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|---|----------------|
|  | <b>E480232</b> |
|---|----------------|

### Features

- Economical Series and Quick Response
- Available in Both Unidirectional and Bidirectional Construction
- Excellent Clamping Capability
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

### Application

- This Series Has a Peak Pulse Power Rating of 1500 Watts for One Millisecond. It Can Protect Intergrated Circuit,Hybrids,CMOS,MOS, and Other Voltage Sensitive Components in a Board Range of Applications Such as Telecommunications,Power Supplies,Computer, Automotive,and Industrial Equipment.

### Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 75 °C/W Junction to Ambient
- Typical Thermal Resistance: 16 °C/W Junction to Lead

|   |   |           |                                  |
|---|---|-----------|----------------------------------|
| Peak Pulse Power Dissipation                              | P <sub>PP</sub>   | 1500W     | T <sub>A</sub> =25°C             |
| Power Dissipation, on Infinite Heat Sink                  | P <sub>D</sub>  | 6.5 W     | T <sub>L</sub> =75°C             |
| Peak Forward Surge Current(Unidirectional Only)           | I <sub>FSM</sub>  | 200 A     | 8.3 ms Single Half Sine-Wave     |
| Maximum Instantaneous Forward Voltage                     | V <sub>F</sub>  | 3.5V/5.0V | 100A, unidirectional only(Note2) |
| t <sub>clamping</sub> (0 Volts to V <sub>(BR)</sub> Min): | Unidirectional<1x10 <sup>-12</sup> Seconds;<br>Bidirectoinal<5x10 <sup>-9</sup> Seconds |           |                                  |

Note:

- 1.High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
- 2.VF< 3.5V for Single Die Parts and VF< 5.0V for Stacked-Die Parts.

### Device Marking:

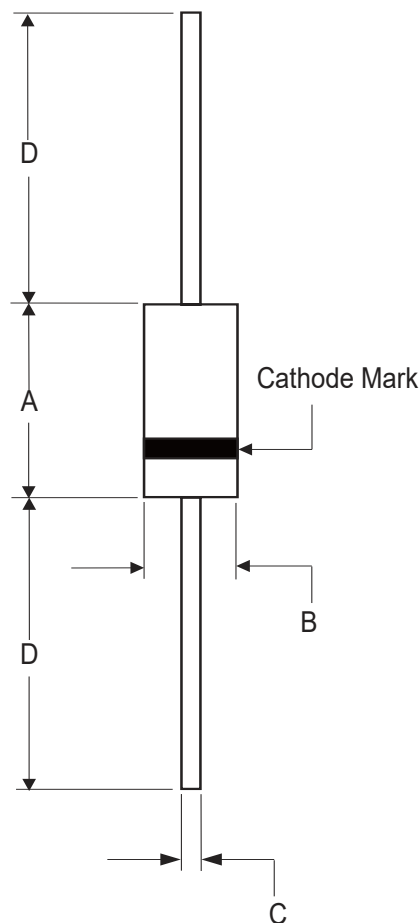
Unidirectional - Type Number and Cathode Band  
 Bidirectional - Type Number Only

Pin Configuration



**1500W TVS  
6.8V to 550V**

DO-201AE



| DIM | DIMENSIONS |       |       |      | NOTE |
|-----|------------|-------|-------|------|------|
|     | INCHES     |       | MM    |      |      |
|     | MIN        | MAX   | MIN   | MAX  |      |
| A   | ----       | 0.370 | ----  | 9.50 |      |
| B   | ----       | 0.209 | ----  | 5.30 |      |
| C   | 0.038      | 0.042 | 0.96  | 1.06 |      |
| D   | 1.000      | ----  | 25.40 | ---- |      |

| MCC PART NUMBER |            | REVERSE STAND-OFF VOLTAGE $V_{RWM}(V)$ | BREAKDOWN VOLTAGE $V_{BR}(V)$ MIN.@ $I_T$ | BREAKDOWN VOLTAGE $V_{BR}(V)$ MAX.@ $I_T$ | TEST CURRENT $I_T$ (mA) | MAXIMUM CLAMPING VOLTAGE @ $I_{pp}$ $V_c(V)$ | PEAK PULSE CURRENT $I_{pp}$ (A) | REVERSE LEAKAGE @ $V_{RWM}$ $I_R(\mu A)$ |
|-----------------|------------|--|---|---|-------------------------|--|---------------------------------|--|
| UNI-POLAR       | BI-POLAR   |  |   |   |                         |  |                                 |  |
| 1.5KE6.8A       | 1.5KE6.8CA | 5.80                                   | 6.45                                      | 7.14                                      | 10                      | 10.5   | 144.8                           | 1000                                     |
| 1.5KE7.5A       | 1.5KE7.5CA | 6.40                                   | 7.13                                      | 7.88                                      | 10                      | 11.3   | 134.5                           | 500                                      |
| 1.5KE8.2A       | 1.5KE8.2CA | 7.02                                   | 7.79                                      | 8.61                                      | 10                      | 12.1   | 125.6                           | 200                                      |
| 1.5KE9.1A       | 1.5KE9.1CA | 7.78                                   | 8.65                                      | 9.50                                      | 1                       | 13.4   | 113.4                           | 50                                       |
| 1.5KE10A        | 1.5KE10CA  | 8.55                                   | 9.50                                      | 10.50                                     | 1                       | 14.5   | 104.8                           | 10                                       |
| 1.5KE11A        | 1.5KE11CA  | 9.40                                   | 10.50                                     | 11.60                                     | 1                       | 15.6   | 97.4                            | 5  |
| 1.5KE12A        | 1.5KE12CA  | 10.20                                  | 11.40                                     | 12.60                                     | 1                       | 16.7   | 91.0                            | 5  |
| 1.5KE13A        | 1.5KE13CA  | 11.10                                  | 12.40                                     | 13.70                                     | 1                       | 18.2   | 83.5                            | 5  |
| 1.5KE15A        | 1.5KE15CA  | 12.80                                  | 14.30                                     | 15.80                                     | 1                       | 21.2   | 71.7                            | 5  |
| 1.5KE16A        | 1.5KE16CA  | 13.60                                  | 15.20                                     | 16.80                                     | 1                       | 22.5   | 67.6                            | 5  |
| 1.5KE18A        | 1.5KE18CA  | 15.30                                  | 17.10                                     | 18.90                                     | 1                       | 25.2   | 60.3                            | 5  |
| 1.5KE20A        | 1.5KE20CA  | 17.10                                  | 19.00                                     | 21.00                                     | 1                       | 27.7   | 54.9                            | 5  |
| 1.5KE22A        | 1.5KE22CA  | 18.80                                  | 20.90                                     | 23.10                                     | 1                       | 30.6   | 49.7                            | 5  |
| 1.5KE24A        | 1.5KE24CA  | 20.50                                  | 22.80                                     | 25.20                                     | 1                       | 33.2   | 45.8                            | 5  |
| 1.5KE27A        | 1.5KE27CA  | 23.10                                  | 25.70                                     | 28.40                                     | 1                       | 37.5   | 40.5                            | 5  |
| 1.5KE30A        | 1.5KE30CA  | 25.60                                  | 28.50                                     | 31.50                                     | 1                       | 41.4   | 36.7                            | 5  |
| 1.5KE33A        | 1.5KE33CA  | 28.20                                  | 31.40                                     | 34.70                                     | 1                       | 45.7   | 33.3                            | 5  |
| 1.5KE36A        | 1.5KE36CA  | 30.80                                  | 34.20                                     | 37.80                                     | 1                       | 49.9   | 30.5                            | 5  |
| 1.5KE39A        | 1.5KE39CA  | 33.30                                  | 37.10                                     | 41.00                                     | 1                       | 53.9   | 28.2                            | 5  |
| 1.5KE43A        | 1.5KE43CA  | 36.80                                  | 40.90                                     | 45.20                                     | 1                       | 59.3   | 25.6                            | 5  |
| 1.5KE47A        | 1.5KE47CA  | 40.20                                  | 44.70                                     | 49.40                                     | 1                       | 64.8   | 23.5                            | 5  |
| 1.5KE51A        | 1.5KE51CA  | 43.60                                  | 48.50                                     | 53.60                                     | 1                       | 70.1   | 21.7                            | 5  |
| 1.5KE56A        | 1.5KE56CA  | 47.80                                  | 53.20                                     | 58.80                                     | 1                       | 77.0   | 19.7                            | 5  |
| 1.5KE62A        | 1.5KE62CA  | 53.00                                  | 58.90                                     | 65.10                                     | 1                       | 85.0   | 17.9                            | 5  |
| 1.5KE68A        | 1.5KE68CA  | 58.10                                  | 64.60                                     | 71.40                                     | 1                       | 92.0   | 16.5                            | 5  |
| 1.5KE75A        | 1.5KE75CA  | 64.10                                  | 71.30                                     | 78.80                                     | 1                       | 103.0  | 14.8                            | 5  |
| 1.5KE82A        | 1.5KE82CA  | 70.10                                  | 77.90                                     | 86.10                                     | 1                       | 113.0  | 13.5                            | 5  |
| 1.5KE91A        | 1.5KE91CA  | 77.80                                  | 86.50                                     | 95.50                                     | 1                       | 125.0  | 12.2                            | 5  |
| 1.5KE100A       | 1.5KE100CA | 85.50                                  | 95.00                                     | 105.00                                    | 1                       | 137.0  | 11.1                            | 5  |
| 1.5KE110A       | 1.5KE110CA | 94.00                                  | 105.00                                    | 116.00                                    | 1                       | 152.0  | 10.0                            | 5  |
| 1.5KE120A       | 1.5KE120CA | 102.00                                 | 114.00                                    | 126.00                                    | 1                       | 165.0  | 9.2                             | 5  |
| 1.5KE130A       | 1.5KE130CA | 111.00                                 | 124.00                                    | 137.00                                    | 1                       | 179.0  | 8.5                             | 5  |
| 1.5KE150A       | 1.5KE150CA | 128.00                                 | 143.00                                    | 158.00                                    | 1                       | 207.0  | 7.3                             | 5  |
| 1.5KE160A       | 1.5KE160CA | 136.00                                 | 152.00                                    | 168.00                                    | 1                       | 219.0  | 6.9                             | 5  |
| 1.5KE170A       | 1.5KE170CA | 145.00                                 | 162.00                                    | 179.00                                    | 1                       | 234.0  | 6.5                             | 5  |
| 1.5KE180A       | 1.5KE180CA | 154.00                                 | 171.00                                    | 189.00                                    | 1                       | 246.0  | 6.2                             | 5  |
| 1.5KE200A       | 1.5KE200CA | 171.00                                 | 190.00                                    | 210.00                                    | 1                       | 274.0  | 5.5                             | 5  |
| 1.5KE220A       | 1.5KE220CA | 185.00                                 | 209.00                                    | 231.00                                    | 1                       | 328.0  | 4.6                             | 5  |
| 1.5KE250A       | 1.5KE250CA | 214.00                                 | 237.00                                    | 263.00                                    | 1                       | 344.0  | 4.4                             | 5  |
| 1.5KE300A       | 1.5KE300CA | 256.00                                 | 285.00                                    | 315.00                                    | 1                       | 414.0  | 3.7                             | 5  |
| 1.5KE350A       | 1.5KE350CA | 300.00                                 | 332.00                                    | 368.00                                    | 1                       | 482.0  | 3.2                             | 5  |
| 1.5KE400A       | 1.5KE400CA | 342.00                                 | 380.00                                    | 420.00                                    | 1                       | 548.0  | 2.8                             | 5  |
| 1.5KE440A       | 1.5KE440CA | 376.00                                 | 418.00                                    | 462.00                                    | 1                       | 602.0  | 2.5                             | 5  |
| 1.5KE480A       | 1.5KE480CA | 408.00                                 | 456.00                                    | 504.00                                    | 1                       | 658.0  | 2.3                             | 5  |
| 1.5KE510A       | 1.5KE510CA | 434.00                                 | 485.00                                    | 535.00                                    | 1                       | 698.0  | 2.1                             | 5  |
| 1.5KE530A       | 1.5KE530CA | 450.00                                 | 503.50                                    | 556.50                                    | 1                       | 725.0  | 2.1                             | 5  |
| 1.5KE540A       | 1.5KE540CA | 459.00                                 | 513.00                                    | 567.00                                    | 1                       | 740.0  | 2.0                             | 5  |
| 1.5KE550A       | 1.5KE550CA | 467.00                                 | 522.50                                    | 577.50                                    | 1                       | 760.0  | 2.0                             | 5  |

Forward Voltage (VF)@100 amps peak,8.3 msec sine wave equal to 3.5 volts max. (unidirectional only).  
 For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.  
 For parts without A , the VBR is  $\pm 10\%$   
 For bi-directional part number use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE550 (e.g. 1.5KE6.8C ,1.5KE550CA)

**Curve Characteristics**

Fig. 1 - Peak Pulse Power Rating Curve

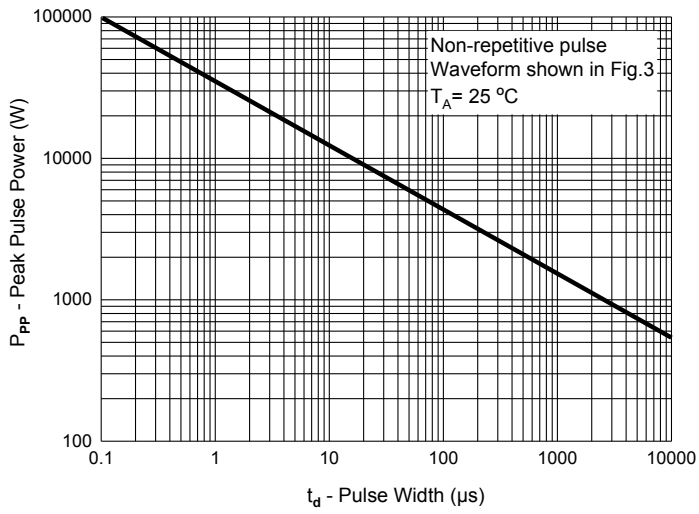


Fig. 2 - Typical Junction Capacitance

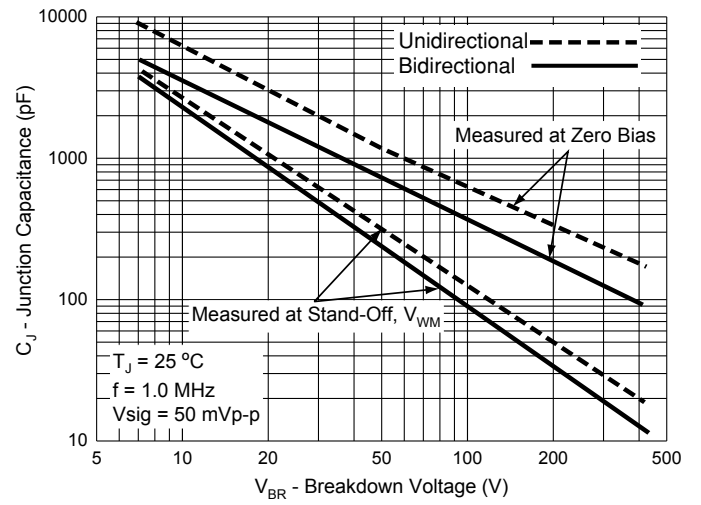


Fig. 3 - Pulse Waveform

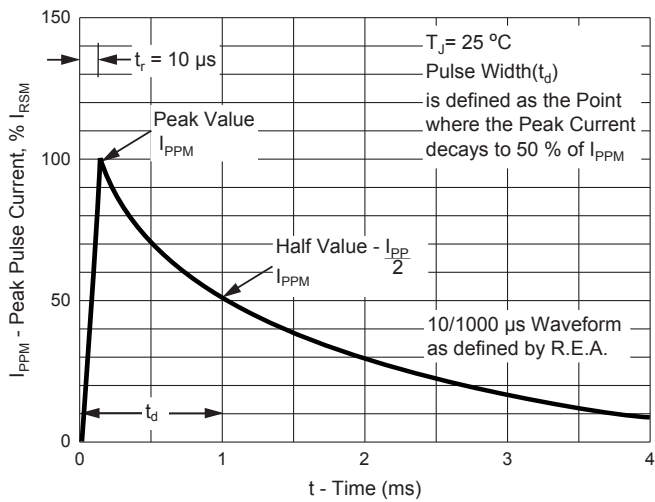
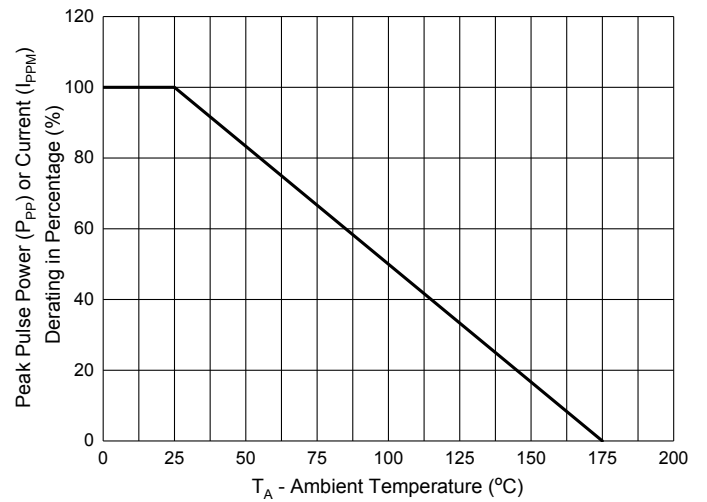


Fig. 4 - Pulse Derating Curve



## Ordering Information

| Device           | Packing                        |
|------------------|--------------------------------|
| (Part Number)-TP | Tape&Reel: 1.2Kpcs/Reel        |
| (Part Number)-AP | Ammo Packing: 1.2Kpcs/Ammo Box |
| (Part Number)-BP | Bulk:500pcs/Box,12Kpcs/Carton  |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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