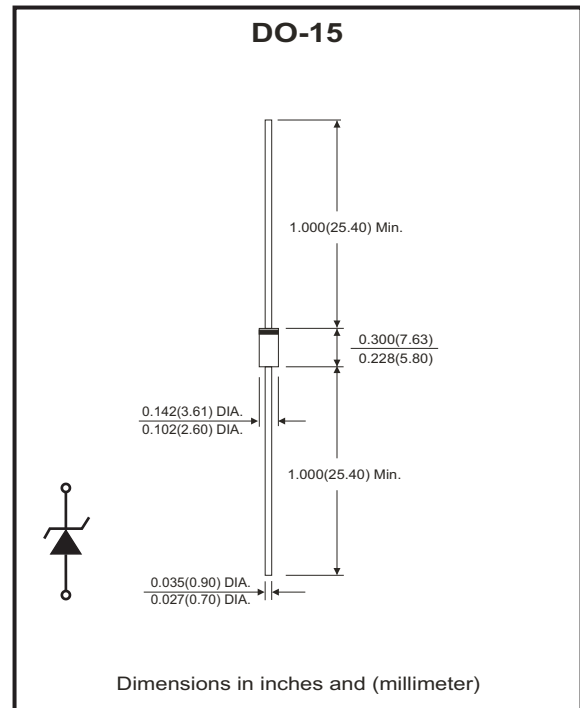


### Features

- Glass passivated chip.
- 600W peak pulse power capability with a 10/1000 $\mu$ 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: P6KE6.8(C)A thru. P6KE47(C)A

### Mechanical Data

- Case: Molded plastic DO-15.
- 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: 0.402 grams(approx.).



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

| Parameter  | Symbol                            | Value          | Unit |
|--|-----------------------------------|----------------|------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1)                      | PPP                               | 600            | W    |
| Peak pulse current with a 10/1000 $\mu$ s waveform (Note 1)                          | I <sub>PP</sub>                   | See Next Table | A    |
| Power dissipation on infinite heatsink at T <sub>L</sub> =75°C                       | P <sub>D</sub>                    | 5.0            | W    |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2) | I <sub>FSM</sub>                  | 100            | A    |
| Maximum instantaneous forward voltage at 50 A for unidirectional only (Note 3)       | V <sub>F</sub>                    | 3.5/5.0        | V    |
| Operating junction and storage temperature range                                     | T <sub>J</sub> , T <sub>STG</sub> | -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<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V

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REV:F

## Rating and Characteristic Curves (P6KE-G Series)

Fig.1 - Pulse Derating Curve

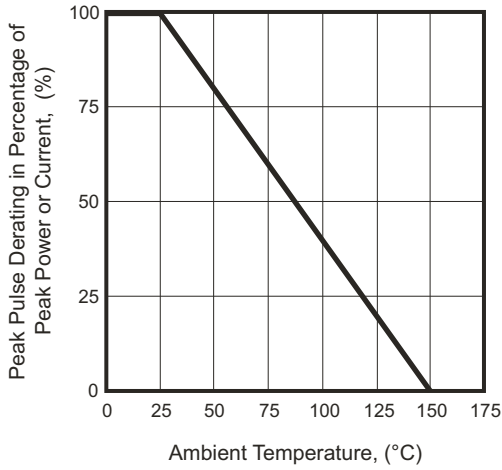


Fig.2 - Maximum Non-Repetitive Surge Current

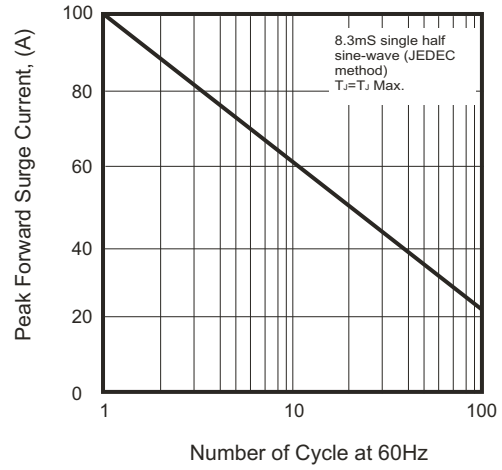


Fig.3 - Steady State Power Derating Curve

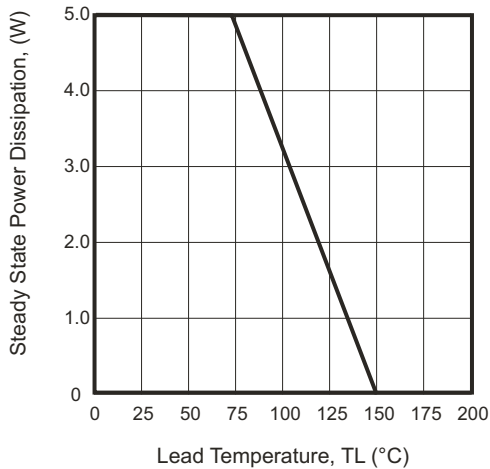


Fig.4 - Peak Pulse Power Rating Curve

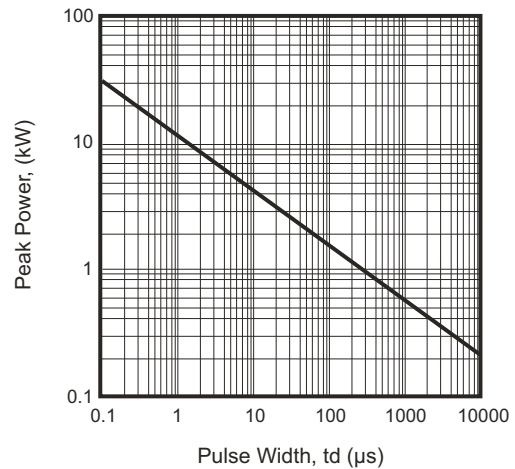


Fig.5 - Pulse Waveform

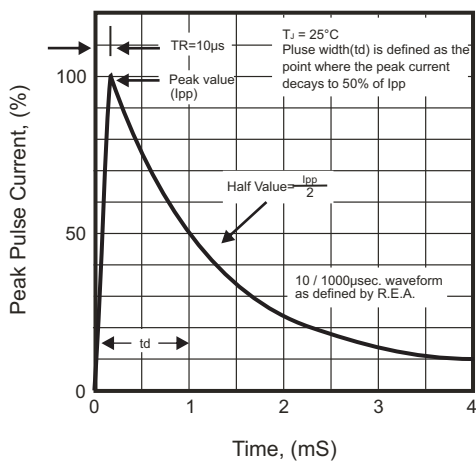
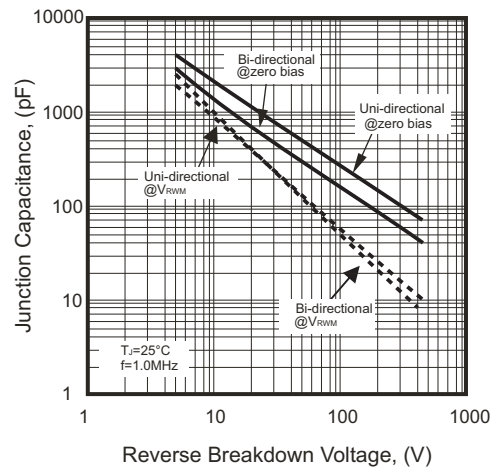


Fig.6 - Typical Junction Capacitance



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# 600W Transient Voltage Suppressor

## Electrical Characteristics (P6KE-G Series)

| Part No.      | Breakdown voltage<br>VBR @ IT |             |            | Maximum<br>Reverse<br>Leakage<br>@VRWM<br>IR (uA) | Working<br>Peak<br>Reverse<br>Voltage<br>VRWM (V) | Maximum<br>Reverse<br>Surge<br>Current<br>IPP (A) | Maximum<br>Clamping<br>Voltage<br>@IPP<br>Vc (V) | Marking Code |           |
|---------------|-------------------------------|-------------|------------|---|---|---|--|--------------|-----------|
|               | Min.<br>(V)                   | Max.<br>(V) | IT<br>(mA) |   |   |   |  | UNI          | BI        |
| P6KE6.8(C)A-G | 6.46                          | 7.14        | 10         | 1000  | 5.8   | 57.14   | 10.5   | P6KE6.8A     | P6KE6.8CA |
| P6KE7.5(C)A-G | 7.13                          | 7.88        | 10         | 500   | 6.4   | 53.10   | 11.3   | P6KE7.5A     | P6KE7.5CA |
| P6KE8.2(C)A-G | 7.79                          | 8.61        | 10         | 200   | 7.0   | 49.59   | 12.1   | P6KE8.2A     | P6KE8.2CA |
| P6KE9.1(C)A-G | 8.65                          | 9.56        | 1          | 50  | 7.8   | 44.78   | 13.4   | P6KE9.1A     | P6KE9.1CA |
| P6KE10(C)A-G  | 9.50                          | 10.50       | 1          | 10  | 8.6   | 41.38   | 14.5   | P6KE10A      | P6KE10CA  |
| P6KE11(C)A-G  | 10.45                         | 11.55       | 1          | 5.0   | 9.4   | 38.46   | 15.6   | P6KE11A      | P6KE11CA  |
| P6KE12(C)A-G  | 11.40                         | 12.60       | 1          | 5.0   | 10.2  | 35.93   | 16.7   | P6KE12A      | P6KE12CA  |
| P6KE13(C)A-G  | 12.35                         | 13.65       | 1          | 1   | 11.1  | 32.97   | 18.2   | P6KE13A      | P6KE13CA  |
| P6KE15(C)A-G  | 14.25                         | 15.75       | 1          | 1   | 12.8  | 28.30   | 21.2   | P6KE15A      | P6KE15CA  |
| P6KE16(C)A-G  | 15.20                         | 16.80       | 1          | 1   | 13.6  | 26.67   | 22.5   | P6KE16A      | P6KE16CA  |
| P6KE18(C)A-G  | 17.10                         | 18.90       | 1          | 1   | 15.3  | 23.81   | 25.2   | P6KE18A      | P6KE18CA  |
| P6KE20(C)A-G  | 19.00                         | 21.00       | 1          | 1   | 17.1  | 21.66   | 27.7   | P6KE20A      | P6KE20CA  |
| P6KE22(C)A-G  | 20.90                         | 23.10       | 1          | 1   | 18.8  | 19.61   | 30.6   | P6KE22A      | P6KE22CA  |
| P6KE24(C)A-G  | 22.80                         | 25.20       | 1          | 1   | 20.5  | 18.07   | 33.2   | P6KE24A      | P6KE24CA  |
| P6KE27(C)A-G  | 25.65                         | 28.35       | 1          | 1   | 23.1  | 16.00   | 37.5   | P6KE27A      | P6KE27CA  |
| P6KE30(C)A-G  | 28.50                         | 31.50       | 1          | 1   | 25.6  | 14.49   | 41.4   | P6KE30A      | P6KE30CA  |
| P6KE33(C)A-G  | 31.35                         | 34.65       | 1          | 1   | 28.2  | 13.13   | 45.7   | P6KE33A      | P6KE33CA  |
| P6KE36(C)A-G  | 34.20                         | 37.80       | 1          | 1   | 30.8  | 12.02   | 49.9   | P6KE36A      | P6KE36CA  |
| P6KE39(C)A-G  | 37.05                         | 40.95       | 1          | 1   | 33.3  | 11.13   | 53.9   | P6KE39A      | P6KE39CA  |
| P6KE43(C)A-G  | 40.85                         | 45.15       | 1          | 1   | 36.8  | 10.12   | 59.3   | P6KE43A      | P6KE43CA  |
| P6KE47(C)A-G  | 44.65                         | 49.35       | 1          | 1   | 40.2  | 9.26  | 64.8   | P6KE47A      | P6KE47CA  |
| P6KE51(C)A-G  | 48.45                         | 53.55       | 1          | 1   | 43.6  | 8.56  | 70.1   | P6KE51A      | P6KE51CA  |
| P6KE56(C)A-G  | 53.20                         | 58.80       | 1          | 1   | 47.8  | 7.79  | 77.0   | P6KE56A      | P6KE56CA  |
| P6KE62(C)A-G  | 58.90                         | 65.10       | 1          | 1   | 53.0  | 7.06  | 85.0   | P6KE62A      | P6KE62CA  |
| P6KE68(C)A-G  | 64.60                         | 71.40       | 1          | 1   | 58.1  | 6.52  | 92.0   | P6KE68A      | P6KE68CA  |
| P6KE75(C)A-G  | 71.25                         | 78.75       | 1          | 1   | 64.1  | 5.83  | 103.0  | P6KE75A      | P6KE75CA  |
| P6KE82(C)A-G  | 77.90                         | 86.10       | 1          | 1   | 70.1  | 5.31  | 113.0  | P6KE82A      | P6KE82CA  |
| P6KE91(C)A-G  | 86.45                         | 95.55       | 1          | 1   | 77.8  | 4.80  | 125.0  | P6KE91A      | P6KE91CA  |
| P6KE100(C)A-G | 95.00                         | 105.00      | 1          | 1   | 85.5  | 4.38  | 137.0  | P6KE100A     | P6KE100CA |
| P6KE110(C)A-G | 104.50                        | 115.50      | 1          | 1   | 94.0  | 3.95  | 152.0  | P6KE110A     | P6KE110CA |
| P6KE120(C)A-G | 114.00                        | 126.00      | 1          | 1   | 102.0   | 3.64  | 165.0  | P6KE120A     | P6KE120CA |
| P6KE130(C)A-G | 123.50                        | 136.50      | 1          | 1   | 111.0   | 3.35  | 179.0  | P6KE130A     | P6KE130CA |
| P6KE150(C)A-G | 142.50                        | 157.50      | 1          | 1   | 128.0   | 2.90  | 207.0  | P6KE150A     | P6KE150CA |
| P6KE160(C)A-G | 152.00                        | 168.00      | 1          | 1   | 136.0   | 2.74  | 219.0  | P6KE160A     | P6KE160CA |
| P6KE170(C)A-G | 161.50                        | 178.50      | 1          | 1   | 145.0   | 2.56  | 234.0  | P6KE170A     | P6KE170CA |
| P6KE180(C)A-G | 171.00                        | 189.00      | 1          | 1   | 154.0   | 2.44  | 246.0  | P6KE180A     | P6KE180CA |
| P6KE200(C)A-G | 190.00                        | 210.00      | 1          | 1   | 171.0   | 2.19  | 274.0  | P6KE200A     | P6KE200CA |
| P6KE220(C)A-G | 209.00                        | 231.00      | 1          | 1   | 185.0   | 1.83  | 328.0  | P6KE220A     | P6KE220CA |
| P6KE250(C)A-G | 237.50                        | 262.50      | 1          | 1   | 214.0   | 1.74  | 344.0  | P6KE250A     | P6KE250CA |
| P6KE300(C)A-G | 285.00                        | 315.00      | 1          | 1   | 256.0   | 1.45  | 414.0  | P6KE300A     | P6KE300CA |
| P6KE350(C)A-G | 332.50                        | 367.50      | 1          | 1   | 299.3   | 1.24  | 482.0  | P6KE350A     | P6KE350CA |
| P6KE380(C)A-G | 361.00                        | 399.00      | 1          | 1   | 324.9   | 1.14  | 524.4  | P6KE380A     | P6KE380CA |
| P6KE400(C)A-G | 380.00                        | 420.00      | 1          | 1   | 342.0   | 1.09  | 548.0  | P6KE400A     | P6KE400CA |
| P6KE440(C)A-G | 418.00                        | 462.00      | 1          | 1   | 376.2   | 0.99  | 607.2  | P6KE440A     | P6KE440CA |
| P6KE500(C)A-G | 475.00                        | 525.00      | 1          | 1   | 427.5   | 0.87  | 690.0  | P6KE500A     | P6KE500CA |
| P6KE520(C)A-G | 494.00                        | 546.00      | 1          | 1   | 444.6   | 0.84  | 717.6  | P6KE520A     | P6KE520CA |
| P6KE550(C)A-G | 522.50                        | 577.50      | 1          | 1   | 470.3   | 0.79  | 759.0  | P6KE550A     | P6KE550CA |
| P6KE600(C)A-G | 570.00                        | 630.00      | 1          | 1   | 513.0   | 0.72  | 828.0  | P6KE600A     | P6KE600CA |

- 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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