

3.0SMCJ11C - 220CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage : 11 to 220V
Peak Pulse Power : 3000 W

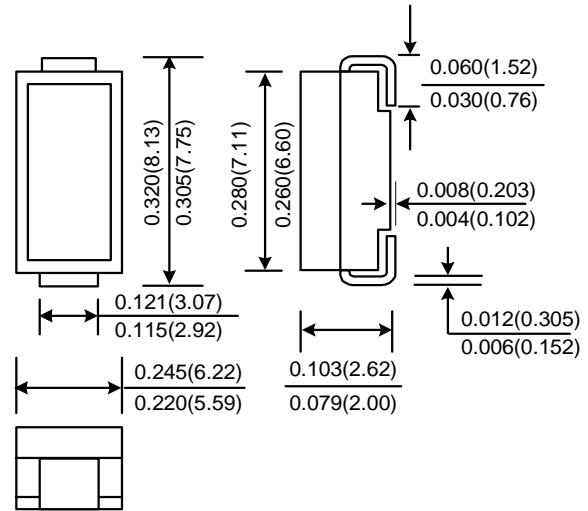
FEATURES :

- * 3000W peak pulse power capability with a 10/1000µs waveform
- * Excellent clamping capability
- * Low inductance
- * High temperature soldering : 250 °C/10 seconds at terminals.
- * Built-in strain relief
- * **Pb / RoHS Free**

MECHANICAL DATA

- * Case : SMC Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Mounting position : Any
- * Weight : 0.21 gram

SMC (DO-214AB)



DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"
 Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Unit |
|---|-----------------------------------|----------------|------|
| Peak Pulse Power Dissipation on 10/1000 µs waveform ⁽¹⁾ ⁽²⁾ | P _{PPM} | 3000 | W |
| Peak Pulse Current on 10/1000 s waveform ⁽¹⁾ | I _{PPM} | See Next Table | A |
| Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load ⁽²⁾ ⁽³⁾ | I _{FSM} | 200 | A |
| 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 Ta = 25 °C per Fig. 1
- (2) Mounted on 5.0 mm² (0.013 thick) land areas.
- (3) Measured on 8.3 ms , single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Type | Breakdown Voltage @ $I_T^{(1)}$ | | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V_{WM} | Maximum Clamping Voltage @ I_{PPM} | Maximum Peak Pulse Surge Current | | | | |
|-------------|---------------------------------|------|------------|------------------------------|------------------------------------|--------------------------------------|----------------------------------|---------------|------------------|-----------|---------------|
| | V_{BR} (V) | | I_T (mA) | | | | | V_{RWM} (V) | I_R (μ A) | V_C (V) | I_{PPM} (A) |
| | Min. | Max. | | | | | | | | | |
| 3.0SMCJ11C | 12.2 | 15.4 | 1.0 | 11 | 1000 | 20.1 | 149.2 | | | | |
| 3.0SMCJ11CA | 12.2 | 14.0 | 1.0 | 11 | 1000 | 18.2 | 184.8 | | | | |
| 3.0SMCJ12C | 13.3 | 16.9 | 1.0 | 12 | 1000 | 22.0 | 136.4 | | | | |
| 3.0SMCJ12CA | 13.3 | 15.3 | 1.0 | 12 | 1000 | 19.9 | 150.6 | | | | |
| 3.0SMCJ13C | 14.4 | 18.2 | 1.0 | 13 | 500 | 23.8 | 126.0 | | | | |
| 3.0SMCJ13CA | 14.4 | 16.5 | 1.0 | 13 | 500 | 21.5 | 139.4 | | | | |
| 3.0SMCJ14C | 15.6 | 19.8 | 1.0 | 14 | 200 | 25.8 | 116.2 | | | | |
| 3.0SMCJ14CA | 15.6 | 17.9 | 1.0 | 14 | 200 | 23.2 | 129.4 | | | | |
| 3.0SMCJ15C | 16.7 | 21.1 | 1.0 | 15 | 100 | 26.9 | 111.6 | | | | |
| 3.0SMCJ15CA | 16.7 | 19.2 | 1.0 | 15 | 100 | 24.4 | 123.0 | | | | |
| 3.0SMCJ16C | 17.8 | 22.6 | 1.0 | 16 | 50 | 28.8 | 104.2 | | | | |
| 3.0SMCJ16CA | 17.8 | 20.5 | 1.0 | 16 | 50 | 26.0 | 115.4 | | | | |
| 3.0SMCJ17C | 18.9 | 23.9 | 1.0 | 17 | 20 | 30.5 | 98.4 | | | | |
| 3.0SMCJ17CA | 18.9 | 21.7 | 1.0 | 17 | 20 | 27.6 | 106.6 | | | | |
| 3.0SMCJ18C | 20.0 | 25.3 | 1.0 | 18 | 10 | 32.2 | 93.2 | | | | |
| 3.0SMCJ18CA | 20.0 | 23.3 | 1.0 | 18 | 10 | 29.2 | 102.8 | | | | |
| 3.0SMCJ20C | 22.2 | 28.1 | 1.0 | 20 | 10 | 35.8 | 83.8 | | | | |
| 3.0SMCJ20CA | 22.2 | 25.5 | 1.0 | 20 | 10 | 32.4 | 92.6 | | | | |
| 3.0SMCJ22C | 24.4 | 30.9 | 1.0 | 22 | 5 | 39.4 | 76.2 | | | | |
| 3.0SMCJ22CA | 24.4 | 28.0 | 1.0 | 22 | 5 | 35.5 | 84.4 | | | | |
| 3.0SMCJ24C | 26.7 | 33.8 | 1.0 | 24 | 5 | 43.0 | 69.8 | | | | |
| 3.0SMCJ24CA | 26.7 | 30.7 | 1.0 | 24 | 5 | 38.9 | 77.2 | | | | |
| 3.0SMCJ26C | 28.9 | 36.6 | 1.0 | 26 | 5 | 46.6 | 64.4 | | | | |
| 3.0SMCJ26CA | 28.9 | 33.2 | 1.0 | 26 | 5 | 42.1 | 71.2 | | | | |
| 3.0SMCJ28C | 31.1 | 39.4 | 1.0 | 28 | 5 | 50.0 | 60.0 | | | | |
| 3.0SMCJ28CA | 31.1 | 35.8 | 1.0 | 28 | 5 | 45.4 | 66.0 | | | | |
| 3.0SMCJ30C | 33.3 | 42.2 | 1.0 | 30 | 5 | 53.5 | 56.0 | | | | |
| 3.0SMCJ30CA | 33.3 | 38.3 | 1.0 | 30 | 5 | 48.4 | 62.0 | | | | |
| 3.0SMCJ33C | 36.7 | 46.5 | 1.0 | 33 | 5 | 59.0 | 50.4 | | | | |
| 3.0SMCJ33CA | 36.7 | 42.2 | 1.0 | 33 | 5 | 53.3 | 56.2 | | | | |
| 3.0SMCJ36C | 40.0 | 50.7 | 1.0 | 36 | 5 | 64.3 | 46.6 | | | | |
| 3.0SMCJ36CA | 40.0 | 46.0 | 1.0 | 36 | 5 | 58.1 | 51.6 | | | | |
| 3.0SMCJ40C | 44.4 | 56.3 | 1.0 | 40 | 5 | 71.4 | 42.0 | | | | |
| 3.0SMCJ40CA | 44.4 | 51.1 | 1.0 | 40 | 5 | 64.5 | 46.4 | | | | |
| 3.0SMCJ43C | 47.8 | 60.5 | 1.0 | 43 | 5 | 76.7 | 39.2 | | | | |
| 3.0SMCJ43CA | 47.8 | 54.9 | 1.0 | 43 | 5 | 69.4 | 43.2 | | | | |
| 3.0SMCJ45C | 50.0 | 63.3 | 1.0 | 45 | 5 | 80.3 | 37.4 | | | | |
| 3.0SMCJ45CA | 50.0 | 57.5 | 1.0 | 45 | 5 | 72.7 | 41.2 | | | | |
| 3.0SMCJ48C | 53.3 | 67.5 | 1.0 | 48 | 5 | 85.5 | 35.0 | | | | |
| 3.0SMCJ48CA | 53.3 | 61.3 | 1.0 | 48 | 5 | 77.4 | 38.8 | | | | |
| 3.0SMCJ51C | 56.7 | 71.8 | 1.0 | 51 | 5 | 91.1 | 37.0 | | | | |
| 3.0SMCJ51CA | 56.7 | 65.2 | 1.0 | 51 | 5 | 82.4 | 36.4 | | | | |
| 3.0SMCJ54C | 60.0 | 76.0 | 1.0 | 54 | 5 | 96.3 | 31.2 | | | | |
| 3.0SMCJ54CA | 60.0 | 69.0 | 1.0 | 54 | 5 | 87.1 | 34.4 | | | | |

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Type | Breakdown Voltage @ $I_T^{(1)}$ | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V_{WM} | Maximum Clamping Voltage @ I_{PPM} | Maximum Peak Pulse Surge Current | |
|--------------|---------------------------------|-------|------------------------------|------------------------------------|--------------------------------------|----------------------------------|-------|
| | V_{BR} (V) | | | | | | I_T |
| | Min. | Max. | (mA) | (V) | (μ A) | (V) | (A) |
| 3.0SMCJ58C | 64.4 | 81.6 | 1.0 | 58 | 5 | 103 | 39.2 |
| 3.0SMCJ58CA | 64.4 | 74.1 | 1.0 | 58 | 5 | 93.6 | 32.0 |
| 3.0SMCJ60C | 66.7 | 84.5 | 1.0 | 60 | 5 | 107 | 28.0 |
| 3.0SMCJ60CA | 66.7 | 76.7 | 1.0 | 60 | 5 | 96 | 31.0 |
| 3.0SMCJ64C | 71.1 | 90.1 | 1.0 | 64 | 5 | 114 | 26.4 |
| 3.0SMCJ64CA | 71.1 | 81.8 | 1.0 | 64 | 5 | 103 | 29.2 |
| 3.0SMCJ70C | 77.8 | 98.6 | 1.0 | 70 | 5 | 125 | 24.0 |
| 3.0SMCJ70CA | 77.8 | 89.5 | 1.0 | 70 | 5 | 113 | 26.6 |
| 3.0SMCJ75C | 83.3 | 105.7 | 1.0 | 75 | 5 | 134 | 22.4 |
| 3.0SMCJ75CA | 83.3 | 95.8 | 1.0 | 75 | 5 | 121 | 24.8 |
| 3.0SMCJ78C | 86.7 | 109.8 | 1.0 | 78 | 5 | 139 | 21.6 |
| 3.0SMCJ78CA | 86.7 | 99.7 | 1.0 | 78 | 5 | 126 | 22.8 |
| 3.0SMCJ85C | 94.4 | 119.2 | 1.0 | 85 | 5 | 151 | 19.8 |
| 3.0SMCJ85CA | 94.4 | 108.2 | 1.0 | 85 | 5 | 137 | 20.8 |
| 3.0SMCJ90C | 100 | 126.5 | 1.0 | 90 | 5 | 160 | 18.8 |
| 3.0SMCJ90CA | 100 | 115.5 | 1.0 | 90 | 5 | 146 | 20.6 |
| 3.0SMCJ100C | 111 | 141.0 | 1.0 | 100 | 5 | 179 | 16.6 |
| 3.0SMCJ100CA | 111 | 128.0 | 1.0 | 100 | 5 | 162 | 18.6 |
| 3.0SMCJ110C | 122 | 154.5 | 1.0 | 110 | 5 | 196 | 15.4 |
| 3.0SMCJ110CA | 122 | 140.5 | 1.0 | 110 | 5 | 177 | 16.8 |
| 3.0SMCJ120C | 133 | 169.0 | 1.0 | 120 | 5 | 214 | 14.0 |
| 3.0SMCJ120CA | 133 | 153.0 | 1.0 | 120 | 5 | 193 | 15.6 |
| 3.0SMCJ130C | 144 | 182.5 | 1.0 | 130 | 5 | 231 | 13.0 |
| 3.0SMCJ130CA | 144 | 165.5 | 1.0 | 130 | 5 | 209 | 14.4 |
| 3.0SMCJ150C | 167 | 211.5 | 1.0 | 150 | 5 | 268 | 11.2 |
| 3.0SMCJ150CA | 167 | 192.5 | 1.0 | 150 | 5 | 243 | 12.4 |
| 3.0SMCJ160C | 178 | 226.0 | 1.0 | 160 | 5 | 287 | 10.4 |
| 3.0SMCJ160CA | 178 | 205.0 | 1.0 | 160 | 5 | 259 | 11.6 |
| 3.0SMCJ170C | 189 | 239.5 | 1.0 | 170 | 5 | 304 | 9.8 |
| 3.0SMCJ170CA | 189 | 217.5 | 1.0 | 170 | 5 | 275 | 11.0 |
| 3.0SMCJ180C | 198 | 253.8 | 1.0 | 180 | 5 | 322 | 9.3 |
| 3.0SMCJ180CA | 198 | 230.4 | 1.0 | 180 | 5 | 292 | 10.3 |
| 3.0SMCJ190C | 209 | 267.9 | 1.0 | 190 | 5 | 340 | 8.8 |
| 3.0SMCJ190CA | 209 | 243.2 | 1.0 | 190 | 5 | 308 | 9.7 |
| 3.0SMCJ200C | 220 | 282.0 | 1.0 | 200 | 5 | 358 | 8.4 |
| 3.0SMCJ200CA | 220 | 256.0 | 1.0 | 200 | 5 | 324 | 9.3 |
| 3.0SMCJ210C | 231 | 296.1 | 1.0 | 210 | 5 | 376 | 7.8 |
| 3.0SMCJ210CA | 231 | 268.8 | 1.0 | 210 | 5 | 340 | 8.8 |
| 3.0SMCJ220C | 242 | 310.2 | 1.0 | 220 | 5 | 394 | 7.6 |
| 3.0SMCJ220CA | 242 | 281.6 | 1.0 | 220 | 5 | 356 | 8.4 |

Notes :

(1) Pulse test : $t_p \leq 50$ ms.

(2) "SMCJ" will be omitted on marking of the diode.

RATING AND CHARACTERISTIC CURVES (3.0SMCJ11C - 220CA)

FIG.1 - PULSE DERATING CURVE

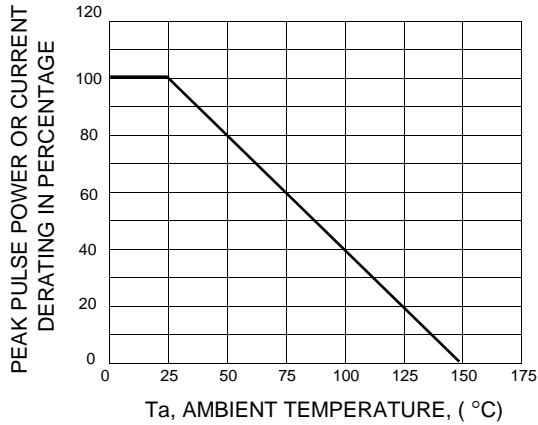


FIG.2 - TYPICAL JUNCTION CAPACITANCE

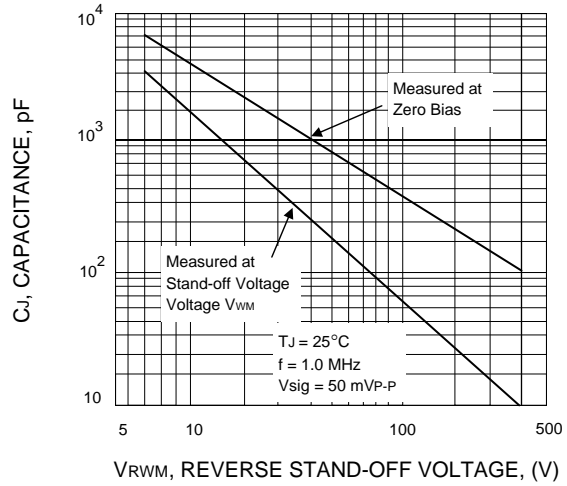


FIG.3 - PULSE WAVEFORM

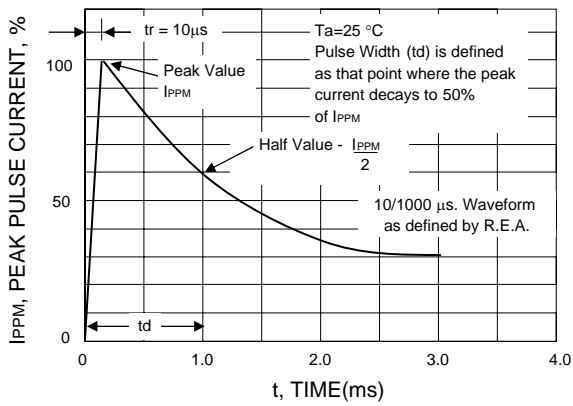


FIG.4 - PEAK PULSE POWER RATING CURVE

