

Breakdown Voltage: 6.8 to 600 V
Peak Pulse Power: 1500 W

Axial Lead Transient Voltage Suppressors

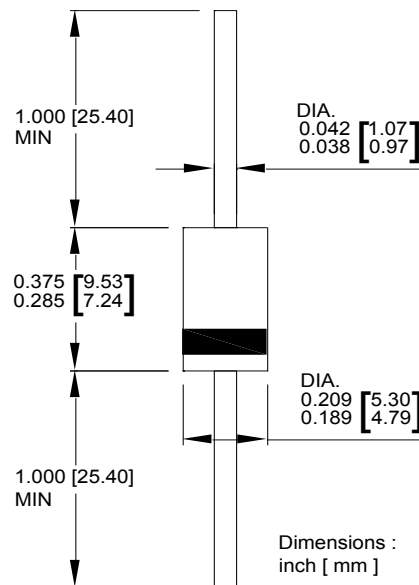
Features

- Glass passivated chip
- 1500 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-201



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} | 1500 | 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 | 6.5 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I_{FSM} | 200 | A |
| Maximum instantaneous forward voltage at 100 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)

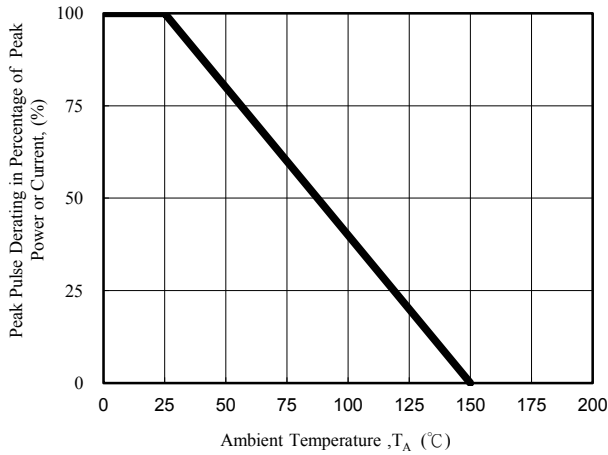


Fig. 1 - Pulse Derating Curve

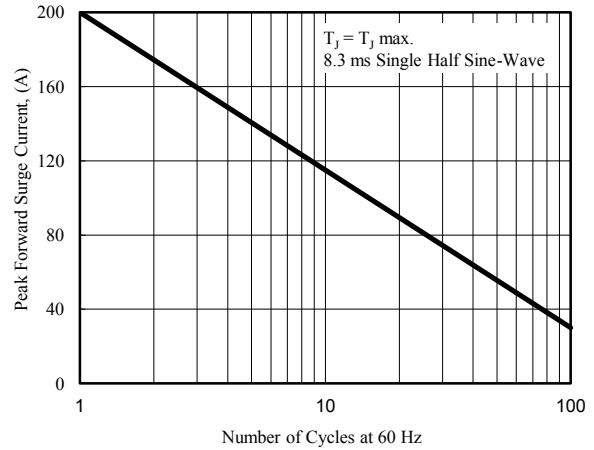


Fig. 2 - Maximum Non-Repetitive Surge Current

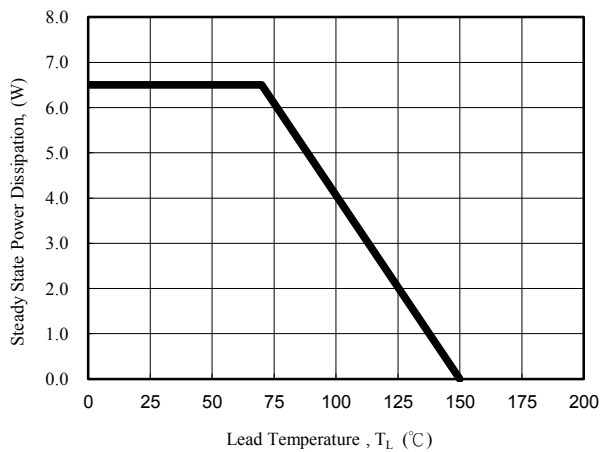


Fig. 3 - Steady State Power Derating Curve

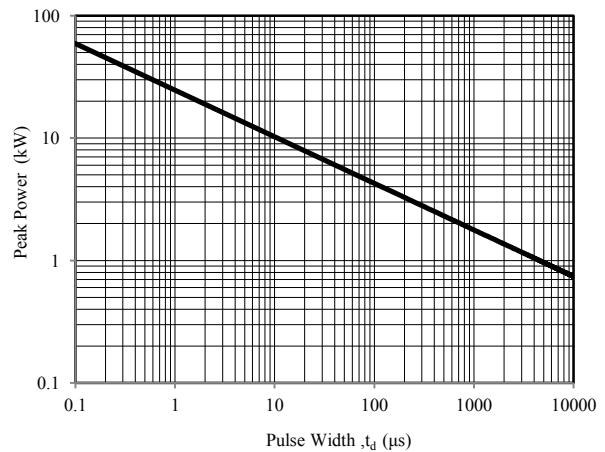


Fig. 4 - Peak Pulse Power Rating Curve

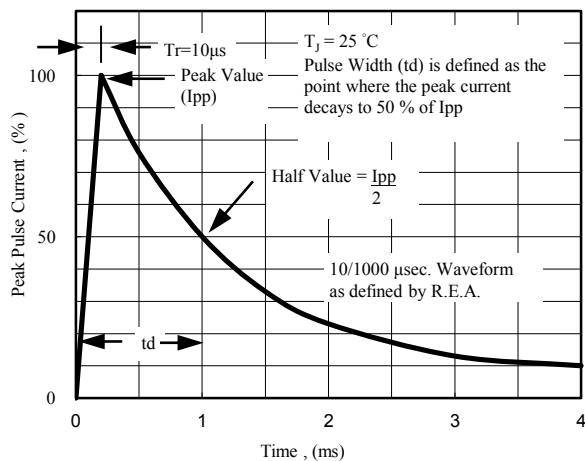


Fig. 5 - Pulse Waveform

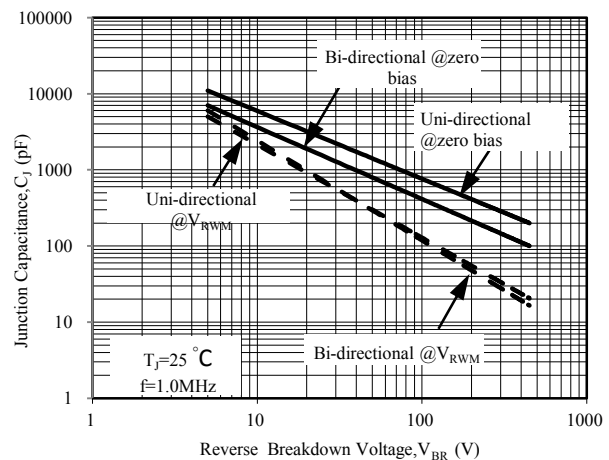


Fig. 6 - Typical Junction Capacitance

Electrical Characteristics($T_A=25^{\circ}\text{C}$ 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) | | | | |
| 1.5KE6.8 | 1.5KE6.8C | 6.12 | 7.48 | 10 | 1000 | 5.5 | 138.89 | 10.8 |
| 1.5KE6.8A | 1.5KE6.8CA | 6.46 | 7.14 | 10 | 1000 | 5.8 | 142.86 | 10.5 |
| 1.5KE7.5 | 1.5KE7.5C | 6.75 | 8.25 | 10 | 500 | 6.1 | 128.21 | 11.7 |
| 1.5KE7.5A | 1.5KE7.5CA | 7.13 | 7.88 | 10 | 500 | 6.4 | 132.74 | 11.3 |
| 1.5KE8.2 | 1.5KE8.2C | 7.38 | 9.02 | 10 | 200 | 6.6 | 120.00 | 12.5 |
| 1.5KE8.2A | 1.5KE8.2CA | 7.79 | 8.61 | 10 | 200 | 7.0 | 123.97 | 12.1 |
| 1.5KE9.1 | 1.5KE9.1C | 8.19 | 10.01 | 1 | 50 | 7.4 | 108.70 | 13.8 |
| 1.5KE9.1A | 1.5KE9.1CA | 8.65 | 9.56 | 1 | 50 | 7.8 | 111.94 | 13.4 |
| 1.5KE10 | 1.5KE10C | 9.00 | 11.00 | 1 | 10 | 8.1 | 100.00 | 15.0 |
| 1.5KE10A | 1.5KE10CA | 9.50 | 10.50 | 1 | 10 | 8.6 | 103.45 | 14.5 |
| 1.5KE11 | 1.5KE11C | 9.90 | 12.10 | 1 | 5 | 8.9 | 92.59 | 16.2 |
| 1.5KE11A | 1.5KE11CA | 10.45 | 11.55 | 1 | 5 | 9.4 | 96.15 | 15.6 |
| 1.5KE12 | 1.5KE12C | 10.80 | 13.20 | 1 | 5 | 9.7 | 86.71 | 17.3 |
| 1.5KE12A | 1.5KE12CA | 11.40 | 12.60 | 1 | 5 | 10.2 | 89.82 | 16.7 |
| 1.5KE13 | 1.5KE13C | 11.70 | 14.30 | 1 | 1 | 10.5 | 78.95 | 19.0 |
| 1.5KE13A | 1.5KE13CA | 12.35 | 13.65 | 1 | 1 | 11.1 | 82.42 | 18.2 |
| 1.5KE15 | 1.5KE15C | 13.50 | 16.50 | 1 | 1 | 12.1 | 68.18 | 22.0 |
| 1.5KE15A | 1.5KE15CA | 14.25 | 15.75 | 1 | 1 | 12.8 | 70.75 | 21.2 |
| 1.5KE16 | 1.5KE16C | 14.40 | 17.60 | 1 | 1 | 12.9 | 63.83 | 23.5 |
| 1.5KE16A | 1.5KE16CA | 15.20 | 16.80 | 1 | 1 | 13.6 | 66.67 | 22.5 |
| 1.5KE18 | 1.5KE18C | 16.20 | 19.80 | 1 | 1 | 14.5 | 56.60 | 26.5 |
| 1.5KE18A | 1.5KE18CA | 17.10 | 18.90 | 1 | 1 | 15.3 | 59.52 | 25.2 |
| 1.5KE20 | 1.5KE20C | 18.00 | 22.00 | 1 | 1 | 16.2 | 51.55 | 29.1 |
| 1.5KE20A | 1.5KE20CA | 19.00 | 21.00 | 1 | 1 | 17.1 | 54.15 | 27.7 |
| 1.5KE22 | 1.5KE22C | 19.80 | 24.20 | 1 | 1 | 17.8 | 47.02 | 31.9 |
| 1.5KE22A | 1.5KE22CA | 20.90 | 23.10 | 1 | 1 | 18.8 | 49.02 | 30.6 |
| 1.5KE24 | 1.5KE24C | 21.60 | 26.40 | 1 | 1 | 19.4 | 43.23 | 34.7 |
| 1.5KE24A | 1.5KE24CA | 22.80 | 25.20 | 1 | 1 | 20.5 | 45.18 | 33.2 |
| 1.5KE27 | 1.5KE27C | 24.30 | 29.70 | 1 | 1 | 21.8 | 38.36 | 39.1 |
| 1.5KE27A | 1.5KE27CA | 25.65 | 28.35 | 1 | 1 | 23.1 | 40.00 | 37.5 |
| 1.5KE30 | 1.5KE30C | 27.00 | 33.00 | 1 | 1 | 24.3 | 34.48 | 43.5 |
| 1.5KE30A | 1.5KE30CA | 28.50 | 31.50 | 1 | 1 | 25.6 | 36.23 | 41.4 |
| 1.5KE33 | 1.5KE33C | 29.70 | 36.30 | 1 | 1 | 26.8 | 31.45 | 47.7 |
| 1.5KE33A | 1.5KE33CA | 31.35 | 34.65 | 1 | 1 | 28.2 | 32.82 | 45.7 |
| 1.5KE36 | 1.5KE36C | 32.40 | 39.60 | 1 | 1 | 29.1 | 28.85 | 52.0 |
| 1.5KE36A | 1.5KE36CA | 34.20 | 37.80 | 1 | 1 | 30.8 | 30.06 | 49.9 |
| 1.5KE39 | 1.5KE39C | 35.10 | 42.90 | 1 | 1 | 31.6 | 26.60 | 56.4 |
| 1.5KE39A | 1.5KE39CA | 37.05 | 40.95 | 1 | 1 | 33.3 | 27.83 | 53.9 |
| 1.5KE43 | 1.5KE43C | 38.70 | 47.30 | 1 | 1 | 34.8 | 24.23 | 61.9 |
| 1.5KE43A | 1.5KE43CA | 40.85 | 45.15 | 1 | 1 | 36.8 | 25.30 | 59.3 |
| 1.5KE47 | 1.5KE47C | 42.30 | 51.70 | 1 | 1 | 38.1 | 22.12 | 67.8 |
| 1.5KE47A | 1.5KE47CA | 44.65 | 49.35 | 1 | 1 | 40.2 | 23.15 | 64.8 |
| 1.5KE51 | 1.5KE51C | 45.90 | 56.10 | 1 | 1 | 41.3 | 20.41 | 73.5 |
| 1.5KE51A | 1.5KE51CA | 48.45 | 53.55 | 1 | 1 | 43.6 | 21.40 | 70.1 |
| 1.5KE56 | 1.5KE56C | 50.40 | 61.60 | 1 | 1 | 45.4 | 18.63 | 80.5 |
| 1.5KE56A | 1.5KE56CA | 53.20 | 58.80 | 1 | 1 | 47.8 | 19.48 | 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) | | | | |
| 1.5KE62 | 1.5KE62C | 55.80 | 68.20 | 1 | 1 | 50.2 | 16.85 | 89.0 |
| 1.5KE62A | 1.5KE62CA | 58.90 | 65.10 | 1 | 1 | 53.0 | 17.65 | 85.0 |
| 1.5KE68 | 1.5KE68C | 61.20 | 74.80 | 1 | 1 | 55.1 | 15.31 | 98.0 |
| 1.5KE68A | 1.5KE68CA | 64.60 | 71.40 | 1 | 1 | 58.1 | 16.30 | 92.0 |
| 1.5KE75 | 1.5KE75C | 67.50 | 82.50 | 1 | 1 | 60.7 | 13.89 | 108.0 |
| 1.5KE75A | 1.5KE75CA | 71.25 | 78.75 | 1 | 1 | 64.1 | 14.56 | 103.0 |
| 1.5KE82 | 1.5KE82C | 73.80 | 90.20 | 1 | 1 | 66.4 | 12.71 | 118.0 |
| 1.5KE82A | 1.5KE82CA | 77.90 | 86.10 | 1 | 1 | 70.1 | 13.27 | 113.0 |
| 1.5KE91 | 1.5KE91C | 81.90 | 100.10 | 1 | 1 | 73.7 | 11.45 | 131.0 |
| 1.5KE91A | 1.5KE91CA | 86.45 | 95.55 | 1 | 1 | 77.8 | 12.00 | 125.0 |
| 1.5KE100 | 1.5KE100C | 90.00 | 110.00 | 1 | 1 | 81.0 | 10.42 | 144.0 |
| 1.5KE100A | 1.5KE100CA | 95.00 | 105.00 | 1 | 1 | 85.5 | 10.95 | 137.0 |
| 1.5KE110 | 1.5KE110C | 99.00 | 121.00 | 1 | 1 | 89.2 | 9.49 | 158.0 |
| 1.5KE110A | 1.5KE110CA | 104.50 | 115.50 | 1 | 1 | 94.0 | 9.87 | 152.0 |
| 1.5KE120 | 1.5KE120C | 108.00 | 132.00 | 1 | 1 | 97.2 | 8.67 | 173.0 |
| 1.5KE120A | 1.5KE120CA | 114.00 | 126.00 | 1 | 1 | 102.0 | 9.09 | 165.0 |
| 1.5KE130 | 1.5KE130C | 117.00 | 143.00 | 1 | 1 | 105.0 | 8.02 | 187.0 |
| 1.5KE130A | 1.5KE130CA | 123.50 | 136.50 | 1 | 1 | 111.0 | 8.38 | 179.0 |
| 1.5KE150 | 1.5KE150C | 135.00 | 165.00 | 1 | 1 | 121.0 | 6.98 | 215.0 |
| 1.5KE150A | 1.5KE150CA | 142.50 | 157.50 | 1 | 1 | 128.0 | 7.25 | 207.0 |
| 1.5KE160 | 1.5KE160C | 144.00 | 176.00 | 1 | 1 | 130.0 | 6.52 | 230.0 |
| 1.5KE160A | 1.5KE160CA | 152.00 | 168.00 | 1 | 1 | 136.0 | 6.85 | 219.0 |
| 1.5KE170 | 1.5KE170C | 153.00 | 187.00 | 1 | 1 | 138.0 | 6.15 | 244.0 |
| 1.5KE170A | 1.5KE170CA | 161.50 | 178.50 | 1 | 1 | 145.0 | 6.41 | 234.0 |
| 1.5KE180 | 1.5KE180C | 162.00 | 198.00 | 1 | 1 | 146.0 | 5.81 | 258.0 |
| 1.5KE180A | 1.5KE180CA | 171.00 | 189.00 | 1 | 1 | 154.0 | 6.10 | 246.0 |
| 1.5KE200 | 1.5KE200C | 180.00 | 220.00 | 1 | 1 | 162.0 | 5.23 | 287.0 |
| 1.5KE200A | 1.5KE200CA | 190.00 | 210.00 | 1 | 1 | 171.0 | 5.47 | 274.0 |
| 1.5KE220 | 1.5KE220C | 198.00 | 242.00 | 1 | 1 | 175.0 | 4.36 | 344.0 |
| 1.5KE220A | 1.5KE220CA | 209.00 | 231.00 | 1 | 1 | 185.0 | 4.57 | 328.0 |
| 1.5KE250 | 1.5KE250C | 225.00 | 275.00 | 1 | 1 | 202.0 | 4.17 | 360.0 |
| 1.5KE250A | 1.5KE250CA | 237.50 | 262.50 | 1 | 1 | 214.0 | 4.36 | 344.0 |
| 1.5KE300 | 1.5KE300C | 270.00 | 330.00 | 1 | 1 | 243.0 | 3.49 | 430.0 |
| 1.5KE300A | 1.5KE300CA | 285.00 | 315.00 | 1 | 1 | 256.0 | 3.62 | 414.0 |
| 1.5KE350 | 1.5KE350C | 315.00 | 385.00 | 1 | 1 | 284.2 | 2.98 | 504.0 |
| 1.5KE350A | 1.5KE350CA | 332.50 | 367.50 | 1 | 1 | 299.3 | 3.11 | 482.0 |
| 1.5KE380 | 1.5KE380C | 342.00 | 418.00 | 1 | 1 | 308.6 | 2.74 | 547.2 |
| 1.5KE380A | 1.5KE380CA | 361.00 | 399.00 | 1 | 1 | 324.9 | 2.86 | 524.4 |
| 1.5KE400 | 1.5KE400C | 360.00 | 440.00 | 1 | 1 | 324.8 | 2.60 | 574.0 |
| 1.5KE400A | 1.5KE400CA | 380.00 | 420.00 | 1 | 1 | 342.0 | 2.72 | 548.0 |
| 1.5KE440 | 1.5KE440C | 396.00 | 484.00 | 1 | 1 | 357.3 | 2.37 | 631.0 |
| 1.5KE440A | 1.5KE440CA | 418.00 | 462.00 | 1 | 1 | 376.2 | 2.47 | 602.0 |
| 1.5KE500 | 1.5KE500C | 450.00 | 550.00 | 1 | 1 | 406.0 | 2.08 | 720.0 |
| 1.5KE500A | 1.5KE500CA | 475.00 | 525.00 | 1 | 1 | 427.5 | 2.17 | 690.0 |
| 1.5KE520 | 1.5KE520C | 468.00 | 572.00 | 1 | 1 | 422.2 | 2.00 | 748.8 |
| 1.5KE520A | 1.5KE520CA | 494.00 | 546.00 | 1 | 1 | 444.6 | 2.09 | 717.6 |
| 1.5KE550 | 1.5KE550C | 495.00 | 605.00 | 1 | 1 | 446.6 | 1.89 | 792.0 |
| 1.5KE550A | 1.5KE550CA | 522.50 | 577.50 | 1 | 1 | 470.3 | 1.98 | 759.0 |
| 1.5KE600 | 1.5KE600C | 540.00 | 660.00 | 1 | 1 | 487.2 | 1.74 | 864.0 |
| 1.5KE600A | 1.5KE600CA | 570.00 | 630.00 | 1 | 1 | 513.0 | 1.81 | 828.0 |

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