

Silicon Avalanche Diodes

600 Watt Axial Leaded Transient Voltage Suppressors

RoHS P6KE Series



The P6KE Series is designed specifically to protect sensitive electronics equipment from voltage transients induced by lightning and other transient voltage events. These devices are ideal for the protection of I/O interfaces, Vcc bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

FEATURES

- **RoHS Compliant**
- 6.8 to 550 Volts
- Uni-directional and Bi-directional
- Glass passivated chip junction in DO-15 Package
- 600W surge capability at 10/1000µs wave form
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- Typical IR less than 1µA above 10V
- High temperature soldering guaranteed: 265°C/10seconds/.375", (9.5mm) lead length, 5lbs.(2.3kg) tension

Agency Approvals: Recognized under the Components Program of Underwriters Laboratories.

Agency File Number: E128662



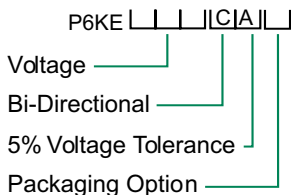
MAXIMUM RATINGS AND CHARACTERISTICS @25°C AMBIENT TEMPERATURE (unless otherwise noted)

| RATING | SYMBOL | VALUE | UNIT |
|---|--------------------------|-------------|-------|
| Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (Note 1) | P_{PPM} | Min 600 | Watts |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$, Lead lengths .375", (9.5mm) (Note 2) | $P_{\text{M(AV)}}$ | 5 | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3) | I_{PSM} | 100 | Amps |
| Operating junction and Storage Temperature Range | T_j , T_{STG} | -55 to +175 | °C |

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle= 4 pulses per minutes maximum.

ORDERING INFORMATION



B = Bulk (1000 pcs)
T = Tape and reeled (4000 pcs)

Mechanical Specifications:

Weight: 0.015 ounce, 0.4 grams
Case: JEDEC DO-15 Molded Plastic
Mounting Position: Any
Polarity: Color band denotes cathode except Bipolar
Terminal: Axial leads, solderable per MIL-STD-750, Method 2026

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ELECTRICAL SPECIFICATION @ Tamb 25°C

| Part Numbers | | Reverse Stand off Voltage V _R (Volts) | Breakdown Voltage V _{BR} (Volts) @ I _T | | Test Current I _T (mA) | Maximum Clamping Voltage V _C @ I _{PP} (Volts) | Maximum Peak Pulse Current I _{PP} (A) | Maximum Reverse Leakage I _R @ V _R (μA) |
|--------------|-----------|--|--|--------|----------------------------------|---|--|--|
| | | | MIN | MAX | | | | |
| P6KE6.8A | P6KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 58.1 | 1000 |
| P6KE7.5A | P6KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 54.0 | 500 |
| P6KE8.2A | P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.4 | 200 |
| P6KE9.1A | P6KE9.1CA | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.5 | 50 |
| P6KE10A | P6KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 42.1 | 10 |
| P6KE11A | P6KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 39.1 | 5 |
| P6KE12A | P6KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.5 | 5 |
| P6KE13A | P6KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.5 | 5 |
| P6KE15A | P6KE15CA | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.8 | 5 |
| P6KE16A | P6KE16CA | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.1 | 5 |
| P6KE18A | P6KE18CA | 15.30 | 17.10 | 18.90 | 1 | 25.2 | 24.2 | 5 |
| P6KE20A | P6KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 5 |
| P6KE22A | P6KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 19.9 | 5 |
| P6KE24A | P6KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.4 | 5 |
| P6KE27A | P6KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.3 | 5 |
| P6KE30A | P6KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.7 | 5 |
| P6KE33A | P6KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.3 | 5 |
| P6KE36A | P6KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.2 | 5 |
| P6KE39A | P6KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.3 | 5 |
| P6KE43A | P6KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.3 | 5 |
| P6KE47A | P6KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.4 | 5 |
| P6KE51A | P6KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.7 | 5 |
| P6KE56A | P6KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.9 | 5 |
| P6KE62A | P6KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.2 | 5 |
| P6KE68A | P6KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.6 | 5 |
| P6KE75A | P6KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.9 | 5 |
| P6KE82A | P6KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.4 | 5 |
| P6KE91A | P6KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.9 | 5 |
| P6KE100A | P6KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.5 | 5 |
| P6KE110A | P6KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 5 |
| P6KE120A | P6KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.7 | 5 |
| P6KE130A | P6KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.4 | 5 |
| P6KE150A | P6KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 5 |
| P6KE160A | P6KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.8 | 5 |
| P6KE170A | P6KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 5 |
| P6KE180A | P6KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.5 | 5 |
| P6KE200A | P6KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 5 |
| P6KE220A | P6KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 5 |
| P6KE250A | P6KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.8 | 5 |
| P6KE300A | P6KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 5 |
| P6KE350A | P6KE350CA | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 5 |
| P6KE400A | P6KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.1 | 5 |
| P6KE440A | P6KE440CA | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 1.0 | 5 |
| P6KE480A | P6KE480CA | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.9 | 5 |
| P6KE510A | P6KE510CA | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.9 | 5 |
| P6KE530A | P6KE530CA | 450.00 | 503.50 | 556.50 | 1 | 725.0 | 0.8 | 5 |
| P6KE540A | P6KE540CA | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.8 | 5 |
| P6KE550A | P6KE550CA | 467.00 | 522.50 | 577.50 | 1 | 760.0 | 0.8 | 5 |

For bidirectional type having V_{rw} of 10 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is ± 10%

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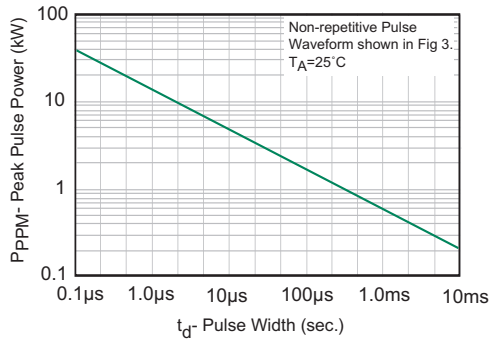


Fig. 1 Peak Pulse Power Rating

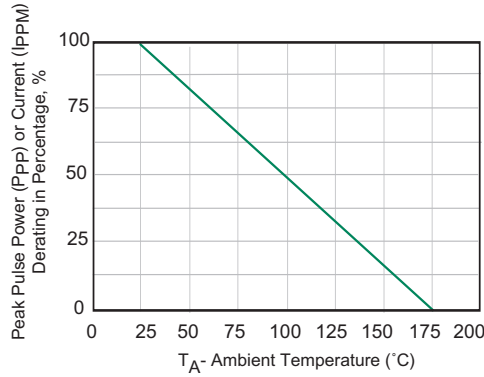


Fig. 2 Pulse Derating Curve

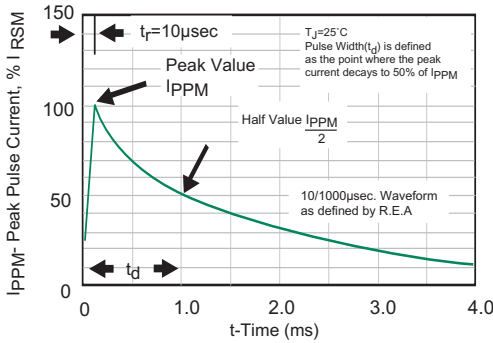


Fig. 3 Pulse Waveform

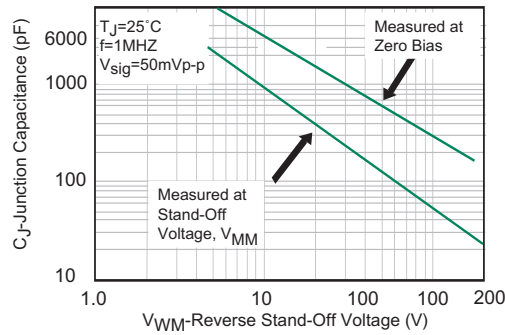


Fig. 4- Typical Junction Capacitance Uni-Directional

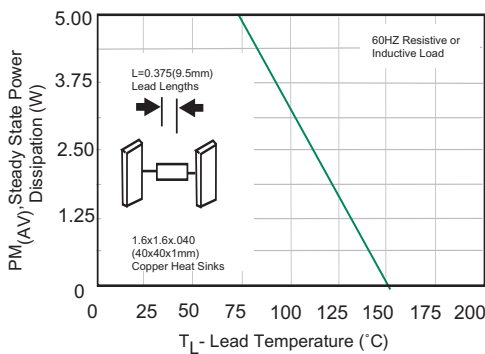


Fig. 5 Steady State Power Derating Curve

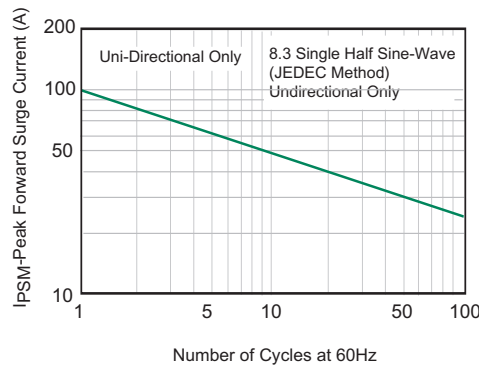


Fig. 6- Max. Non-Repetitive Forward Surge Current

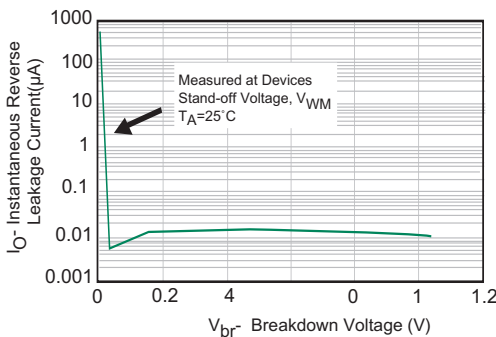


Fig. 7- Typical Reverse Leakage Characteristics

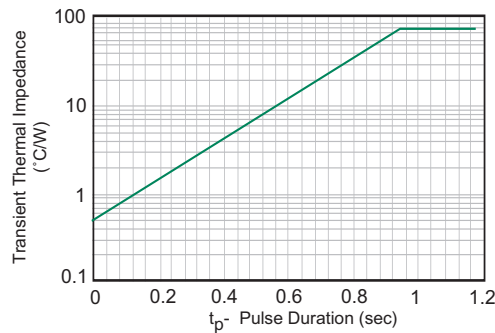


Fig. 8- Typ. Transient Thermal Impedance

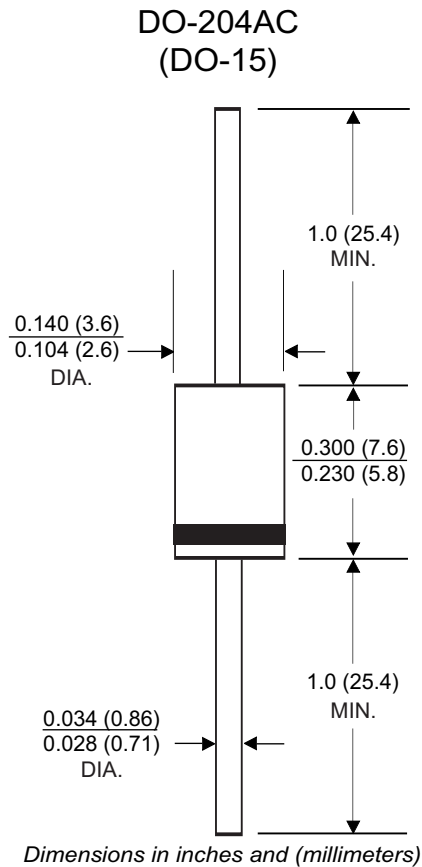
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Outline Dimensions



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SILICON DIODE
ARRAYS