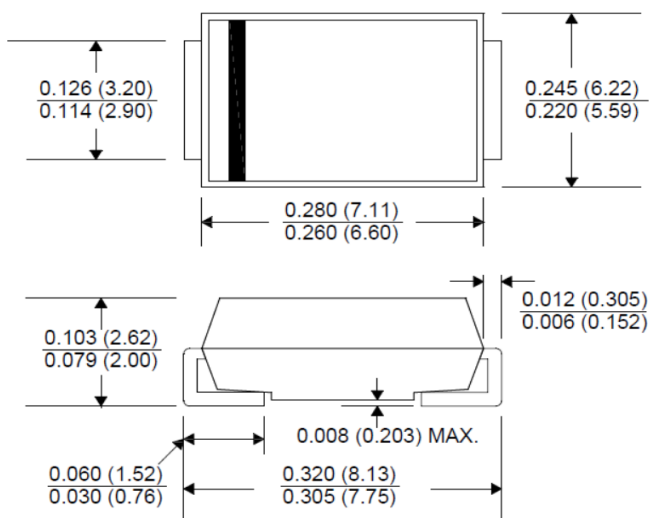


### DO-214AB (SMC J-Bend)



Dimensions in inches and (millimeters)

| Agency                                                                             | Agency File Number |
|------------------------------------------------------------------------------------|--------------------|
|  | E521119            |

| PRIMARY CHARACTERISTICS |                                  |
|-------------------------|----------------------------------|
| V <sub>RWM</sub>        | 5.0V to 440V                     |
| V <sub>BR</sub>         | 6.4V to 543V                     |
| P <sub>PPM</sub>        | 1500W                            |
| T <sub>J</sub> max      | 150°C                            |
| Polarity                | Uni-directional & Bi-directional |
| Package                 | DO-214AB                         |

### FEATURES

- For surface mounted applications in order to optimize board space
- Typical maximum temperature coefficient  $\Delta V_{BR} = 0.1\% \times V_{BR} @ 25^\circ\text{C} \times \Delta T$
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to BV
- Meet MSL1 Level, per J-STD-020, LF maximum peak of 260 °C
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte Tin Lead-free plated



### MECHANICAL DATA

**Case:** JEDEC DO-214AB. Molded plastic

**Terminal:** Solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denoted positive end (cathode) except Bidirectional

### DEVICES FOR BIPOLAR APPLICATION

- For Bidirectional use C or CA Suffix for types SMCJ5.0 thru types SMCJ440 (e.g. SMCJ5.0A, SMCJ440CA)
- Electrical characteristics apply in both directions

### MAXIMUM RATINGS (25°C ambient temperature unless otherwise specified)

| Parameter                                                           | Symbol                          | Value          | Unit  |
|---------------------------------------------------------------------|---------------------------------|----------------|-------|
| Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, 2)      | P <sub>PPM</sub>                | 1500           | Watts |
| Peak Pulse Current of on 10/1000μs waveform (Note 1)                | I <sub>PPM</sub>                | See Next Table | Amps  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2, 3) | I <sub>FSM</sub>                | 200            | Amps  |
| Operating junction and Storage Temperature Range                    | T <sub>J</sub> T <sub>STG</sub> | -55 to +150    | °C    |
| Typical Thermal Resistance Junction to Lead                         | R <sub>θJL</sub>                | 15             | °C/W  |
| Typical Thermal Resistance Junction to Ambient                      | R <sub>θJA</sub>                | 75             | °C/W  |

Note

- (1) Non-repetitive current pulse above T<sub>A</sub> = 25 °C
- (2) Mounted on 8.0mm x 8.0mm Copper Pads to each terminal

(3) 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

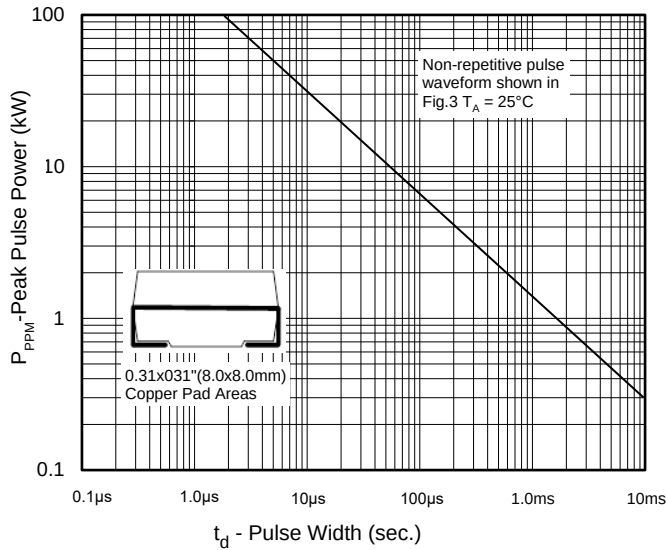
## ELECTRICAL CHARACTERISTICS

| PART NUMBER |           | MARKING CODE |     | TEST CURRENT IT (mA) | BREAKDOWN VOLTAGE VBR(V) @IT |        | STAND-OFF VOLTAGE VRWM(V) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc(V) | MAXIMUM PEAK PULSE CURRENT Ipp (A) | MAXIMUM REVERSE LEAKAGE @ VRWM IR(μA) |
|-------------|-----------|--------------|-----|----------------------|------------------------------|--------|---------------------------|-------------------------------------|------------------------------------|---------------------------------------|
| UNI- POLAR  | BI-POLAR  | UNI          | BI  |                      | MIN                          | MAX    |                           |                                     |                                    |                                       |
| SMCJ5.0A    | SMCJ5.0CA | GDE          | BDE | 10                   | 6.40                         | 7.00   | 5.0                       | 9.2                                 | 167.9                              | 800.0                                 |
| SMCJ6.0A    | SMCJ6.0CA | GDG          | BDG | 10                   | 6.67                         | 7.37   | 6.0                       | 10.3                                | 150.0                              | 800.0                                 |
| SMCJ6.5A    | SMCJ6.5CA | GDK          | BDK | 10                   | 7.22                         | 7.98   | 6.5                       | 11.2                                | 137.9                              | 500.0                                 |
| SMCJ7.0A    | SMCJ7.0CA | GDM          | BDM | 10                   | 7.78                         | 8.60   | 7.0                       | 12.0                                | 128.8                              | 200.0                                 |
| SMCJ7.5A    | SMCJ7.5CA | GDP          | BDP | 1                    | 8.33                         | 9.21   | 7.5                       | 12.9                                | 119.8                              | 100.0                                 |
| SMCJ8.0A    | SMCJ8.0CA | GDR          | BDR | 1                    | 8.89                         | 9.83   | 8.0                       | 13.6                                | 113.6                              | 50.0                                  |
| SMCJ8.5A    | SMCJ8.5CA | GDT          | BDT | 1                    | 9.44                         | 10.40  | 8.5                       | 14.4                                | 107.3                              | 20.0                                  |
| SMCJ9.0A    | SMCJ9.0CA | GDV          | BDV | 1                    | 10.00                        | 11.10  | 9.0                       | 15.4                                | 100.3                              | 10.0                                  |
| SMCJ10A     | SMCJ10CA  | GDZ          | BDZ | 1                    | 11.10                        | 12.30  | 10.0                      | 17.0                                | 90.9                               | 5.0                                   |
| SMCJ11A     | SMCJ11CA  | GDZ          | BDZ | 1                    | 12.20                        | 13.50  | 11.0                      | 18.2                                | 84.9                               | 1.0                                   |
| SMCJ12A     | SMCJ12CA  | GEE          | BEE | 1                    | 13.30                        | 14.70  | 12.0                      | 19.9                                | 77.6                               | 1.0                                   |
| SMCJ13A     | SMCJ13CA  | GEG          | BEG | 1                    | 14.40                        | 15.90  | 13.0                      | 21.5                                | 71.9                               | 1.0                                   |
| SMCJ14A     | SMCJ14CA  | GEK          | BEK | 1                    | 15.60                        | 17.20  | 14.0                      | 23.2                                | 66.6                               | 1.0                                   |
| SMCJ15A     | SMCJ15CA  | GEM          | BEM | 1                    | 16.70                        | 18.50  | 15.0                      | 24.4                                | 63.3                               | 1.0                                   |
| SMCJ16A     | SMCJ16CA  | GEP          | BEP | 1                    | 17.80                        | 19.70  | 16.0                      | 26.0                                | 59.4                               | 1.0                                   |
| SMCJ17A     | SMCJ17CA  | GER          | BER | 1                    | 18.90                        | 20.90  | 17.0                      | 27.6                                | 56.0                               | 1.0                                   |
| SMCJ18A     | SMCJ18CA  | GET          | BET | 1                    | 20.00                        | 22.10  | 18.0                      | 29.2                                | 52.9                               | 1.0                                   |
| SMCJ20A     | SMCJ20CA  | GEV          | BEV | 1                    | 22.20                        | 24.50  | 20.0                      | 32.4                                | 47.7                               | 1.0                                   |
| SMCJ22A     | SMCJ22CA  | GEX          | BEX | 1                    | 24.40                        | 26.90  | 22.0                      | 35.5                                | 43.5                               | 1.0                                   |
| SMCJ24A     | SMCJ24CA  | GEZ          | BEZ | 1                    | 26.70                        | 29.50  | 24.0                      | 38.9                                | 39.7                               | 1.0                                   |
| SMCJ26A     | SMCJ26CA  | GFE          | BFE | 1                    | 28.90                        | 31.90  | 26.0                      | 42.1                                | 36.7                               | 1.0                                   |
| SMCJ28A     | SMCJ28CA  | GFG          | BFG | 1                    | 31.10                        | 34.40  | 28.0                      | 45.4                                | 34.0                               | 1.0                                   |
| SMCJ30A     | SMCJ30CA  | GFK          | BFK | 1                    | 33.30                        | 36.80  | 30.0                      | 48.4                                | 31.9                               | 1.0                                   |
| SMCJ33A     | SMCJ33CA  | GFM          | BFM | 1                    | 36.70                        | 40.60  | 33.0                      | 53.3                                | 29.0                               | 1.0                                   |
| SMCJ36A     | SMCJ36CA  | GFP          | BFP | 1                    | 40.00                        | 44.20  | 36.0                      | 58.1                                | 26.6                               | 1.0                                   |
| SMCJ40A     | SMCJ40CA  | GFR          | BFR | 1                    | 44.40                        | 49.10  | 40.0                      | 64.5                                | 24.0                               | 1.0                                   |
| SMCJ43A     | SMCJ43CA  | GFT          | BFT | 1                    | 47.80                        | 52.80  | 43.0                      | 69.4                                | 22.3                               | 1.0                                   |
| SMCJ45A     | SMCJ45CA  | GFV          | BFV | 1                    | 50.00                        | 55.30  | 45.0                      | 72.7                                | 21.3                               | 1.0                                   |
| SMCJ48A     | SMCJ48CA  | GFX          | BFX | 1                    | 53.30                        | 58.90  | 48.0                      | 77.4                                | 20.0                               | 1.0                                   |
| SMCJ51A     | SMCJ51CA  | GFZ          | BFZ | 1                    | 56.70                        | 62.70  | 51.0                      | 82.4                                | 18.8                               | 1.0                                   |
| SMCJ54A     | SMCJ54CA  | GGE          | BGE | 1                    | 60.00                        | 66.30  | 54.0                      | 87.1                                | 17.7                               | 1.0                                   |
| SMCJ58A     | SMCJ58CA  | GGG          | BGG | 1                    | 64.40                        | 71.20  | 58.0                      | 93.6                                | 16.5                               | 1.0                                   |
| SMCJ60A     | SMCJ60CA  | GGK          | BGK | 1                    | 66.70                        | 73.70  | 60.0                      | 96.8                                | 16.0                               | 1.0                                   |
| SMCJ64A     | SMCJ64CA  | GGM          | BGM | 1                    | 71.10                        | 78.60  | 64.0                      | 103.0                               | 15.0                               | 1.0                                   |
| SMCJ70A     | SMCJ70CA  | GGP          | BGP | 1                    | 77.80                        | 86.00  | 70.0                      | 113.0                               | 13.7                               | 1.0                                   |
| SMCJ75A     | SMCJ75CA  | GGR          | BGR | 1                    | 83.30                        | 92.10  | 75.0                      | 121.0                               | 12.8                               | 1.0                                   |
| SMCJ78A     | SMCJ78CA  | GGT          | BGT | 1                    | 86.70                        | 95.80  | 78.0                      | 126.0                               | 12.3                               | 1.0                                   |
| SMCJ85A     | SMCJ85CA  | GGV          | BGV | 1                    | 94.40                        | 104.00 | 85.0                      | 137.0                               | 11.3                               | 1.0                                   |
| SMCJ90A     | SMCJ90CA  | GGX          | BGX | 1                    | 100.00                       | 111.00 | 90.0                      | 146.0                               | 10.6                               | 1.0                                   |
| SMCJ100A    | SMCJ100CA | GGZ          | BGZ | 1                    | 111.00                       | 123.00 | 100.0                     | 162.0                               | 9.5                                | 1.0                                   |
| SMCJ110A    | SMCJ110CA | GHE          | BHE | 1                    | 122.00                       | 135.00 | 110.0                     | 177.0                               | 8.7                                | 1.0                                   |
| SMCJ120A    | SMCJ120CA | GHG          | BHG | 1                    | 133.00                       | 147.00 | 120.0                     | 193.0                               | 8.0                                | 1.0                                   |
| SMCJ130A    | SMCJ130CA | GHK          | BHK | 1                    | 144.00                       | 159.00 | 130.0                     | 209.0                               | 7.4                                | 1.0                                   |
| SMCJ150A    | SMCJ150CA | GHM          | BHM | 1                    | 167.00                       | 185.00 | 150.0                     | 243.0                               | 6.4                                | 1.0                                   |
| SMCJ160A    | SMCJ160CA | GHP          | BHP | 1                    | 178.00                       | 197.00 | 160.0                     | 259.0                               | 6.0                                | 1.0                                   |
| SMCJ170A    | SMCJ170CA | GHR          | BHR | 1                    | 189.00                       | 209.00 | 170.0                     | 275.0                               | 5.6                                | 1.0                                   |
| SMCJ180A    | SMCJ180CA | GHT          | BHT | 1                    | 201.00                       | 222.00 | 180.0                     | 292.0                               | 5.2                                | 1.0                                   |
| SMCJ200A    | SMCJ200CA | GHV          | BHV | 1                    | 224.00                       | 247.00 | 200.0                     | 324.0                               | 4.7                                | 1.0                                   |
| SMCJ220A    | SMCJ220CA | GHX          | BHX | 1                    | 246.00                       | 272.00 | 220.0                     | 356.0                               | 4.3                                | 1.0                                   |
| SMCJ250A    | SMCJ250CA | GHZ          | BHZ | 1                    | 279.00                       | 309.00 | 250.0                     | 405.0                               | 3.8                                | 1.0                                   |
| SMCJ300A    | SMCJ300CA | GJE          | BJE | 1                    | 335.00                       | 371.00 | 300.0                     | 486.0                               | 3.1                                | 1.0                                   |
| SMCJ350A    | SMCJ350CA | GJG          | BJG | 1                    | 391.00                       | 432.00 | 350.0                     | 567.0                               | 2.7                                | 1.0                                   |
| SMCJ400A    | SMCJ400CA | GJK          | BJK | 1                    | 447.00                       | 494.00 | 400.0                     | 648.0                               | 2.4                                | 1.0                                   |
| SMCJ440A    | SMCJ440CA | GJM          | BJM | 1                    | 492.00                       | 543.00 | 440.0                     | 713.0                               | 2.2                                | 1.0                                   |

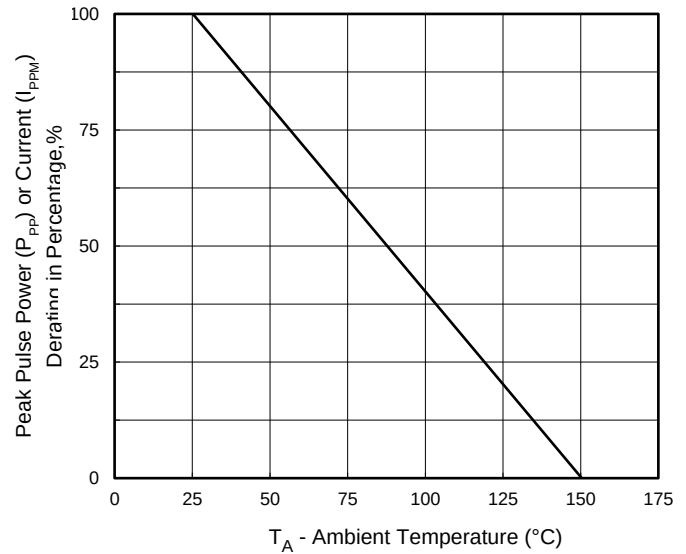
For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.

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

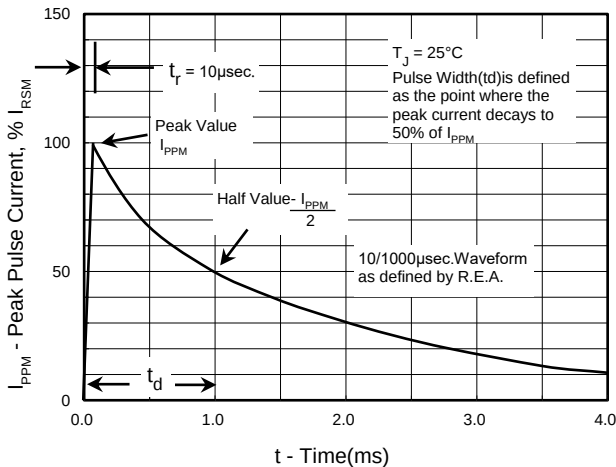
Peak Pulse Power Rating



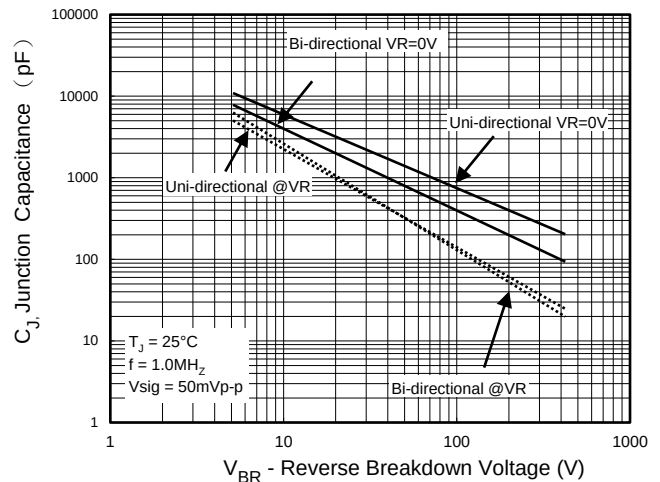
Pulse Derating Curve



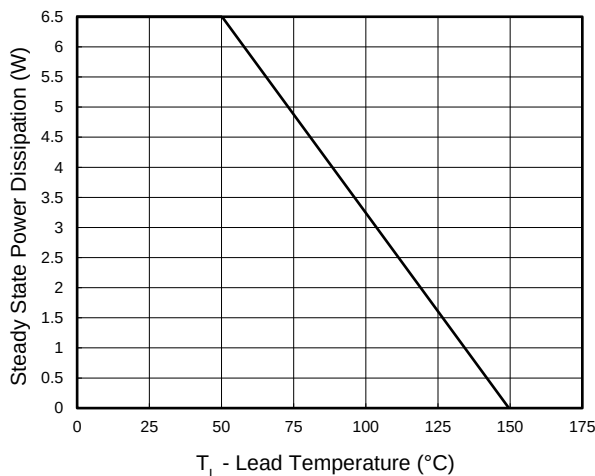
Pulse Waveform



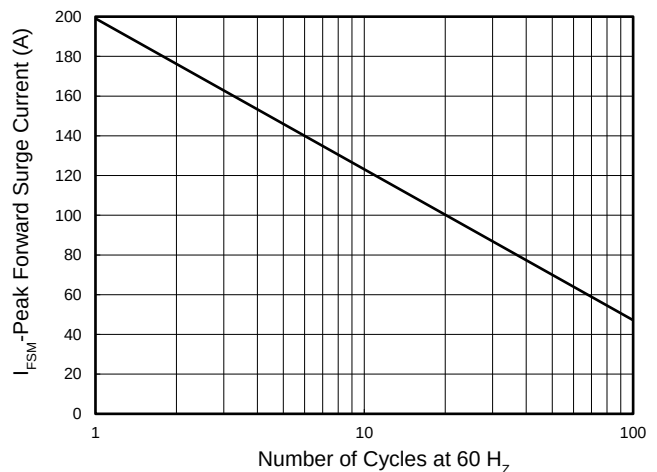
Typical Junction Capacitance



Steady State Power Derating Curve



Maximum Non-repetitive Forward Surge current uni-directional only



## Ordering Information

| Part Number | Quantity | Packing Option              | Component Package | Packing Specification |
|-------------|----------|-----------------------------|-------------------|-----------------------|
| SMCJxxxA    | 3000     | Tape & Reel - 16mm/13" tape | DO-214AB          | EIA STD RS-481        |



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Note: Green Product means Pb-free, RoHS and Halogens free compliant.

| Part Number                                                                                                        | Part Marking                                    |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <p><b>SMCJ XXX C A</b></p> <p>SMCJ XXX C A</p> <p>Series Vr VOLTAGE BI-DIRECTIONAL Narrow Vr VOLTAGE TOLERANCE</p> | <p>Cathode Band Logo Marking Code Date Code</p> |

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