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# SMCJ5.0 thru SMCJ188CA

Vishay General Semiconductor

## Surface Mount TRANSZORB® Transient Voltage Suppressors



DO-214AB (SMC)

### PRIMARY CHARACTERISTICS

|                                  |                |
|----------------------------------|----------------|
| $V_{WM}$                         | 5.0 V to 188 V |
| $P_{PPM}$                        | 1500 W         |
| $P_D$                            | 6.5 W          |
| $I_{FSM}$ (uni-directional only) | 200 A          |
| $T_J$ max.                       | 150 °C         |

### DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional devices use C or CA suffix (e.g. SMCJ188CA).

Electrical characteristics apply in both directions.

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

### MECHANICAL DATA

**Case:** DO-214AB (SMCJ)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Base P/NHE3 - RoHS compliant, high reliability/automotive grade (AEC Q101 qualified)

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                                   | SYMBOL         | VALUE          | UNIT |
|---------------------------------------------------------------------------------------------|----------------|----------------|------|
| Peak pulse power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)(2)</sup>              | $P_{PPM}$      | 1500           | W    |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                           | $I_{PPM}$      | See next table | A    |
| Peak forward surge current 8.3 ms single half sine-wave uni-directional only <sup>(2)</sup> | $I_{FSM}$      | 200            | A    |
| Power dissipation on infinite heatsink, $T_A = 50$ °C                                       | $P_D$          | 6.5            | W    |
| Operating junction and storage temperature range                                            | $T_J, T_{STG}$ | - 55 to + 150  | °C   |

#### Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25$  °C per Fig. 2

(2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| DEVICE TYPE<br>MODIFIED<br>"J" BEND LEAD | DEVICE MARKING<br>CODE |     | BREAKDOWN<br>VOLTAGE<br>$V_{BR}$ AT $I_T$ <sup>(1)</sup><br>(V) |      | TEST<br>CURRENT<br>$I_T$<br>(mA) | STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br>(V) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>AT $V_{WM}$<br>$I_D$ ( $\mu\text{A}$ ) <sup>(3)</sup> | MAXIMUM<br>PEAK PULSE<br>SURGE<br>CURRENT<br>$I_{PPM}$ (A) <sup>(2)</sup> | MAXIMUM<br>CLAMPING<br>VOLTAGE AT<br>$I_{PPM}$<br>$V_C$ (V) |
|------------------------------------------|------------------------|-----|-----------------------------------------------------------------|------|----------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------|
|                                          | UNI                    | BI  | MIN.                                                            | MAX. |                                  |                                         |                                                                                        |                                                                           |                                                             |
| (+)SMCJ5.0                               | GDD                    | GDD | 6.40                                                            | 7.82 | 10.0                             | 5.0                                     | 1000                                                                                   | 156.3                                                                     | 9.6                                                         |
| (+)SMCJ5.0A <sup>(5)</sup>               | GDE                    | GDE | 6.40                                                            | 7.07 | 10.0                             | 5.0                                     | 1000                                                                                   | 163.0                                                                     | 9.2                                                         |
| (+)SMCJ6.0                               | GDF                    | GDF | 6.67                                                            | 8.15 | 10.0                             | 6.0                                     | 1000                                                                                   | 131.6                                                                     | 11.4                                                        |
| (+)SMCJ6.0A                              | GDG                    | GDG | 6.67                                                            | 7.37 | 10.0                             | 6.0                                     | 1000                                                                                   | 145.6                                                                     | 10.3                                                        |
| (+)SMCJ6.5                               | GDH                    | BDH | 7.22                                                            | 8.82 | 10.0                             | 6.5                                     | 500                                                                                    | 122.0                                                                     | 12.3                                                        |
| (+)SMCJ6.5A                              | GDK                    | BDK | 7.22                                                            | 7.98 | 10.0                             | 6.5                                     | 500                                                                                    | 133.9                                                                     | 11.2                                                        |
| (+)SMCJ7.0                               | GDL                    | GDL | 7.78                                                            | 9.51 | 10.0                             | 7.0                                     | 200                                                                                    | 112.8                                                                     | 13.3                                                        |
| (+)SMCJ7.0A                              | GDM                    | GDM | 7.78                                                            | 8.60 | 10.0                             | 7.0                                     | 200                                                                                    | 125.0                                                                     | 12.0                                                        |
| (+)SMCJ7.5                               | GDN                    | BDN | 8.33                                                            | 10.2 | 1.0                              | 7.5                                     | 100                                                                                    | 104.9                                                                     | 14.3                                                        |
| (+)SMCJ7.5A                              | GDP                    | BDP | 8.33                                                            | 9.21 | 1.0                              | 7.5                                     | 100                                                                                    | 116.3                                                                     | 12.9                                                        |
| (+)SMCJ8.0                               | GDQ                    | BDG | 8.89                                                            | 10.9 | 1.0                              | 8.0                                     | 50                                                                                     | 100.0                                                                     | 15.0                                                        |
| (+)SMCJ8.0A                              | GDR                    | BDR | 8.89                                                            | 9.83 | 1.0                              | 8.0                                     | 50                                                                                     | 110.3                                                                     | 13.6                                                        |
| (+)SMCJ8.5                               | GDS                    | BDS | 9.44                                                            | 11.5 | 1.0                              | 8.5                                     | 20                                                                                     | 94.3                                                                      | 15.9                                                        |
| (+)SMCJ8.5A                              | GDT                    | BDT | 9.44                                                            | 10.4 | 1.0                              | 8.5                                     | 20                                                                                     | 104.2                                                                     | 14.4                                                        |
| (+)SMCJ9.0                               | GDU                    | BDU | 10.0                                                            | 12.2 | 1.0                              | 9.0                                     | 10                                                                                     | 88.8                                                                      | 16.9                                                        |
| (+)SMCJ9.0A                              | GDV                    | BDV | 10.0                                                            | 11.1 | 1.0                              | 9.0                                     | 10                                                                                     | 97.4                                                                      | 15.4                                                        |
| (+)SMCJ10                                | GDW                    | BDW | 11.1                                                            | 13.6 | 1.0                              | 10                                      | 5.0                                                                                    | 79.8                                                                      | 18.8                                                        |
| (+)SMCJ10A                               | GDX                    | BDX | 11.1                                                            | 12.3 | 1.0                              | 10                                      | 5.0                                                                                    | 88.2                                                                      | 17.0                                                        |
| (+)SMCJ11                                | GDY                    | GDY | 12.2                                                            | 14.9 | 1.0                              | 11                                      | 5.0                                                                                    | 74.6                                                                      | 20.1                                                        |
| (+)SMCJ11A                               | GDZ                    | GDZ | 12.2                                                            | 13.5 | 1.0                              | 11                                      | 5.0                                                                                    | 82.4                                                                      | 18.2                                                        |
| (+)SMCJ12                                | GED                    | BED | 13.3                                                            | 16.3 | 1.0                              | 12                                      | 5.0                                                                                    | 68.2                                                                      | 22.0                                                        |
| (+)SMCJ12A                               | GEE                    | BEE | 13.3                                                            | 14.7 | 1.0                              | 12                                      | 5.0                                                                                    | 75.4                                                                      | 19.9                                                        |
| (+)SMCJ13                                | GEF                    | GEF | 14.4                                                            | 17.6 | 1.0                              | 13                                      | 1.0                                                                                    | 63.0                                                                      | 23.8                                                        |
| (+)SMCJ13A                               | GEG                    | GEG | 14.4                                                            | 15.9 | 1.0                              | 13                                      | 1.0                                                                                    | 69.8                                                                      | 21.5                                                        |
| (+)SMCJ14                                | GEH                    | BEH | 15.6                                                            | 19.1 | 1.0                              | 14                                      | 1.0                                                                                    | 58.1                                                                      | 25.8                                                        |
| (+)SMCJ14A                               | GEK                    | BEK | 15.6                                                            | 17.2 | 1.0                              | 14                                      | 1.0                                                                                    | 64.7                                                                      | 23.2                                                        |
| (+)SMCJ15                                | GEL                    | BEL | 16.7                                                            | 20.4 | 1.0                              | 15                                      | 1.0                                                                                    | 55.8                                                                      | 26.9                                                        |
| (+)SMCJ15A                               | GEM                    | BEM | 16.7                                                            | 18.5 | 1.0                              | 15                                      | 1.0                                                                                    | 61.5                                                                      | 24.4                                                        |
| (+)SMCJ16                                | GEN                    | GEN | 17.8                                                            | 21.8 | 1.0                              | 16                                      | 1.0                                                                                    | 52.1                                                                      | 28.8                                                        |
| (+)SMCJ16A                               | GEP                    | GEP | 17.8                                                            | 19.7 | 1.0                              | 16                                      | 1.0                                                                                    | 57.7                                                                      | 26.0                                                        |
| (+)SMCJ17                                | GEQ                    | GEQ | 18.9                                                            | 23.1 | 1.0                              | 17                                      | 1.0                                                                                    | 49.2                                                                      | 30.5                                                        |
| (+)SMCJ17A                               | GER                    | GER | 18.9                                                            | 20.9 | 1.0                              | 17                                      | 1.0                                                                                    | 54.3                                                                      | 27.6                                                        |
| (+)SMCJ18                                | GES                    | BES | 20.0                                                            | 24.4 | 1.0                              | 18                                      | 1.0                                                                                    | 46.6                                                                      | 32.2                                                        |
| (+)SMCJ18A                               | GET                    | BET | 20.0                                                            | 22.1 | 1.0                              | 18                                      | 1.0                                                                                    | 51.4                                                                      | 29.2                                                        |
| (+)SMCJ20                                | GEU                    | BEU | 22.2                                                            | 27.1 | 1.0                              | 20                                      | 1.0                                                                                    | 41.9                                                                      | 35.8                                                        |
| (+)SMCJ20A                               | GEV                    | BEV | 22.2                                                            | 24.5 | 1.0                              | 20                                      | 1.0                                                                                    | 46.3                                                                      | 32.4                                                        |
| (+)SMCJ22                                | GEW                    | BEW | 24.4                                                            | 29.8 | 1.0                              | 22                                      | 1.0                                                                                    | 38.1                                                                      | 39.4                                                        |
| (+)SMCJ22A                               | GEX                    | BEX | 24.4                                                            | 26.9 | 1.0                              | 22                                      | 1.0                                                                                    | 42.3                                                                      | 35.5                                                        |
| (+)SMCJ24                                | GEY                    | BEY | 26.7                                                            | 32.6 | 1.0                              | 24                                      | 1.0                                                                                    | 34.9                                                                      | 43.0                                                        |
| (+)SMCJ24A                               | GEZ                    | BEZ | 26.7                                                            | 29.5 | 1.0                              | 24                                      | 1.0                                                                                    | 38.6                                                                      | 38.9                                                        |
| (+)SMCJ26                                | GFD                    | BFD | 28.9                                                            | 35.3 | 1.0                              | 26                                      | 1.0                                                                                    | 32.2                                                                      | 46.6                                                        |
| (+)SMCJ26A                               | GFE                    | BFE | 28.9                                                            | 31.9 | 1.0                              | 26                                      | 1.0                                                                                    | 35.6                                                                      | 42.1                                                        |
| (+)SMCJ28                                | GFF                    | BFF | 31.1                                                            | 38.0 | 1.0                              | 28                                      | 1.0                                                                                    | 30.0                                                                      | 50.0                                                        |
| (+)SMCJ28A                               | GFG                    | BFG | 31.1                                                            | 34.4 | 1.0                              | 28                                      | 1.0                                                                                    | 33.0                                                                      | 45.4                                                        |
| (+)SMCJ30                                | GFH                    | BFH | 33.3                                                            | 40.7 | 1.0                              | 30                                      | 1.0                                                                                    | 28.0                                                                      | 53.5                                                        |
| (+)SMCJ30A                               | GFK                    | BFK | 33.3                                                            | 36.8 | 1.0                              | 30                                      | 1.0                                                                                    | 31.0                                                                      | 48.4                                                        |
| (+)SMCJ33                                | GFL                    | BFL | 36.7                                                            | 44.9 | 1.0                              | 33                                      | 1.0                                                                                    | 25.4                                                                      | 59.0                                                        |
| (+)SMCJ33A                               | GFM                    | BFM | 36.7                                                            | 40.6 | 1.0                              | 33                                      | 1.0                                                                                    | 28.1                                                                      | 53.3                                                        |
| (+)SMCJ36                                | GFN                    | BFN | 40.0                                                            | 48.9 | 1.0                              | 36                                      | 1.0                                                                                    | 23.3                                                                      | 64.3                                                        |
| (+)SMCJ36A                               | GFP                    | BFP | 40.0                                                            | 44.2 | 1.0                              | 36                                      | 1.0                                                                                    | 25.8                                                                      | 58.1                                                        |
| (+)SMCJ40                                | GFQ                    | BFQ | 44.4                                                            | 54.3 | 1.0                              | 40                                      | 1.0                                                                                    | 21.0                                                                      | 71.4                                                        |
| (+)SMCJ40A                               | GFR                    | BFR | 44.4                                                            | 49.1 | 1.0                              | 40                                      | 1.0                                                                                    | 23.3                                                                      | 64.5                                                        |



# SMCJ5.0 thru SMCJ188CA

Vishay General Semiconductor

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| DEVICE TYPE<br>MODIFIED<br>"J" BEND LEAD | DEVICE MARKING<br>CODE |     | BREAKDOWN<br>VOLTAGE<br>$V_{BR}$ AT $I_T$ <sup>(1)</sup><br>(V) |      | TEST<br>CURRENT<br>$I_T$<br>(mA) | STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br>(V) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>AT $V_{WM}$<br>$I_D$ ( $\mu\text{A}$ ) <sup>(3)</sup> | MAXIMUM<br>PEAK PULSE<br>SURGE<br>CURRENT<br>$I_{PPM}$ (A) <sup>(2)</sup> | MAXIMUM<br>CLAMPING<br>VOLTAGE AT<br>$I_{PPM}$<br>$V_C$ (V) |
|------------------------------------------|------------------------|-----|-----------------------------------------------------------------|------|----------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------|
|                                          | UNI                    | BI  | MIN.                                                            | MAX. |                                  |                                         |                                                                                        |                                                                           |                                                             |
| (+)SMCJ43                                | GFS                    | BFS | 47.8                                                            | 58.4 | 1.0                              | 43                                      | 1.0                                                                                    | 19.6                                                                      | 76.7                                                        |
| (+)SMCJ43A                               | GFT                    | BFT | 47.8                                                            | 52.8 | 1.0                              | 43                                      | 1.0                                                                                    | 21.6                                                                      | 69.4                                                        |
| (+)SMCJ45                                | GFU                    | GFU | 50.0                                                            | 61.1 | 1.0                              | 45                                      | 1.0                                                                                    | 18.7                                                                      | 80.3                                                        |
| (+)SMCJ45A                               | GFV                    | GFV | 50.0                                                            | 55.3 | 1.0                              | 45                                      | 1.0                                                                                    | 20.6                                                                      | 72.7                                                        |
| (+)SMCJ48                                | GFW                    | GFW | 53.3                                                            | 65.1 | 1.0                              | 48                                      | 1.0                                                                                    | 17.5                                                                      | 85.5                                                        |
| (+)SMCJ48A                               | GFX                    | GFX | 53.3                                                            | 58.9 | 1.0                              | 48                                      | 1.0                                                                                    | 19.4                                                                      | 77.4                                                        |
| (+)SMCJ51                                | GFY                    | GFY | 56.7                                                            | 69.3 | 1.0                              | 51                                      | 1.0                                                                                    | 16.5                                                                      | 91.1                                                        |
| (+)SMCJ51A                               | GFZ                    | GFZ | 56.7                                                            | 62.7 | 1.0                              | 51                                      | 1.0                                                                                    | 18.2                                                                      | 82.4                                                        |
| (+)SMCJ54                                | GGD                    | GGD | 60.0                                                            | 73.3 | 1.0                              | 54                                      | 1.0                                                                                    | 15.6                                                                      | 96.3                                                        |
| (+)SMCJ54A                               | GGE                    | GGE | 60.0                                                            | 66.3 | 1.0                              | 54                                      | 1.0                                                                                    | 17.2                                                                      | 87.1                                                        |
| (+)SMCJ58                                | GGF                    | GGF | 64.4                                                            | 78.7 | 1.0                              | 58                                      | 1.0                                                                                    | 14.6                                                                      | 103                                                         |
| (+)SMCJ58A                               | GGG                    | GGG | 64.4                                                            | 71.2 | 1.0                              | 58                                      | 1.0                                                                                    | 16.0                                                                      | 93                                                          |
| (+)SMCJ60                                | GGH                    | GGH | 66.7                                                            | 81.5 | 1.0                              | 60                                      | 1.0                                                                                    | 14.0                                                                      | 107                                                         |
| (+)SMCJ60A                               | GGK                    | GGK | 66.7                                                            | 73.7 | 1.0                              | 60                                      | 1.0                                                                                    | 15.5                                                                      | 96                                                          |
| (+)SMCJ64                                | GGL                    | GGL | 71.1                                                            | 86.9 | 1.0                              | 64                                      | 1.0                                                                                    | 13.2                                                                      | 114                                                         |
| (+)SMCJ64A                               | GGM                    | GGM | 71.1                                                            | 78.6 | 1.0                              | 64                                      | 1.0                                                                                    | 14.6                                                                      | 103                                                         |
| (+)SMCJ70                                | GGN                    | GGN | 77.8                                                            | 95.1 | 1.0                              | 70                                      | 1.0                                                                                    | 12.0                                                                      | 125                                                         |
| (+)SMCJ70A                               | GGP                    | GGP | 77.8                                                            | 86.0 | 1.0                              | 70                                      | 1.0                                                                                    | 13.3                                                                      | 113                                                         |
| (+)SMCJ75                                | GGQ                    | GGQ | 83.3                                                            | 102  | 1.0                              | 75                                      | 1.0                                                                                    | 11.2                                                                      | 134                                                         |
| (+)SMCJ75A                               | GGR                    | GGR | 83.3                                                            | 92.1 | 1.0                              | 75                                      | 1.0                                                                                    | 12.4                                                                      | 121                                                         |
| (+)SMCJ78                                | GGS                    | GGS | 86.7                                                            | 106  | 1.0                              | 78                                      | 1.0                                                                                    | 10.8                                                                      | 139                                                         |
| (+)SMCJ78A                               | GGT                    | GGT | 86.7                                                            | 95.8 | 1.0                              | 78                                      | 1.0                                                                                    | 11.9                                                                      | 126                                                         |
| (+)SMCJ85                                | GGU                    | GGU | 94.4                                                            | 115  | 1.0                              | 85                                      | 1.0                                                                                    | 9.9                                                                       | 151                                                         |
| (+)SMCJ85A                               | GGV                    | GGV | 94.4                                                            | 104  | 1.0                              | 85                                      | 1.0                                                                                    | 10.9                                                                      | 137                                                         |
| (+)SMCJ90                                | GGW                    | GGW | 100                                                             | 122  | 1.0                              | 90                                      | 1.0                                                                                    | 9.4                                                                       | 160                                                         |
| (+)SMCJ90A                               | GGX                    | GGX | 100                                                             | 111  | 1.0                              | 90                                      | 1.0                                                                                    | 10.3                                                                      | 146                                                         |
| (+)SMCJ100                               | GGY                    | GGY | 111                                                             | 136  | 1.0                              | 100                                     | 1.0                                                                                    | 8.4                                                                       | 179                                                         |
| (+)SMCJ100A                              | GGZ                    | GGZ | 111                                                             | 123  | 1.0                              | 100                                     | 1.0                                                                                    | 9.3                                                                       | 162                                                         |
| (+)SMCJ110                               | GHD                    | GHD | 122                                                             | 149  | 1.0                              | 110                                     | 1.0                                                                                    | 7.7                                                                       | 196                                                         |
| (+)SMCJ110A                              | GHE                    | GHE | 122                                                             | 135  | 1.0                              | 110                                     | 1.0                                                                                    | 8.5                                                                       | 177                                                         |
| (+)SMCJ120                               | GHF                    | GHF | 133                                                             | 163  | 1.0                              | 120                                     | 1.0                                                                                    | 7.0                                                                       | 214                                                         |
| (+)SMCJ120A                              | GHG                    | GHG | 133                                                             | 147  | 1.0                              | 120                                     | 1.0                                                                                    | 7.8                                                                       | 193                                                         |
| (+)SMCJ130                               | GHH                    | GHH | 144                                                             | 176  | 1.0                              | 130                                     | 1.0                                                                                    | 6.5                                                                       | 231                                                         |
| (+)SMCJ130A                              | GHK                    | GHK | 144                                                             | 159  | 1.0                              | 130                                     | 1.0                                                                                    | 7.2                                                                       | 209                                                         |
| (+)SMCJ150                               | GHL                    | GHL | 167                                                             | 204  | 1.0                              | 150                                     | 1.0                                                                                    | 5.6                                                                       | 268                                                         |
| (+)SMCJ150A                              | GHM                    | GHM | 167                                                             | 185  | 1.0                              | 150                                     | 1.0                                                                                    | 6.2                                                                       | 243                                                         |
| (+)SMCJ160                               | GHN                    | GHN | 178                                                             | 218  | 1.0                              | 160                                     | 1.0                                                                                    | 5.2                                                                       | 287                                                         |
| (+)SMCJ160A                              | GHP                    | GHP | 178                                                             | 197  | 1.0                              | 160                                     | 1.0                                                                                    | 5.8                                                                       | 259                                                         |
| (+)SMCJ170                               | GHQ                    | GHQ | 189                                                             | 231  | 1.0                              | 170                                     | 1.0                                                                                    | 4.9                                                                       | 304                                                         |
| (+)SMCJ170A                              | GHR                    | GHR | 189                                                             | 209  | 1.0                              | 170                                     | 1.0                                                                                    | 5.5                                                                       | 275                                                         |
| SMCJ188                                  | GHT                    | GHT | 209                                                             | 255  | 1.0                              | 188                                     | 1.0                                                                                    | 4.4                                                                       | 344                                                         |
| SMCJ188A                                 | GHS                    | GHS | 209                                                             | 231  | 1.0                              | 188                                     | 1.0                                                                                    | 4.6                                                                       | 328                                                         |

### Notes:

- (1) Pulse test:  $t_p \leq 50$  ms
  - (2) Surge current waveform per Fig. 3 and derate per Fig. 2
  - (3) For bi-directional types having  $V_{WM}$  of 10 V and less, the  $I_D$  limit is doubled
  - (4) All terms and symbols are consistent with ANSI/IEEE C62.35
  - (5) For the bi-directional SMCJ5.0CA, the maximum  $V_{BR}$  is 7.25 V
  - (6)  $V_F = 3.5$  V at  $I_F = 100$  A (uni-directional only)
- (+) Underwriters laboratory recognition for the classification of protectors (QVGQ2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

**THERMAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| PARAMETER                                                          | SYMBOL          | VALUE | UNIT               |
|--------------------------------------------------------------------|-----------------|-------|--------------------|
| Typical thermal resistance, junction to ambient air <sup>(1)</sup> | $R_{\theta JA}$ | 75    | $^\circ\text{C/W}$ |
| Typical thermal resistance, junction to leads                      | $R_{\theta JL}$ | 15    | $^\circ\text{C/W}$ |

**Note:**

(1) Mounted on minimum recommended pad layout

**ORDERING INFORMATION** (Example)

| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| SMCJ5.0A-E3/57T                | 0.211           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SMCJ5.0A-E3/9AT                | 0.211           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SMCJ5.0AHE3/57T <sup>(1)</sup> | 0.211           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SMCJ5.0AHE3/9AT <sup>(1)</sup> | 0.211           | 9AT                    | 3500          | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

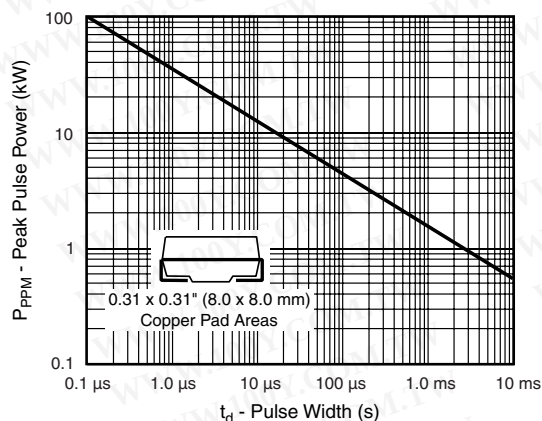
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

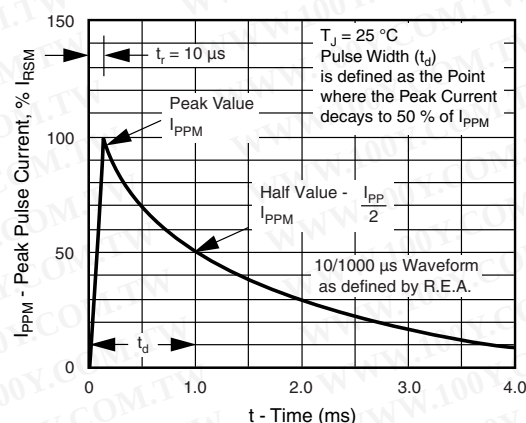


Figure 3. Pulse Waveform

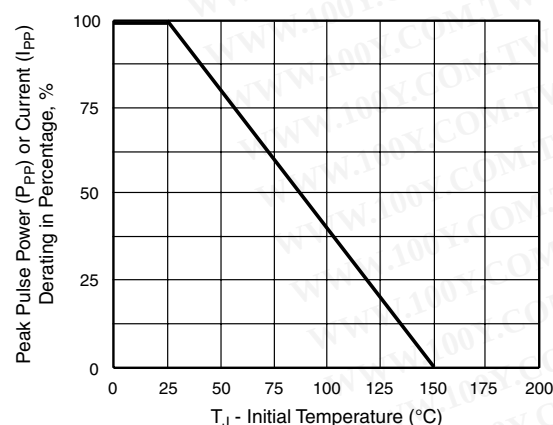


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

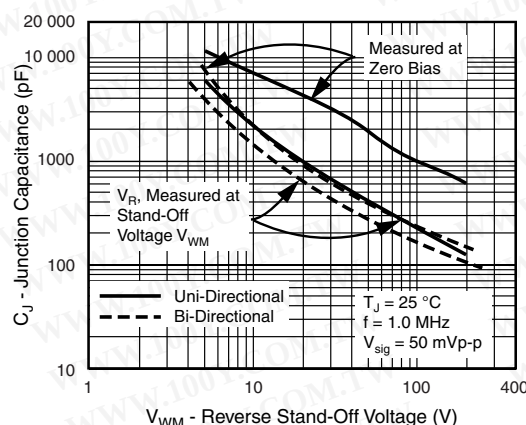


Figure 4. Typical Junction Capacitance Uni-Directional



# SMCJ5.0 thru SMCJ188CA

Vishay General Semiconductor

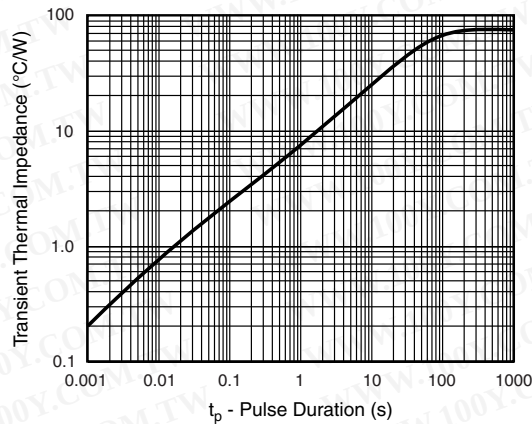


Figure 5. Typical Transient Thermal Impedance

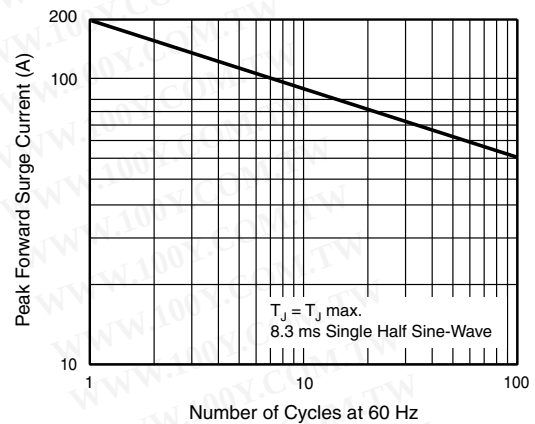
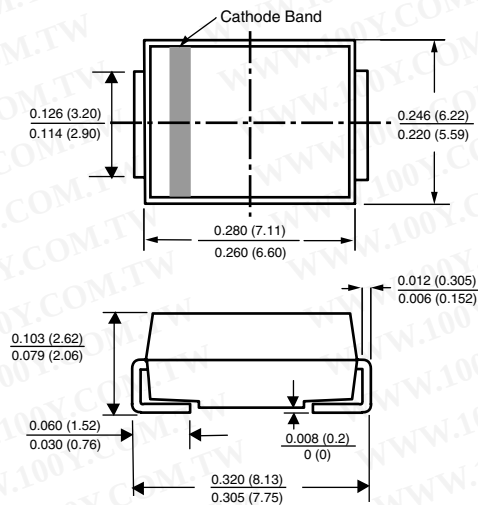


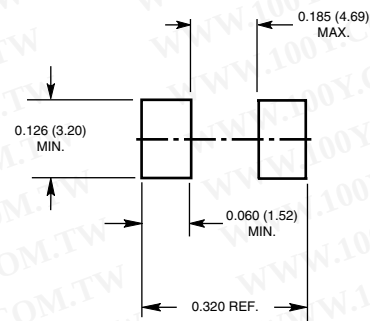
Figure 6. Maximum Non-Repetitive Forward Surge Current  
Uni-Directional Use Only

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AB (SMC J-Bend)



### Mounting Pad Layout







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