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# 1V5KE6V8(C)A - 1V5KE440(C)A 1500 W Transient Voltage Suppressors

## Features

- Glass-Passivated Junction
- 1500 W Peak Pulse Power Capability at 1.0 ms
- Excellent Clamping Capability
- Low Incremental Surge Resistance
- Fast Response Time; Typically  
< 1.0 ps from 0 V to BV for Uni-directional,  
5.0 ns for Bidirectional
- Typical  $I_R$ : 1.0  $\mu$ A Above 10 V
- UL Certified: UL #E258596
- Bi-directional Types Use CA Suffix
- Electrical Characteristics apply in both directions



**DO-201AE**

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.

| Symbol    | Parameter  | Value       | Unit             |
|-----------|--|-------------|------------------|
| $P_{PPM}$ | Peak Pulse Power Dissipation $t_p = 1$ ms  | 1500        | W                |
| $I_{PPM}$ | Peak Pulse Current   | see table   | A                |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method) <sup>(1)</sup> | 200         | A                |
| $T_{stg}$ | Storage Temperature Range  | -55 to +175 | $^\circ\text{C}$ |
| $T_J$     | Operating Junction Temperature   | -55 to +175 | $^\circ\text{C}$ |

### Note:

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

## Thermal Characteristics

| Symbol | Parameter  | Value | Unit |
|--------|--|-------|------|
| $P_D$  | Power Dissipation<br>.375 inch lead length at $T_A = 75^\circ\text{C}$ | 5.0   | W    |

1V5KE6V8(C)A - 1V5KE440(C)A — 1500 W Transient Voltage Suppressors

## Electrical Characteristics

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

| Uni-directional<br>Bi-directional (C)<br>Device | Reverse<br>Stand-Off<br>Voltage<br>V <sub>RWM</sub> (V) | Breakdown<br>Voltage<br>V <sub>BR</sub> (V) |       | Test<br>Current<br>I <sub>T</sub> (mA) | Clamping<br>Voltage at<br>I <sub>PPM</sub><br>V <sub>C</sub> (V) | Peak Pulse<br>Current<br>I <sub>PPM</sub> (A) | Reverse<br>Leakage at<br>V <sub>RWM</sub><br>I <sub>R</sub> (μA) <sup>(2)</sup> |
|---|---|---|-------|--|--|---|---|
|   |   | 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   |
| 1V5KE62(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   |

**Electrical Characteristics** (Continued)T<sub>A</sub> = 25°C unless otherwise noted.

| Uni-directional<br>Bi-directional (C)<br>Device | Reverse<br>Stand-Off<br>Voltage<br>V <sub>RWM</sub> (V) | Breakdown<br>Voltage<br>V <sub>BR</sub> (V) |       | Test<br>Current<br>I <sub>T</sub> (mA) | Clamping<br>Voltage at<br>I <sub>PPM</sub><br>V <sub>C</sub> (V) | Peak Pulse<br>Current<br>I <sub>PPM</sub> (A) | Reverse<br>Leakage at<br>V <sub>RWM</sub><br>I <sub>R</sub> (μA) <sup>(2)</sup> |
|---|---|---|-------|--|--|---|---|
|   |   | Min.  | Max.  |  |  |   |   |
| 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   |

**Note:**2. For bi-directional parts with V<sub>RWM</sub> < 10 V, the I<sub>R</sub> maximum limit is doubled.

## Typical Performance Characteristics



Figure 1. Peak Pulse Power Rating Curve



Figure 2. Pulse Derating Curve



Figure 3. Pulse Waveform



Figure 4. Total Capacitance

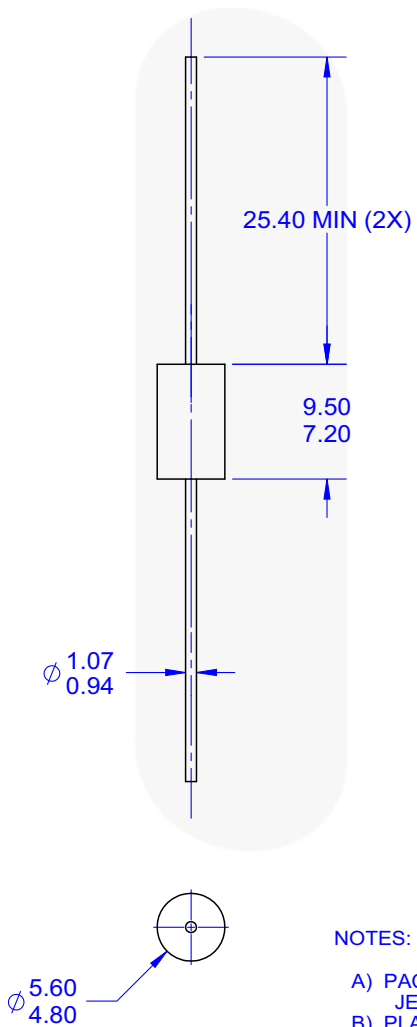


Figure 5. Steady State Power Derating Curve



Figure 6. Non-Repetitive Surge Current

### Physical Dimension



- NOTES: UNLESS OTHERWISE SPECIFIED
- A) PACKAGE STANDARD REFERENCE: JEDEC DO-201 VARIATION AE.
  - B) PLASTIC PACKAGE BODY.
  - C) ALL DIMENSIONS ARE IN MILLIMETERS.
  - D) DRAWING FILE NAME: DO201AREV1

Figure 7. AXIAL LEADED, JEDEC DO201AE





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