

Breakdown Voltage: 6.8 to 600 V
Peak Pulse Power: 600 W

Axial Lead Transient Voltage Suppressors

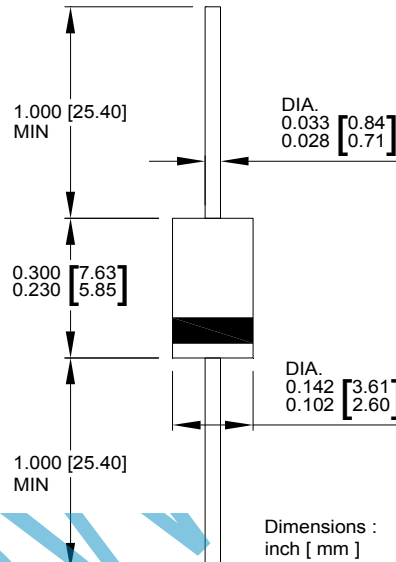
Features

- Glass passivated chip
- 600 W 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
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- 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

DO-15



Maximum Ratings($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | UNIT |
|---|----------------|----------------|------------------|
| Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾ | P_{PP} | 600 | W |
| Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾ | I_{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$ | P_D | 5.0 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I_{FSM} | 100 | A |
| Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽³⁾ | V_F | 3.5/5.0 | V |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note:

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

Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

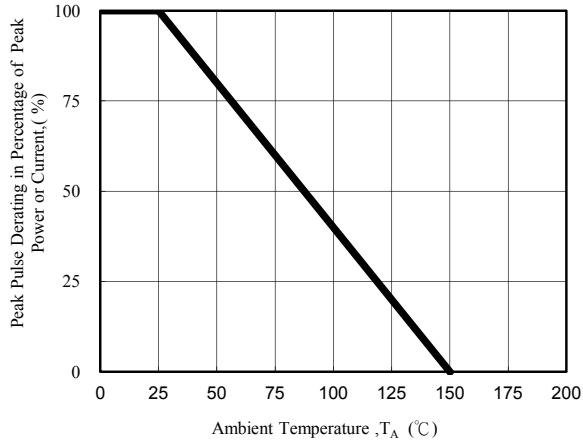


Fig. 1 - Pulse Derating Curve

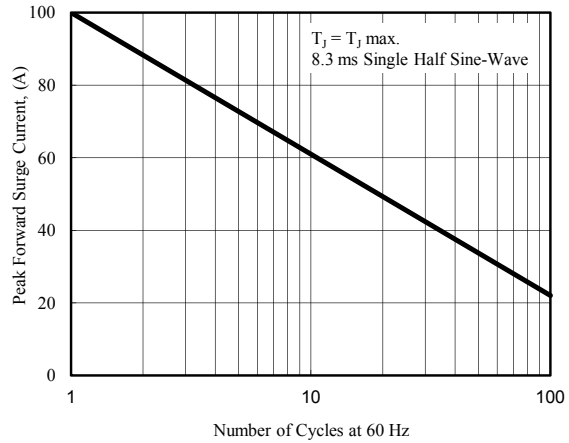


Fig. 2 - Maximum Non-Repetitive Surge Current

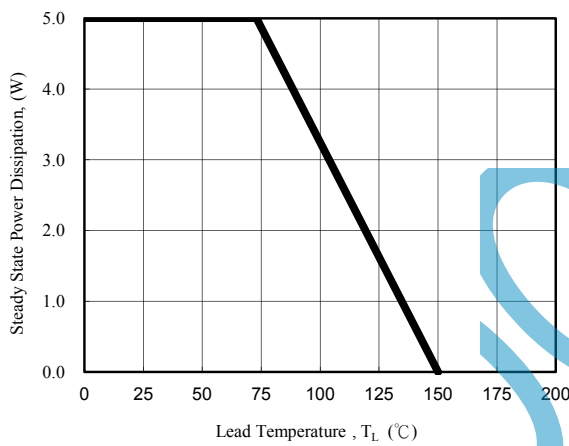


Fig. 3 - Steady State Power Derating Curve

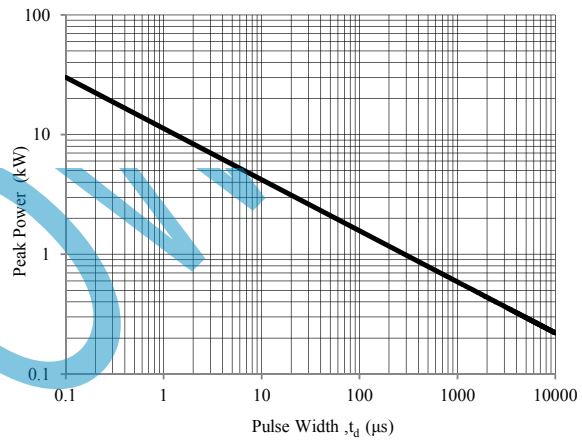


Fig. 4 - Peak Pulse Power Rating Curve

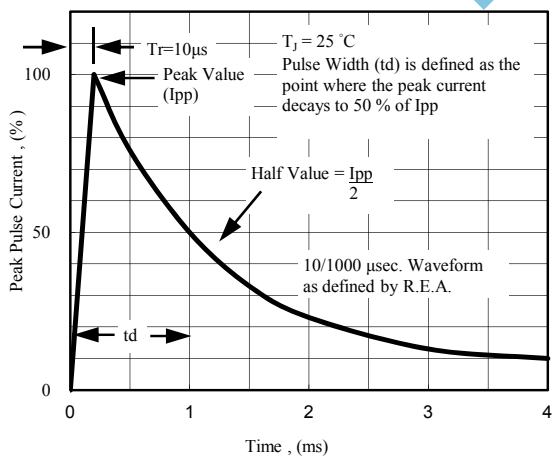


Fig. 5 - Pulse Waveform

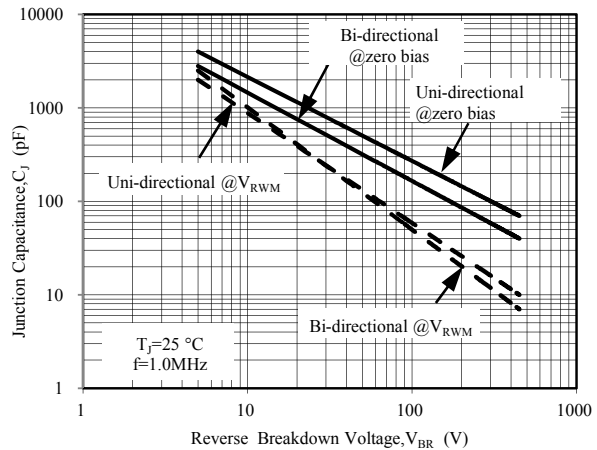


Fig. 6 - Typical Junction Capacitance



Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Breakdown Voltage V _{BR} @I _T | | | Maximum Reverse Leakage I _R @V _{RWM} (uA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} (A) | Maximum Clamping Voltage V _C @I _{PP} (V) |
|-------------------|------------------|---|---------|---------------------|---|---|---|--|
| | | Min (V) | Max (V) | I _T (mA) | | | | |
| P6KE6.8 | P6KE6.8C | 6.12 | 7.48 | 10 | 1000 | 5.5 | 55.56 | 10.8 |
| P6KE6.8A | P6KE6.8CA | 6.46 | 7.14 | 10 | 1000 | 5.8 | 57.14 | 10.5 |
| P6KE7.5 | P6KE7.5C | 6.75 | 8.25 | 10 | 500 | 6.1 | 51.28 | 11.7 |
| P6KE7.5A | P6KE7.5CA | 7.13 | 7.88 | 10 | 500 | 6.4 | 53.10 | 11.3 |
| P6KE8.2 | P6KE8.2C | 7.38 | 9.02 | 10 | 200 | 6.6 | 48.00 | 12.5 |
| P6KE8.2A | P6KE8.2CA | 7.79 | 8.61 | 10 | 200 | 7.0 | 49.59 | 12.1 |
| P6KE9.1 | P6KE9.1C | 8.19 | 10.01 | 1 | 50 | 7.4 | 43.48 | 13.8 |
| P6KE9.1A | P6KE9.1CA | 8.65 | 9.56 | 1 | 50 | 7.8 | 44.78 | 13.4 |
| P6KE10 | P6KE10C | 9.00 | 11.00 | 1 | 10 | 8.1 | 40.00 | 15.0 |
| P6KE10A | P6KE10CA | 9.50 | 10.50 | 1 | 10 | 8.6 | 41.38 | 14.5 |
| P6KE11 | P6KE11C | 9.90 | 12.10 | 1 | 5 | 8.9 | 37.04 | 16.2 |
| P6KE11A | P6KE11CA | 10.45 | 11.55 | 1 | 5 | 9.4 | 38.46 | 15.6 |
| P6KE12 | P6KE12C | 10.80 | 13.20 | 1 | 5 | 9.7 | 34.68 | 17.3 |
| P6KE12A | P6KE12CA | 11.40 | 12.60 | 1 | 5 | 10.2 | 35.93 | 16.7 |
| P6KE13 | P6KE13C | 11.70 | 14.30 | 1 | 1 | 10.5 | 31.58 | 19.0 |
| P6KE13A | P6KE13CA | 12.35 | 13.65 | 1 | 1 | 11.1 | 32.97 | 18.2 |
| P6KE15 | P6KE15C | 13.50 | 16.50 | 1 | 1 | 12.1 | 27.27 | 22.0 |
| P6KE15A | P6KE15CA | 14.25 | 15.75 | 1 | 1 | 12.8 | 28.30 | 21.2 |
| P6KE16 | P6KE16C | 14.40 | 17.60 | 1 | 1 | 12.9 | 25.53 | 23.5 |
| P6KE16A | P6KE16CA | 15.20 | 16.80 | 1 | 1 | 13.6 | 26.67 | 22.5 |
| P6KE18 | P6KE18C | 16.20 | 19.80 | 1 | 1 | 14.5 | 22.64 | 26.5 |
| P6KE18A | P6KE18CA | 17.10 | 18.90 | 1 | 1 | 15.3 | 23.81 | 25.2 |
| P6KE20 | P6KE20C | 18.00 | 22.00 | 1 | 1 | 16.2 | 20.62 | 29.1 |
| P6KE20A | P6KE20CA | 19.00 | 21.00 | 1 | 1 | 17.1 | 21.66 | 27.7 |
| P6KE22 | P6KE22C | 19.80 | 24.20 | 1 | 1 | 17.8 | 18.81 | 31.9 |
| P6KE22A | P6KE22CA | 20.90 | 23.10 | 1 | 1 | 18.8 | 19.61 | 30.6 |
| P6KE24 | P6KE24C | 21.60 | 26.40 | 1 | 1 | 19.4 | 17.29 | 34.7 |
| P6KE24A | P6KE24CA | 22.80 | 25.20 | 1 | 1 | 20.5 | 18.07 | 33.2 |
| P6KE27 | P6KE27C | 24.30 | 29.70 | 1 | 1 | 21.8 | 15.35 | 39.1 |
| P6KE27A | P6KE27CA | 25.65 | 28.35 | 1 | 1 | 23.1 | 16.00 | 37.5 |
| P6KE30 | P6KE30C | 27.00 | 33.00 | 1 | 1 | 24.3 | 13.79 | 43.5 |
| P6KE30A | P6KE30CA | 28.50 | 31.50 | 1 | 1 | 25.6 | 14.49 | 41.4 |
| P6KE33 | P6KE33C | 29.70 | 36.30 | 1 | 1 | 26.8 | 12.58 | 47.7 |
| P6KE33A | P6KE33CA | 31.35 | 34.65 | 1 | 1 | 28.2 | 13.13 | 45.7 |
| P6KE36 | P6KE36C | 32.40 | 39.60 | 1 | 1 | 29.1 | 11.54 | 52.0 |
| P6KE36A | P6KE36CA | 34.20 | 37.80 | 1 | 1 | 30.8 | 12.02 | 49.9 |
| P6KE39 | P6KE39C | 35.10 | 42.90 | 1 | 1 | 31.6 | 10.64 | 56.4 |
| P6KE39A | P6KE39CA | 37.05 | 40.95 | 1 | 1 | 33.3 | 11.13 | 53.9 |
| P6KE43 | P6KE43C | 38.70 | 47.30 | 1 | 1 | 34.8 | 9.69 | 61.9 |
| P6KE43A | P6KE43CA | 40.85 | 45.15 | 1 | 1 | 36.8 | 10.12 | 59.3 |
| P6KE47 | P6KE47C | 42.30 | 51.70 | 1 | 1 | 38.1 | 8.85 | 67.8 |
| P6KE47A | P6KE47CA | 44.65 | 49.35 | 1 | 1 | 40.2 | 9.26 | 64.8 |
| P6KE51 | P6KE51C | 45.90 | 56.10 | 1 | 1 | 41.3 | 8.16 | 73.5 |
| P6KE51A | P6KE51CA | 48.45 | 53.55 | 1 | 1 | 43.6 | 8.56 | 70.1 |
| P6KE56 | P6KE56C | 50.40 | 61.60 | 1 | 1 | 45.4 | 7.45 | 80.5 |
| P6KE56A | P6KE56CA | 53.20 | 58.80 | 1 | 1 | 47.8 | 7.79 | 77.0 |

Note:

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Breakdown Voltage V_{BR} @ I_T | | | Maximum Reverse Leakage I_R @ V_{RWM} (μA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current I_{PP} (A) | Maximum Clamping Voltage V_C @ I_{PP} (V) |
|----------------------|---------------------|------------------------------------|---------|------------|---|--|--|---|
| | | Min (V) | Max (V) | I_T (mA) | | | | |
| P6KE62 | P6KE62C | 55.80 | 68.20 | 1 | 1 | 50.2 | 6.74 | 89.0 |
| P6KE62A | P6KE62CA | 58.90 | 65.10 | 1 | 1 | 53.0 | 7.06 | 85.0 |
| P6KE68 | P6KE68C | 61.20 | 74.80 | 1 | 1 | 55.1 | 6.12 | 98.0 |
| P6KE68A | P6KE68CA | 64.60 | 71.40 | 1 | 1 | 58.1 | 6.52 | 92.0 |
| P6KE75 | P6KE75C | 67.50 | 82.50 | 1 | 1 | 60.7 | 5.56 | 108.0 |
| P6KE75A | P6KE75CA | 71.25 | 78.75 | 1 | 1 | 64.1 | 5.83 | 103.0 |
| P6KE82 | P6KE82C | 73.80 | 90.20 | 1 | 1 | 66.4 | 5.08 | 118.0 |
| P6KE82A | P6KE82CA | 77.90 | 86.10 | 1 | 1 | 70.1 | 5.31 | 113.0 |
| P6KE91 | P6KE91C | 81.90 | 100.10 | 1 | 1 | 73.7 | 4.58 | 131.0 |
| P6KE91A | P6KE91CA | 86.45 | 95.55 | 1 | 1 | 77.8 | 4.80 | 125.0 |
| P6KE100 | P6KE100C | 90.00 | 110.00 | 1 | 1 | 81.0 | 4.17 | 144.0 |
| P6KE100A | P6KE100CA | 95.00 | 105.00 | 1 | 1 | 85.5 | 4.38 | 137.0 |
| P6KE110 | P6KE110C | 99.00 | 121.00 | 1 | 1 | 89.2 | 3.80 | 158.0 |
| P6KE110A | P6KE110CA | 104.50 | 115.50 | 1 | 1 | 94.0 | 3.95 | 152.0 |
| P6KE120 | P6KE120C | 108.00 | 132.00 | 1 | 1 | 97.2 | 3.47 | 173.0 |
| P6KE120A | P6KE120CA | 114.00 | 126.00 | 1 | 1 | 102.0 | 3.64 | 165.0 |
| P6KE130 | P6KE130C | 117.00 | 143.00 | 1 | 1 | 105.0 | 3.21 | 187.0 |
| P6KE130A | P6KE130CA | 123.50 | 136.50 | 1 | 1 | 111.0 | 3.35 | 179.0 |
| P6KE150 | P6KE150C | 135.00 | 165.00 | 1 | 1 | 121.0 | 2.79 | 215.0 |
| P6KE150A | P6KE150CA | 142.50 | 157.50 | 1 | 1 | 128.0 | 2.90 | 207.0 |
| P6KE160 | P6KE160C | 144.00 | 176.00 | 1 | 1 | 130.0 | 2.61 | 230.0 |
| P6KE160A | P6KE160CA | 152.00 | 168.00 | 1 | 1 | 136.0 | 2.74 | 219.0 |
| P6KE170 | P6KE170C | 153.00 | 187.00 | 1 | 1 | 138.0 | 2.46 | 244.0 |
| P6KE170A | P6KE170CA | 161.50 | 178.50 | 1 | 1 | 145.0 | 2.56 | 234.0 |
| P6KE180 | P6KE180C | 162.00 | 198.00 | 1 | 1 | 146.0 | 2.33 | 258.0 |
| P6KE180A | P6KE180CA | 171.00 | 189.00 | 1 | 1 | 154.0 | 2.44 | 246.0 |
| P6KE200 | P6KE200C | 180.00 | 220.00 | 1 | 1 | 162.0 | 2.09 | 287.0 |
| P6KE200A | P6KE200CA | 190.00 | 210.00 | 1 | 1 | 171.0 | 2.19 | 274.0 |
| P6KE220 | P6KE220C | 198.00 | 242.00 | 1 | 1 | 175.0 | 1.74 | 344.0 |
| P6KE220A | P6KE220CA | 209.00 | 231.00 | 1 | 1 | 185.0 | 1.83 | 328.0 |
| P6KE250 | P6KE250C | 225.00 | 275.00 | 1 | 1 | 202.0 | 1.67 | 360.0 |
| P6KE250A | P6KE250CA | 237.50 | 262.50 | 1 | 1 | 214.0 | 1.74 | 344.0 |
| P6KE300 | P6KE300C | 270.00 | 330.00 | 1 | 1 | 243.0 | 1.40 | 430.0 |
| P6KE300A | P6KE300CA | 285.00 | 315.00 | 1 | 1 | 256.0 | 1.45 | 414.0 |
| P6KE350 | P6KE350C | 315.00 | 385.00 | 1 | 1 | 284.2 | 1.19 | 504.0 |
| P6KE350A | P6KE350CA | 332.50 | 367.50 | 1 | 1 | 299.3 | 1.24 | 482.0 |
| P6KE380 | P6KE380C | 342.00 | 418.00 | 1 | 1 | 308.6 | 1.10 | 547.2 |
| P6KE380A | P6KE380CA | 361.00 | 399.00 | 1 | 1 | 324.9 | 1.14 | 524.4 |
| P6KE400 | P6KE400C | 360.00 | 440.00 | 1 | 1 | 324.8 | 1.05 | 574.0 |
| P6KE400A | P6KE400CA | 380.00 | 420.00 | 1 | 1 | 342.0 | 1.09 | 548.0 |
| P6KE440 | P6KE440C | 396.00 | 484.00 | 1 | 1 | 357.3 | 0.95 | 633.6 |
| P6KE440A | P6KE440CA | 418.00 | 462.00 | 1 | 1 | 376.2 | 0.99 | 607.2 |
| P6KE500 | P6KE500C | 450.00 | 550.00 | 1 | 1 | 406.0 | 0.83 | 720.0 |
| P6KE500A | P6KE500CA | 475.00 | 525.00 | 1 | 1 | 427.5 | 0.87 | 690.0 |
| P6KE520 | P6KE520C | 468.00 | 572.00 | 1 | 1 | 422.2 | 0.80 | 748.8 |
| P6KE520A | P6KE520CA | 494.00 | 546.00 | 1 | 1 | 444.6 | 0.84 | 717.6 |
| P6KE550 | P6KE550C | 495.00 | 605.00 | 1 | 1 | 446.6 | 0.76 | 792.0 |
| P6KE550A | P6KE550CA | 522.50 | 577.50 | 1 | 1 | 470.3 | 0.79 | 759.0 |
| P6KE600 | P6KE600C | 540.00 | 660.00 | 1 | 1 | 487.2 | 0.69 | 864.0 |
| P6KE600A | P6KE600CA | 570.00 | 630.00 | 1 | 1 | 513.0 | 0.72 | 828.0 |

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