



# 1.5SMC6.8A ~ 1.5SMC250CA Series

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

**BREAK DOWN VOLTAGE**

**6.8 to 250 Volt**

**SMC / DO-214AB**

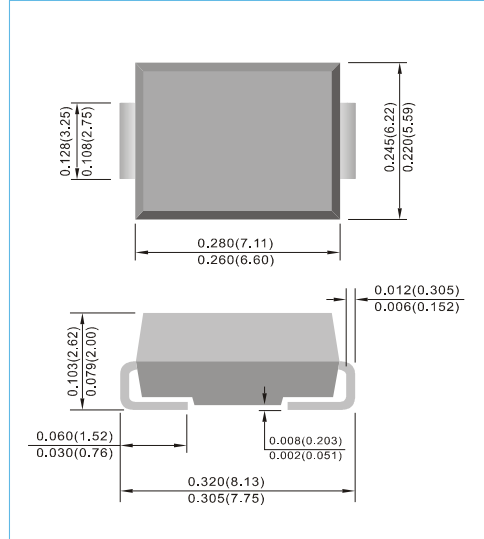
Unit : inch(mm)

## 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
- Approx. Weight : 0.2325 grams



## DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use CA Suffix for types 1.5SMC6.8CA thru types 1.5SMC250CA  
 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.

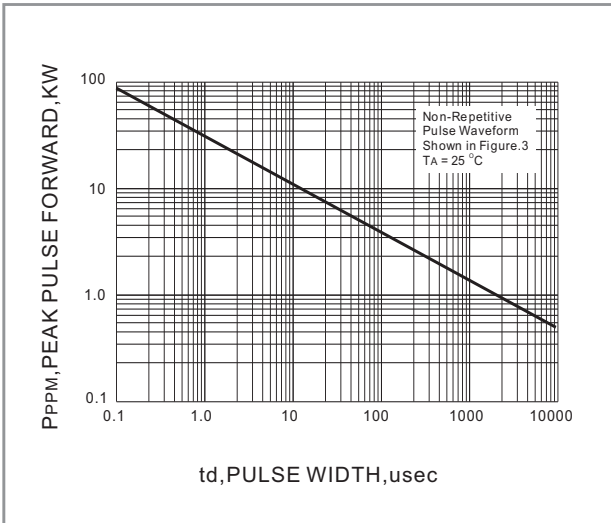


# 1.5SMC6.8A ~ 1.5SMC250CA Series

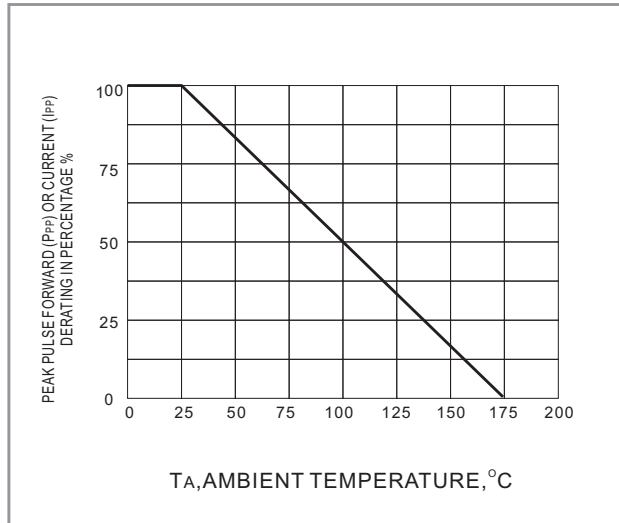
| Part Number                               |             | Reverse Stand-off Voltage  | Breakdown Voltage                |      | Test Current   | Reverse Leakage                   |      | Max. Clamp Voltage 10/1000us     | Peak Pulse Current 10/1000us | Marking Code |     |
|-------------------------------------------|-------------|----------------------------|----------------------------------|------|----------------|-----------------------------------|------|----------------------------------|------------------------------|--------------|-----|
|                                           |             | V <sub>RWM</sub> (Notes 4) | V <sub>BR</sub> @ I <sub>T</sub> |      | I <sub>T</sub> | I <sub>R</sub> @ V <sub>RWM</sub> |      | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub>              |              |     |
|                                           |             |                            | Min.                             | Max. |                | UNI                               | BI   |                                  |                              |              |     |
| UNI                                       | BI          | V                          | V                                | V    | mA             | uA                                | uA   | V                                | A                            | UNI          | BI  |
| <b>1500W Transient Voltage Suppressor</b> |             |                            |                                  |      |                |                                   |      |                                  |                              |              |     |
| 1.5SMC6.8A                                | 1.5SMC6.8CA | 5.8                        | 6.45                             | 7.14 | 10             | 1000                              | 2000 | 10.5                             | 143                          | FZB          | JZB |
| 1.5SMC7.5A                                | 1.5SMC7.5CA | 6.4                        | 7.13                             | 7.88 | 10             | 500                               | 1000 | 11.3                             | 132                          | FZD          | JZD |
| 1.5SMC8.2A                                | 1.5SMC8.2CA | 7.02                       | 7.79                             | 8.61 | 10             | 200                               | 400  | 12.1                             | 124                          | FZF          | JZF |
| 1.5SMC9.1A                                | 1.5SMC9.1CA | 7.78                       | 8.65                             | 9.5  | 1              | 50                                | 100  | 13.4                             | 112                          | FZH          | JZH |
| 1.5SMC10A                                 | 1.5SMC10CA  | 8.55                       | 9.5                              | 10.5 | 1              | 10                                | 20   | 14.5                             | 103                          | FZK          | JZK |
| 1.5SMC11A                                 | 1.5SMC11CA  | 9.4                        | 10.5                             | 11.6 | 1              | 5                                 | 10   | 15.6                             | 96                           | FZM          | JZM |
| 1.5SMC12A                                 | 1.5SMC12CA  | 10.2                       | 11.4                             | 12.6 | 1              | 5                                 | 5    | 16.7                             | 90                           | FZP          | JZP |
| 1.5SMC13A                                 | 1.5SMC13CA  | 11.1                       | 12.4                             | 13.7 | 1              | 1                                 | 1    | 18.2                             | 82                           | FZR          | JZR |
| 1.5SMC15A                                 | 1.5SMC15CA  | 12.8                       | 14.3                             | 15.8 | 1              | 1                                 | 1    | 21.2                             | 71                           | FZT          | JZT |
| 1.5SMC16A                                 | 1.5SMC16CA  | 13.6                       | 15.2                             | 16.8 | 1              | 1                                 | 1    | 22.5                             | 67                           | FZV          | JZV |
| 1.5SMC18A                                 | 1.5SMC18CA  | 15.3                       | 17.1                             | 18.9 | 1              | 1                                 | 1    | 25.2                             | 59.5                         | FZX          | JZX |
| 1.5SMC20A                                 | 1.5SMC20CA  | 17.1                       | 19                               | 21   | 1              | 1                                 | 1    | 27.7                             | 54                           | FZZ          | JZZ |
| 1.5SMC22A                                 | 1.5SMC22CA  | 18.8                       | 20.9                             | 23.1 | 1              | 1                                 | 1    | 30.6                             | 49                           | FXB          | JXB |
| 1.5SMC24A                                 | 1.5SMC24CA  | 20.5                       | 22.8                             | 25.2 | 1              | 1                                 | 1    | 33.2                             | 45                           | FXD          | JXD |
| 1.5SMC27A                                 | 1.5SMC27CA  | 23.1                       | 25.7                             | 28.4 | 1              | 1                                 | 1    | 37.5                             | 40                           | FXF          | JXF |
| 1.5SMC30A                                 | 1.5SMC30CA  | 25.6                       | 28.5                             | 31.5 | 1              | 1                                 | 1    | 41.4                             | 36                           | FXH          | JXH |
| 1.5SMC33A                                 | 1.5SMC33CA  | 28.2                       | 31.4                             | 34.7 | 1              | 1                                 | 1    | 45.7                             | 33                           | FXK          | JXK |
| 1.5SMC36A                                 | 1.5SMC36CA  | 30.8                       | 34.2                             | 37.8 | 1              | 1                                 | 1    | 49.9                             | 30                           | FXM          | JXM |
| 1.5SMC39A                                 | 1.5SMC39CA  | 33.3                       | 37.1                             | 41   | 1              | 1                                 | 1    | 53.9                             | 28                           | FXP          | JXP |
| 1.5SMC43A                                 | 1.5SMC43CA  | 36.8                       | 40.9                             | 45.2 | 1              | 1                                 | 1    | 59.3                             | 25.3                         | FXR          | JXR |
| 1.5SMC47A                                 | 1.5SMC47CA  | 40.2                       | 44.7                             | 49.4 | 1              | 1                                 | 1    | 64.8                             | 23.2                         | FXT          | JXT |
| 1.5SMC51A                                 | 1.5SMC51CA  | 43.6                       | 48.5                             | 53.6 | 1              | 1                                 | 1    | 70.1                             | 21.4                         | FXV          | JXV |
| 1.5SMC56A                                 | 1.5SMC56CA  | 47.8                       | 53.2                             | 58.8 | 1              | 1                                 | 1    | 77                               | 19.5                         | FXX          | JXX |
| 1.5SMC62A                                 | 1.5SMC62CA  | 53                         | 58.9                             | 65.1 | 1              | 1                                 | 1    | 85                               | 17.7                         | FXZ          | JXZ |
| 1.5SMC68A                                 | 1.5SMC68CA  | 58.1                       | 64.6                             | 71.4 | 1              | 1                                 | 1    | 92                               | 16.3                         | FYB          | JYB |
| 1.5SMC75A                                 | 1.5SMC75CA  | 64.1                       | 71.3                             | 78.8 | 1              | 1                                 | 1    | 103                              | 14.6                         | FYD          | JYD |
| 1.5SMC82A                                 | 1.5SMC82CA  | 70.1                       | 77.9                             | 86.1 | 1              | 1                                 | 1    | 113                              | 13.3                         | FYF          | JYF |
| 1.5SMC91A                                 | 1.5SMC91CA  | 77.8                       | 86.5                             | 95.5 | 1              | 1                                 | 1    | 125                              | 12                           | FYH          | JYH |
| 1.5SMC100A                                | 1.5SMC100CA | 85.5                       | 95                               | 105  | 1              | 1                                 | 1    | 137                              | 11                           | FYK          | JYK |
| 1.5SMC110A                                | 1.5SMC110CA | 94                         | 105                              | 116  | 1              | 1                                 | 1    | 152                              | 9.9                          | FYM          | JYM |
| 1.5SMC120A                                | 1.5SMC120CA | 102                        | 114                              | 126  | 1              | 1                                 | 1    | 165                              | 9.1                          | FYP          | JYP |
| 1.5SMC130A                                | 1.5SMC130CA | 111                        | 124                              | 137  | 1              | 1                                 | 1    | 179                              | 8.4                          | FYR          | JYR |
| 1.5SMC150A                                | 1.5SMC150CA | 128                        | 143                              | 158  | 1              | 1                                 | 1    | 207                              | 7.2                          | FYT          | JYT |
| 1.5SMC160A                                | 1.5SMC160CA | 136                        | 152                              | 168  | 1              | 1                                 | 1    | 219                              | 6.8                          | FYV          | JYV |
| 1.5SMC170A                                | 1.5SMC170CA | 145                        | 162                              | 179  | 1              | 1                                 | 1    | 234                              | 6.4                          | FYX          | JYX |
| 1.5SMC180A                                | 1.5SMC180CA | 154                        | 171                              | 189  | 1              | 1                                 | 1    | 246                              | 6.1                          | FYZ          | JYZ |
| 1.5SMC200A                                | 1.5SMC200CA | 171                        | 190                              | 210  | 1              | 1                                 | 1    | 274                              | 5.5                          | FWB          | JWB |
| 1.5SMC220A                                | 1.5SMC220CA | 185                        | 209                              | 231  | 1              | 1                                 | 1    | 328                              | 4.6                          | FWD          | JWD |
| 1.5SMC250A                                | 1.5SMC250CA | 214                        | 237                              | 263  | 1              | 1                                 | 1    | 344                              | 4.5                          | FWF          | JWF |



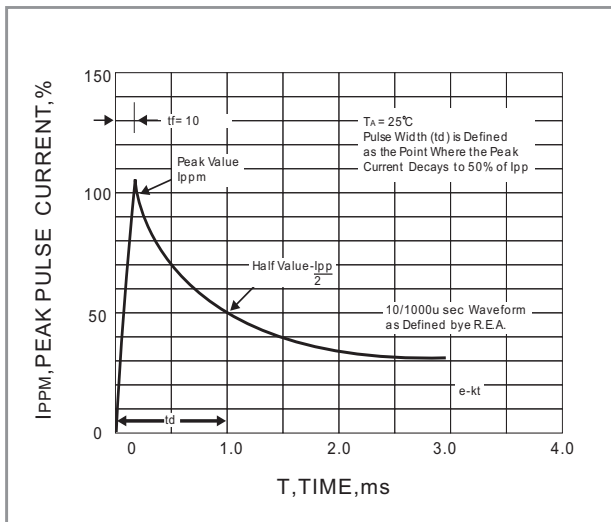
# 1.5SMC6.8A ~ 1.5SMC250CA Series



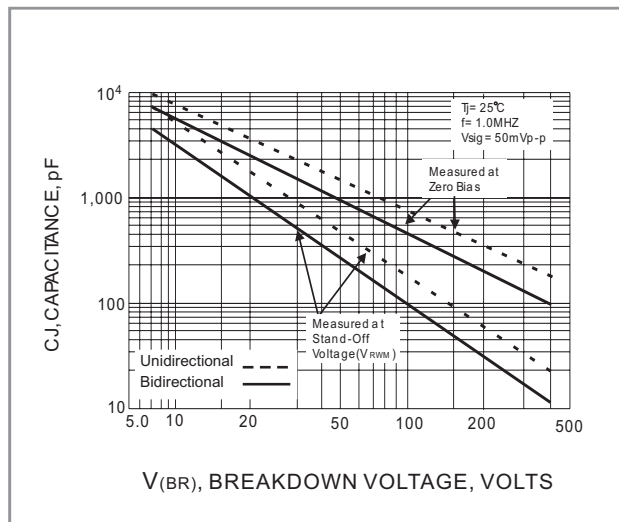
**Fig.1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE**



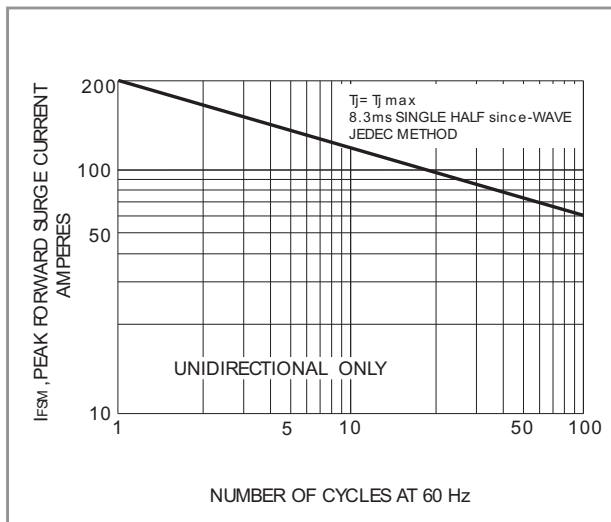
**Fig.2 PULSE DERATING CURVE**



**Fig.3 PULSE WAVEFORM**



**Fig.4 TYPICAL JUNCTION CAPACITANCE**

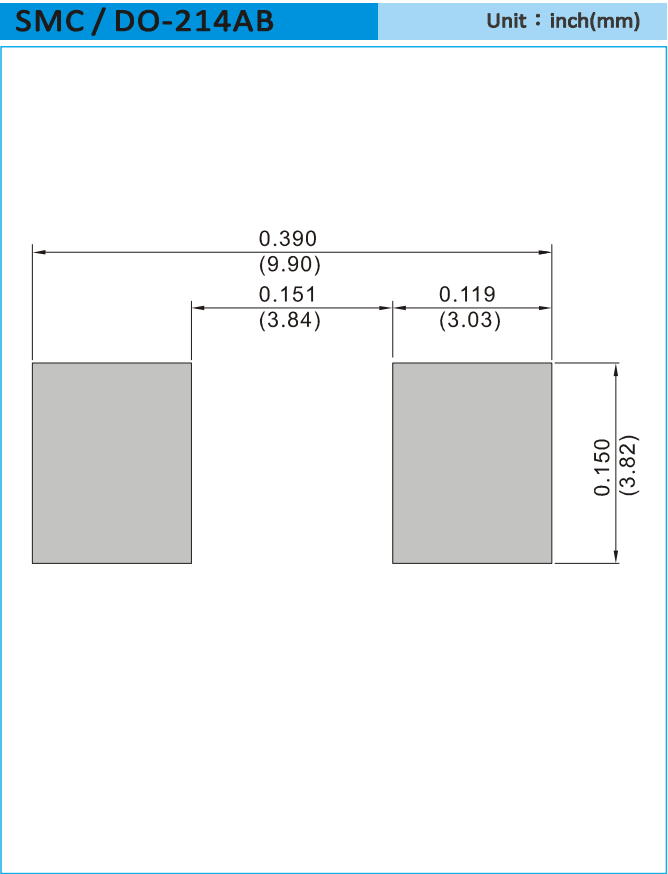


**Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL**



# 1.5SMC6.8A ~ 1.5SMC250CA Series

## MOUNTING PAD LAYOUT



## ORDER INFORMATION

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



# 1.5SMC6.8A ~ 1.5SMC250CA Series

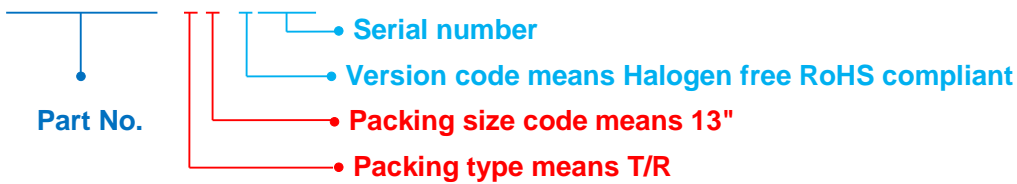
## Part No.\_packing code\_Version

1.5SMC6.8A\_R1\_00001

1.5SMC6.8A\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



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