

## 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  $\mu$ 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<br>.375 " lead length @ $T_A = 75^\circ\text{C}$                              | 5.0         | W                |
| $I_{FSM}$ | Non-repetitive Peak Forward Surge Current<br>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)

### Electrical Characteristics

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

| Uni-directional<br>Bi-directional (C)<br>Device | Reverse<br>Stand-off Voltage<br>$V_{RWM}$ (V) | Breakdown Voltage<br>$V_{BR}$ (V) |       | Test<br>Current<br>$I_T$ (mA) | Clamping Voltage<br>@ $I_{PPM}$<br>$V_C$ (V) | Peak Pulse<br>Current<br>$I_{PPM}$ (A) | Reverse<br>Leakage $V_{RWM}$<br>$I_R$ ( $\mu\text{A}$ )* |
|---|---|-----------------------------------|-------|-------------------------------|--|--|--|
|   |   | 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.

P6KE6V8(C)A - P6KE440(C)A

# Transient Voltage Suppressors

(continued)

P6KE6V8(C)A - P6KE440(C)A

## Typical Characteristics

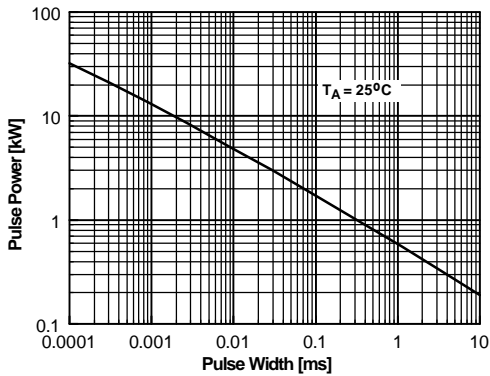


Figure 1. Peak Pulse Power Rating Curve

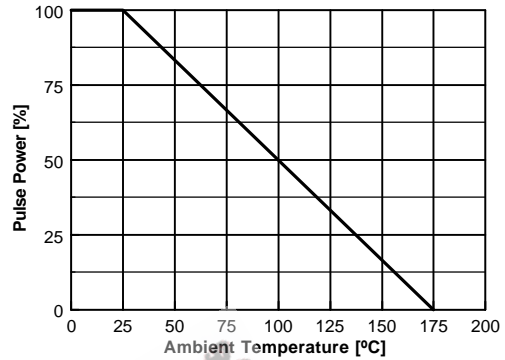


Figure 2. Pulse Derating Curve

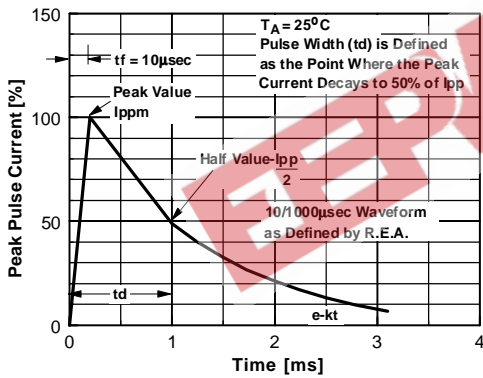


Figure 3. Pulse Waveform

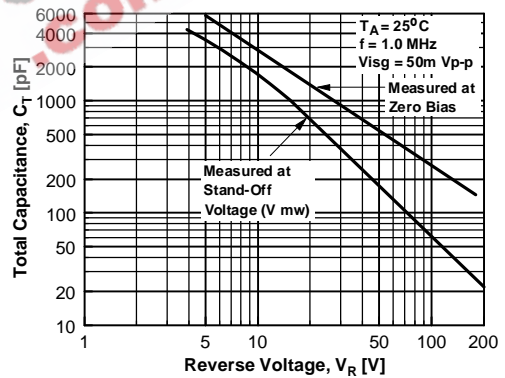


Figure 4. Total Capacitance - Unidirectional

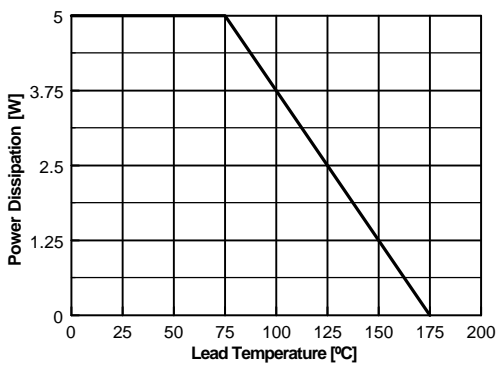


Figure 5. Steady State Power Derating Curve

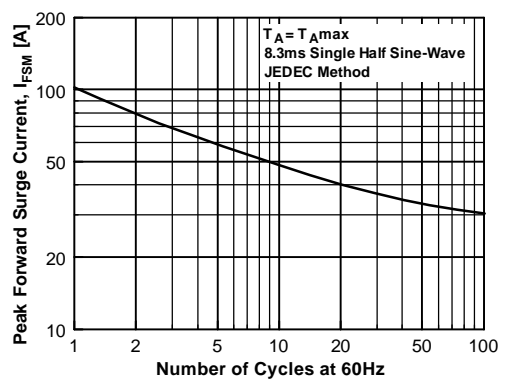


Figure 6. Non-Repetitive Surge Current