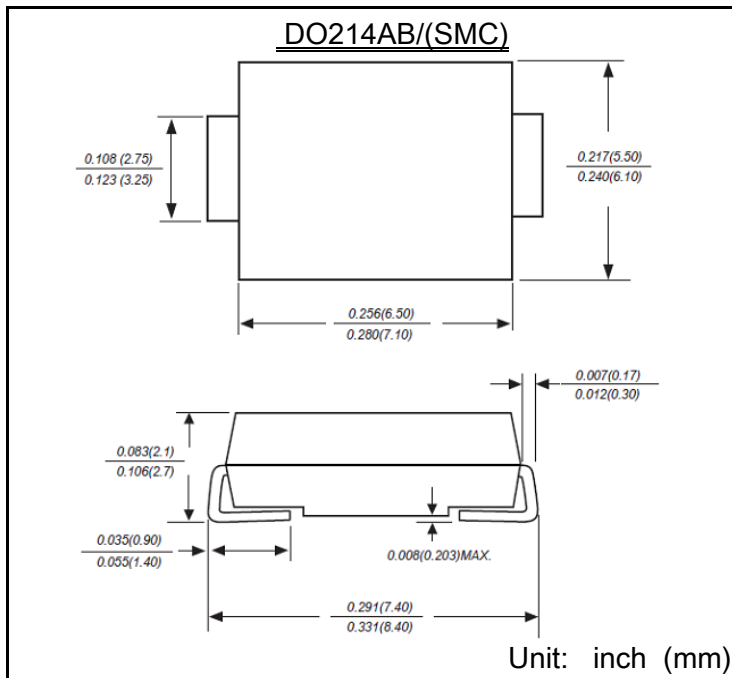




# SMCJxx(C)A Series



## Features

- Glass passivated chip
- 1500 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard

## Mechanical Data

- Case: DO214AB/(SMC) Molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Maximum Ratings & Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter  | Symbols        | Value          | Unit |
|--|----------------|----------------|------|
| Peak power dissipation with a 10/1000 us waveform <sup>(1)</sup>                           | $P_{PP}$       | 1500           | W    |
| Peak pulse current with a 10/1000 us waveform <sup>(1)</sup>                               | $I_{PP}$       | See Next Table | A    |
| Power dissipation on infinite heatsink at TL = 75 °C                                       | $P_D$          | 5.0            | W    |
| Peak forward surge current, 8.3 ms single half sinewave unidirectional only <sup>(2)</sup> | $I_{FSM}$      | 200            | A    |
| Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>      | $V_F$          | 3.5/6.5        | V    |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | -55 to +150    | °C   |

Note:

1) Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25\text{ °C}$  per Fig.1 ;

2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;

3)  $V_F < 3.5V$  for devices of  $V_{BR} < 200V$  and  $V_F < 6.5V$  for devices of  $V_{BR} > 201V$ .



| Part Number |           | Device Marking Code |     | Reverse Stand-off Voltage | Breakdown Voltage $V_{BR} @ I_T$ |         | Test Current | Max. Clamping Voltage @ $I_{PP}$ | Max. Peak Pulse Current | Max. Reverse Leakage @ $V_{RWM}$ |
|-------------|-----------|---------------------|-----|---------------------------|----------------------------------|---------|--------------|----------------------------------|-------------------------|----------------------------------|
| UNI-POLAR   | BI-POLAR  | UNI                 | BI  | $V_{RWM}(V)$              | Min.(V)                          | Max.(V) | $I_T(mA)$    | $V_{C MAX.}(V)$                  | $I_{PP}(A)$             | $I_R(\mu A)$                     |
| SMCJ5.0A    | SMCJ5.0CA | GDE                 | BDE | 5.0                       | 6.40                             | 7.00    | 10           | 9.2                              | 163.0                   | 800                              |
| SMCJ6.0A    | SMCJ6.0CA | GDG                 | BDG | 6.0                       | 6.67                             | 7.37    | 10           | 10.3                             | 145.7                   | 800                              |
| SMCJ6.5A    | SMCJ6.5CA | GDK                 | BDK | 6.5                       | 7.22                             | 7.98    | 10           | 11.2                             | 134.0                   | 500                              |
| SMCJ7.0A    | SMCJ7.0CA | GDM                 | BDM | 7.0                       | 7.78                             | 8.60    | 10           | 12.0                             | 125.0                   | 200                              |
| SMCJ7.5A    | SMCJ7.5CA | GDP                 | BDP | 7.5                       | 8.33                             | 9.21    | 1            | 12.9                             | 116.3                   | 100                              |
| SMCJ8.0A    | SMCJ8.0CA | GDR                 | BDR | 8.0                       | 8.89                             | 9.83    | 1            | 13.6                             | 110.3                   | 50                               |
| SMCJ8.5A    | SMCJ8.5CA | GDT                 | BDT | 8.5                       | 9.44                             | 10.40   | 1            | 14.4                             | 104.2                   | 20                               |
| SMCJ9.0A    | SMCJ9.0CA | GDV                 | BDV | 9.0                       | 10.00                            | 11.10   | 1            | 15.4                             | 97.4                    | 10                               |
| SMCJ10A     | SMCJ10CA  | GDX                 | BDX | 10.0                      | 11.10                            | 12.30   | 1            | 17.0                             | 88.3                    | 5                                |
| SMCJ11A     | SMCJ11CA  | GDZ                 | BDZ | 11.0                      | 12.20                            | 13.50   | 1            | 18.2                             | 82.5                    | 1                                |
| SMCJ12A     | SMCJ12CA  | GEE                 | BEE | 12.0                      | 13.30                            | 14.70   | 1            | 19.9                             | 75.4                    | 1                                |
| SMCJ13A     | SMCJ13CA  | GEG                 | BEG | 13.0                      | 14.40                            | 15.90   | 1            | 21.5                             | 69.8                    | 1                                |
| SMCJ14A     | SMCJ14CA  | GEK                 | BEK | 14.0                      | 15.60                            | 17.20   | 1            | 23.2                             | 64.7                    | 1                                |
| SMCJ15A     | SMCJ15CA  | GEM                 | BEM | 15.0                      | 16.70                            | 18.50   | 1            | 24.4                             | 61.5                    | 1                                |
| SMCJ16A     | SMCJ16CA  | GEP                 | BEP | 16.0                      | 17.80                            | 19.70   | 1            | 26.0                             | 57.7                    | 1                                |
| SMCJ17A     | SMCJ17CA  | GER                 | BER | 17.0                      | 18.90                            | 20.90   | 1            | 27.6                             | 54.4                    | 1                                |
| SMCJ18A     | SMCJ18CA  | GET                 | BET | 18.0                      | 20.00                            | 22.10   | 1            | 29.2                             | 51.4                    | 1                                |
| SMCJ20A     | SMCJ20CA  | GEV                 | BEV | 20.0                      | 22.20                            | 24.50   | 1            | 32.4                             | 46.3                    | 1                                |
| SMCJ22A     | SMCJ22CA  | GEX                 | BEX | 22.0                      | 24.40                            | 26.90   | 1            | 35.5                             | 42.3                    | 1                                |
| SMCJ24A     | SMCJ24CA  | GEZ                 | BEZ | 24.0                      | 26.70                            | 29.50   | 1            | 38.9                             | 38.6                    | 1                                |
| SMCJ26A     | SMCJ26CA  | GFE                 | BFE | 26.0                      | 28.90                            | 31.90   | 1            | 42.1                             | 35.7                    | 1                                |
| SMCJ28A     | SMCJ28CA  | GFG                 | BFG | 28.0                      | 31.10                            | 34.40   | 1            | 45.4                             | 33.1                    | 1                                |
| SMCJ30A     | SMCJ30CA  | GFK                 | BFK | 30.0                      | 33.50                            | 36.80   | 1            | 48.4                             | 31.0                    | 1                                |
| SMCJ33A     | SMCJ33CA  | GFM                 | BFM | 33.0                      | 36.70                            | 40.60   | 1            | 53.3                             | 28.2                    | 1                                |
| SMCJ36A     | SMCJ36CA  | GFP                 | BFP | 36.0                      | 40.00                            | 44.20   | 1            | 58.1                             | 25.9                    | 1                                |
| SMCJ40A     | SMCJ40CA  | GFR                 | BFR | 40.0                      | 44.40                            | 49.10   | 1            | 64.5                             | 23.3                    | 1                                |
| SMCJ43A     | SMCJ43CA  | GFT                 | BFT | 43.0                      | 47.80                            | 52.80   | 1            | 69.4                             | 21.7                    | 1                                |
| SMCJ45A     | SMCJ45CA  | GFV                 | BFV | 45.0                      | 50.00                            | 55.30   | 1            | 72.7                             | 20.6                    | 1                                |
| SMCJ48A     | SMCJ48CA  | GFX                 | BFX | 48.0                      | 53.30                            | 58.90   | 1            | 77.4                             | 19.4                    | 1                                |
| SMCJ51A     | SMCJ51CA  | GFZ                 | BFZ | 51.0                      | 56.70                            | 62.70   | 1            | 82.4                             | 18.2                    | 1                                |
| SMCJ54A     | SMCJ54CA  | GGE                 | BGE | 54.0                      | 60.00                            | 66.30   | 1            | 87.1                             | 17.3                    | 1                                |
| SMCJ58A     | SMCJ58CA  | GGG                 | BGG | 58.0                      | 64.40                            | 71.20   | 1            | 93.6                             | 16.1                    | 1                                |
| SMCJ60A     | SMCJ60CA  | GGK                 | BGK | 60.0                      | 66.70                            | 73.70   | 1            | 96.8                             | 15.5                    | 1                                |
| SMCJ64A     | SMCJ64CA  | GGM                 | BGM | 64.0                      | 71.10                            | 78.60   | 1            | 103.0                            | 14.6                    | 1                                |
| SMCJ70A     | SMCJ70CA  | GGP                 | BGP | 70.0                      | 77.80                            | 86.00   | 1            | 113.0                            | 13.3                    | 1                                |
| SMCJ75A     | SMCJ75CA  | GGR                 | BGR | 75.0                      | 83.30                            | 92.10   | 1            | 121.0                            | 12.4                    | 1                                |
| SMCJ78A     | SMCJ78CA  | GGT                 | BGT | 78.0                      | 86.70                            | 95.80   | 1            | 126.0                            | 11.9                    | 1                                |
| SMCJ85A     | SMCJ85CA  | GGV                 | BGV | 85.0                      | 94.4                             | 104.0   | 1            | 137.0                            | 11.0                    | 1                                |
| SMCJ90A     | SMCJ90CA  | GGX                 | BGX | 90.0                      | 100.0                            | 111.0   | 1            | 146.0                            | 10.3                    | 1                                |
| SMCJ100A    | SMCJ100CA | GGZ                 | BGZ | 100.0                     | 111.0                            | 123.0   | 1            | 162.0                            | 9.3                     | 1                                |
| SMCJ110A    | SMCJ110CA | GHE                 | BHE | 110.0                     | 122.0                            | 135.0   | 1            | 177.0                            | 8.5                     | 1                                |
| SMCJ120A    | SMCJ120CA | GHG                 | BHG | 120.0                     | 133.0                            | 147.0   | 1            | 193.0                            | 7.8                     | 1                                |
| SMCJ130A    | SMCJ130CA | GHK                 | BHK | 130.0                     | 144.0                            | 159.0   | 1            | 209.0                            | 7.2                     | 1                                |
| SMCJ150A    | SMCJ150CA | GHM                 | BHM | 150.0                     | 167.0                            | 185.0   | 1            | 243.0                            | 6.2                     | 1                                |
| SMCJ160A    | SMCJ160CA | GHP                 | BHP | 160.0                     | 178.0                            | 197.0   | 1            | 259.0                            | 5.8                     | 1                                |
| SMCJ170A    | SMCJ170CA | GHR                 | BHR | 170.0                     | 189.0                            | 209.0   | 1            | 275.0                            | 5.5                     | 1                                |
| SMCJ180A    | SMCJ180CA | GHT                 | BHT | 180.0                     | 201.0                            | 222.0   | 1            | 292.0                            | 5.1                     | 1                                |
| SMCJ190A    | SMCJ190CA | GHU                 | BHU | 190.0                     | 209.0                            | 243.0   | 1            | 308.0                            | 4.8                     | 1                                |
| SMCJ200A    | SMCJ200CA | GHV                 | BHV | 200.0                     | 224.0                            | 247.0   | 1            | 324.0                            | 4.6                     | 1                                |
| SMCJ210A    | SMCJ210CA | GHW                 | BHW | 210.0                     | 231.0                            | 268.0   | 1            | 340.0                            | 4.4                     | 1                                |
| SMCJ220A    | SMCJ220CA | GHX                 | BHX | 220.0                     | 246.0                            | 272.0   | 1            | 356.0                            | 4.2                     | 1                                |
| SMCJ250A    | SMCJ250CA | GHZ                 | BHZ | 250.0                     | 279.0                            | 309.0   | 1            | 405.0                            | 3.7                     | 1                                |
| SMCJ300A    | SMCJ300CA | GJE                 | BJE | 300.0                     | 335.0                            | 371.0   | 1            | 486.0                            | 3.1                     | 1                                |
| SMCJ350A    | SMCJ350CA | GJG                 | BJG | 350.0                     | 391.0                            | 432.0   | 1            | 567.0                            | 2.6                     | 1                                |
| SMCJ400A    | SMCJ400CA | GJK                 | BJK | 400.0                     | 447.0                            | 494.0   | 1            | 648.0                            | 2.3                     | 1                                |
| SMCJ440A    | SMCJ440CA | GJM                 | BJM | 440.0                     | 492.0                            | 543.0   | 1            | 713.0                            | 2.1                     | 1                                |
| SMCJ480A    | SMCJ480CA | GJP                 | BJP | 480.0                     | 536.0                            | 593.0   | 1            | 750.0                            | 2.0                     | 1                                |
| SMCJ520A    | SMCJ520CA | GJR                 | BJR | 520.0                     | 578.0                            | 640.0   | 1            | 762.0                            | 2.0                     | 1                                |
| SMCJ550A    | SMCJ550CA | GJT                 | BJT | 550.0                     | 615.0                            | 680.0   | 1            | 860.0                            | 1.7                     | 1                                |

## Ratings and Characteristics Curves (TA=25°C unless otherwise noted)

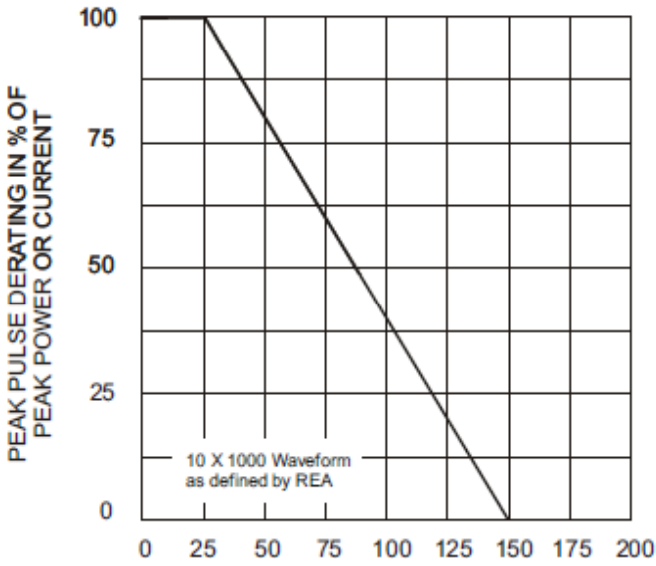


Fig. 1 - Pulse Derating Curve

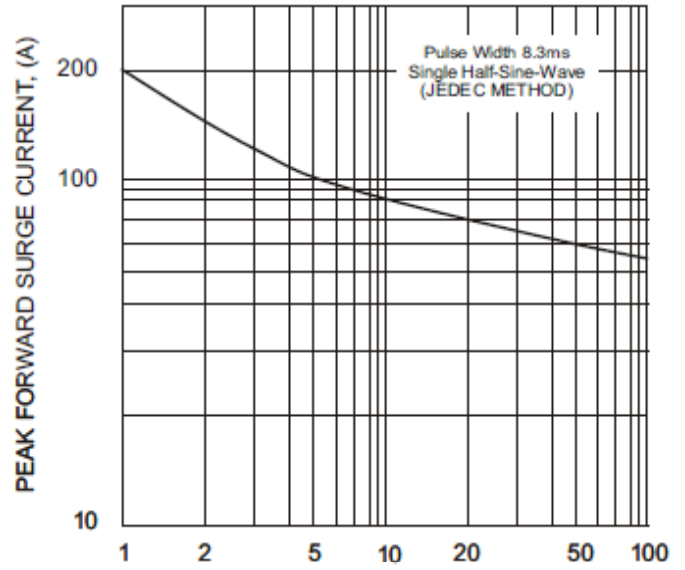


Fig. 2 - Maximum Non-Repetitive Surge Current

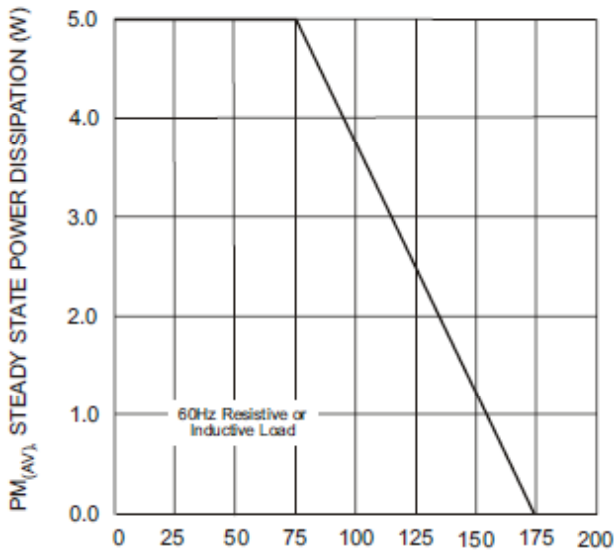


Fig. 3 - Steady State Power Derating Curve

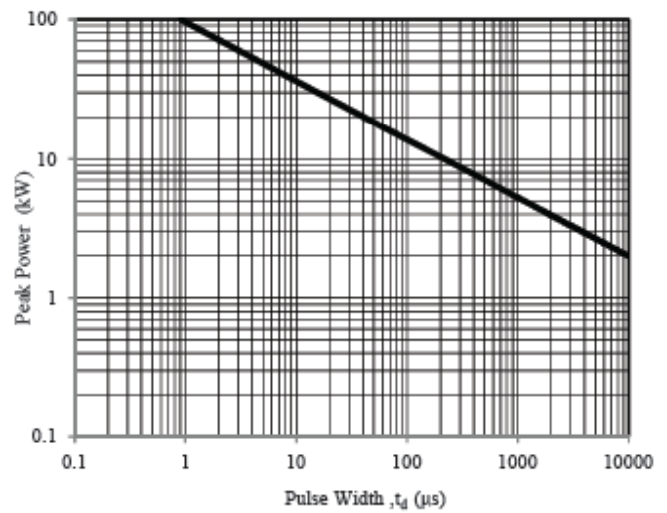


Fig. 4 - Peak Pulse Power Rating Curve

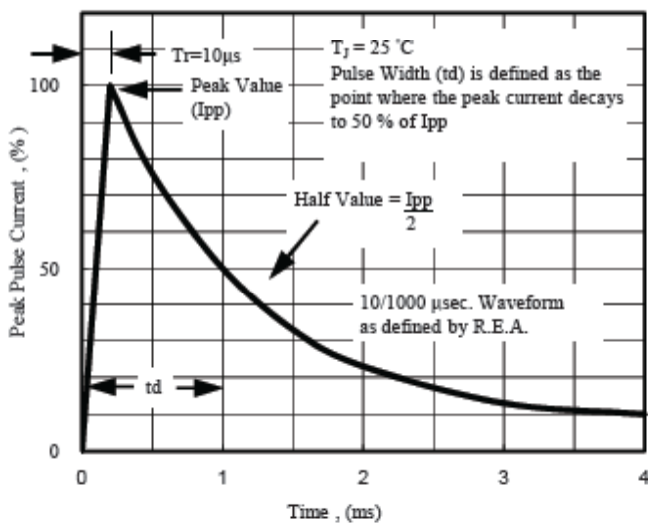


Fig. 5 - Pulse Waveform

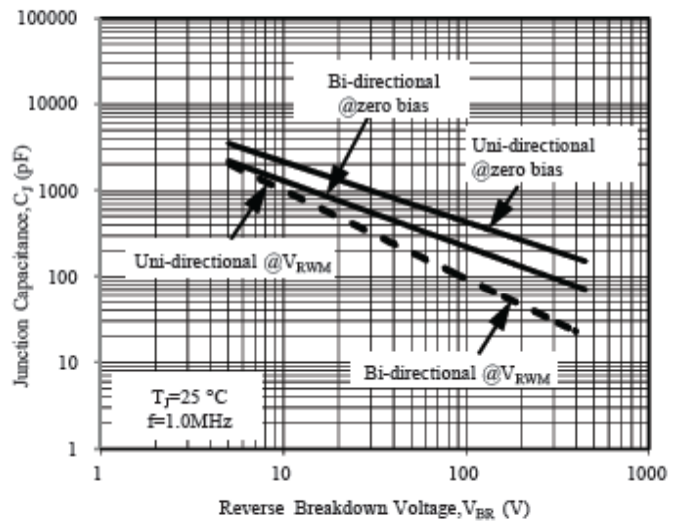


Fig. 6 - Typical Junction Capacitance

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