# 1.5SMCJ SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE** | **5.0 to 220 Volts** | **PEAK PULSE POWER** | **1500 Watts** | **SMC/DO-214AB** | Unit: inch (mm)

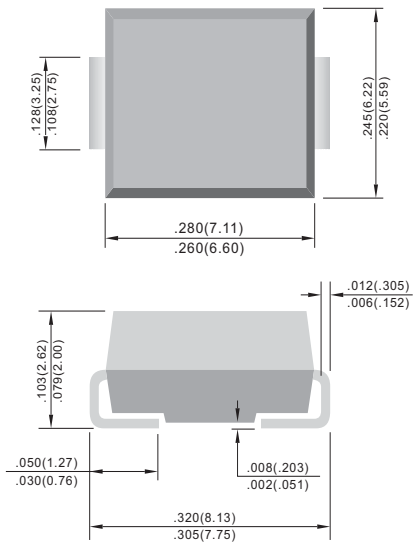
**Recongnized File # E210467**

### FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- In compliance with EU RoHS 2002/95/EC directives

### 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 positive end (cathode)
- Standard Packaging:16mm tape (EIA-481)
- Weight: 0.007 ounce, 0.021 gram




### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5SMCJ5.0 thru types 1.5SMCJ220.
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°Cambient 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°C,$T_P$=1ms(Note1,2,Fig1) | $P_{PPM}$ | 1500 | Watts |
| Peak Forward Surge Cunent,8.3ms single halfsine-wave (Note 2,3) | $I_{FSM}$ | 100 | Amps |
| Peak Pulse Current on 10/1000s waveform (Note1,Fig.3) | $I_{PPM}$ | See Table 1 | Amps |
| Operating Junction and Storage Temperature Range | $T_J$,$T_{STG}$ | -55 to +150 | °C |
| Maximum Thermal Resistance | $R_{\theta JA}$<br>$R_{\theta JL}$ | 75<br>15 | °C / W |

NOTES:
1.Non-repetitive current pulse, per Fig. 3 and derated above $T_A$=25°Cper Fig. 2.
2.Mounted on 5.0mm² ( .013mm thick) land areas.
3.Measured on 8.3ms , single half sine-wave or equivalent square wave , duty cycle= 4 pulses per minutes maximum.

# 1.5SMCJ SERIES

| Part Number | | $V_{RWM}$ | $V_{BR}$ @ $I_T$ | | | $I_R$ @ $V_{RWM}$ | | $V_C$ @ $I_{PP}$ | | Marking Code | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min. | Max. | $I_T$ | UNI- | BI- | | | | |
| UNI- | BI- | V | V | V | mA | µA | µA | V | A | UNI- | BI- |
| **1500W Transient Voltage Suppressor** | | | | | | | | | | | |
| 1.5SMCJ5.0 | 1.5SMCJ5.0C | 5 | 6.4 | 7.55 | 10 | 1000 | 2000 | 9.6 | 156.2 | GDD | BDD |
| 1.5SMCJ5.0A | 1.5SMCJ5.0CA | 5 | 6.4 | 7.25 | 10 | 1000 | 2000 | 9.2 | 163 | GDE | BDE |
| 1.5SMCJ6.0 | 1.5SMCJ6.0C | 6 | 6.67 | 8.45 | 10 | 1000 | 2000 | 11.4 | 131.6 | GDF | BDF |
| 1.5SMCJ6.0A | 1.5SMCJ6.0CA | 6 | 6.67 | 7.67 | 10 | 1000 | 2000 | 10.3 | 145.6 | GDG | BDG |
| 1.5SMCJ6.5 | 1.5SMCJ6.5C | 6.5 | 7.22 | 9.14 | 10 | 500 | 1000 | 12.3 | 122 | GDH | BDH |
| 1.5SMCJ6.5A | 1.5SMCJ6.5CA | 6.5 | 7.22 | 8 | 10 | 500 | 1000 | 11.2 | 133.9 | GDK | BDK |
| 1.5SMCJ7.0 | 1.5SMCJ7.0C | 7 | 7.78 | 9.86 | 10 | 200 | 400 | 13.3 | 112.8 | GDL | BDL |
| 1.5SMCJ7.0A | 1.5SMCJ7.0CA | 7 | 7.78 | 8.95 | 10 | 200 | 400 | 12 | 125 | GDM | BDM |
| 1.5SMCJ7.5 | 1.5SMCJ7.5C | 7.5 | 8.33 | 10.67 | 1 | 100 | 200 | 14.3 | 104.9 | GDN | BDN |
| 1.5SMCJ7.5A | 1.5SMCJ7.5CA | 7.5 | 8.33 | 9.58 | 1 | 100 | 200 | 12.9 | 116.3 | GDP | BDP |
| 1.5SMCJ8.0 | 1.5SMCJ8.0C | 8 | 8.89 | 11 | 1 | 50 | 100 | 15 | 100 | GDQ | BDQ |
| 1.5SMCJ8.0A | 1.5SMCJ8.0CA | 8 | 8.89 | 10.23 | 1 | 50 | 100 | 13.6 | 110.3 | GDR | BDR |
| 1.5SMCJ8.5 | 1.5SMCJ8.5C | 8.5 | 9.44 | 11.92 | 1 | 25 | 50 | 15.9 | 94.3 | GDS | BDS |
| 1.5SMCJ8.5A | 1.5SMCJ8.5CA | 8.5 | 9.44 | 10.82 | 1 | 25 | 50 | 14.4 | 104.2 | GDT | BDT |
| 1.5SMCJ9.0 | 1.5SMCJ9.0C | 9 | 10 | 12.6 | 1 | 10 | 20 | 16.9 | 88.7 | GDU | BDU |
| 1.5SMCJ9.0A | 1.5SMCJ9.0CA | 9 | 10 | 11.5 | 1 | 10 | 20 | 15.4 | 97.4 | GDV | BDV |
| 1.5SMCJ10 | 1.5SMCJ10C | 10 | 11.1 | 14.1 | 1 | 5 | 5 | 18.8 | 79.8 | GDW | BDW |
| 1.5SMCJ10A | 1.5SMCJ10CA | 10 | 11.1 | 12.8 | 1 | 5 | 5 | 17 | 88.2 | GDX | BDX |
| 1.5SMCJ11 | 1.5SMCJ11C | 11 | 12.2 | 15.4 | 1 | 5 | 5 | 20.1 | 74.6 | GDY | BDY |
| 1.5SMCJ11A | 1.5SMCJ11CA | 11 | 12.2 | 14 | 1 | 5 | 5 | 18.2 | 82.4 | GDZ | BDZ |
| 1.5SMCJ12 | 1.5SMCJ12C | 12 | 13.3 | 16.9 | 1 | 5 | 5 | 22 | 68.2 | GED | BED |
| 1.5SMCJ12A | 1.5SMCJ12CA | 12 | 13.3 | 15.3 | 1 | 5 | 5 | 19.9 | 75.3 | GEE | BEE |
| 1.5SMCJ13 | 1.5SMCJ13C | 13 | 14.4 | 18.2 | 1 | 5 | 5 | 23.8 | 63 | GEF | BEF |
| 1.5SMCJ13A | 1.5SMCJ13CA | 13 | 14.4 | 16.5 | 1 | 5 | 5 | 21.5 | 69.7 | GEG | BEG |
| 1.5SMCJ14 | 1.5SMCJ14C | 14 | 15.6 | 19.8 | 1 | 5 | 5 | 25.8 | 58.1 | GEH | BEH |
| 1.5SMCJ14A | 1.5SMCJ14CA | 14 | 15.6 | 17.9 | 1 | 5 | 5 | 23.2 | 64.7 | GEK | BEK |
| 1.5SMCJ15 | 1.5SMCJ15C | 15 | 16.7 | 21.1 | 1 | 5 | 5 | 26.9 | 55.8 | GEL | BEL |
| 1.5SMCJ15A | 1.5SMCJ15CA | 15 | 16.7 | 19.2 | 1 | 5 | 5 | 24.4 | 61.5 | GEM | BEM |
| 1.5SMCJ16 | 1.5SMCJ16C | 16 | 17.8 | 22.6 | 1 | 5 | 5 | 28.8 | 52.1 | GEN | BEN |
| 1.5SMCJ16A | 1.5SMCJ16CA | 16 | 17.8 | 20.5 | 1 | 5 | 5 | 26 | 57.7 | GEP | BEP |
| 1.5SMCJ17 | 1.5SMCJ17C | 17 | 18.9 | 23.9 | 1 | 5 | 5 | 30.5 | 49.2 | GEQ | BEQ |
| 1.5SMCJ17A | 1.5SMCJ17CA | 17 | 18.9 | 21.7 | 1 | 5 | 5 | 27.6 | 53.3 | GER | BER |
| 1.5SMCJ18 | 1.5SMCJ18C | 18 | 20 | 25.3 | 1 | 5 | 5 | 32.2 | 46.6 | GES | BES |
| 1.5SMCJ18A | 1.5SMCJ18CA | 18 | 20 | 23.3 | 1 | 5 | 5 | 29.2 | 51.4 | GET | BET |
| 1.5SMCJ20 | 1.5SMCJ20C | 20 | 22.2 | 28.1 | 1 | 5 | 5 | 35.8 | 41.9 | GEU | BEU |
| 1.5SMCJ20A | 1.5SMCJ20CA | 20 | 22.2 | 25.5 | 1 | 5 | 5 | 32.4 | 46.3 | GEV | BEV |
| 1.5SMCJ22 | 1.5SMCJ22C | 22 | 24.4 | 30.9 | 1 | 5 | 5 | 39.4 | 38.1 | GEW | BEW |
| 1.5SMCJ22A | 1.5SMCJ22CA | 22 | 24.4 | 28 | 1 | 5 | 5 | 35.5 | 42.2 | GEX | BEX |
| 1.5SMCJ24 | 1.5SMCJ24C | 24 | 26.7 | 33.8 | 1 | 5 | 5 | 43 | 34.9 | GEY | BEY |
| 1.5SMCJ24A | 1.5SMCJ24CA | 24 | 26.7 | 30.7 | 1 | 5 | 5 | 38.9 | 38.6 | GEZ | BEZ |
| 1.5SMCJ26 | 1.5SMCJ26C | 26 | 28.9 | 36.6 | 1 | 5 | 5 | 46.6 | 32.2 | GFD | BFD |
| 1.5SMCJ26A | 1.5SMCJ26CA | 26 | 28.9 | 33.2 | 1 | 5 | 5 | 42.1 | 35.6 | GFE | BFE |
| 1.5SMCJ28 | 1.5SMCJ28C | 28 | 31.1 | 39.4 | 1 | 5 | 5 | 50 | 30 | GFF | BFF |
| 1.5SMCJ28A | 1.5SMCJ28CA | 28 | 31.1 | 35.8 | 1 | 5 | 5 | 45.4 | 33 | GFG | BFG |
| 1.5SMCJ30 | 1.5SMCJ30C | 30 | 33.3 | 42.2 | 1 | 5 | 5 | 53.5 | 28 | GFH | BFH |
| 1.5SMCJ30A | 1.5SMCJ30CA | 30 | 33.3 | 38.3 | 1 | 5 | 5 | 48.4 | 31 | GFK | BFK |
| 1.5SMCJ33 | 1.5SMCJ33C | 33 | 36.7 | 46.5 | 1 | 5 | 5 | 59 | 25.2 | GFL | BFL |
| 1.5SMCJ33A | 1.5SMCJ33CA | 33 | 36.7 | 42.2 | 1 | 5 | 5 | 53.3 | 28.1 | GFM | BFM |
| 1.5SMCJ36 | 1.5SMCJ36C | 36 | 40 | 50.7 | 1 | 5 | 5 | 64.3 | 23.3 | GFN | BFN |
| 1.5SMCJ36A | 1.5SMCJ36CA | 36 | 40 | 46 | 1 | 5 | 5 | 58.1 | 25.8 | GFP | BFP |
| 1.5SMCJ40 | 1.5SMCJ40C | 40 | 44.4 | 56.3 | 1 | 5 | 5 | 71.4 | 21 | GFQ | BFQ |
| 1.5SMCJ40A | 1.5SMCJ40CA | 40 | 44.4 | 51.1 | 1 | 5 | 5 | 64.5 | 23.2 | GFR | BFR |

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| Part Number | | $V_{RWM}$ | $V_{BR}$ @ $I_T$ | | | $I_R$ @ $V_{RWM}$ | | $V_C$ @ $I_{PP}$ | | Marking Code | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min. | Max. | $I_T$ | UNI- | BI- | | | | |
| UNI- | BI- | V | V | V | mA | µA | µA | V | A | UNI- | BI- |
| **1500W Transient Voltage Suppressor** | | | | | | | | | | | |
| 1.5SMCJ43 | 1.5SMCJ43C | 43 | 47.8 | 61 | 1 | 5 | 5 | 76.7 | 19.6 | GFS | BFS |
| 1.5SMCJ43A | 1.5SMCJ43CA | 43 | 47.8 | 55 | 1 | 5 | 5 | 69.4 | 21.6 | GFT | BFT |
| 1.5SMCJ45 | 1.5SMCJ45C | 45 | 50 | 63 | 1 | 5 | 5 | 80.3 | 18.7 | GFU | BFU |
| 1.5SMCJ45A | 1.5SMCJ45CA | 45 | 50 | 57.5 | 1 | 5 | 5 | 72.7 | 20.6 | GFV | BFV |
| 1.5SMCJ48 | 1.5SMCJ48C | 48 | 53.3 | 67.5 | 1 | 5 | 5 | 85.5 | 17.5 | GFW | BFW |
| 1.5SMCJ48A | 1.5SMCJ48CA | 48 | 53.3 | 61.3 | 1 | 5 | 5 | 77.4 | 19.4 | GFX | BFX |
| 1.5SMCJ51 | 1.5SMCJ51C | 51 | 56.7 | 71.8 | 1 | 5 | 5 | 91.1 | 18.5 | GFY | BFY |
| 1.5SMCJ51A | 1.5SMCJ51CA | 51 | 56.7 | 65.2 | 1 | 5 | 5 | 82.4 | 18.2 | GFZ | BFZ |
| 1.5SMCJ54 | 1.5SMCJ54C | 54 | 60 | 76 | 1 | 5 | 5 | 96.3 | 15.6 | GGD | BGD |
| 1.5SMCJ54A | 1.5SMCJ54CA | 54 | 60 | 69 | 1 | 5 | 5 | 87.1 | 17.2 | GGE | BGE |
| 1.5SMCJ58 | 1.5SMCJ58C | 58 | 64.4 | 81.6 | 1 | 5 | 5 | 103 | 14.6 | GGF | BGF |
| 1.5SMCJ58A | 1.5SMCJ58CA | 58 | 64.4 | 74.1 | 1 | 5 | 5 | 93.6 | 16 | GGG | BGG |
| 1.5SMCJ60 | 1.5SMCJ60C | 60 | 66.7 | 84.5 | 1 | 5 | 5 | 107 | 14 | GGH | BGH |
| 1.5SMCJ60A | 1.5SMCJ60CA | 60 | 66.7 | 76.7 | 1 | 5 | 5 | 96.8 | 15.5 | GGK | BGK |
| 1.5SMCJ64 | 1.5SMCJ64C | 64 | 71.1 | 90.1 | 1 | 5 | 5 | 114 | 13.2 | GGL | BGL |
| 1.5SMCJ64A | 1.5SMCJ64CA | 64 | 71.1 | 81.8 | 1 | 5 | 5 | 103 | 14.6 | GGM | BGM |
| 1.5SMCJ70 | 1.5SMCJ70C | 70 | 77.8 | 98.6 | 1 | 5 | 5 | 125 | 12 | GGN | BGN |
| 1.5SMCJ70A | 1.5SMCJ70CA | 70 | 77.8 | 89.5 | 1 | 5 | 5 | 113 | 13.3 | GGP | BGP |
| 1.5SMCJ75 | 1.5SMCJ75C | 75 | 83.3 | 105.7 | 1 | 5 | 5 | 134 | 11.2 | GGQ | BGQ |
| 1.5SMCJ75A | 1.5SMCJ75CA | 75 | 83.3 | 95.8 | 1 | 5 | 5 | 121 | 12.4 | GGR | BGR |
| 1.5SMCJ78 | 1.5SMCJ78C | 78 | 86.7 | 109.8 | 1 | 5 | 5 | 139 | 10.8 | GGS | BGS |
| 1.5SMCJ78A | 1.5SMCJ78CA | 78 | 86.7 | 99.7 | 1 | 5 | 5 | 126 | 11.4 | GGT | BGT |
| 1.5SMCJ85 | 1.5SMCJ85C | 85 | 94.4 | 119.2 | 1 | 5 | 5 | 151 | 9.9 | GGU | BGU |
| 1.5SMCJ85A | 1.5SMCJ85CA | 85 | 94.4 | 108.2 | 1 | 5 | 5 | 137 | 10.4 | GGV | BGV |
| 1.5SMCJ90 | 1.5SMCJ90C | 90 | 100 | 126.5 | 1 | 5 | 5 | 160 | 9.4 | GGW | BGW |
| 1.5SMCJ90A | 1.5SMCJ90CA | 90 | 100 | 115.5 | 1 | 5 | 5 | 146 | 10.3 | GGX | BGX |
| 1.5SMCJ100 | 1.5SMCJ100C | 100 | 111 | 141 | 1 | 5 | 5 | 179 | 8.4 | GGY | BGY |
| 1.5SMCJ100A | 1.5SMCJ100CA | 100 | 111 | 128 | 1 | 5 | 5 | 162 | 9.3 | GGZ | BGZ |
| 1.5SMCJ110 | 1.5SMCJ110C | 110 | 122 | 154.5 | 1 | 5 | 5 | 196 | 7.7 | GHD | BHD |
| 1.5SMCJ110A | 1.5SMCJ110CA | 110 | 122 | 140.5 | 1 | 5 | 5 | 177 | 8.4 | GHE | BHE |
| 1.5SMCJ120 | 1.5SMCJ120C | 120 | 133 | 169 | 1 | 5 | 5 | 214 | 7 | GHF | BHF |
| 1.5SMCJ120A | 1.5SMCJ120CA | 120 | 133 | 153 | 1 | 5 | 5 | 193 | 7.9 | GHG | BHG |
| 1.5SMCJ130 | 1.5SMCJ130C | 130 | 144 | 182.5 | 1 | 5 | 5 | 231 | 6.5 | GHH | BHH |
| 1.5SMCJ130A | 1.5SMCJ130CA | 130 | 144 | 165.5 | 1 | 5 | 5 | 209 | 7.2 | GHK | BHK |
| 1.5SMCJ150 | 1.5SMCJ150C | 150 | 167 | 211.5 | 1 | 5 | 5 | 268 | 5.6 | GHL | BHL |
| 1.5SMCJ150A | 1.5SMCJ150CA | 150 | 167 | 192.5 | 1 | 5 | 5 | 243 | 6.2 | GHM | BHM |
| 1.5SMCJ160 | 1.5SMCJ160C | 160 | 178 | 226 | 1 | 5 | 5 | 287 | 5.2 | GHN | BHN |
| 1.5SMCJ160A | 1.5SMCJ160CA | 160 | 178 | 205 | 1 | 5 | 5 | 259 | 5.8 | GHP | BHP |
| 1.5SMCJ170 | 1.5SMCJ170C | 170 | 189 | 239.5 | 1 | 5 | 5 | 304 | 4.9 | GHQ | BHQ |
| 1.5SMCJ170A | 1.5SMCJ170CA | 170 | 189 | 217.5 | 1 | 5 | 5 | 275 | 5.5 | GHR | BHR |
| 1.5SMCJ180 | 1.5SMCJ180C | 180 | 198 | 253.8 | 1 | 5 | 5 | 322 | 4.7 | GHS | BHS |
| 1.5SMCJ180A | 1.5SMCJ180CA | 180 | 198 | 230.4 | 1 | 5 | 5 | 292 | 5.1 | GHT | BHT |
| 1.5SMCJ190 | 1.5SMCJ190C | 190 | 209 | 267.9 | 1 | 5 | 5 | 340 | 4.4 | GHU | BHU |
| 1.5SMCJ190A | 1.5SMCJ190CA | 190 | 209 | 243.2 | 1 | 5 | 5 | 308 | 4.8 | GHV | BHV |
| 1.5SMCJ200 | 1.5SMCJ200C | 200 | 220 | 282 | 1 | 5 | 5 | 358 | 4.1 | GHW | BHW |
| 1.5SMCJ200A | 1.5SMCJ200CA | 200 | 220 | 256 | 1 | 5 | 5 | 324 | 4.6 | GHX | BHX |
| 1.5SMCJ210 | 1.5SMCJ210C | 210 | 231 | 296.1 | 1 | 5 | 5 | 376 | 4 | GHY | BHY |
| 1.5SMCJ210A | 1.5SMCJ210CA | 210 | 231 | 268.8 | 1 | 5 | 5 | 340 | 4.4 | GHZ | BHZ |
| 1.5SMCJ220 | 1.5SMCJ220C | 220 | 242 | 310.2 | 1 | 5 | 5 | 394 | 3.8 | GID | BID |
| 1.5SMCJ220A | 1.5SMCJ220CA | 220 | 242 | 281.6 | 1 | 5 | 5 | 356 | 4.2 | GIE | BIE |

# 1.5SMCJ SERIES

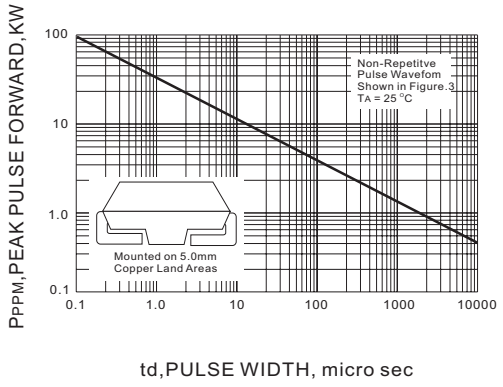



**Fig.1 PEAK PULSE POWER RATING CURVE**

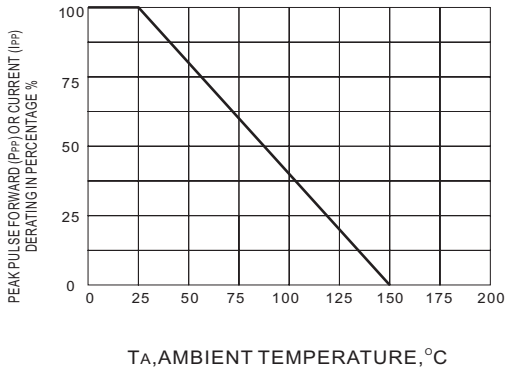



**Fig.2 DERATING CURVE**

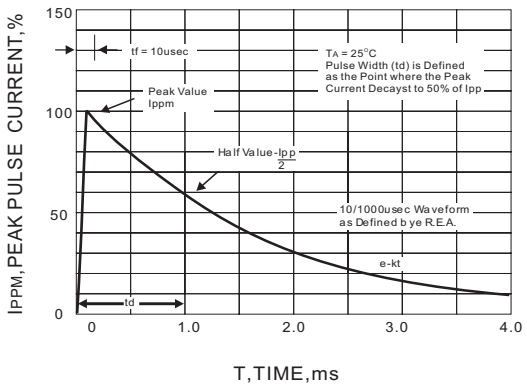



**Fig.3 PULSE WAVEFORM**

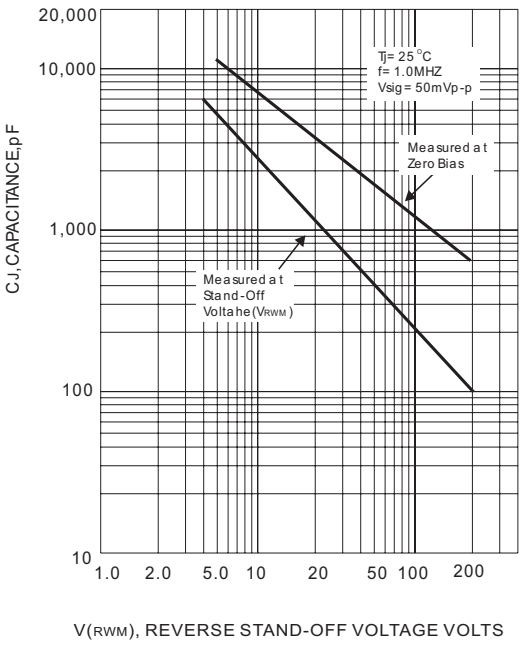



**Fig.4 TYPICAL CAPACITANCE**

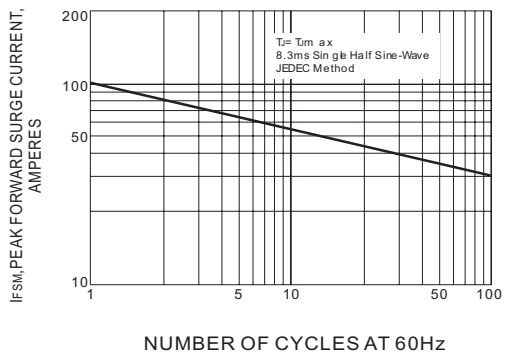



**Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**

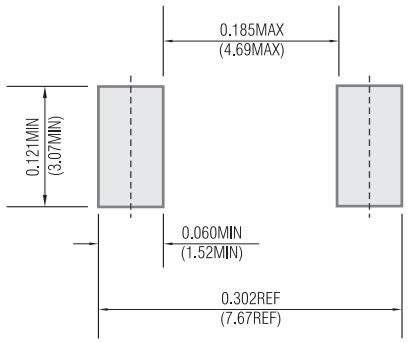
**PLEASE REFER THE TVS APPLICATION NOTE IN PANJIT WEBSITE**

**http://www.panjit.com/protection-transient-voltage-suppressors.html**

# 1.5SMCJ SERIES

## MOUNTING PAD LAYOUT

SMC/DO-214AB Unit: inch ( mm )




## ORDER INFORMATION

- Packing information

  T/R - 3K per 13" plastic Reel

  T/R - 0.5Kper 7" plastic Reel

## LEGAL STATEMENT

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