



Micro Commercial Components



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

# SMCJ1.5KE6.8(C)A THRU SMCJ1.5KE550(C)A

## Features

- For surface mount applications in order to optimize board space
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Low profile package
- Fast response time: typical less than 1.0ps from 0 volts to  $V_{BR}$  minimum
- Halogen free available upon request by adding suffix "-HF"
- Low inductance
- Excellent clamping capability
- UL Recognized File # E331408

## Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode)  
except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

### Maximum Ratings @ 25°C Unless Otherwise Specified

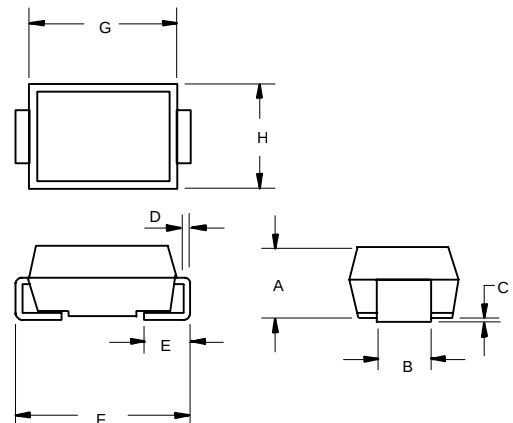
|                                                |                |                 |              |
|------------------------------------------------|----------------|-----------------|--------------|
| Peak Pulse Current on 10/1000us waveform       | $I_{PP}$       | See Table 1     | Note: 2      |
| Peak Pulse Power Dissipation                   | $P_{PP}$       | 1500W           | Note: 2<br>3 |
| Operation And Storage Temperature Range        | $T_J, T_{STG}$ | -55°C to +175°C |              |
| Typical Thermal Resistance Junction to Lead    | $R_{thJL}$     | 15°C/W          |              |
| Typical Thermal Resistance Junction to Ambient | $R_{thJA}$     | 75°C/W          |              |

### NOTES:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
3. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.

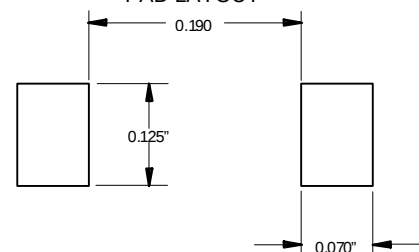
## Transient Voltage Suppressor 6.8 to 550 Volts 1500 Watt

### DO-214AB (SMC) (LEAD FRAME)



| DIM | INCHES |      | MM    |       | NOTE |
|-----|--------|------|-------|-------|------|
|     | MIN    | MAX  | MIN   | MAX   |      |
| A   | .079   | .103 | 2.00  | 2.62  |      |
| B   | .108   | .128 | 2.75  | 3.25  |      |
| C   | .002   | .008 | 0.051 | 0.203 |      |
| D   | .006   | .012 | 0.152 | 0.305 |      |
| E   | .030   | .060 | 0.76  | 1.52  |      |
| F   | .305   | .320 | 7.75  | 8.13  |      |
| G   | .260   | .280 | 6.60  | 7.11  |      |
| H   | .220   | .245 | 5.59  | 6.22  |      |

### SUGGESTED SOLDER PAD LAYOUT



# SMCJ1.5KE6.8(C)A THRU SMCJ1.5KE550(C)A



Micro Commercial Components

## ELECTRICAL CHARACTERISTICS @25°C

| MCC<br>PART NUMBER | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br><br>(VOLTS) | BREAKDOWN VOLTAGE<br>$V_{BR}$ @ $I_T$<br>(VOLTS) |        |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$<br><br>(VOLTS) | PEAK PULSE<br>CURRENT<br>$I_{PP}$<br><br>(AMPS) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>@ $V_{WM}$<br>$I_D$<br>( $\mu A$ ) | MARKING<br>CODE |
|--------------------|------------------------------------------------------------|--------------------------------------------------|--------|------------|-------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------|-----------------|
|                    |                                                            | MIN                                              | MAX    | $I_T$ (mA) |                                                             |                                                 |                                                                     |                 |
| SMCJ1.5KE6.8A      | 5.80                                                       | 6.45                                             | 7.14   | 10         | 10.5                                                        | 144.8                                           | 1000                                                                | 6V8A            |
| SMCJ1.5KE7.5A      | 6.40                                                       | 7.13                                             | 7.88   | 10         | 11.3                                                        | 134.5                                           | 500                                                                 | 7V5A            |
| SMCJ1.5KE8.2A      | 7.02                                                       | 7.79                                             | 8.61   | 10         | 12.1                                                        | 125.6                                           | 200                                                                 | 8V2A            |
| SMCJ1.5KE9.1A      | 7.78                                                       | 8.65                                             | 9.55   | 1          | 13.4                                                        | 113.4                                           | 50                                                                  | 9V1A            |
| SMCJ1.5KE10A       | 8.55                                                       | 9.50                                             | 10.50  | 1          | 14.5                                                        | 104.8                                           | 10                                                                  | 10A             |
| SMCJ1.5KE11A       | 9.40                                                       | 10.50                                            | 11.60  | 1          | 15.6                                                        | 97.4                                            | 5                                                                   | 11A             |
| SMCJ1.5KE12A       | 10.20                                                      | 11.40                                            | 12.60  | 1          | 16.7                                                        | 91.0                                            | 5                                                                   | 12A             |
| SMCJ1.5KE13A       | 11.10                                                      | 12.40                                            | 13.70  | 1          | 18.2                                                        | 83.5                                            | 5                                                                   | 13A             |
| SMCJ1.5KE15A       | 12.80                                                      | 14.30                                            | 15.80  | 1          | 21.2                                                        | 71.7                                            | 5                                                                   | 15A             |
| SMCJ1.5KE16A       | 13.60                                                      | 15.20                                            | 16.80  | 1          | 22.5                                                        | 67.6                                            | 5                                                                   | 16A             |
| SMCJ1.5KE18A       | 15.30                                                      | 17.10                                            | 18.90  | 1          | 25.5                                                        | 60.3                                            | 5                                                                   | 18A             |
| SMCJ1.5KE20A       | 17.10                                                      | 19.00                                            | 21.00  | 1          | 27.7                                                        | 54.9                                            | 5                                                                   | 20A             |
| SMCJ1.5KE22A       | 18.80                                                      | 20.90                                            | 23.10  | 1          | 30.6                                                        | 49.7                                            | 5                                                                   | 22A             |
| SMCJ1.5KE24A       | 20.50                                                      | 22.80                                            | 25.20  | 1          | 33.2                                                        | 45.8                                            | 5                                                                   | 24A             |
| SMCJ1.5KE27A       | 23.10                                                      | 25.70                                            | 28.40  | 1          | 37.5                                                        | 40.5                                            | 5                                                                   | 27A             |
| SMCJ1.5KE30A       | 25.60                                                      | 28.50                                            | 31.50  | 1          | 41.4                                                        | 36.7                                            | 5                                                                   | 30A             |
| SMCJ1.5KE33A       | 28.20                                                      | 31.40                                            | 34.70  | 1          | 45.7                                                        | 33.3                                            | 5                                                                   | 33A             |
| SMCJ1.5KE36A       | 30.80                                                      | 34.20                                            | 37.80  | 1          | 49.9                                                        | 30.5                                            | 5                                                                   | 36A             |
| SMCJ1.5KE39A       | 33.30                                                      | 37.10                                            | 41.00  | 1          | 53.9                                                        | 28.2                                            | 5                                                                   | 39A             |
| SMCJ1.5KE43A       | 36.80                                                      | 40.90                                            | 45.20  | 1          | 59.3                                                        | 25.6                                            | 5                                                                   | 43A             |
| SMCJ1.5KE47A       | 40.20                                                      | 44.70                                            | 49.40  | 1          | 64.8                                                        | 23.5                                            | 5                                                                   | 47A             |
| SMCJ1.5KE51A       | 43.60                                                      | 48.50                                            | 53.60  | 1          | 70.1                                                        | 21.7                                            | 5                                                                   | 51A             |
| SMCJ1.5KE56A       | 47.80                                                      | 53.20                                            | 58.80  | 1          | 77.0                                                        | 19.7                                            | 5                                                                   | 56A             |
| SMCJ1.5KE62A       | 53.00                                                      | 58.90                                            | 65.10  | 1          | 85.0                                                        | 17.9                                            | 5                                                                   | 62A             |
| SMCJ1.5KE68A       | 58.10                                                      | 64.60                                            | 71.40  | 1          | 92.0                                                        | 16.5                                            | 5                                                                   | 68A             |
| SMCJ1.5KE75A       | 64.10                                                      | 71.30                                            | 78.80  | 1          | 103.0                                                       | 14.8                                            | 5                                                                   | 75A             |
| SMCJ1.5KE82A       | 70.10                                                      | 77.90                                            | 86.10  | 1          | 113.0                                                       | 13.5                                            | 5                                                                   | 82A             |
| SMCJ1.5KE91A       | 77.80                                                      | 86.50                                            | 95.50  | 1          | 125.0                                                       | 12.2                                            | 5                                                                   | 91A             |
| SMCJ1.5KE100A      | 85.50                                                      | 95.00                                            | 105.00 | 1          | 137.0                                                       | 11.1                                            | 5                                                                   | 100A            |
| SMCJ1.5KE110A      | 94.00                                                      | 105.00                                           | 116.00 | 1          | 152.0                                                       | 10.0                                            | 5                                                                   | 110A            |
| SMCJ1.5KE120A      | 102.00                                                     | 114.00                                           | 126.00 | 1          | 165.0                                                       | 9.2                                             | 5                                                                   | 120A            |
| SMCJ1.5KE130A      | 111.00                                                     | 124.00                                           | 137.00 | 1          | 179.0                                                       | 8.5                                             | 5                                                                   | 130A            |
| SMCJ1.5KE150A      | 128.00                                                     | 143.00                                           | 158.00 | 1          | 207.0                                                       | 7.3                                             | 5                                                                   | 150A            |
| SMCJ1.5KE160A      | 136.00                                                     | 152.00                                           | 168.00 | 1          | 219.0                                                       | 6.9                                             | 5                                                                   | 160A            |
| SMCJ1.5KE170A      | 145.00                                                     | 162.00                                           | 179.00 | 1          | 234.0                                                       | 6.5                                             | 5                                                                   | 170A            |
| SMCJ1.5KE180A      | 154.00                                                     | 171.00                                           | 189.00 | 1          | 246.0                                                       | 6.2                                             | 5                                                                   | 180A            |
| SMCJ1.5KE200A      | 171.00                                                     | 190.00                                           | 210.00 | 1          | 274.0                                                       | 5.5                                             | 5                                                                   | 200A            |
| SMCJ1.5KE220A      | 185.00                                                     | 209.00                                           | 231.00 | 1          | 328.0                                                       | 4.6                                             | 5                                                                   | 220A            |
| SMCJ1.5KE250A      | 214.00                                                     | 237.00                                           | 263.00 | 1          | 344.0                                                       | 4.4                                             | 5                                                                   | 250A            |
| SMCJ1.5KE300A      | 256.00                                                     | 285.00                                           | 315.00 | 1          | 414.0                                                       | 3.7                                             | 5                                                                   | 300A            |
| SMCJ1.5KE350A      | 300.00                                                     | 332.00                                           | 368.00 | 1          | 482.0                                                       | 3.2                                             | 5                                                                   | 350A            |
| SMCJ1.5KE400A      | 342.00                                                     | 380.00                                           | 420.00 | 1          | 548.0                                                       | 2.8                                             | 5                                                                   | 400A            |
| SMCJ1.5KE440A      | 376.00                                                     | 418.00                                           | 462.00 | 1          | 602.0                                                       | 2.5                                             | 5                                                                   | 440A            |
| SMCJ1.5KE480A      | 408.00                                                     | 456.00                                           | 504.00 | 1          | 658.0                                                       | 2.3                                             | 5                                                                   | 480A            |
| SMCJ1.5KE510A      | 434.00                                                     | 485.00                                           | 535.00 | 1          | 698.0                                                       | 2.1                                             | 5                                                                   | 510A            |
| SMCJ1.5KE530A      | 477.00                                                     | 503.50                                           | 556.50 | 1          | 725.0                                                       | 2.1                                             | 5                                                                   | 530A            |
| SMCJ1.5KE540A      | 459.00                                                     | 513.00                                           | 567.00 | 1          | 740.0                                                       | 2.0                                             | 5                                                                   | 540A            |
| SMCJ1.5KE550A      | 495.00                                                     | 522.50                                           | 577.50 | 1          | 760.0                                                       | 2.0                                             | 5                                                                   | 550A            |

For bi-directional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.

The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available.

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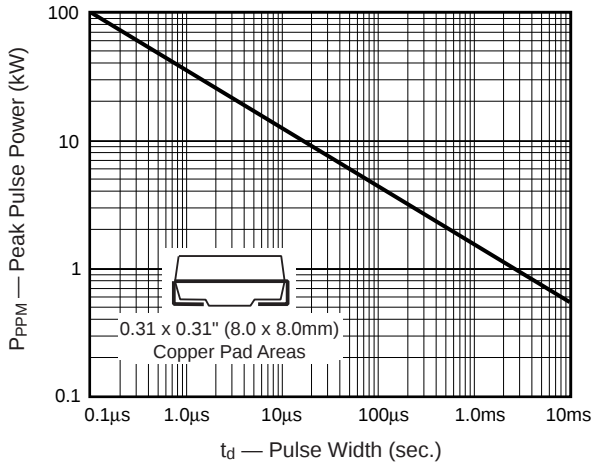
## ELECTRICAL CHARACTERISTICS @25°C

| MCC<br>PART NUMBER | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br>(VOLTS) | BREAKDOWN VOLTAGE<br>$V_{BR}$ @ $I_T$<br>(VOLTS) |        |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$<br>(VOLTS) | PEAK PULSE<br>CURRENT<br>$I_{PP}$<br>(AMPS) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>@ $V_{WM}$<br>$I_D$<br>( $\mu A$ ) | MARKING<br>CODE |
|--------------------|--------------------------------------------------------|--------------------------------------------------|--------|------------|---------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------|-----------------|
|                    |                                                        | MIN                                              | MAX    | $I_T$ (mA) |                                                         |                                             |                                                                     |                 |
| SMCJ1.5KE6.8CA     | 5.80                                                   | 6.45                                             | 7.14   | 10         | 10.5                                                    | 144.8                                       | 1000                                                                | 6V8C            |
| SMCJ1.5KE7.5CA     | 6.40                                                   | 7.13                                             | 7.88   | 10         | 11.3                                                    | 134.5                                       | 500                                                                 | 7V5C            |
| SMCJ1.5KE8.2CA     | 7.02                                                   | 7.79                                             | 8.61   | 10         | 12.1                                                    | 125.6                                       | 200                                                                 | 8V2C            |
| SMCJ1.5KE9.1CA     | 7.78                                                   | 8.65                                             | 9.55   | 1          | 13.4                                                    | 113.4                                       | 50                                                                  | 9V1C            |
| SMCJ1.5KE10CA      | 8.55                                                   | 9.50                                             | 10.50  | 1          | 14.5                                                    | 104.8                                       | 10                                                                  | 10C             |
| SMCJ1.5KE11CA      | 9.40                                                   | 10.50                                            | 11.60  | 1          | 15.6                                                    | 97.4                                        | 5                                                                   | 11C             |
| SMCJ1.5KE12CA      | 10.20                                                  | 11.40                                            | 12.60  | 1          | 16.7                                                    | 91.0                                        | 5                                                                   | 12C             |
| SMCJ1.5KE13CA      | 11.10                                                  | 12.40                                            | 13.70  | 1          | 18.2                                                    | 83.5                                        | 5                                                                   | 13C             |
| SMCJ1.5KE15CA      | 12.80                                                  | 14.30                                            | 15.80  | 1          | 21.2                                                    | 71.7                                        | 5                                                                   | 15C             |
| SMCJ1.5KE16CA      | 13.60                                                  | 15.20                                            | 16.80  | 1          | 22.5                                                    | 67.6                                        | 5                                                                   | 16C             |
| SMCJ1.5KE18CA      | 15.30                                                  | 17.10                                            | 18.90  | 1          | 25.5                                                    | 60.3                                        | 5                                                                   | 18C             |
| SMCJ1.5KE20CA      | 17.10                                                  | 19.00                                            | 21.00  | 1          | 27.7                                                    | 54.9                                        | 5                                                                   | 20C             |
| SMCJ1.5KE22CA      | 18.80                                                  | 20.90                                            | 23.10  | 1          | 30.6                                                    | 49.7                                        | 5                                                                   | 22C             |
| SMCJ1.5KE24CA      | 20.50                                                  | 22.80                                            | 25.20  | 1          | 33.2                                                    | 45.8                                        | 5                                                                   | 24C             |
| SMCJ1.5KE27CA      | 23.10                                                  | 25.70                                            | 28.40  | 1          | 37.5                                                    | 40.5                                        | 5                                                                   | 27C             |
| SMCJ1.5KE30CA      | 25.60                                                  | 28.50                                            | 31.50  | 1          | 41.4                                                    | 36.7                                        | 5                                                                   | 30C             |
| SMCJ1.5KE33CA      | 28.20                                                  | 31.40                                            | 34.70  | 1          | 45.7                                                    | 33.3                                        | 5                                                                   | 33C             |
| SMCJ1.5KE36CA      | 30.80                                                  | 34.20                                            | 37.80  | 1          | 49.9                                                    | 30.5                                        | 5                                                                   | 36C             |
| SMCJ1.5KE39CA      | 33.30                                                  | 37.10                                            | 41.00  | 1          | 53.9                                                    | 28.2                                        | 5                                                                   | 39C             |
| SMCJ1.5KE43CA      | 36.80                                                  | 40.90                                            | 45.20  | 1          | 59.3                                                    | 25.6                                        | 5                                                                   | 43C             |
| SMCJ1.5KE47CA      | 40.20                                                  | 44.70                                            | 49.40  | 1          | 64.8                                                    | 23.5                                        | 5                                                                   | 47C             |
| SMCJ1.5KE51CA      | 43.60                                                  | 48.50                                            | 53.60  | 1          | 70.1                                                    | 21.7                                        | 5                                                                   | 51C             |
| SMCJ1.5KE56CA      | 47.80                                                  | 53.20                                            | 58.80  | 1          | 77.0                                                    | 19.7                                        | 5                                                                   | 56C             |
| SMCJ1.5KE62CA      | 53.00                                                  | 58.90                                            | 65.10  | 1          | 85.0                                                    | 17.9                                        | 5                                                                   | 62C             |
| SMCJ1.5KE68CA      | 58.10                                                  | 64.60                                            | 71.40  | 1          | 92.0                                                    | 16.5                                        | 5                                                                   | 68C             |
| SMCJ1.5KE75CA      | 64.10                                                  | 71.30                                            | 78.80  | 1          | 103.0                                                   | 14.8                                        | 5                                                                   | 75C             |
| SMCJ1.5KE82CA      | 70.10                                                  | 77.90                                            | 86.10  | 1          | 113.0                                                   | 13.5                                        | 5                                                                   | 82C             |
| SMCJ1.5KE91CA      | 77.80                                                  | 86.50                                            | 95.50  | 1          | 125.0                                                   | 12.2                                        | 5                                                                   | 91C             |
| SMCJ1.5KE100CA     | 85.50                                                  | 95.00                                            | 105.00 | 1          | 137.0                                                   | 11.1                                        | 5                                                                   | 100C            |
| SMCJ1.5KE110CA     | 94.00                                                  | 105.00                                           | 116.00 | 1          | 152.0                                                   | 10.0                                        | 5                                                                   | 110C            |
| SMCJ1.5KE120CA     | 102.00                                                 | 114.00                                           | 126.00 | 1          | 165.0                                                   | 9.2                                         | 5                                                                   | 120C            |
| SMCJ1.5KE130CA     | 111.00                                                 | 124.00                                           | 137.00 | 1          | 179.0                                                   | 8.5                                         | 5                                                                   | 130C            |
| SMCJ1.5KE150CA     | 128.00                                                 | 143.00                                           | 158.00 | 1          | 207.0                                                   | 7.3                                         | 5                                                                   | 150C            |
| SMCJ1.5KE160CA     | 136.00                                                 | 152.00                                           | 168.00 | 1          | 219.0                                                   | 6.9                                         | 5                                                                   | 160C            |
| SMCJ1.5KE170CA     | 145.00                                                 | 162.00                                           | 179.00 | 1          | 234.0                                                   | 6.5                                         | 5                                                                   | 170C            |
| SMCJ1.5KE180CA     | 154.00                                                 | 171.00                                           | 189.00 | 1          | 246.0                                                   | 6.2                                         | 5                                                                   | 180C            |
| SMCJ1.5KE200CA     | 171.00                                                 | 190.00                                           | 210.00 | 1          | 274.0                                                   | 5.5                                         | 5                                                                   | 200C            |
| SMCJ1.5KE220CA     | 185.00                                                 | 209.00                                           | 231.00 | 1          | 328.0                                                   | 4.6                                         | 5                                                                   | 220C            |
| SMCJ1.5KE250CA     | 214.00                                                 | 237.00                                           | 263.00 | 1          | 344.0                                                   | 4.4                                         | 5                                                                   | 250C            |
| SMCJ1.5KE300CA     | 256.00                                                 | 285.00                                           | 315.00 | 1          | 414.0                                                   | 3.7                                         | 5                                                                   | 300C            |
| SMCJ1.5KE350CA     | 300.00                                                 | 332.00                                           | 368.00 | 1          | 482.0                                                   | 3.2                                         | 5                                                                   | 350C            |
| SMCJ1.5KE400CA     | 342.00                                                 | 380.00                                           | 420.00 | 1          | 548.0                                                   | 2.8                                         | 5                                                                   | 400C            |
| SMCJ1.5KE440CA     | 376.00                                                 | 418.00                                           | 462.00 | 1          | 602.0                                                   | 2.5                                         | 5                                                                   | 440C            |
| SMCJ1.5KE480CA     | 408.00                                                 | 456.00                                           | 504.00 | 1          | 658.0                                                   | 2.3                                         | 5                                                                   | 480C            |
| SMCJ1.5KE510CA     | 434.00                                                 | 485.00                                           | 535.00 | 1          | 698.0                                                   | 2.1                                         | 5                                                                   | 510C            |
| SMCJ1.5KE530CA     | 477.00                                                 | 503.50                                           | 556.50 | 1          | 725.0                                                   | 2.1                                         | 5                                                                   | 530C            |
| SMCJ1.5KE540CA     | 459.00                                                 | 513.00                                           | 567.00 | 1          | 740.0                                                   | 2.0                                         | 5                                                                   | 540C            |
| SMCJ1.5KE550CA     | 495.00                                                 | 522.50                                           | 577.50 | 1          | 760.0                                                   | 2.0                                         | 5                                                                   | 550C            |

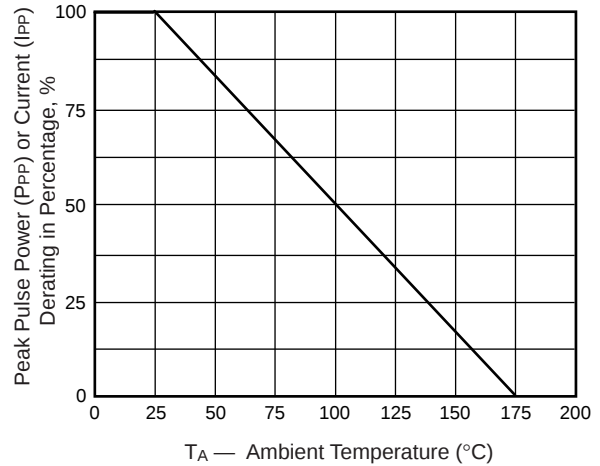
For bi-directional type having  $V_{WM}$  of 10 volts and less, the  $I_R$  limit is double.  
The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available.

## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

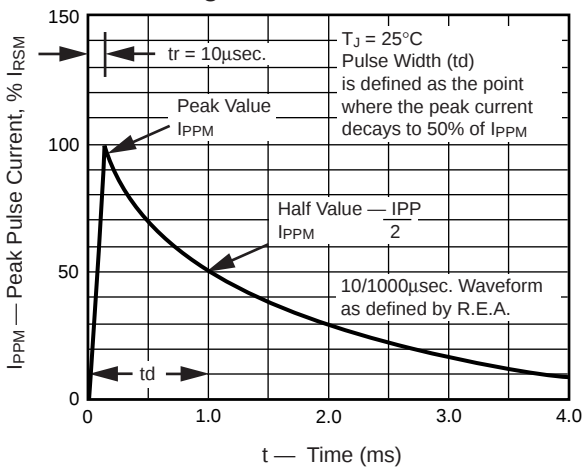
**Fig. 1 – Peak Pulse Power Rating Curve**



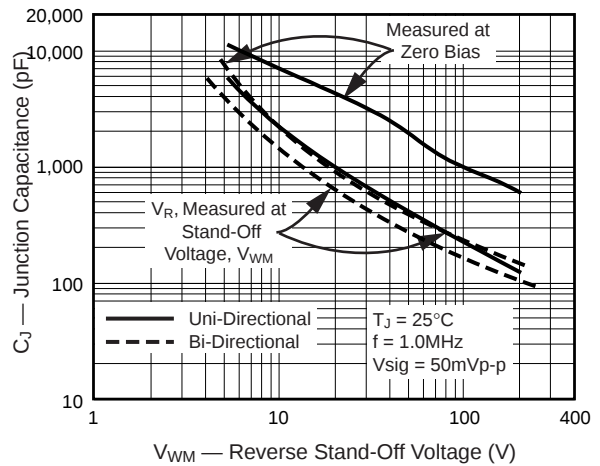
**Fig. 2 – Pulse Derating Curve**



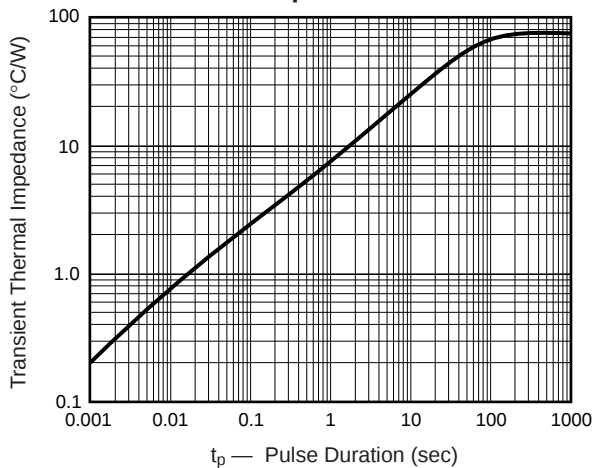
**Fig. 3 – Pulse Waveform**



**Fig. 4 – Typical Junction Capacitance Uni-Directional**



**Fig. 5 – Typical Transient Thermal Impedance**



## Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

### \*\*\*IMPORTANT NOTICE\*\*\*

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

### \*\*\*LIFE SUPPORT\*\*\*

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

### \*\*\*CUSTOMER AWARENESS\*\*\*

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.