

600W Transient Voltage Suppressors

FEATURES

- Glass passivated junction
- 600W peak pulse power capability at 1.0ms
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: Typically < 1.0ps from 0 V to BV for uni-directional, 5.0 ns for bidirectional
- Typical I_R : 1.0 μ A above 10V

APPLICATIONS

- Devices for bipolar applications
- Bi-directional types use CA suffix
- Electrical characteristics apply in both directions



DO-15

COLOR BAND DENOTES CATHODE ON UNIDIRECTIONAL DEVICES ONLY. NO COLOR BAND ON BIDIRECTIONAL DEVICES.

ABSOLUTE MAXIMUM RATINGS

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|-----------|-------------|------------------|
| Peak pulse power dissipation $t_p=1\text{ms}$ | P_{PPM} | 600 | W |
| Peak pulse current | I_{PPM} | see table | A |
| Power dissipation .375 inch lead length at $T_A=75^\circ\text{C}$ | P_D | 5.0 | W |
| Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method) ⁽¹⁾ | I_{FSM} | 100 | A |
| Junction temperature | T_J | -65 to +175 | $^\circ\text{C}$ |
| Storage temperature | T_{STG} | -65 to +175 | $^\circ\text{C}$ |

Note:

1. Measured on 8.3ms single half-sine wave; duty cycle = 4 pulses per minute maximum.

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|---|---|------|----------------------------------|--|--|---|--|
| Uni-directional Bi-directional (C) Device | Reverse Stand-Off Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} (V) | | Test Current I_T (mA) | Clamping Voltage at I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage Current at V_{RWM} I_R (μA) ⁽²⁾ | Temperature Coefficient V_{BR} (%/°C) |
| | | Min. | Max. | | | | | |
| P6KE6V8(C)A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 57.1 | 1000 | 0.057 |
| P6KE7V5(C)A | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 53.1 | 500 | 0.061 |
| P6KE8V2(C)A | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50 | 200 | 0.065 |
| P6KE9V1(C)A | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45 | 50 | 0.068 |
| P6KE10(C)A | 8.55 | 9.5 | 10.5 | 1 | 14.5 | 41 | 10 | 0.073 |
| P6KE11(C)A | 9.40 | 10.5 | 11.6 | 1 | 15.6 | 38 | 5 | 0.075 |
| P6KE12(C)A | 10.2 | 11.4 | 12.6 | 1 | 16.7 | 36 | 5 | 0.078 |
| P6KE13(C)A | 11.1 | 12.4 | 13.7 | 1 | 18.2 | 33 | 5 | 0.081 |
| P6KE15(C)A | 12.8 | 14.3 | 15.8 | 1 | 21.2 | 28 | 5 | 0.084 |
| P6KE16(C)A | 13.6 | 15.2 | 16.8 | 1 | 22.5 | 27 | 5 | 0.086 |
| P6KE18(C)A | 15.3 | 17.1 | 18.9 | 1 | 25.2 | 24 | 5 | 0.088 |
| P6KE20(C)A | 17.1 | 19 | 21 | 1 | 27.7 | 22 | 5 | 0.090 |
| P6KE22(C)A | 18.8 | 20.9 | 23.1 | 1 | 30.6 | 20 | 5 | 0.092 |
| P6KE24(C)A | 20.5 | 22.8 | 25.2 | 1 | 33.2 | 18.1 | 5 | 0.094 |
| P6KE27(C)A | 23.1 | 25.7 | 28.4 | 1 | 37.5 | 16.0 | 5 | 0.096 |
| P6KE30(C)A | 25.6 | 28.5 | 31.5 | 1 | 41.4 | 14.5 | 5 | 0.097 |
| P6KE33(C)A | 28.2 | 31.4 | 34.7 | 1 | 45.7 | 13.2 | 5 | 0.098 |
| P6KE36(C)A | 30.8 | 34.2 | 37.8 | 1 | 49.9 | 12.0 | 5 | 0.099 |
| P6KE39(C)A | 33.3 | 37.1 | 41 | 1 | 53.9 | 11.2 | 5 | 0.100 |
| P6KE43(C)A | 36.8 | 40.9 | 45.2 | 1 | 59.3 | 10.1 | 5 | 0.101 |
| P6KE47(C)A | 40.2 | 44.7 | 49.4 | 1 | 64.8 | 9.3 | 5 | 0.101 |
| P6KE51(C)A | 43.6 | 48.5 | 53.6 | 1 | 70.1 | 8.6 | 5 | 0.102 |
| P6KE56(C)A | 47.8 | 53.2 | 58.8 | 1 | 77.0 | 7.8 | 5 | 0.103 |
| P6KE62(C)A | 53.0 | 58.9 | 65.1 | 1 | 85.0 | 7.1 | 5 | 0.104 |
| P6KE68(C)A | 58.1 | 64.6 | 71.4 | 1 | 92.0 | 6.5 | 5 | 0.104 |
| P6KE75(C)A | 64.1 | 71.3 | 78.8 | 1 | 103 | 5.8 | 5 | 0.105 |
| P6KE82(C)A | 70.1 | 77.9 | 86.1 | 1 | 113 | 5.3 | 5 | 0.105 |
| P6KE91(C)A | 77.8 | 86.5 | 95.5 | 1 | 125 | 4.8 | 5 | 0.106 |

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

| Uni-directional Bi-directional (C) Device | Reverse Stand-Off Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} (V) | | Test Current I_T (mA) | Clamping Voltage at I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage Current at V_{RWM} I_R (μA) ⁽²⁾ | Temperature Coefficient V_{BR} (%/°C) |
|---|---|---|------|----------------------------------|--|--|---|--|
| | | Min. | Max. | | | | | |
| P6KE100(C)A | 85.5 | 95 | 105 | 1 | 137 | 4.4 | 5 | 0.106 |
| P6KE110(C)A | 94.0 | 105 | 116 | 1 | 152 | 4.0 | 5 | 0.107 |
| P6KE120(C)A | 102 | 114 | 126 | 1 | 165 | 3.6 | 5 | 0.107 |
| P6KE130(C)A | 111 | 124 | 137 | 1 | 179 | 3.4 | 5 | 0.107 |
| P6KE150(C)A | 128 | 143 | 158 | 1 | 207 | 2.9 | 5 | 0.108 |
| P6KE160(C)A | 136 | 152 | 168 | 1 | 219 | 2.7 | 5 | 0.108 |
| P6KE170(C)A | 145 | 162 | 179 | 1 | 234 | 2.6 | 5 | 0.108 |
| P6KE180(C)A | 154 | 171 | 189 | 1 | 246 | 2.4 | 5 | 0.108 |
| P6KE200(C)A | 171 | 190 | 210 | 1 | 274 | 2.2 | 5 | 0.108 |
| P6KE220(C)A | 185 | 209 | 231 | 1 | 328 | 1.9 | 5 | 0.108 |
| P6KE250(C)A | 214 | 237 | 263 | 1 | 344 | 1.8 | 5 | 0.110 |
| P6KE300(C)A | 256 | 285 | 315 | 1 | 414 | 1.5 | 5 | 0.110 |
| P6KE350(C)A | 300 | 332 | 368 | 1 | 482 | 1.3 | 5 | 0.110 |
| P6KE400(C)A | 342 | 380 | 420 | 1 | 548 | 1.1 | 5 | 0.110 |
| P6KE440(C)A | 376 | 418 | 462 | 1 | 602 | 1.0 | 5 | 0.110 |

Note:

 2. .For bi-directional parts with $V_{RWM} < 10$ V, the I_R maximum limit is doubled.

CHARACTERISTICS CURVES

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

Fig1. Peak Pulse Power Rating Curve

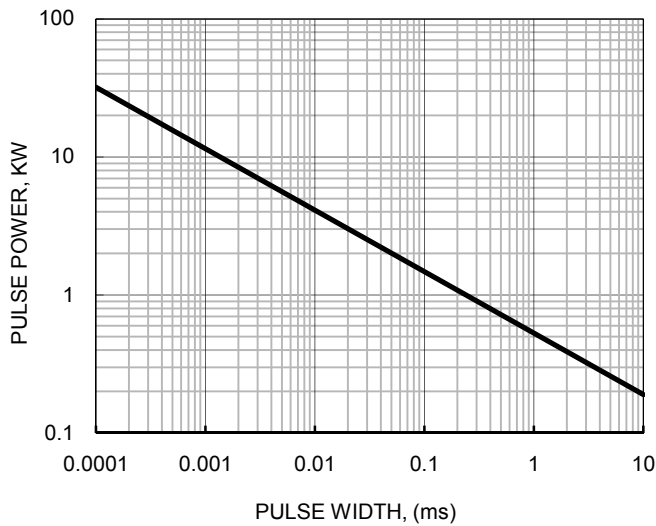


Fig2. Pulse Derating Curve

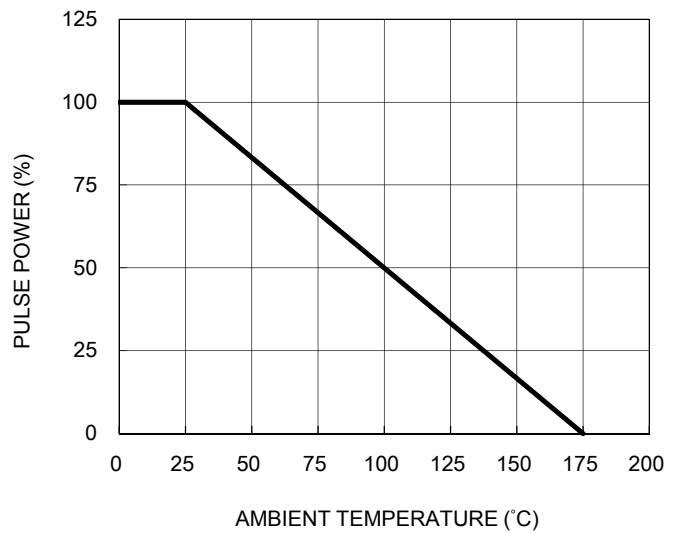


Fig3. Pulse Waveform

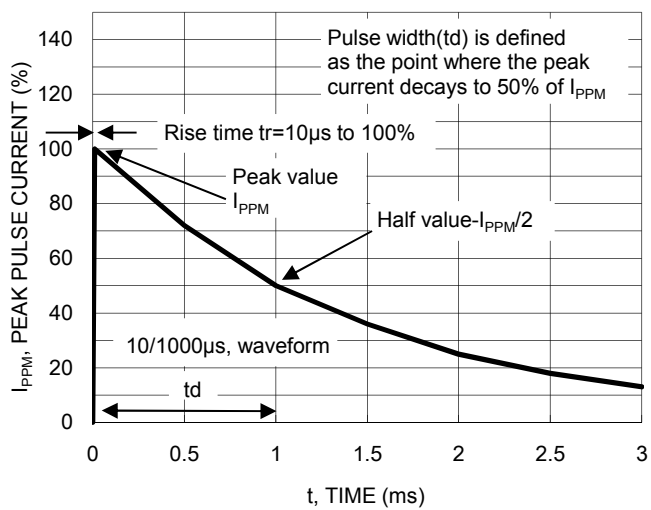
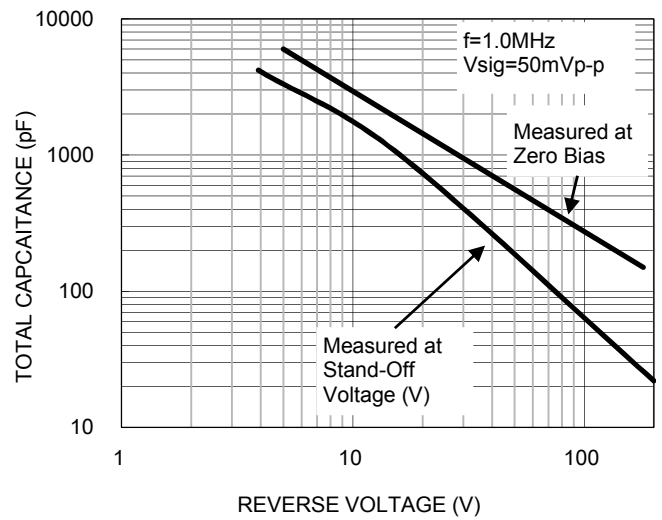


Fig4. Total Capacitance – Uni-directional



CHARACTERISTICS CURVES

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

Fig5. Steady State Power Derating Curve

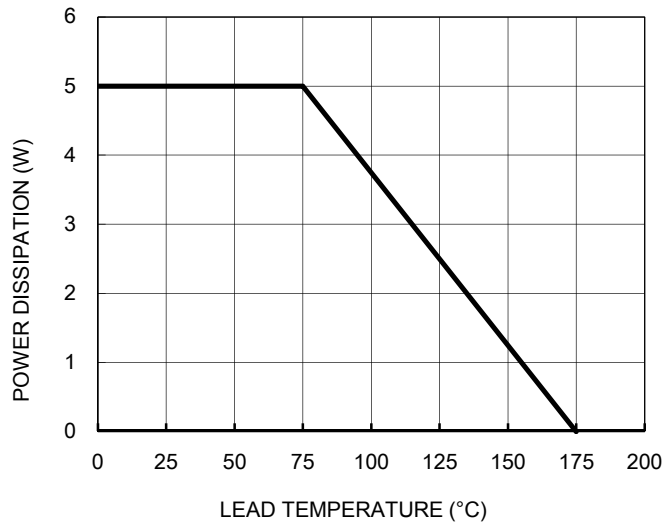
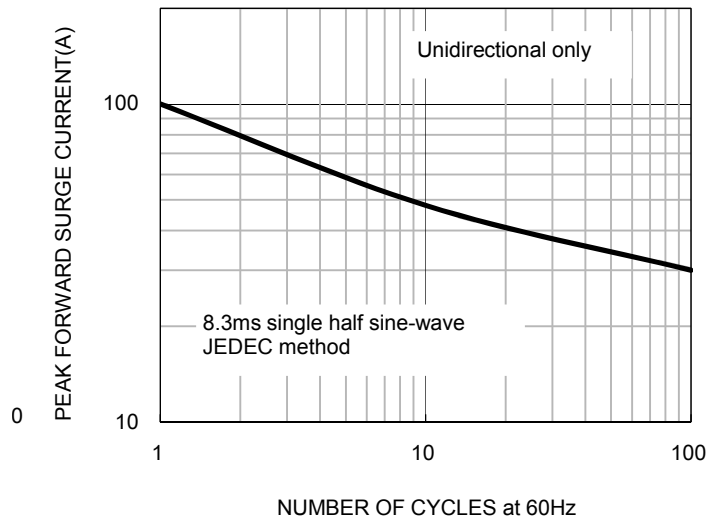
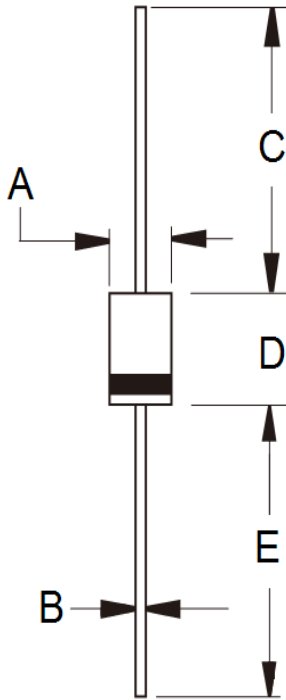


Fig6. Non-Repetitive Surge Current



PACKAGE OUTLINE DIMENSIONS

DO-15



| DIM. | Unit (mm) | |
|------|-----------|------|
| | Min | Max |
| A | 2.60 | 3.60 |
| B | 0.70 | 0.90 |
| C | 25.40 | - |
| D | 5.80 | 7.60 |
| E | 25.40 | - |

NOTES: UNLESS OTHERWISE SPECIFIED
 A) PACKAGE STANDARD REFERENCE:
 JEDEC DO-204 VARIATION AC.
 B) PLASTIC PACKAGE BODY.
 C) ALL DIMENSIONS ARE IN MILLIMETERS.

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