

## 1.5SMCJ5.0A ~ 1.5SMCJ220CA Series

### SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 1500 Watt

**STAND-OFF VOLTAGE**

**5 to 220 Volt**

**Recongnized File # E210467 (1.5SMCJ5.0A~1.5SMCJ170CA)**

#### FEATURES

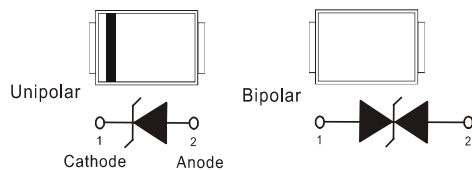
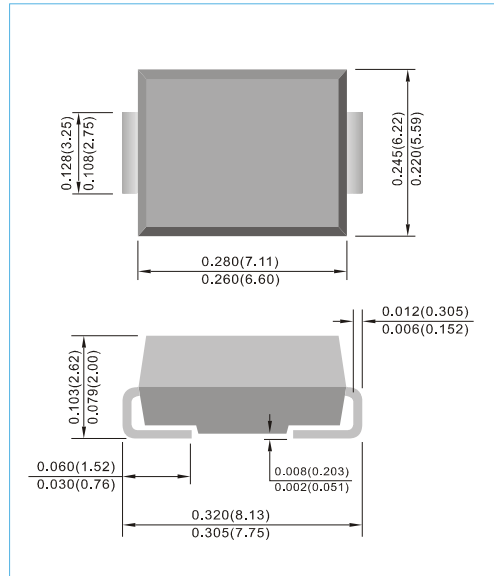
- For surface mounted applications in order to optimize board space.
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- ESD IEC-61000-4-2 Air  $\pm$  30kV, Contact  $\pm$  30kV
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

#### MECHANICAL DATA

- Case : JEDEC DO-214AB, Molded plastic over passivated junction.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Standard Packaging : 16mm tape (EIA-481)
- Approx. Weight : 0.2325 gram

**SMC / DO-214AB**

Unit : inch(mm)



#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use CA Suffix for types 1.5SMCJ5.0CA thru types 1.5SMCJ220CA  
Electrical characteristics apply in both directions.

#### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.  
For Capacitive load derate current by 20%.

| Rating                                                                                       | Symbol          | Value                | Units                       |
|----------------------------------------------------------------------------------------------|-----------------|----------------------|-----------------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $t_p=1\text{ms}$ (Notes 1)                | $P_{PP}$        | 1500                 | W                           |
| Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1)                            | $I_{PPM}$       | See table            | A                           |
| Typical Thermal Resistance Junction to Air (Notes 2)                                         | $R_{\theta JA}$ | 50                   | $^\circ\text{C} / \text{W}$ |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3) | $I_{FSM}$       | 200                  | A                           |
| 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          | $^\circ\text{C}$            |

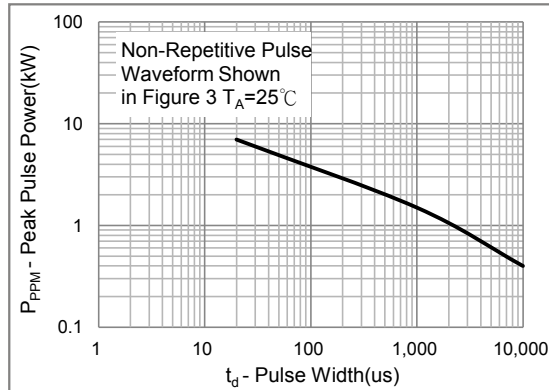
#### NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on  $2\text{mm}^2$  (0.013mm thick) land areas.
3. Measured on 8.3ms, single half sine-wave or equivalent square 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.

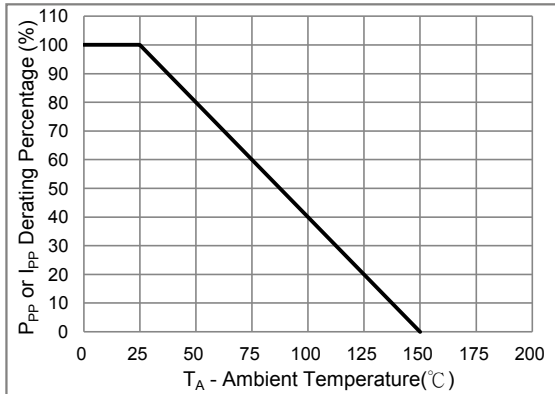
## 1.5SMCJ5.0A ~ 1.5SMCJ220CA Series

| Part Number                        |              | Reverse Stand-off Voltage  | Breakdown Voltage                |       | Test Current   | Reverse Leakage                   |      | Max. Clamp Voltage 10/1000µs     | Peak Pulse Current 10/1000µs | 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             | µA                                | µA   | V                                | A                            | UNI          | BI  |
| 1500W Transient Voltage Suppressor |              |                            |                                  |       |                |                                   |      |                                  |                              |              |     |
| 1.5SMCJ5.0A                        | 1.5SMCJ5.0CA | 5                          | 6.4                              | 7.25  | 10             | 1000                              | 2000 | 9.2                              | 163                          | GDE          | BDE |
| 1.5SMCJ6.0A                        | 1.5SMCJ6.0CA | 6                          | 6.67                             | 7.67  | 10             | 1000                              | 2000 | 10.3                             | 145.6                        | GDG          | BDG |
| 1.5SMCJ6.5A                        | 1.5SMCJ6.5CA | 6.5                        | 7.22                             | 8.3   | 10             | 500                               | 1000 | 11.2                             | 133.9                        | GDK          | BDK |
| 1.5SMCJ7.0A                        | 1.5SMCJ7.0CA | 7                          | 7.78                             | 8.95  | 10             | 200                               | 400  | 12                               | 125                          | GDM          | BDM |
| 1.5SMCJ7.5A                        | 1.5SMCJ7.5CA | 7.5                        | 8.33                             | 9.58  | 1              | 100                               | 200  | 12.9                             | 116.3                        | GDP          | BDP |
| 1.5SMCJ8.0A                        | 1.5SMCJ8.0CA | 8                          | 8.89                             | 10.23 | 1              | 50                                | 100  | 13.6                             | 110.3                        | GDR          | BDR |
| 1.5SMCJ8.5A                        | 1.5SMCJ8.5CA | 8.5                        | 9.44                             | 10.82 | 1              | 25                                | 50   | 14.4                             | 104.2                        | GDT          | BDT |
| 1.5SMCJ9.0A                        | 1.5SMCJ9.0CA | 9                          | 10                               | 11.5  | 1              | 10                                | 20   | 15.4                             | 97.4                         | GDV          | BDV |
| 1.5SMCJ10A                         | 1.5SMCJ10CA  | 10                         | 11.1                             | 12.8  | 1              | 5                                 | 5    | 17                               | 88.2                         | GDX          | BDX |
| 1.5SMCJ11A                         | 1.5SMCJ11CA  | 11                         | 12.2                             | 14    | 1              | 1                                 | 1    | 18.2                             | 82.4                         | GDZ          | BDZ |
| 1.5SMCJ12A                         | 1.5SMCJ12CA  | 12                         | 13.3                             | 15.3  | 1              | 1                                 | 1    | 19.9                             | 75.3                         | GEE          | BEE |
| 1.5SMCJ13A                         | 1.5SMCJ13CA  | 13                         | 14.4                             | 16.5  | 1              | 1                                 | 1    | 21.5                             | 69.7                         | GEG          | BEG |
| 1.5SMCJ14A                         | 1.5SMCJ14CA  | 14                         | 15.6                             | 17.9  | 1              | 1                                 | 1    | 23.2                             | 64.7                         | GEK          | BEK |
| 1.5SMCJ15A                         | 1.5SMCJ15CA  | 15                         | 16.7                             | 19.2  | 1              | 1                                 | 1    | 24.4                             | 61.5                         | GEM          | BEM |
| 1.5SMCJ16A                         | 1.5SMCJ16CA  | 16                         | 17.8                             | 20.5  | 1              | 1                                 | 1    | 26                               | 57.7                         | GEP          | BEP |
| 1.5SMCJ17A                         | 1.5SMCJ17CA  | 17                         | 18.9                             | 21.7  | 1              | 1                                 | 1    | 27.6                             | 53.3                         | GER          | BER |
| 1.5SMCJ18A                         | 1.5SMCJ18CA  | 18                         | 20                               | 23.3  | 1              | 1                                 | 1    | 29.2                             | 51.4                         | GET          | BET |
| 1.5SMCJ20A                         | 1.5SMCJ20CA  | 20                         | 22.2                             | 25.5  | 1              | 1                                 | 1    | 32.4                             | 46.3                         | GEV          | BEV |
| 1.5SMCJ22A                         | 1.5SMCJ22CA  | 22                         | 24.4                             | 28    | 1              | 1                                 | 1    | 35.5                             | 42.2                         | GEX          | BEX |
| 1.5SMCJ24A                         | 1.5SMCJ24CA  | 24                         | 26.7                             | 30.7  | 1              | 1                                 | 1    | 38.9                             | 38.6                         | GEZ          | BEZ |
| 1.5SMCJ26A                         | 1.5SMCJ26CA  | 26                         | 28.9                             | 33.2  | 1              | 1                                 | 1    | 42.1                             | 35.6                         | GFE          | BFE |
| 1.5SMCJ28A                         | 1.5SMCJ28CA  | 28                         | 31.1                             | 35.8  | 1              | 1                                 | 1    | 45.4                             | 33                           | GFG          | BFG |
| 1.5SMCJ30A                         | 1.5SMCJ30CA  | 30                         | 33.3                             | 38.3  | 1              | 1                                 | 1    | 48.4                             | 31                           | GFK          | BFK |
| 1.5SMCJ33A                         | 1.5SMCJ33CA  | 33                         | 36.7                             | 42.2  | 1              | 1                                 | 1    | 53.3                             | 28.1                         | GFM          | BFM |
| 1.5SMCJ36A                         | 1.5SMCJ36CA  | 36                         | 40                               | 46    | 1              | 1                                 | 1    | 58.1                             | 25.8                         | GFP          | BFP |
| 1.5SMCJ40A                         | 1.5SMCJ40CA  | 40                         | 44.4                             | 51.1  | 1              | 1                                 | 1    | 64.5                             | 23.2                         | GFR          | BFR |
| 1.5SMCJ43A                         | 1.5SMCJ43CA  | 43                         | 47.8                             | 55    | 1              | 1                                 | 1    | 69.4                             | 21.6                         | GFT          | BFT |
| 1.5SMCJ45A                         | 1.5SMCJ45CA  | 45                         | 50                               | 57.5  | 1              | 1                                 | 1    | 72.7                             | 20.6                         | GFV          | BFV |
| 1.5SMCJ48A                         | 1.5SMCJ48CA  | 48                         | 53.3                             | 61.3  | 1              | 1                                 | 1    | 77.4                             | 19.4                         | GFX          | BFX |
| 1.5SMCJ51A                         | 1.5SMCJ51CA  | 51                         | 56.7                             | 65.2  | 1              | 1                                 | 1    | 82.4                             | 18.2                         | GFZ          | BFZ |
| 1.5SMCJ54A                         | 1.5SMCJ54CA  | 54                         | 60                               | 69    | 1              | 1                                 | 1    | 87.1                             | 17.2                         | GGE          | BGE |
| 1.5SMCJ58A                         | 1.5SMCJ58CA  | 58                         | 64.4                             | 74.1  | 1              | 1                                 | 1    | 93.6                             | 16                           | GGG          | BGG |
| 1.5SMCJ60A                         | 1.5SMCJ60CA  | 60                         | 66.7                             | 76.7  | 1              | 1                                 | 1    | 96.8                             | 15.5                         | GGK          | BGK |
| 1.5SMCJ64A                         | 1.5SMCJ64CA  | 64                         | 71.1                             | 81.8  | 1              | 1                                 | 1    | 103                              | 14.6                         | GGM          | BGM |
| 1.5SMCJ70A                         | 1.5SMCJ70CA  | 70                         | 77.8                             | 89.5  | 1              | 1                                 | 1    | 113                              | 13.3                         | GGP          | BGP |
| 1.5SMCJ75A                         | 1.5SMCJ75CA  | 75                         | 83.3                             | 95.8  | 1              | 1                                 | 1    | 121                              | 12.4                         | GGR          | BGR |
| 1.5SMCJ78A                         | 1.5SMCJ78CA  | 78                         | 86.7                             | 99.7  | 1              | 1                                 | 1    | 126                              | 11.4                         | GGT          | BGT |
| 1.5SMCJ85A                         | 1.5SMCJ85CA  | 85                         | 94.4                             | 108.2 | 1              | 1                                 | 1    | 137                              | 10.4                         | GGV          | BGV |
| 1.5SMCJ90A                         | 1.5SMCJ90CA  | 90                         | 100                              | 115.5 | 1              | 1                                 | 1    | 146                              | 10.3                         | GGX          | BGX |
| 1.5SMCJ100A                        | 1.5SMCJ100CA | 100                        | 111                              | 128   | 1              | 1                                 | 1    | 162                              | 9.3                          | GGZ          | BGZ |
| 1.5SMCJ110A                        | 1.5SMCJ110CA | 110                        | 122                              | 140.5 | 1              | 1                                 | 1    | 177                              | 8.4                          | GHE          | BHE |
| 1.5SMCJ120A                        | 1.5SMCJ120CA | 120                        | 133                              | 153   | 1              | 1                                 | 1    | 193                              | 7.9                          | GHG          | BHG |
| 1.5SMCJ130A                        | 1.5SMCJ130CA | 130                        | 144                              | 165.5 | 1              | 1                                 | 1    | 209                              | 7.2                          | GHK          | BHK |
| 1.5SMCJ150A                        | 1.5SMCJ150CA | 150                        | 167                              | 192.5 | 1              | 1                                 | 1    | 243                              | 6.2                          | GHM          | BHM |
| 1.5SMCJ160A                        | 1.5SMCJ160CA | 160                        | 178                              | 205   | 1              | 1                                 | 1    | 259                              | 5.8                          | GHP          | BHP |
| 1.5SMCJ170A                        | 1.5SMCJ170CA | 170                        | 189                              | 217.5 | 1              | 1                                 | 1    | 275                              | 5.5                          | GHR          | BHR |
| 1.5SMCJ180A                        | 1.5SMCJ180CA | 180                        | 198                              | 230.4 | 1              | 1                                 | 1    | 292                              | 5.1                          | GHT          | BHT |
| 1.5SMCJ190A                        | 1.5SMCJ190CA | 190                        | 209                              | 243.2 | 1              | 1                                 | 1    | 308                              | 4.8                          | GHV          | BHV |
| 1.5SMCJ200A                        | 1.5SMCJ200CA | 200                        | 220                              | 256   | 1              | 1                                 | 1    | 324                              | 4.6                          | GHX          | BHX |
| 1.5SMCJ210A                        | 1.5SMCJ210CA | 210                        | 231                              | 268.8 | 1              | 1                                 | 1    | 340                              | 4.4                          | GHZ          | BHZ |
| 1.5SMCJ220A                        | 1.5SMCJ220CA | 220                        | 242                              | 281.6 | 1              | 1                                 | 1    | 356                              | 4.2                          | GIE          | BIE |

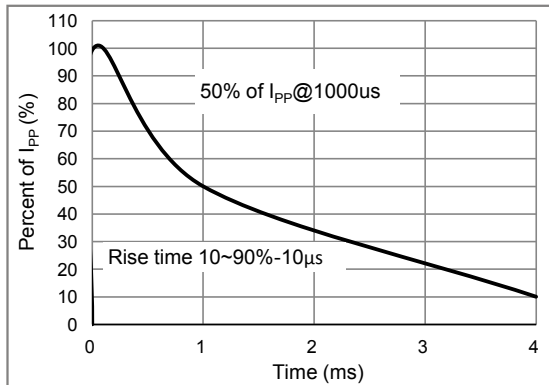
## 1.5SMCJ5.0A ~ 1.5SMCJ220CA Series



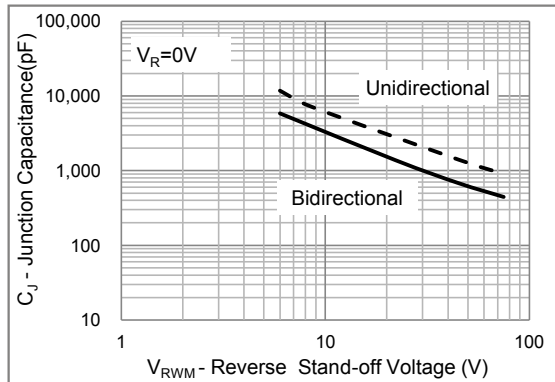
**Fig.1 Peak Pulse Power Rating Curve**



**Fig.2 Derating Curve**



**Fig.3 10/1000us Pulse Waveform**



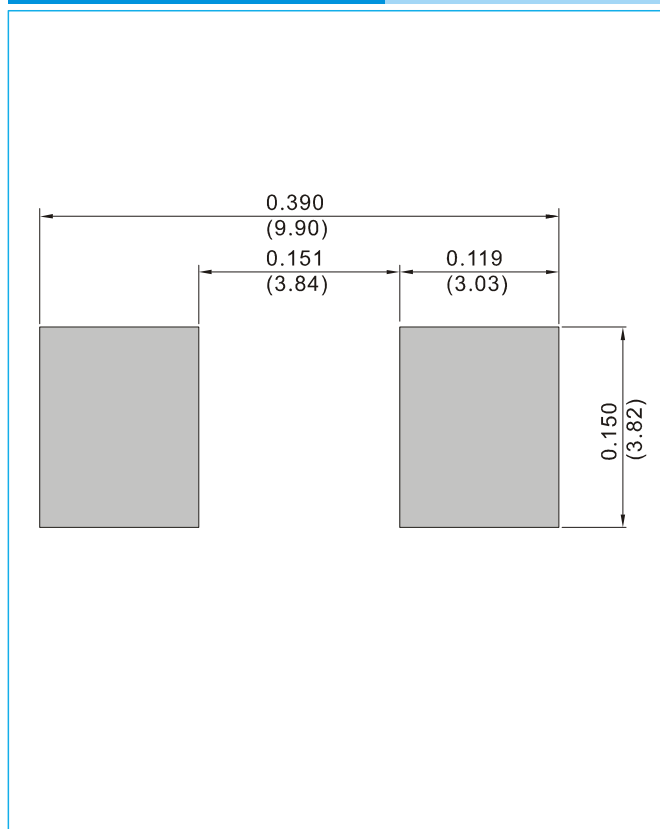
**Fig.4 Typical Capacitance**

## 1.5SMCJ5.0A ~ 1.5SMCJ220CA Series

### MOUNTING PAD LAYOUT

**SMC / DO-214AB**

Unit : inch(mm)



### ORDER INFORMATION

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

## **1.5SMCJ5.0A ~ 1.5SMCJ220CA Series**

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