

|   |                |
|---|----------------|
|  | <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"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("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

|   |   |       |                      |
|---|---|-------|----------------------|
| Peak Pulse Power Dissipation                              | P <sub>PP</sub>                             | 1500W | T <sub>A</sub> =25°C |
| Steady State Power Dissipatoin                            | P <sub>D</sub>                              | 5.0 W | T <sub>L</sub> =75°C |
| t <sub>clamping</sub> (0 Volts to V <sub>(BR)</sub> Min): | Unidirectional<1x10 <sup>-12</sup> Seconds; |       |                      |
|   | Bidirectoinal<5x10 <sup>-9</sup> Seconds    |       |                      |

1.High Temperature Solder Exemption Applied, see EU Directive Annex 7a.

**Device Marking:**

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

Pin Configuration



# 1500W TVS

## 6.8V to 550V

DO-201AE

| DIMENSIONS |        |       |       |      |      |
|------------|--------|-------|-------|------|------|
| DIM        | INCHES |       | MM    |      | NOTE |
|            | 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<br>V <sub>RWM</sub> (V) | BREAKDOWN VOLTAGE<br>V <sub>BR</sub> (V)<br>MIN.@I <sub>T</sub> | BREAKDOWN VOLTAGE<br>V <sub>BR</sub> (V)<br>MAX.@I <sub>T</sub> | TEST CURRENT I <sub>T</sub><br>(mA) | MAXIMUM CLAMPING VOLTAGE<br>@I <sub>pp</sub> V <sub>c</sub> (V) | PEAK PULSE CURRENT<br>I <sub>pp</sub> (A) | REVERSE LEAKAGE @<br>V <sub>RWM</sub><br>I <sub>R</sub> (μA) |
|-----------------|------------|---|---|---|-------------------------------------|---|---|--|
| 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<sub>RWM</sub> of 10 volts and less, the I<sub>R</sub> limit is double.  
 For parts without A , the V<sub>BR</sub> is ± 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: 12Kpcs/Carton            |

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

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