



# 1.5SMC SERIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 1500 Watt

### BREAK DOWN VOLTAGE

6.8 to 250 Volt

### SMC / DO-214AB

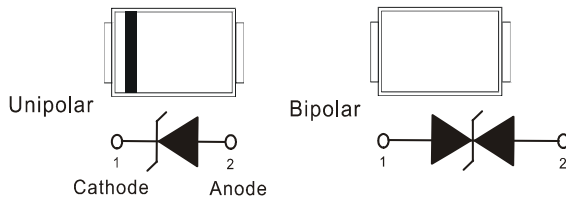
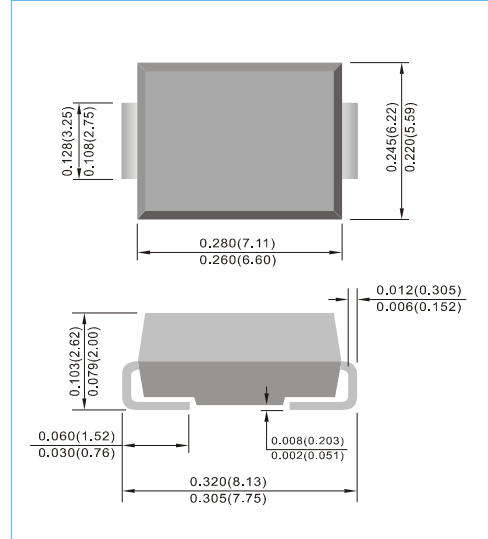
Unit : inch(mm)

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated chip junction in SMC/DO-214AB package
- 1500W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1 ps from 0 volts to BV min
- High temperature soldering guaranteed: 260°C/10 seconds/0.375", (9.5mm) lead length/5lbs., (2.3kg) tension
- ESD IEC-61000-4-2 Air  $\pm$  30kV, Contact  $\pm$  30kV
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC SMC/DO-214AB molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.0082 ounce, 0.233 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5SMC6.8 thru types 1.5SMC250.  
 Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

| Rating   | Symbol          | Value                | Units                       |
|--|-----------------|----------------------|-----------------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $t_p=1\text{ms}$ (Notes 1)                | $P_{PP}$        | 1500                 | Watts                       |
| Typical Thermal Resistance Junction to Air (Notes 2)   | $R_{\theta JA}$ | 50                   | $^\circ\text{C} / \text{W}$ |
| Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1)                            | $I_{PPM}$       | see Table            | Amps                        |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3) | $I_{FSM}$       | 200                  | Amps                        |
| ESD IEC-61000-4-2 (Air)<br>ESD IEC-61000-4-2 (Contact)                                       | $V_{ESD}$       | $\pm 30$<br>$\pm 30$ | kV                          |
| Operating Junction and Storage Temperature Range   | $T_J, T_{STG}$  | -55 to +150          | $^\circ\text{C}$            |

#### NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on Copper Leaf area of  $0.79\text{ in}^2(20\text{mm}^2)$ .
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.
4. A transient suppressor is selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operating voltage level.



# 1.5SMC SERIES

| Part Number                               |             | Reverse Stand-off Voltage | Breakdown Voltage                |      | Test Current | Reverse Leakage                   |      | Max. Clamp Voltage<br>10/1000µs | Peak Pulse Current<br>10/1000µs | Marking Code |     |
|---|-------------|---------------------------|----------------------------------|------|--------------|-----------------------------------|------|---------------------------------|---------------------------------|--------------|-----|
|   |             |                           | V <sub>BR</sub> @ I <sub>T</sub> |      |              | I <sub>R</sub> @ V <sub>RWM</sub> |      |                                 |                                 |              |     |
|   |             |                           | Min.                             | Max. |              | UNI                               | BI   |                                 |                                 |              |     |
| UNI                                       | BI          | V                         | V                                | V    | mA           | µA                                | µA   | V                               | A                               | UNI          | BI  |
| <b>1500W Transient Voltage Suppressor</b> |             |                           |                                  |      |              |                                   |      |                                 |                                 |              |     |
| 1.5SMC6.8                                 | 1.5SMC6.8C  | 5.5                       | 6.12                             | 7.48 | 10           | 1000                              | 2000 | 10.8                            | 139                             | FZA          | JZA |
| 1.5SMC6.8A                                | 1.5SMC6.8CA | 5.8                       | 6.45                             | 7.14 | 10           | 1000                              | 2000 | 10.5                            | 143                             | FZB          | JZB |
| 1.5SMC7.5                                 | 1.5SMC7.5C  | 6.05                      | 6.75                             | 8.25 | 10           | 500                               | 1000 | 11.7                            | 128                             | FZC          | JZC |
| 1.5SMC7.5A                                | 1.5SMC7.5CA | 6.4                       | 7.13                             | 7.88 | 10           | 500                               | 1000 | 11.3                            | 132                             | FZD          | JZD |
| 1.5SMC8.2                                 | 1.5SMC8.2C  | 6.63                      | 7.38                             | 9.02 | 10           | 200                               | 400  | 12.5                            | 120                             | FZE          | JZE |
| 1.5SMC8.2A                                | 1.5SMC8.2CA | 7.02                      | 7.79                             | 8.61 | 10           | 200                               | 400  | 12.1                            | 124                             | FZF          | JZF |
| 1.5SMC9.1                                 | 1.5SMC9.1C  | 7.37                      | 8.19                             | 10   | 1            | 50                                | 100  | 13.8                            | 109                             | FZG          | JZG |
| 1.5SMC9.1A                                | 1.5SMC9.1CA | 7.78                      | 8.65                             | 9.5  | 1            | 50                                | 100  | 13.4                            | 112                             | FZH          | JZH |
| 1.5SMC10                                  | 1.5SMC10C   | 8.1                       | 9                                | 11   | 1            | 10                                | 20   | 15                              | 100                             | FZJ          | JZJ |
| 1.5SMC10A                                 | 1.5SMC10CA  | 8.55                      | 9.5                              | 10.5 | 1            | 10                                | 20   | 14.5                            | 103                             | FZK          | JZK |
| 1.5SMC11                                  | 1.5SMC11C   | 8.92                      | 9.9                              | 12.1 | 1            | 5                                 | 10   | 16.2                            | 93                              | FZL          | JZL |
| 1.5SMC11A                                 | 1.5SMC11CA  | 9.4                       | 10.5                             | 11.6 | 1            | 5                                 | 10   | 15.6                            | 96                              | FZM          | JZM |
| 1.5SMC12                                  | 1.5SMC12C   | 9.72                      | 10.8                             | 13.2 | 1            | 5                                 | 5    | 17.3                            | 87                              | FZN          | JZN |
| 1.5SMC12A                                 | 1.5SMC12CA  | 10.2                      | 11.4                             | 12.6 | 1            | 5                                 | 5    | 16.7                            | 90                              | FZP          | JZP |
| 1.5SMC13                                  | 1.5SMC13C   | 10.5                      | 11.7                             | 14.3 | 1            | 1                                 | 1    | 19                              | 79                              | FZQ          | JZQ |
| 1.5SMC13A                                 | 1.5SMC13CA  | 11.1                      | 12.4                             | 13.7 | 1            | 1                                 | 1    | 18.2                            | 82                              | FZR          | JZR |
| 1.5SMC15                                  | 1.5SMC15C   | 12.1                      | 13.5                             | 16.5 | 1            | 1                                 | 1    | 22                              | 68                              | FZS          | JZS |
| 1.5SMC15A                                 | 1.5SMC15CA  | 12.8                      | 14.3                             | 15.8 | 1            | 1                                 | 1    | 21.2                            | 71                              | FZT          | JZT |
| 1.5SMC16                                  | 1.5SMC16C   | 12.9                      | 14.4                             | 17.6 | 1            | 1                                 | 1    | 23.5                            | 64                              | FZU          | JZU |
| 1.5SMC16A                                 | 1.5SMC16CA  | 13.6                      | 15.2                             | 16.8 | 1            | 1                                 | 1    | 22.5                            | 67                              | FZV          | JZV |
| 1.5SMC18                                  | 1.5SMC18C   | 14.5                      | 16.2                             | 19.8 | 1            | 1                                 | 1    | 26.5                            | 56.5                            | FZW          | JZW |
| 1.5SMC18A                                 | 1.5SMC18CA  | 15.3                      | 17.1                             | 18.9 | 1            | 1                                 | 1    | 25.2                            | 59.5                            | FZX          | JZX |
| 1.5SMC20                                  | 1.5SMC20C   | 16.2                      | 18                               | 22   | 1            | 1                                 | 1    | 29.1                            | 51.5                            | FZY          | JZY |
| 1.5SMC20A                                 | 1.5SMC20CA  | 17.1                      | 19                               | 21   | 1            | 1                                 | 1    | 27.7                            | 54                              | FZZ          | JZZ |
| 1.5SMC22                                  | 1.5SMC22C   | 17.8                      | 19.8                             | 24.2 | 1            | 1                                 | 1    | 31.9                            | 47                              | FXA          | JXA |
| 1.5SMC22A                                 | 1.5SMC22CA  | 18.8                      | 20.9                             | 23.1 | 1            | 1                                 | 1    | 30.6                            | 49                              | FXB          | JXB |
| 1.5SMC24                                  | 1.5SMC24C   | 19.4                      | 21.6                             | 26.4 | 1            | 1                                 | 1    | 34.7                            | 43                              | FXC          | JXC |
| 1.5SMC24A                                 | 1.5SMC24CA  | 20.5                      | 22.8                             | 25.2 | 1            | 1                                 | 1    | 33.2                            | 45                              | FXD          | JXD |
| 1.5SMC27                                  | 1.5SMC27C   | 21.8                      | 24.3                             | 29.7 | 1            | 1                                 | 1    | 39.1                            | 38.5                            | FXE          | JXE |
| 1.5SMC27A                                 | 1.5SMC27CA  | 23.1                      | 25.7                             | 28.4 | 1            | 1                                 | 1    | 37.5                            | 40                              | FXF          | JXF |
| 1.5SMC30                                  | 1.5SMC30C   | 24.3                      | 27                               | 33   | 1            | 1                                 | 1    | 43.5                            | 34.5                            | FXG          | JXG |
| 1.5SMC30A                                 | 1.5SMC30CA  | 25.6                      | 28.5                             | 31.5 | 1            | 1                                 | 1    | 41.4                            | 36                              | FXH          | JXH |
| 1.5SMC33                                  | 1.5SMC33C   | 26.8                      | 29.7                             | 36.3 | 1            | 1                                 | 1    | 47.7                            | 31.5                            | FXJ          | JXJ |
| 1.5SMC33A                                 | 1.5SMC33CA  | 28.2                      | 31.4                             | 34.7 | 1            | 1                                 | 1    | 45.7                            | 33                              | FXK          | JXK |
| 1.5SMC36                                  | 1.5SMC36C   | 29.1                      | 32.4                             | 39.6 | 1            | 1                                 | 1    | 52                              | 29                              | FXL          | JXL |
| 1.5SMC36A                                 | 1.5SMC36CA  | 30.8                      | 34.2                             | 37.8 | 1            | 1                                 | 1    | 49.9                            | 30                              | FXM          | JXM |
| 1.5SMC39                                  | 1.5SMC39C   | 31.6                      | 35.1                             | 42.9 | 1            | 1                                 | 1    | 56.4                            | 26.5                            | FXN          | JXN |
| 1.5SMC39A                                 | 1.5SMC39CA  | 33.3                      | 37.1                             | 41   | 1            | 1                                 | 1    | 53.9                            | 28                              | FXP          | JXP |
| 1.5SMC43                                  | 1.5SMC43C   | 34.8                      | 38.7                             | 47.3 | 1            | 1                                 | 1    | 61.9                            | 24                              | FXQ          | JXQ |

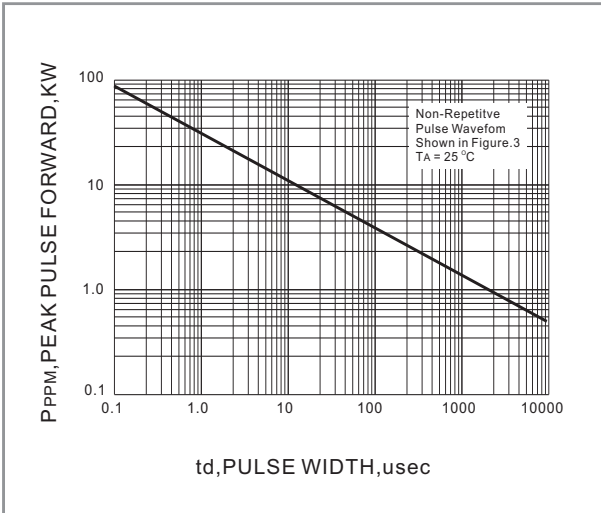


# 1.5SMC SERIES

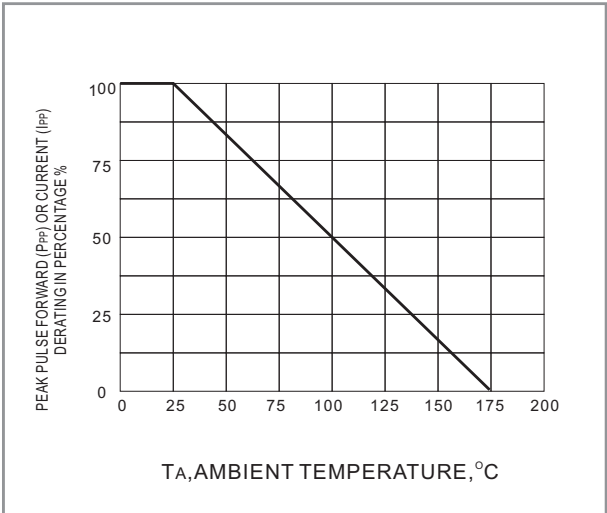
| Part Number                               |             | Reverse Stand-off Voltage  | Breakdown Voltage                |      | Test Current   | Reverse Leakage                   |    | Max. Clamp Voltage<br>10/1000µs  | Peak Pulse Current<br>10/1000µs | Marking Code |     |
|---|-------------|----------------------------|----------------------------------|------|----------------|-----------------------------------|----|----------------------------------|---------------------------------|--------------|-----|
|   |             |                            | V <sub>BR</sub> @ I <sub>T</sub> |      |                | I <sub>R</sub> @ V <sub>RWM</sub> |    |                                  |                                 |              |     |
|   |             | V <sub>RWM</sub> (Notes 4) | Min.                             | Max. | I <sub>T</sub> | UNI                               | BI | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub>                 |              |     |
| UNI                                       | BI          | V                          | V                                | V    | mA             | µA                                | µA | V                                | A                               | UNI          | BI  |
| <b>1500W Transient Voltage Suppressor</b> |             |                            |                                  |      |                |                                   |    |                                  |                                 |              |     |
| 1.5SMC43A                                 | 1.5SMC43CA  | 36.8                       | 40.9                             | 45.2 | 1              | 1                                 | 1  | 59.3                             | 25.3                            | FXR          | JXR |
| 1.5SMC47                                  | 1.5SMC47C   | 38.1                       | 42.3                             | 51.7 | 1              | 1                                 | 1  | 67.8                             | 22.2                            | FXS          | JXS |
| 1.5SMC47A                                 | 1.5SMC47CA  | 40.2                       | 44.7                             | 49.4 | 1              | 1                                 | 1  | 64.8                             | 23.2                            | FXT          | JXT |
| 1.5SMC51                                  | 1.5SMC51C   | 41.3                       | 45.9                             | 56.1 | 1              | 1                                 | 1  | 73.5                             | 20.4                            | FXU          | JXU |
| 1.5SMC51A                                 | 1.5SMC51CA  | 43.6                       | 48.5                             | 53.6 | 1              | 1                                 | 1  | 70.1                             | 21.4                            | FXV          | JXV |
| 1.5SMC56                                  | 1.5SMC56C   | 45.6                       | 50.4                             | 61.6 | 1              | 1                                 | 1  | 80.5                             | 18.6                            | FXW          | JXW |
| 1.5SMC56A                                 | 1.5SMC56CA  | 47.8                       | 53.2                             | 58.8 | 1              | 1                                 | 1  | 77                               | 19.5                            | FXX          | JXX |
| 1.5SMC62                                  | 1.5SMC62C   | 50.2                       | 55.8                             | 68.2 | 1              | 1                                 | 1  | 89                               | 16.9                            | FXY          | JXY |
| 1.5SMC62A                                 | 1.5SMC62CA  | 53                         | 58.9                             | 65.1 | 1              | 1                                 | 1  | 85                               | 17.7                            | FXZ          | JXZ |
| 1.5SMC68                                  | 1.5SMC68C   | 55.1                       | 61.2                             | 74.8 | 1              | 1                                 | 1  | 98                               | 15.3                            | FYA          | JYA |
| 1.5SMC68A                                 | 1.5SMC68CA  | 58.1                       | 64.6                             | 71.4 | 1              | 1                                 | 1  | 92                               | 16.3                            | FYB          | JYB |
| 1.5SMC75                                  | 1.5SMC75C   | 60.7                       | 67.5                             | 82.5 | 1              | 1                                 | 1  | 108                              | 13.9                            | FYC          | JYC |
| 1.5SMC75A                                 | 1.5SMC75CA  | 64.1                       | 71.3                             | 78.8 | 1              | 1                                 | 1  | 103                              | 14.6                            | FYD          | JYD |
| 1.5SMC82                                  | 1.5SMC82C   | 66.4                       | 73.8                             | 90.2 | 1              | 1                                 | 1  | 118                              | 12.7                            | FYE          | JYE |
| 1.5SMC82A                                 | 1.5SMC82CA  | 70.1                       | 77.9                             | 86.1 | 1              | 1                                 | 1  | 113                              | 13.3                            | FYF          | JYF |
| 1.5SMC91                                  | 1.5SMC91C   | 73.7                       | 81.9                             | 100  | 1              | 1                                 | 1  | 131                              | 11.4                            | FYG          | JYG |
| 1.5SMC91A                                 | 1.5SMC91CA  | 77.8                       | 86.5                             | 95.5 | 1              | 1                                 | 1  | 125                              | 12                              | FYH          | JYH |
| 1.5SMC100                                 | 1.5SMC100C  | 81                         | 90                               | 110  | 1              | 1                                 | 1  | 144                              | 10.4                            | FYJ          | JYJ |
| 1.5SMC100A                                | 1.5SMC100CA | 85.5                       | 95                               | 105  | 1              | 1                                 | 1  | 137                              | 11                              | FYK          | JYK |
| 1.5SMC110                                 | 1.5SMC110C  | 89.2                       | 99                               | 121  | 1              | 1                                 | 1  | 158                              | 9.5                             | FYL          | JYL |
| 1.5SMC110A                                | 1.5SMC110CA | 94                         | 105                              | 116  | 1              | 1                                 | 1  | 152                              | 9.9                             | FYM          | JYM |
| 1.5SMC120                                 | 1.5SMC120C  | 97.2                       | 108                              | 132  | 1              | 1                                 | 1  | 173                              | 8.7                             | FYN          | JYN |
| 1.5SMC120A                                | 1.5SMC120CA | 102                        | 114                              | 126  | 1              | 1                                 | 1  | 165                              | 9.1                             | FYP          | JYP |
| 1.5SMC130                                 | 1.5SMC130C  | 105                        | 117                              | 143  | 1              | 1                                 | 1  | 187                              | 8                               | FYQ          | JYQ |
| 1.5SMC130A                                | 1.5SMC130CA | 111                        | 124                              | 137  | 1              | 1                                 | 1  | 179                              | 8.4                             | FYR          | JYR |
| 1.5SMC150                                 | 1.5SMC150C  | 121                        | 135                              | 165  | 1              | 1                                 | 1  | 215                              | 7                               | FYS          | JYS |
| 1.5SMC150A                                | 1.5SMC150CA | 128                        | 143                              | 158  | 1              | 1                                 | 1  | 207                              | 7.2                             | FYT          | JYT |
| 1.5SMC160                                 | 1.5SMC160C  | 130                        | 144                              | 176  | 1              | 1                                 | 1  | 230                              | 6.5                             | FYU          | JYU |
| 1.5SMC160A                                | 1.5SMC160CA | 136                        | 152                              | 168  | 1              | 1                                 | 1  | 219                              | 6.8                             | FYV          | JYV |
| 1.5SMC170                                 | 1.5SMC170C  | 138                        | 153                              | 187  | 1              | 1                                 | 1  | 244                              | 6.2                             | FYW          | JYW |
| 1.5SMC170A                                | 1.5SMC170CA | 145                        | 162                              | 179  | 1              | 1                                 | 1  | 234                              | 6.4                             | FYX          | JYX |
| 1.5SMC180                                 | 1.5SMC180C  | 146                        | 162                              | 198  | 1              | 1                                 | 1  | 258                              | 5.8                             | FYY          | JYY |
| 1.5SMC180A                                | 1.5SMC180CA | 154                        | 171                              | 189  | 1              | 1                                 | 1  | 246                              | 6.1                             | FYZ          | JYZ |
| 1.5SMC200                                 | 1.5SMC200C  | 162                        | 180                              | 220  | 1              | 1                                 | 1  | 287                              | 5.2                             | FWA          | JWA |
| 1.5SMC200A                                | 1.5SMC200CA | 171                        | 190                              | 210  | 1              | 1                                 | 1  | 274                              | 5.5                             | FWB          | JWB |
| 1.5SMC220                                 | 1.5SMC220C  | 175                        | 198                              | 242  | 1              | 1                                 | 1  | 344                              | 4.3                             | FWC          | JWC |
| 1.5SMC220A                                | 1.5SMC220CA | 185                        | 209                              | 231  | 1              | 1                                 | 1  | 328                              | 4.6                             | FWD          | JWD |
| 1.5SMC250                                 | 1.5SMC250C  | 202                        | 225                              | 275  | 1              | 1                                 | 1  | 360                              | 4.3                             | FWE          | JWE |
| 1.5SMC250A                                | 1.5SMC250CA | 214                        | 237                              | 263  | 1              | 1                                 | 1  | 344                              | 4.5                             | FWF          | JWF |



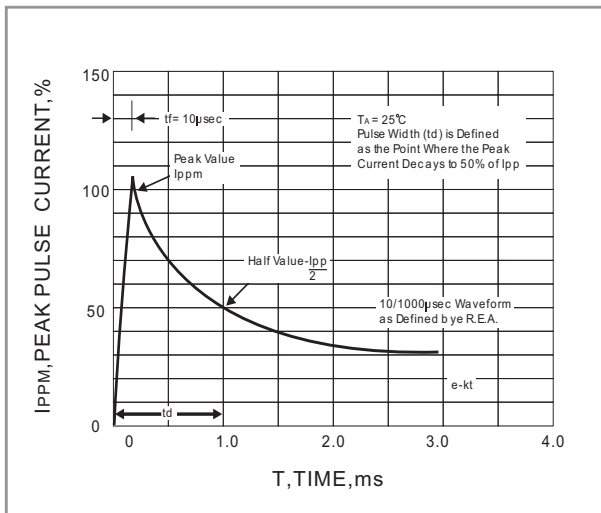
# 1.5SMC SERIES



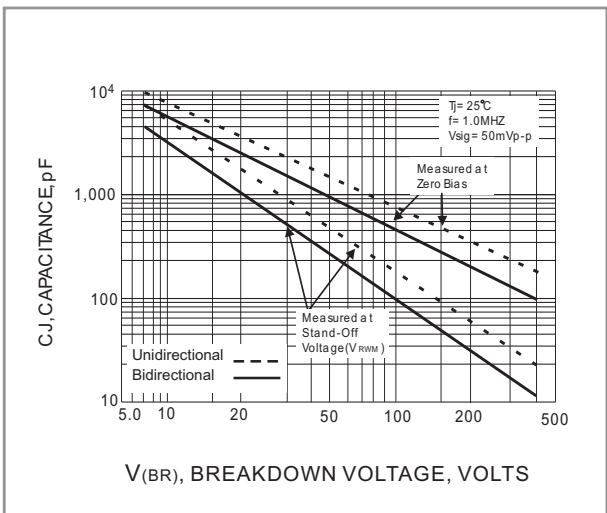
**Fig. 1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE**



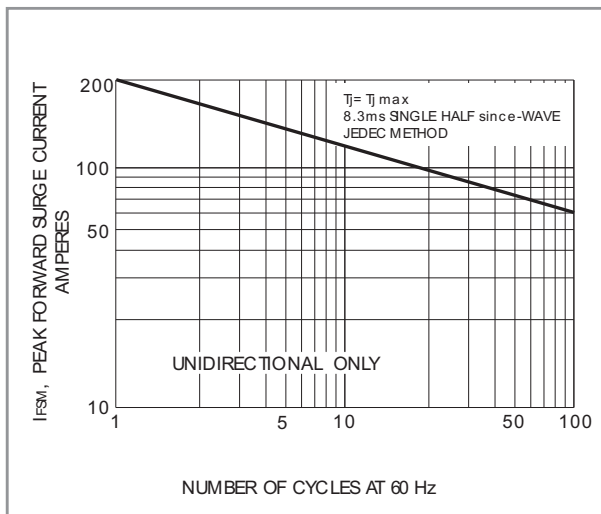
**Fig. 2 PULSE DERATING CURVE**



**Fig. 3 PULSE WAVEFORM**



**Fig. 4 TYPICAL JUNCTION CAPACITANCE**

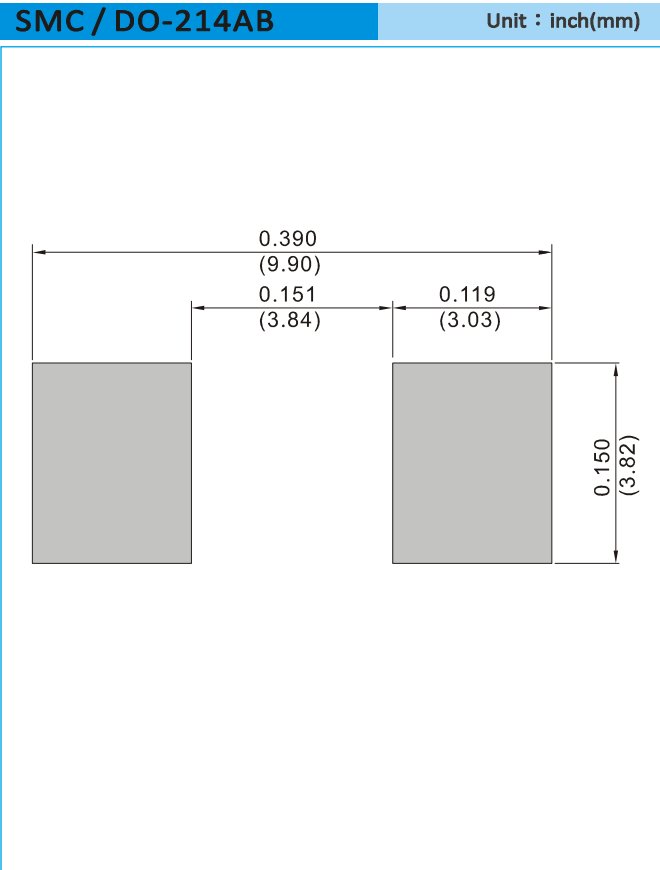


**Fig. 5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL**



# 1.5SMC SERIES

## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information  
T/R - 3K per 13" plastic Reel  
T/R - 0.8K per 7" plastic Reel



# 1.5SMC SERIES

## Part No\_packing code\_Version

1.5SMC6.8\_R1\_00001

1.5SMC6.8\_R2\_00001

For example :

**RB500V-40** **R2** **00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | A                    | N/A                              | 0                    | HF                        | 0                    | serial number                         |
| Tape and Reel (T/R)                  | R                    | 7"                               | 1                    | RoHS                      | 1                    | serial number                         |
| Bulk Packing (B/P)                   | B                    | 13"                              | 2                    |                           |                      |                                       |
| Tube Packing (T/P)                   | T                    | 26mm                             | X                    |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | S                    | 52mm                             | Y                    |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | L                    | PANASERT T/B CATHODE UP (PBCU)   | U                    |                           |                      |                                       |
| FORMING                              | F                    | PANASERT T/B CATHODE DOWN (PBCD) | D                    |                           |                      |                                       |



## 1.5SMC SERIES

---

### Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Panjit:

[1.5SMC91A\\_R1\\_00001](#) [1.5SMC91A\\_R2\\_00001](#)