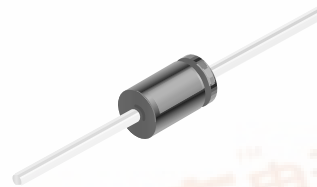




## Transient Voltage Suppressors 1V5KE6V8(C)A - 1V5KE440(C)A

### Features

- Glass passivated junction.
- 1500W 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.
- UL certified, UL #E210467.



DO-201AE

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.

## 1500 Watt Transient Voltage Suppressors

### Absolute Maximum Ratings\*

$T_A = 25^\circ C$  unless otherwise noted

| Symbol    | Parameter                                                                                       | Value       | Units      |
|-----------|-------------------------------------------------------------------------------------------------|-------------|------------|
| $P_{PPM}$ | Peak Pulse Power Dissipation at $T_P=1ms$                                                       | 1500        | W          |
| $I_{PPM}$ | Peak Pulse Current                                                                              | see table   | A          |
| $P_D$     | Power Dissipation<br>.375 " lead length @ $T_A = 75^\circ C$                                    | 5.0         | W          |
| $I_{FSM}$ | Non-repetitive Peak Forward Surge Current<br>superimposed on rated load (JEDEC method) (Note 1) | 200         | A          |
| $T_{stg}$ | Storage Temperature Range                                                                       | -65 to +175 | $^\circ C$ |
| $T_J$     | Operating Junction Temperature                                                                  | + 175       | $^\circ C$ |

\* 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.

1V5KE6V8(C)A - 1V5KE440(C)A

# Transient Voltage Suppressors

(continued)

## Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

| Uni-directional<br>Bi-directional (C)<br>Device | Reverse<br>Stand-off Voltage<br>V <sub>RWM</sub> (V) | Breakdown Voltage<br>V <sub>BR</sub> (V) |       | Test<br>Current<br>I <sub>T</sub> (mA) | Clamping<br>Voltage @I <sub>PPM</sub><br>V <sub>C</sub> (V) | Peak Pulse Current<br>I <sub>PPM</sub> (A) | Reverse<br>Leakage V <sub>RWM</sub><br>I <sub>R</sub> (uA)* |
|-------------------------------------------------|------------------------------------------------------|------------------------------------------|-------|----------------------------------------|-------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------|
|                                                 |                                                      | Min                                      | Max   |                                        |                                                             |                                            |                                                             |
| 1V5KE6V8(C)A                                    | 5.80                                                 | 6.45                                     | 7.14  | 10                                     | 10.5                                                        | 143                                        | 1000                                                        |
| 1V5KE7V5(C)A                                    | 6.40                                                 | 7.13                                     | 7.88  | 10                                     | 11.3                                                        | 133                                        | 500                                                         |
| 1V5KE8V2(C)A                                    | 7.02                                                 | 7.79                                     | 8.61  | 10                                     | 12.1                                                        | 124                                        | 200                                                         |
| 1V5KE9V1(C)A                                    | 7.78                                                 | 8.65                                     | 9.55  | 1                                      | 13.4                                                        | 112                                        | 50                                                          |
| 1V5KE10(C)A                                     | 8.55                                                 | 9.50                                     | 10.5  | 1                                      | 14.5                                                        | 103                                        | 10                                                          |
| 1V5KE11(C)A                                     | 9.40                                                 | 10.5                                     | 11.6  | 1                                      | 15.6                                                        | 96.2                                       | 5                                                           |
| 1V5KE12(C)A                                     | 10.2                                                 | 11.4                                     | 12.6  | 1                                      | 16.7                                                        | 90.0                                       | 5                                                           |
| 1V5KE13(C)A                                     | 11.1                                                 | 12.4                                     | 13.7  | 1                                      | 18.2                                                        | 82.0                                       | 5                                                           |
| 1V5KE15(C)A                                     | 12.8                                                 | 14.3                                     | 15.8  | 1                                      | 21.2                                                        | 71.0                                       | 5                                                           |
| 1V5KE16(C)A                                     | 13.6                                                 | 15.2                                     | 16.8  | 1                                      | 22.5                                                        | 67.0                                       | 5                                                           |
| 1V5KE18(C)A                                     | 15.3                                                 | 17.1                                     | 18.9  | 1                                      | 26.2                                                        | 59.5                                       | 5                                                           |
| 1V5KE20(C)A                                     | 17.1                                                 | 19.0                                     | 21.0  | 1                                      | 27.7                                                        | 54.2                                       | 5                                                           |
| 1V5KE22(C)A                                     | 18.8                                                 | 20.9                                     | 23.1  | 1                                      | 30.6                                                        | 49.0                                       | 5                                                           |
| 1V5KE24(C)A                                     | 20.5                                                 | 22.8                                     | 25.2  | 1                                      | 33.2                                                        | 45.2                                       | 5                                                           |
| 1V5KE27(C)A                                     | 23.1                                                 | 25.7                                     | 28.4  | 1                                      | 37.5                                                        | 40.0                                       | 5                                                           |
| 1V5KE30(C)A                                     | 25.6                                                 | 28.5                                     | 31.5  | 1                                      | 41.4                                                        | 36.2                                       | 5                                                           |
| 1V5KE33(C)A                                     | 28.2                                                 | 31.4                                     | 34.7  | 1                                      | 45.7                                                        | 33.0                                       | 5                                                           |
| 1V5KE36(C)A                                     | 30.8                                                 | 34.2                                     | 37.8  | 1                                      | 49.9                                                        | 30.1                                       | 5                                                           |
| 1V5KE39(C)A                                     | 33.3                                                 | 37.1                                     | 41.0  | 1                                      | 53.9                                                        | 28.0                                       | 5                                                           |
| 1V5KE43(C)A                                     | 36.8                                                 | 40.9                                     | 45.2  | 1                                      | 59.3                                                        | 25.3                                       | 5                                                           |
| 1V5KE47(C)A                                     | 40.2                                                 | 44.7                                     | 49.4  | 1                                      | 64.8                                                        | 23.2                                       | 5                                                           |
| 1V5KE51(C)A                                     | 43.6                                                 | 48.5                                     | 53.6  | 1                                      | 70.1                                                        | 21.4                                       | 5                                                           |
| 1V5KE56(C)A                                     | 47.8                                                 | 53.2                                     | 58.8  | 1                                      | 77.0                                                        | 19.5                                       | 5                                                           |
| 1VKE62(C)A                                      | 53.0                                                 | 58.9                                     | 65.1  | 1                                      | 85.0                                                        | 17.7                                       | 5                                                           |
| 1V5KE68(C)A                                     | 58.1                                                 | 64.6                                     | 71.4  | 1                                      | 92.0                                                        | 16.3                                       | 5                                                           |
| 1V5KE75(C)A                                     | 64.1                                                 | 71.3                                     | 78.8  | 1                                      | 104.0                                                       | 14.6                                       | 5                                                           |
| 1V5KE82(C)A                                     | 70.1                                                 | 77.9                                     | 86.1  | 1                                      | 113.0                                                       | 13.3                                       | 5                                                           |
| 1V5KE91(C)A                                     | 77.8                                                 | 86.5                                     | 95.5  | 1                                      | 125.0                                                       | 12.0                                       | 5                                                           |
| 1V5KE100(C)A                                    | 85.5                                                 | 95.0                                     | 105.0 | 1                                      | 137.0                                                       | 11.0                                       | 5                                                           |
| 1V5KE110(C)A                                    | 94.0                                                 | 106.0                                    | 116.0 | 1                                      | 152.0                                                       | 9.9                                        | 5                                                           |
| 1V5KE120(C)A                                    | 102.0                                                | 114.0                                    | 126.0 | 1                                      | 165.0                                                       | 9.1                                        | 5                                                           |
| 1V5KE130(C)A                                    | 111.0                                                | 124.0                                    | 137.0 | 1                                      | 179.0                                                       | 8.4                                        | 5                                                           |
| 1V5KE150(C)A                                    | 128.0                                                | 143.0                                    | 158.0 | 1                                      | 207.0                                                       | 7.2                                        | 5                                                           |
| 1V5KE160(C)A                                    | 136.0                                                | 152.0                                    | 168.0 | 1                                      | 219.0                                                       | 6.8                                        | 5                                                           |
| 1V5KE170(C)A                                    | 145.0                                                | 162.0                                    | 179.0 | 1                                      | 234.0                                                       | 6.4                                        | 5                                                           |
| 1V5KE180(C)A                                    | 154.0                                                | 171.0                                    | 189.0 | 1                                      | 246.0                                                       | 6.1                                        | 5                                                           |
| 1V5KE200(C)A                                    | 171.0                                                | 190.0                                    | 210.0 | 1                                      | 274.0                                                       | 5.5                                        | 5                                                           |
| 1V5KE220(C)A                                    | 185.0                                                | 209.0                                    | 231.0 | 1                                      | 328.0                                                       | 4.6                                        | 5                                                           |
| 1V5KE250(C)A                                    | 214.0                                                | 237.0                                    | 263.0 | 1                                      | 344.0                                                       | 4.5                                        | 5                                                           |
| 1V5KE300(C)A                                    | 256.0                                                | 285.0                                    | 315.0 | 1                                      | 414.0                                                       | 3.8                                        | 5                                                           |
| 1V5KE350(C)A                                    | 300.0                                                | 333.0                                    | 368.0 | 1                                      | 482.0                                                       | 3.2                                        | 5                                                           |
| 1V5KE400(C)A                                    | 342.0                                                | 380.0                                    | 420.0 | 1                                      | 548.0                                                       | 2.8                                        | 5                                                           |
| 1V5KE440(C)A                                    | 376.0                                                | 418.0                                    | 462.0 | 1                                      | 602.0                                                       | 2.6                                        | 5                                                           |

\* For bidirectional parts with V<sub>RWM</sub> < 10V, the I<sub>R</sub> max limit is doubled.

1V5KE6V8(C)A - 1V5KE440(C)A

# Transient Voltage Suppressors (continued)

## Typical Characteristics

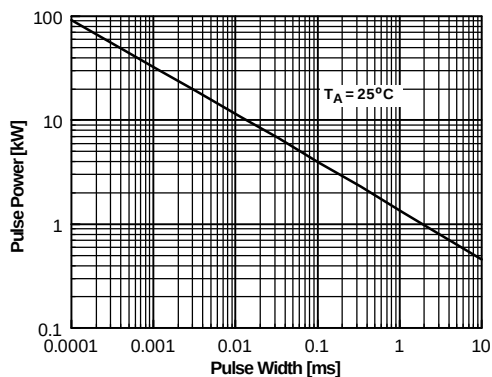


Figure 1. Peak Pulse Power Rating Curve

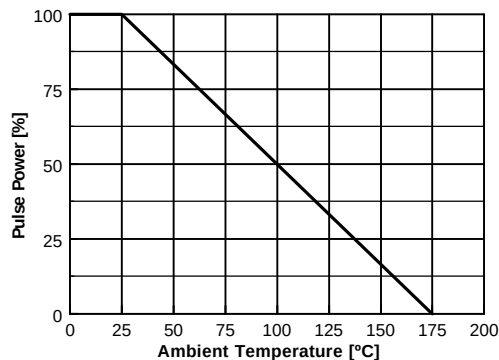


Figure 2. Pulse Derating Curve

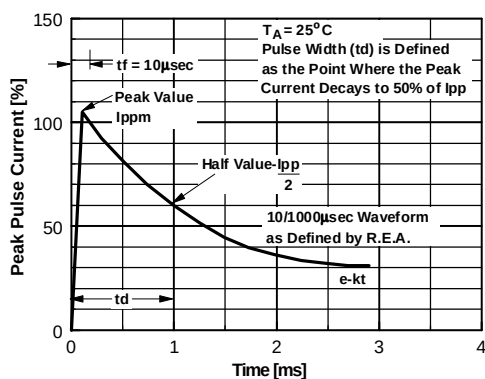


Figure 3. Pulse Waveform

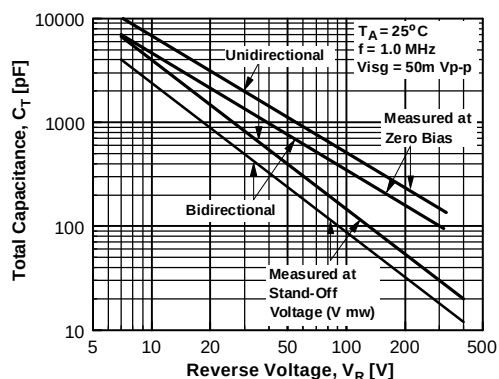


Figure 4. Total Capacitance

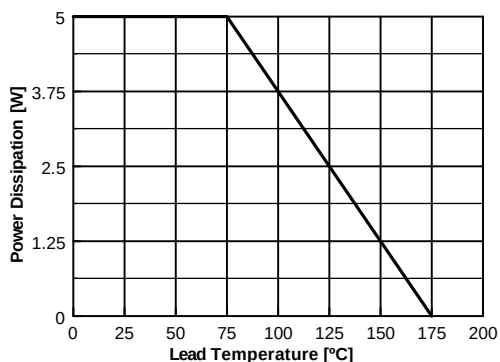


Figure 5. Steady State Power Derating Curve

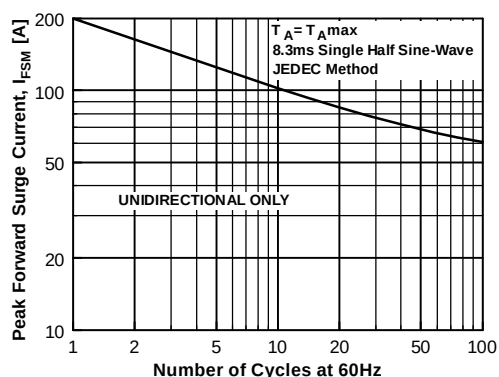


Figure 6. Non-Repetitive Surge Current

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| CROSSVOLT™           | GlobalOptoisolator™ | PACMAN™                  | STAR*POWER™                  |                       |
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| DOME™                | HiSeC™              | Power247™                | SuperSOT™-3                  |                       |
| EcoSPARK™            | I <sup>2</sup> C™   | PowerTrench <sup>®</sup> | SuperSOT™-6                  |                       |
| E <sup>2</sup> CMOS™ | ISOPPLANAR™         | QFET™                    | SuperSOT™-8                  |                       |
| EnSigna™             | LittleFET™          | QS™                      | SyncFET™                     |                       |
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