

# 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
- 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

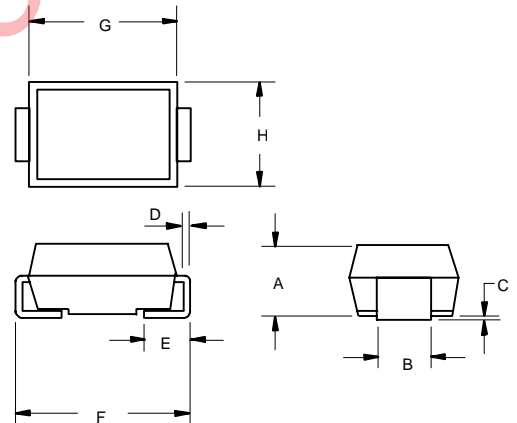
|  |                |                 |              |
|--|----------------|-----------------|--------------|
| Peak Pulse Current on 10/1000us waveform       | $I_{PP}$       | See Table 1     | Note: 2      |
| Peak Pulse Power Dissipation                   | $P_{PP}$       | 1500W           | Note: 2<br>3 |
| Peak Forward Surge Current                     | $I_{FSM}$      | 200A            | Note: 4      |
| 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.
4. 8.3ms, single half sine wave duty cycle=4 pulses per. Minute maximum.

**Transient  
Voltage Suppressor  
6.8 to 550 Volts  
1500 Watt**

### DO-214AB (SMCJ) (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   | .050 | 0.76  | 1.27  |      |
| 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

## 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) |   |   |  |                 |
| SMCJ1.5KE6.8A      | 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.

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

## 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            |

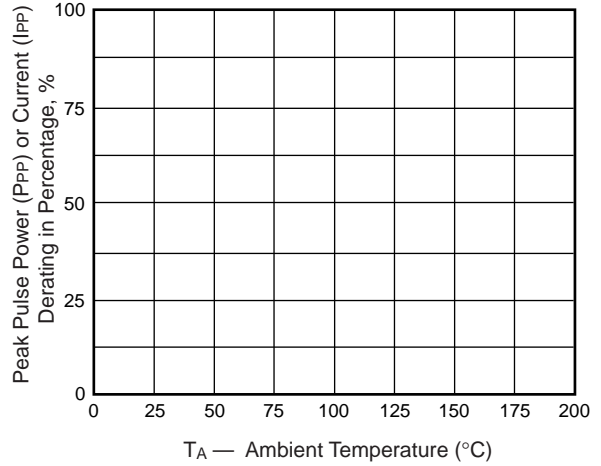
For bi-directional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.  
The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available.

## Ratings and Characteristic Curves (T<sub>A</sub> = 25°C unless otherwise noted)

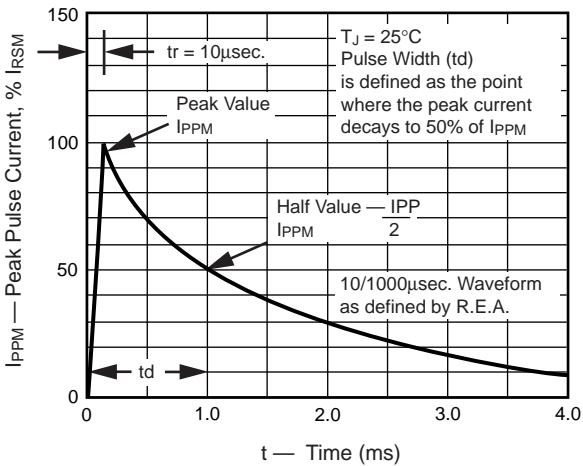
**Fig. 1 – Peak Pulse Power Rating Curve**



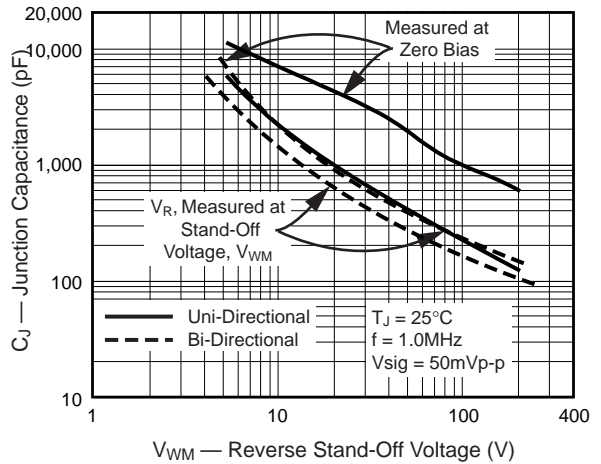
**Fig. 2 – Pulse Derating Curve**



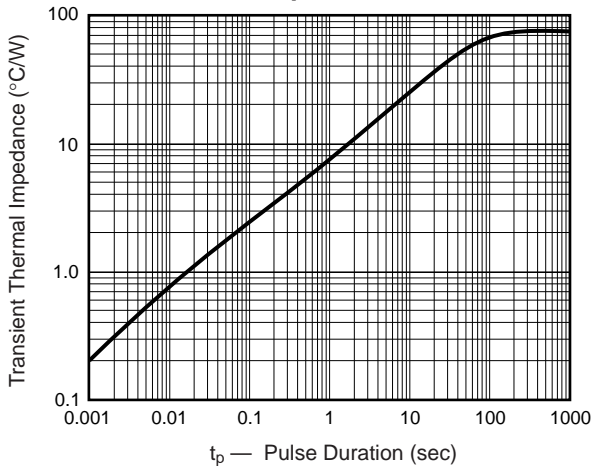
**Fig. 3 – Pulse Waveform**



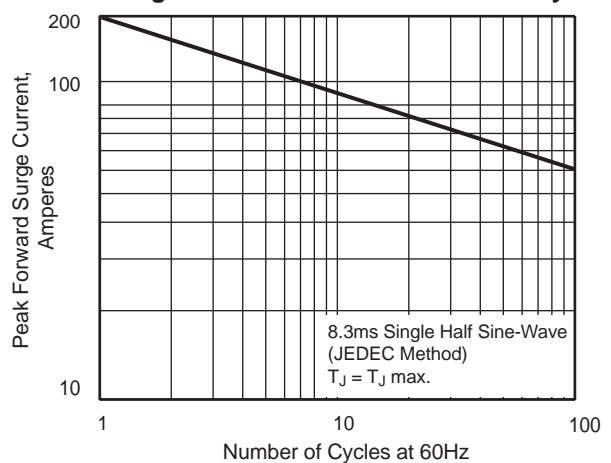
**Fig. 4 – Typical Junction Capacitance Uni-Directional**



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



**Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only**





TM

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### Ordering Information :

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

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

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