

FEATURES

- For surface mounted application
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- Typical I_R less than $1\mu A$ above 10V'
- High temperature soldering guaranteed:260°C/ 10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 1500 watts peak pulse power capability with a 10 x 1000 us waveform by 0.01% duty cycle



SMC(DO-214AB)

MECHANICAL DATA

- Case: Molded plastic
- Terminals: Solder plated
- Polarity: Indicated by cathode band
- Standard packaging: 12mm tape (EIA STD RS-481)
- Weight: 0.007ounce,0.21 grams.

DEVICES FOR BIPOLAR APPLICATION

For bidirectional use C or CA suffix for types SMCJ5.0 thru types SMCJ440 (e.g.SMCJ5.0CA, SMCJ440CA),electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 ambient temperature unless otherwise specified.

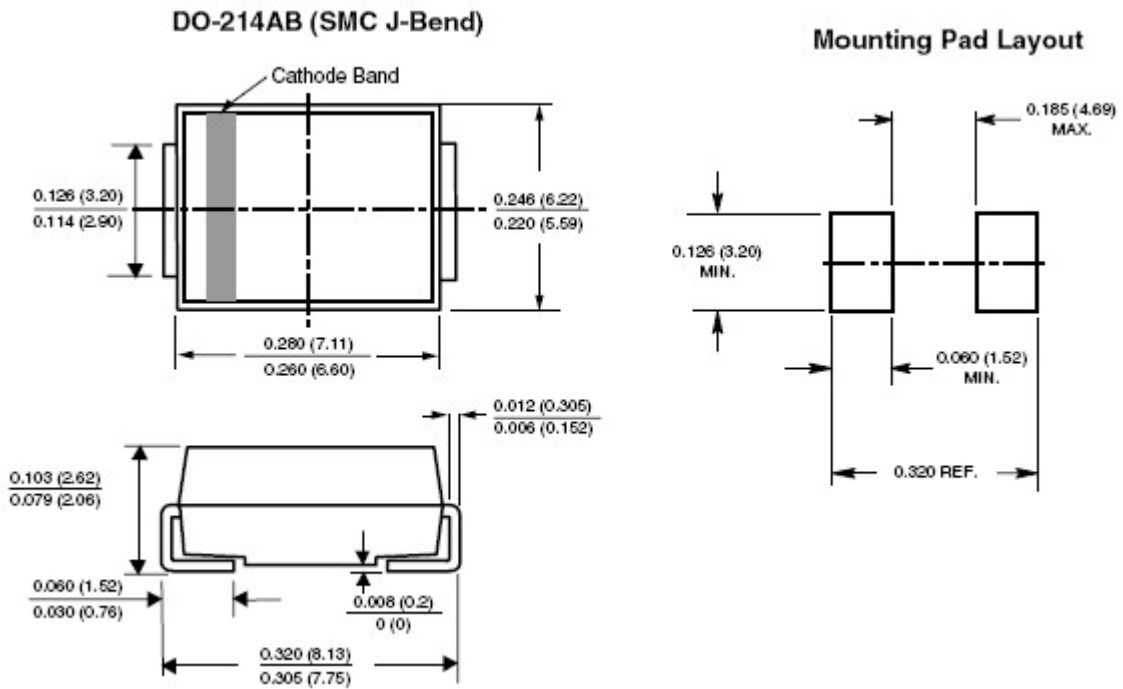
| Type Number | Symbol | Value | Units |
|--|----------------|--------------|------------|
| Peak Power Dissipation at $T_A = 25^\circ C$, $T_p = 1ms$ (Note 1) | P_{PPM} | Minimum 1500 | Watts |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 2, 3) - Unidirectional Only | I_{FSM} | 200 | Amps |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only | V_F | 3.5/5.0 | Volts |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to + 150 | $^\circ C$ |

Notes: 1. Non-repetitive Current Pulse Per Fig. 3 and Derated above $T_A = 25^\circ C$ Per Fig. 2.

2. Mounted on 5.0mm² (.013 mm Thick) Copper Pads to Each Terminal.

3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 pulses Per Minute Maximum.

PACKAGE DIMENSIONS



ELECTRICAL CHARACTERISTICS

| Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage @IT | | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|-------------|-----------|---------------------------|-----------------------|-------------|--------------|-------------------------------|--------------------|-----------------------|
| (UNI) | (BI) | VRWM(V) | VBR MIN.(V) | VBR MAX.(V) | IT(mA) | VC(V) | IPP(A) | IR(μA) |
| SCJ5.0A | SMCJ5.0CA | 5.0 | 6.40 | 7.25 | 10 | 9.2 | 163.0 | 800 |
| SMCJ6.0A | SMCJ6.0CA | 6.0 | 6.67 | 7.67 | 10 | 10.3 | 145.7 | 800 |
| SMCJ6.5A | SMCJ6.5CA | 6.5 | 7.22 | 8.30 | 10 | 11.2 | 134.0 | 500 |
| SMCJ7.0A | SMCJ7.0CA | 7.0 | 7.78 | 8.95 | 10 | 12 | 125.0 | 200 |
| SMCJ7.5A | SMCJ7.5CA | 7.5 | 8.33 | 9.58 | 1 | 12.9 | 116.3 | 100 |
| SMCJ8.0A | SMCJ8.0CA | 8.0 | 8.89 | 10.23 | 1 | 13.6 | 110.3 | 50 |
| SMCJ8.5A | SMCJ8.5CA | 8.5 | 9.44 | 10.82 | 1 | 14.4 | 104.2 | 20 |
| SMCJ9.0A | SMCJ9.0CA | 9.0 | 10.00 | 11.50 | 1 | 15.4 | 97.4 | 10 |
| SMCJ10A | SMCJ10CA | 10.0 | 11.10 | 12.80 | 1 | 17 | 88.3 | 5 |

| Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage @IT | | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|-------------|----------|---------------------------|-----------------------|-------------|--------------|-------------------------------|--------------------|-----------------------|
| (UNI) | (BI) | VRWM(V) | VBR MIN.(V) | VBR MAX.(V) | IT(mA) | VC(V) | IPP(A) | IR(μA) |
| SMCJ11A | SMCJ11CA | 11.0 | 12.20 | 14.00 | 1 | 18.2 | 82.5 | 1 |
| SMCJ12A | SMCJ12CA | 12.0 | 13.30 | 15.30 | 1 | 19.9 | 75.4 | 1 |
| SMCJ13A | SMCJ13CA | 13.0 | 14.40 | 16.50 | 1 | 21.5 | 69.8 | 1 |
| SMCJ14A | SMCJ14CA | 14.0 | 15.60 | 17.90 | 1 | 23.2 | 64.7 | 1 |
| SMCJ15A | SMCJ15CA | 15.0 | 16.70 | 19.20 | 1 | 24.4 | 61.5 | 1 |
| SMCJ16A | SMCJ16CA | 16.0 | 17.80 | 20.50 | 1 | 26 | 57.7 | 1 |
| SMCJ17A | SMCJ17CA | 17.0 | 18.90 | 21.70 | 1 | 27.6 | 54.4 | 1 |
| SMCJ18A | SMCJ18CA | 18.0 | 20.00 | 23.30 | 1 | 29.2 | 51.4 | 1 |
| SMCJ20A | SMCJ20CA | 20.0 | 22.20 | 25.50 | 1 | 32.4 | 46.3 | 1 |
| SMCJ22A | SMCJ22CA | 22.0 | 24.40 | 28.00 | 1 | 35.5 | 42.3 | 1 |
| SMCJ24A | SMCJ24CA | 24.0 | 26.70 | 30.70 | 1 | 38.9 | 38.6 | 1 |
| SMCJ26A | SMCJ26CA | 26.0 | 28.90 | 33.20 | 1 | 42.1 | 35.7 | 1 |
| SMCJ28A | SMCJ28CA | 28.0 | 31.10 | 35.80 | 1 | 45.2 | 33.1 | 1 |
| SMCJ30A | SMCJ30CA | 30.0 | 33.30 | 38.30 | 1 | 48.4 | 31.0 | 1 |
| SMCJ33A | SMCJ33CA | 33.0 | 36.70 | 42.20 | 1 | 53.3 | 28.2 | 1 |
| SMCJ36A | SMCJ36CA | 36.0 | 40.00 | 46.00 | 1 | 58.1 | 25.9 | 1 |
| SMCJ40A | SMCJ40CA | 40.0 | 44.40 | 51.10 | 1 | 64.5 | 23.3 | 1 |
| SMCJ43A | SMCJ43CA | 43.0 | 47.80 | 54.90 | 1 | 69.4 | 21.7 | 1 |
| SMCJ45A | SMCJ45CA | 45.0 | 50.00 | 57.50 | 1 | 72.7 | 20.6 | 1 |
| SMCJ48A | SMCJ48CA | 48.0 | 53.30 | 61.30 | 1 | 77.4 | 19.4 | 1 |
| SMCJ51A | SMCJ51CA | 51.0 | 56.70 | 65.20 | 1 | 82.4 | 18.2 | 1 |
| SMCJ54A | SMCJ54CA | 54.0 | 60.00 | 69.00 | 1 | 87.1 | 17.3 | 1 |
| SMCJ58A | SMCJ58CA | 58.0 | 64.40 | 74.10 | 1 | 93.6 | 16.1 | 1 |
| SMCJ60A | SMCJ60CA | 60.0 | 66.70 | 76.70 | 1 | 96.8 | 15.5 | 1 |
| SMCJ64A | SMCJ64CA | 64.0 | 71.10 | 81.80 | 1 | 103 | 14.6 | 1 |
| SMCJ70A | SMCJ70CA | 70.0 | 77.80 | 89.50 | 1 | 113 | 13.3 | 1 |

| Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage @IT | | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|-------------|-----------|---------------------------|-----------------------|-------------|--------------|-------------------------------|--------------------|-----------------------|
| (UNI) | (BI) | VRWM(V) | VBR MIN.(V) | VBR MAX.(V) | IT(mA) | VC(V) | IPP(A) | IR(μA) |
| SMCJ75A | SMCJ75CA | 75.0 | 83.30 | 95.80 | 1 | 121 | 12.4 | 1 |
| SMCJ78A | SMCJ78CA | 78.0 | 86.70 | 99.70 | 1 | 126 | 11.9 | 1 |
| SMCJ85A | SMCJ85CA | 85.0 | 94.40 | 108.20 | 1 | 137 | 11.0 | 1 |
| SMCJ90A | SMCJ90CA | 90.0 | 100.00 | 115.50 | 1 | 146 | 10.3 | 1 |
| SMCJ100A | SMCJ100CA | 100.0 | 111.00 | 128.00 | 1 | 162 | 9.3 | 1 |
| SMCJ110A | SMCJ110CA | 110.0 | 122.00 | 140.50 | 1 | 177 | 8.5 | 1 |
| SMCJ120A | SMCJ120CA | 120.0 | 133.00 | 153.00 | 1 | 193 | 7.8 | 1 |
| SMCJ130A | SMCJ130CA | 130.0 | 144.00 | 165.50 | 1 | 209 | 7.2 | 1 |
| SMCJ150A | SMCJ150CA | 150.0 | 167.00 | 192.50 | 1 | 243 | 6.2 | 1 |
| SMCJ160A | SMCJ160CA | 160.0 | 178.00 | 205.00 | 1 | 259 | 5.8 | 1 |
| SMCJ170A | SMCJ170CA | 170.0 | 189.00 | 217.50 | 1 | 275 | 5.5 | 1 |
| SMCJ180A | SMCJ180CA | 180.0 | 201.00 | 230.40 | 1 | 292 | 5.1 | 1 |
| SMCJ190A | SMCJ190CA | 190.0 | 209.00 | 243.20 | 1 | 308 | 4.8 | 1 |
| SMCJ200A | SMCJ200CA | 200.0 | 224.00 | 256.00 | 1 | 324 | 4.6 | 1 |
| SMCJ210A | SMCJ210CA | 210.0 | 231.00 | 268.80 | 1 | 340 | 4.4 | 1 |
| SMCJ220A | SMCJ220CA | 220.0 | 246.00 | 281.60 | 1 | 356 | 4.2 | 1 |
| SMCJ250A | SMCJ250CA | 250.0 | 279.00 | 309.00 | 1 | 405 | 3.7 | 1 |
| SMCJ300A | SMCJ300CA | 300.0 | 335.00 | 371.00 | 1 | 486 | 3.1 | 1 |
| SMCJ350A | SMCJ350CA | 350.0 | 391.00 | 432.00 | 1 | 567 | 2.5 | 1 |
| SMCJ400A | SMCJ400CA | 400.0 | 447.00 | 494.00 | 1 | 648 | 2.3 | 1 |
| SMCJ440A | SMCJ440CA | 440.0 | 492.00 | 543.00 | 1 | 713 | 2.1 | 1 |

PACKAGING

| Part Number | Component Package | Quantity |
|-------------|-------------------|----------|
| SMCJxxxXX | DO-214AB | 500 |

RATINGS AND CHARACTERISTIC CURVES (TA=25 unless otherwise noted)

FIG. 1- PEAK PULSE POWER RATING CURVE

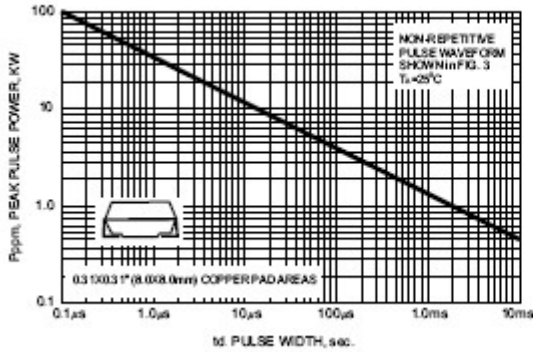


FIG. 2- PULSE DERATING CURVE

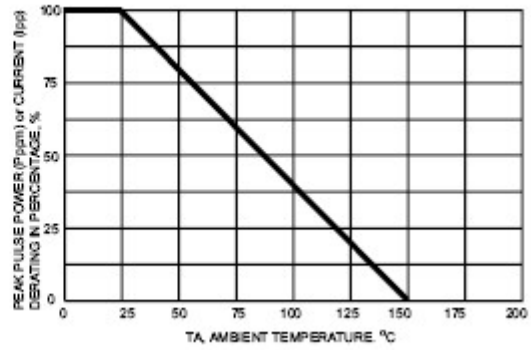


FIG. 3- PULSE WAVEFORM

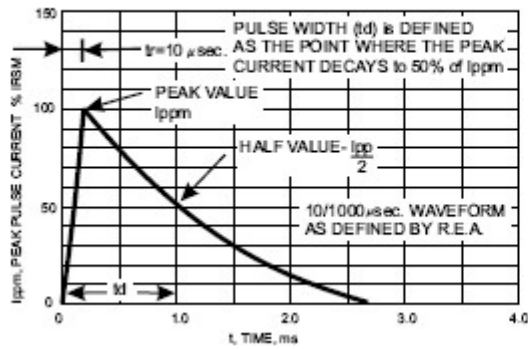


FIG. 4- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

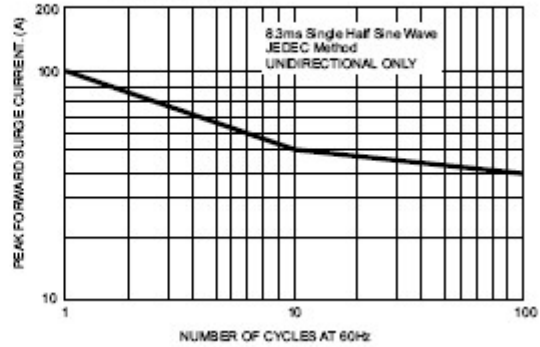


FIG. 5- TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

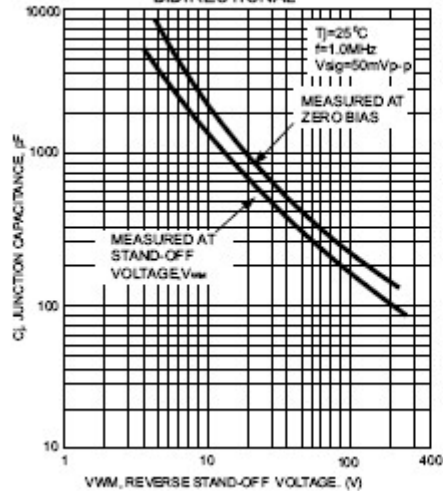
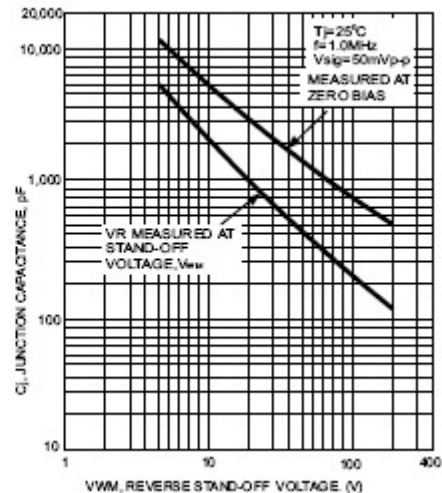


FIG. 6- TYPICAL JUNCTION CAPACITANCE



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