



E480232

## 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                       | $P_{PP}$                                     | 1500W | $T_A=25^{\circ}\text{C}$ |
| Steady State Power Dissipatoin                     | $P_D$                                        | 5.0 W | $T_L=75^{\circ}\text{C}$ |
| $t_{\text{clamping}}$ (0 Volts to $V_{(BR)}$ Min): | Unidirectional $<1 \times 10^{-12}$ Seconds; |       |                          |
|                                                    | Bidirectoinal $<5 \times 10^{-9}$ Seconds    |       |                          |

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

## Device Marking:

Unidirectional - Type Number and Cathode Band

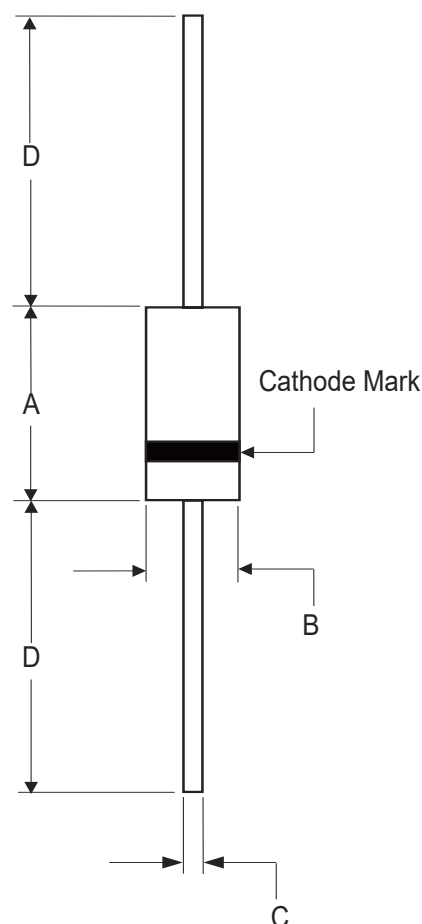
Bidirectional - Type Number Only

Pin Configuration



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

DO-201AE



| 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<br>PART NUMBER |            | REVERSE<br>STAND- OFF<br>VOLTAGE<br>V <sub>RWM</sub> (V) | BREAKDOWN<br>VOLTAGE<br>V <sub>BR</sub> (V)<br>MIN.@I <sub>T</sub> | BREAKDOWN<br>VOLTAGE<br>V <sub>BR</sub> (V)<br>MAX.@I <sub>T</sub> | TEST<br>CURRENT I <sub>T</sub><br>(mA) | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>@I <sub>pp</sub> V <sub>c</sub> (V) | PEAK PULSE<br>CURRENT<br>I <sub>pp</sub> (A) | REVERSE<br>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

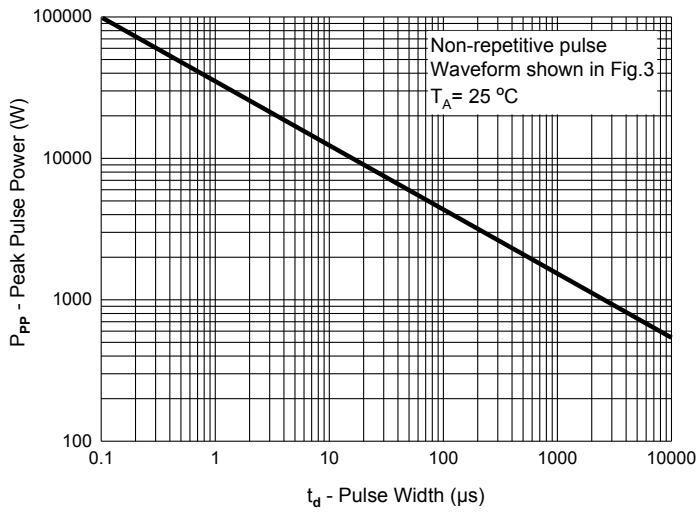


Fig. 2 - Typical Junction Capacitance

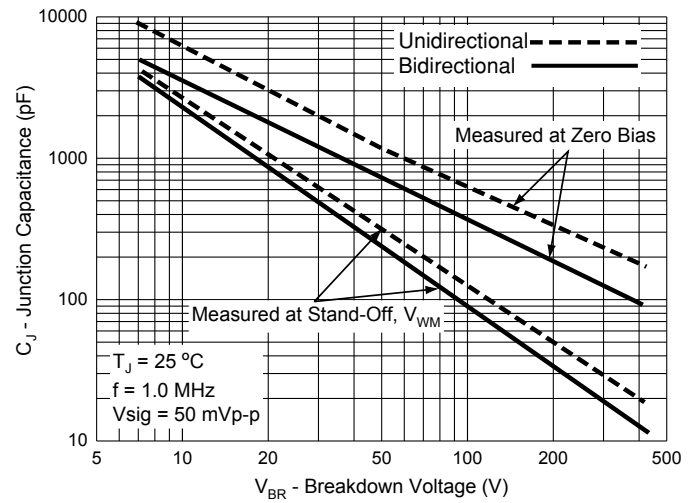


Fig. 3 - Pulse Waveform

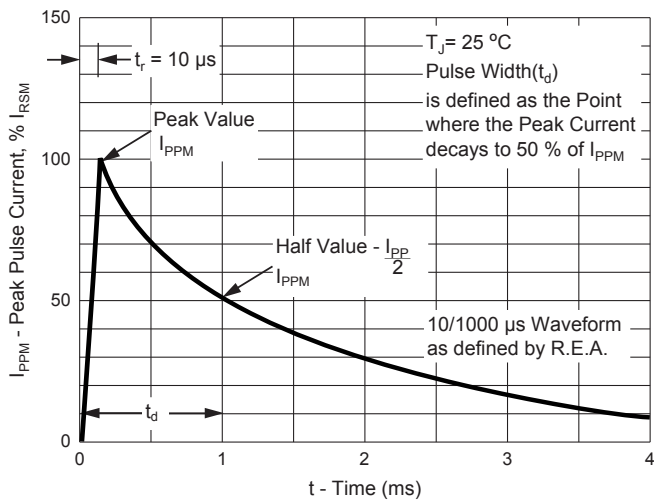
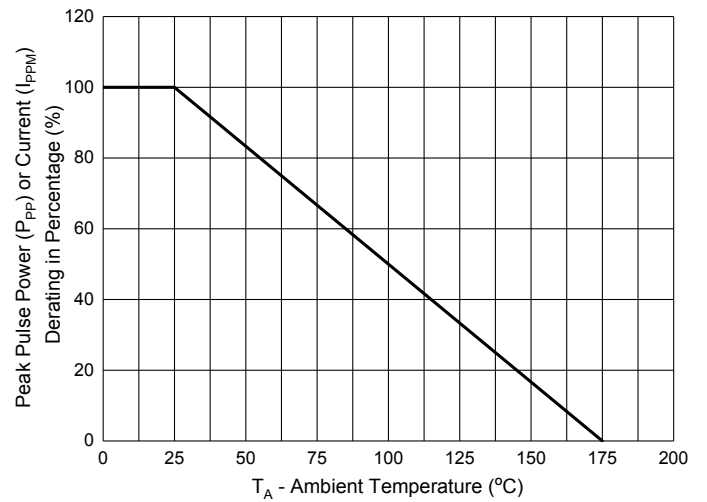


Fig. 4 - Pulse Derating Curve



## 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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