

Transient Voltage Suppressors P6KE6V8(C)A - P6KE440(C)A

Features

- Glass passivated junction.
- 600W Peak Pulse Power capability at 1.0 ms.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time; typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0 ns for bidirectional.
- Typical I_R less than 1.0 μ A above 10V.



DO-15

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

DEVICES FOR BIPOLAR APPLICATIONS

- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

600 Watt Transient Voltage Suppressors

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

| Symbol | Parameter | Value | Units |
|-----------|---|-------------|------------------|
| P_{PPM} | Peak Pulse Power Dissipation at $T_p=1\text{ms}$ | 600 | W |
| I_{PPM} | Peak Pulse Current | see table | A |
| P_D | Power Dissipation .375 " lead length @ $T_A = 75^\circ\text{C}$ | 5.0 | W |
| I_{FSM} | Non-repetitive Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1) | 100 | A |
| T_{stg} | Storage Temperature Range | -65 to +175 | $^\circ\text{C}$ |
| T_J | Operating Junction Temperature | + 175 | $^\circ\text{C}$ |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

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

Transient Voltage Suppressors

(continued)

P6KE6V8(C)A - P6KE440(C)A

Electrical Characteristics

$T_A = 25^\circ\text{C}$ 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 @ I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage V_{RWM} I_R (μA)* |
|---|---|-----------------------------------|-------|-------------------------------|--|--|--|
| | | min | Max | | | | |
| P6KE6V8(C)A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 57.1 | 1000 |
| P6KE7V5(C)A | 6.40 | 7.13 | 7.88 | 1 | 11.3 | 53.1 | 500 |
| P6KE8V2(C)A | 7.02 | 7.79 | 8.61 | 1 | 12.1 | 50.0 | 200 |
| P6KE9V1(C)A | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.0 | 50 |
| P6KE10(C)A | 8.55 | 9.50 | 10.5 | 1 | 14.5 | 41.0 | 10 |
| P6KE11(C)A | 9.4 | 10.5 | 11.6 | 1 | 15.6 | 38.0 | 5 |
| P6KE12(C)A | 10.2 | 11.4 | 12.6 | 1 | 16.7 | 36.0 | 5 |
| P6KE13(C)A | 11.1 | 12.4 | 13.7 | 1 | 18.2 | 33.0 | 5 |
| P6KE15(C)A | 12.8 | 14.3 | 15.8 | 1 | 21.2 | 28.0 | 5 |
| P6KE16(C)A | 13.6 | 15.2 | 16.8 | 1 | 22.5 | 27.0 | 5 |
| P6KE18(C)A | 15.3 | 17.1 | 18.9 | 1 | 25.2 | 24.0 | 5 |
| P6KE20(C)A | 17.1 | 19.0 | 21.0 | 1 | 27.7 | 22.0 | 5 |
| P6KE22(C)A | 18.8 | 20.9 | 23.1 | 1 | 30.6 | 20.0 | 5 |
| P6KE24(C)A | 20.5 | 22.8 | 25.2 | 1 | 33.2 | 18.1 | 5 |
| P6KE27(C)A | 23.1 | 25.7 | 28.4 | 1 | 37.5 | 16.0 | 5 |
| P6KE30(C)A | 25.6 | 28.5 | 31.5 | 1 | 41.4 | 14.5 | 5 |
| P6KE33(C)A | 28.2 | 31.4 | 34.7 | 1 | 45.7 | 13.2 | 5 |
| P6KE36(C)A | 30.8 | 34.2 | 37.8 | 1 | 49.9 | 12.0 | 5 |
| P6KE39(C)A | 33.3 | 37.1 | 41.0 | 1 | 53.9 | 11.2 | 5 |
| P6KE43(C)A | 36.8 | 40.9 | 45.2 | 1 | 59.3 | 10.1 | 5 |
| P6KE47(C)A | 40.2 | 44.7 | 49.4 | 1 | 64.8 | 9.3 | 5 |
| P6KE51(C)A | 43.6 | 48.5 | 53.6 | 1 | 70.1 | 8.6 | 5 |
| P6KE56(C)A | 47.8 | 53.2 | 58.8 | 1 | 77.0 | 7.8 | 5 |
| P6KE62(C)A | 53.0 | 58.9 | 65.1 | 1 | 85.0 | 7.1 | 5 |
| P6KE68(C)A | 58.1 | 64.6 | 71.4 | 1 | 92.0 | 6.5 | 5 |
| P6KE75(C)A | 64.1 | 71.3 | 78.8 | 1 | 103.0 | 5.8 | 5 |
| P6KE82(C)A | 70.1 | 77.9 | 86.1 | 1 | 113.0 | 5.3 | 5 |
| P6KE91(C)A | 77.8 | 86.5 | 95.5 | 1 | 125.0 | 4.8 | 5 |
| P6KE100(C)A | 85.5 | 95.0 | 105.0 | 1 | 137.0 | 4.4 | 5 |
| P6KE110(C)A | 94.0 | 105.0 | 116.0 | 1 | 152.0 | 4.0 | 5 |
| P6KE120(C)A | 102.0 | 114.0 | 126.0 | 1 | 165.0 | 3.6 | 5 |
| P6KE130(C)A | 111.0 | 124.0 | 137.0 | 1 | 179.0 | 3.4 | 5 |
| P6KE150(C)A | 128.0 | 143.0 | 158.0 | 1 | 207.0 | 2.9 | 5 |
| P6KE160(C)A | 136.0 | 152.0 | 168.0 | 1 | 219.0 | 2.7 | 5 |
| P6KE170(C)A | 145.0 | 162.0 | 179.0 | 1 | 234.0 | 2.6 | 5 |
| P6KE180(C)A | 154.0 | 171.0 | 189.0 | 1 | 246.0 | 2.4 | 5 |
| P6KE200(C)A | 171.0 | 190.0 | 210.0 | 1 | 274.0 | 2.2 | 5 |
| P6KE220(C)A | 185.0 | 209.0 | 231.0 | 1 | 328.0 | 1.9 | 5 |
| P6KE250(C)A | 214.0 | 237.0 | 263.0 | 1 | 344.0 | 1.8 | 5 |
| P6KE300(C)A | 256.0 | 285.0 | 315.0 | 1 | 414.0 | 1.5 | 5 |
| P6KE350(C)A | 300.0 | 332.0 | 368.0 | 1 | 482.0 | 1.3 | 5 |
| P6KE400(C)A | 342.0 | 380.0 | 420.0 | 1 | 548.0 | 1.1 | 5 |
| P6KE440(C)A | 376.0 | 418.0 | 462.0 | 1 | 602.0 | 1.0 | 5 |

* For bidirectional parts with $V_{RWM} < 10\text{V}$, the I_R max limit is doubled.

Transient Voltage Suppressors

(continued)

P6KE6V8(C)A - P6KE440(C)A

Typical Characteristics

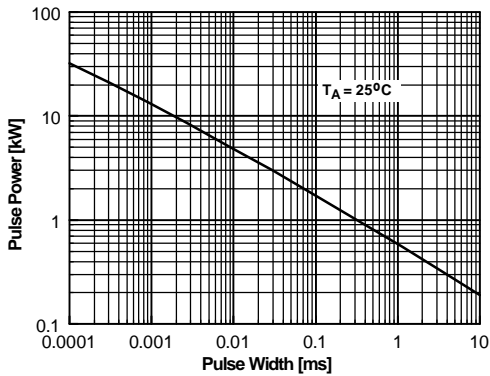


Figure 1. Peak Pulse Power Rating Curve

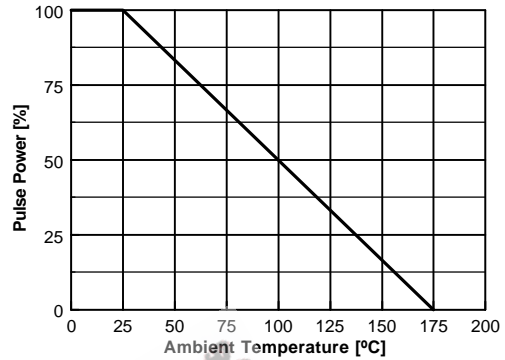


Figure 2. Pulse Derating Curve

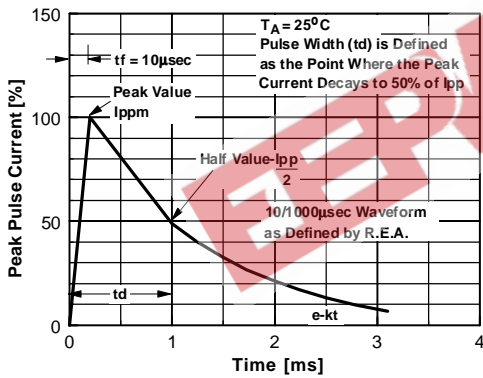


Figure 3. Pulse Waveform

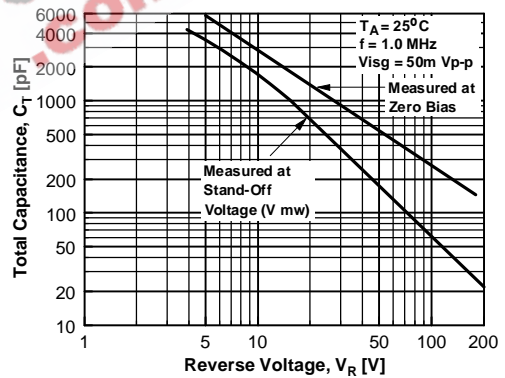


Figure 4. Total Capacitance - Unidirectional

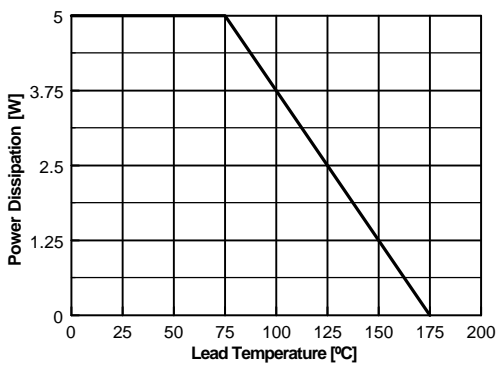


Figure 5. Steady State Power Derating Curve

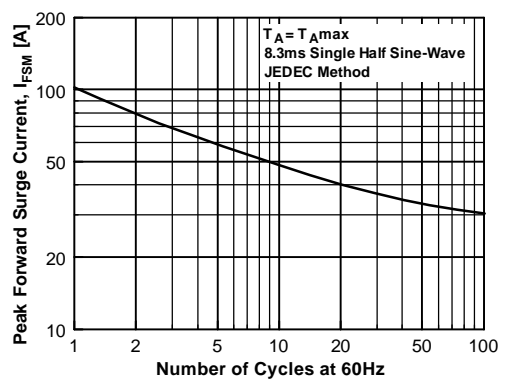


Figure 6. Non-Repetitive Surge Current