

SMCJ5.0A ~ 188CA

Stand-off Voltage : 5.0 to 188V

Peak Pulse Power : 1500 W

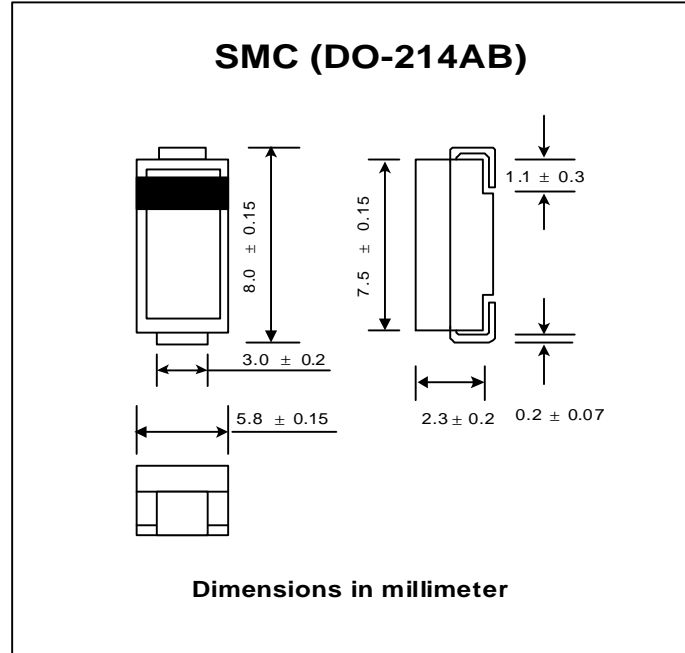
FEATURES :

- * 1500W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to $V_{BR(min)}$
- * Typical I_R less than $1\mu A$ above 10V

MECHANICAL DATA

- * Case : SMC Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Polarity : Color band denotes cathode end except Bipolar.
- * Mounting position : Any
- * Weight : 0.21 gram

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



MAXIMUM RATINGS

Rating at 25°C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Unit |
|---|-----------------------------------|----------------|------|
| Peak Pulse Power Dissipation ^{(1) (2)} | PPPM | Minimum 1500 | W |
| Peak Forward Surge Current per Fig. 5 ⁽²⁾ | IFSM | 200 | A |
| Peak Pulse Current on 10/1000μs waveform ⁽¹⁾ | I _{PPM} | See Next Table | A |
| Typical Thermal Resistance , Junction to Ambient ⁽³⁾ | R _{θJA} | 75 | °C/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 $T_a = 25^\circ C$ per Fig. 1
- (2) Mounted on 0.31x 0.31" (8.0 x 8.0mm) copper pads to each terminal.
- (3) Mounted on minimum recommended pad layout



SYNSEMI SEMICONDUCTOR

ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

| Type No. | | Breakdown Voltage @ $I_T^{(1)}$ | | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V_{WM} | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ IPPM |
|-----------------|--------------------------|---------------------------------|------|-------|------------------------------|------------------------------------|----------------------------------|---------------------------------|
| Uni-directional | Bi-directional | V_{BR} (V) | | I_T | V_{WM} | I_D | IPPM | V_C |
| | | Min. | Max. | (mA) | (V) | (μ A) | (A) | (V) |
| SMCJ5.0A | SMCJ5.0CA ⁽⁴⁾ | 6.40 | 7.07 | 10 | 5.0 | 1000 | 163.0 | 9.2 |
| SMCJ6.0A | SMCJ6.0CA | 6.67 | 7.37 | 10 | 6.0 | 1000 | 145.6 | 10.3 |
| SMCJ6.5A | SMCJ6.5CA | 7.22 | 7.98 | 10 | 6.5 | 500 | 133.9 | 11.2 |
| SMCJ7.0A | SMCJ7.0CA | 7.78 | 8.6 | 10 | 7.0 | 200 | 125.0 | 12.0 |
| SMCJ7.5A | SMCJ7.5CA | 8.33 | 9.21 | 1.0 | 7.5 | 100 | 116.3 | 12.9 |
| SMCJ8.0A | SMCJ8.0CA | 8.89 | 9.83 | 1.0 | 8.0 | 50 | 110.3 | 13.6 |
| SMCJ8.5A | SMCJ8.5CA | 9.44 | 10.4 | 1.0 | 8.5 | 20 | 104.2 | 14.4 |
| SMCJ9.0A | SMCJ9.0CA | 10.0 | 11.1 | 1.0 | 9.0 | 10 | 97.4 | 15.4 |
| SMCJ10A | SMCJ10CA | 11.1 | 12.3 | 1.0 | 10 | 5.0 | 88.2 | 17.0 |
| SMCJ11A | SMCJ11CA | 12.2 | 13.5 | 1.0 | 11 | 5.0 | 82.4 | 18.2 |
| SMCJ12A | SMCJ12CA | 13.3 | 14.7 | 1.0 | 12 | 5.0 | 75.4 | 19.9 |
| SMCJ13A | SMCJ13CA | 14.4 | 15.9 | 1.0 | 13 | 5.0 | 69.8 | 21.5 |
| SMCJ14A | SMCJ14CA | 15.6 | 17.2 | 1.0 | 14 | 5.0 | 64.7 | 23.2 |
| SMCJ15A | SMCJ15CA | 16.7 | 18.5 | 1.0 | 15 | 5.0 | 61.5 | 24.4 |
| SMCJ16A | SMCJ16CA | 17.8 | 19.7 | 1.0 | 16 | 5.0 | 57.7 | 26.0 |
| SMCJ17A | SMCJ17CA | 18.9 | 20.9 | 1.0 | 17 | 5.0 | 54.3 | 27.6 |
| SMCJ18A | SMCJ18CA | 20.0 | 22.1 | 1.0 | 18 | 5.0 | 51.4 | 29.2 |
| SMCJ20A | SMCJ20CA | 22.2 | 24.5 | 1.0 | 20 | 5.0 | 46.3 | 32.4 |
| SMCJ22A | SMCJ22CA | 24.4 | 26.9 | 1.0 | 22 | 5.0 | 42.3 | 35.5 |
| SMCJ24A | SMCJ24CA | 26.7 | 29.5 | 1.0 | 24 | 5.0 | 38.6 | 38.9 |
| SMCJ26A | SMCJ26CA | 28.9 | 31.9 | 1.0 | 26 | 5.0 | 35.6 | 42.1 |
| SMCJ28A | SMCJ28CA | 31.1 | 34.4 | 1.0 | 28 | 5.0 | 33.0 | 45.4 |
| SMCJ30A | SMCJ30CA | 33.3 | 36.8 | 1.0 | 30 | 5.0 | 31.0 | 48.4 |
| SMCJ33A | SMCJ33CA | 36.7 | 40.6 | 1.0 | 33 | 5.0 | 28.1 | 53.3 |
| SMCJ36A | SMCJ36CA | 40.0 | 44.2 | 1.0 | 36 | 5.0 | 25.8 | 58.1 |
| SMCJ40A | SMCJ40CA | 44.4 | 49.1 | 1.0 | 40 | 5.0 | 23.3 | 64.5 |
| SMCJ43A | SMCJ43CA | 47.8 | 52.8 | 1.0 | 43 | 5.0 | 21.6 | 69.4 |
| SMCJ45A | SMCJ45CA | 50.0 | 55.3 | 1.0 | 45 | 5.0 | 20.6 | 72.7 |
| SMCJ48A | SMCJ48CA | 53.3 | 58.9 | 1.0 | 48 | 5.0 | 19.4 | 77.4 |
| SMCJ51A | SMCJ51CA | 56.7 | 62.7 | 1.0 | 51 | 5.0 | 18.2 | 82.4 |
| SMCJ54A | SMCJ54CA | 60.0 | 66.3 | 1.0 | 54 | 5.0 | 17.2 | 87.1 |
| SMCJ58A | SMCJ58CA | 64.4 | 71.2 | 1.0 | 58 | 5.0 | 16.0 | 93.6 |
| SMCJ60A | SMCJ60CA | 66.7 | 73.7 | 1.0 | 60 | 5.0 | 15.5 | 96 |
| SMCJ64A | SMCJ64CA | 71.1 | 78.6 | 1.0 | 64 | 5.0 | 14.6 | 103 |
| SMCJ70A | SMCJ70CA | 77.8 | 86 | 1.0 | 70 | 5.0 | 13.3 | 113 |
| SMCJ75A | SMCJ75CA | 83.3 | 92.1 | 1.0 | 75 | 5.0 | 12.4 | 121 |
| SMCJ78A | SMCJ78CA | 86.7 | 95.8 | 1.0 | 78 | 5.0 | 11.9 | 126 |
| SMCJ85A | SMCJ85CA | 94.4 | 104 | 1.0 | 85 | 5.0 | 10.9 | 137 |
| SMCJ90A | SMCJ90CA | 100 | 111 | 1.0 | 90 | 5.0 | 10.3 | 146 |
| SMCJ100A | SMCJ100CA | 111 | 123 | 1.0 | 100 | 5.0 | 9.3 | 162 |
| SMCJ110A | SMCJ110CA | 122 | 135 | 1.0 | 110 | 5.0 | 8.5 | 177 |
| SMCJ120A | SMCJ120CA | 133 | 147 | 1.0 | 120 | 5.0 | 7.8 | 193 |
| SMCJ130A | SMCJ130CA | 144 | 159 | 1.0 | 130 | 5.0 | 7.2 | 209 |
| SMCJ150A | SMCJ150CA | 167 | 185 | 1.0 | 150 | 5.0 | 6.2 | 243 |
| SMCJ160A | SMCJ160CA | 178 | 197 | 1.0 | 160 | 5.0 | 5.8 | 259 |
| SMCJ170A | SMCJ170CA | 189 | 209 | 1.0 | 170 | 5.0 | 5.50 | 275 |
| SMCJ188A | SMCJ188CA | 209 | 231 | 1.0 | 188 | 5.0 | 4.60 | 328 |

Notes :

- (1) Pulse test : $t_p \leq 50$ ms.
- (2) Surge Current Waveform per Figure 5 and Derate per Figure 1
- (3) For bi-directional types have V_{WM} of 10 Volts and less , the I_D limit is doubled
- (4) For the bi-directional SMBJ5.0CA, the maximum V_{BR} is 7.25V
- (5) "SMCJ" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (SMCJ5.0A - SMCJ188CA)

FIG.1 - PULSE DERATING CURVE

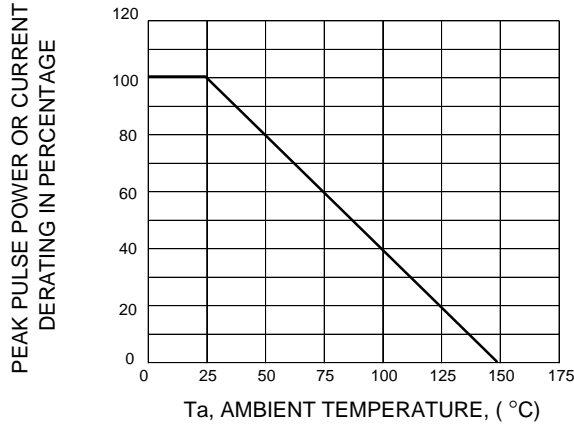


FIG.2 - TYPICAL JUNCTION CAPACITANCE

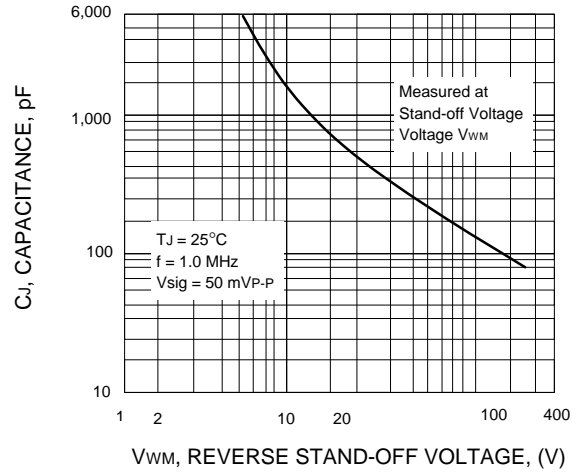


FIG.3 - PULSE WAVEFORM

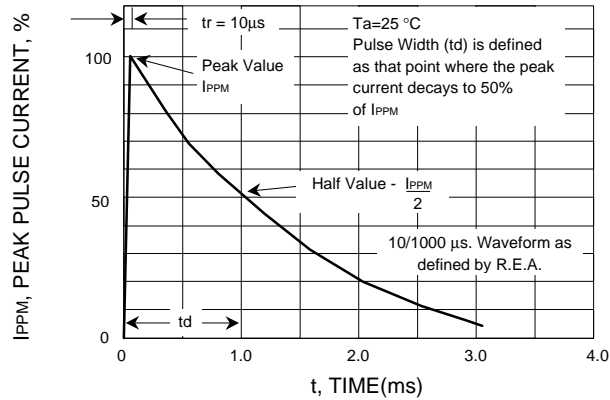


FIG.4 - PEAK PULSE POWER RATING CURVE

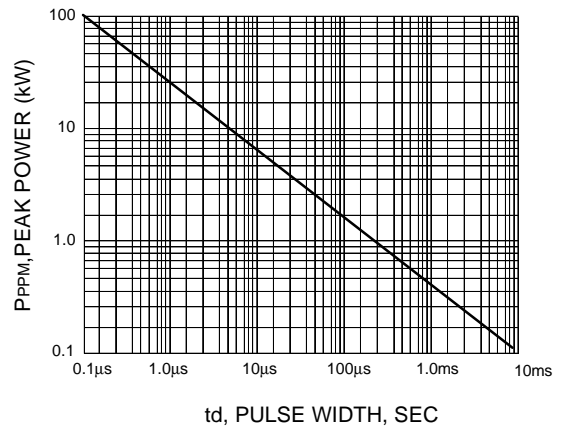


FIG.5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

