

FEATURES

- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low incremental surge resistance
- Low inductance
- Excellent clamping capability
- 1500W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Very fast response time
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0

MECHANICAL DATA

Case: JEDEC DO-214AB (SMC) molded plastic over passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026. High temperature soldering: 250°C/10 seconds at terminals.

Polarity: For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation.

Standard Packaging: 16mm tape (EIA STD RS-481)

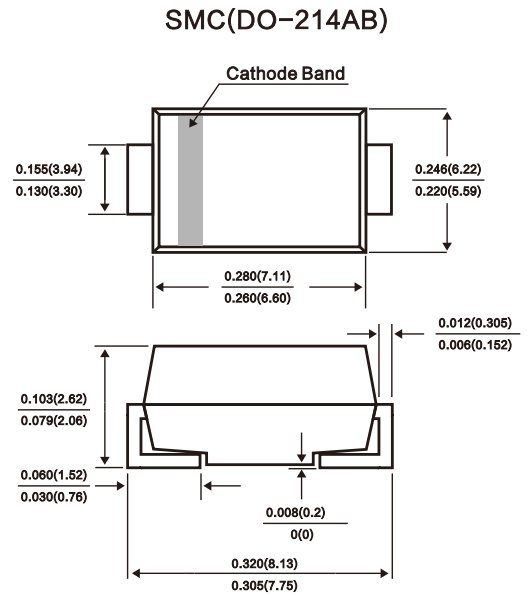
Weight: 0.007 oz., 0.21 g

Packaging Codes – Options (Antistatic):

51 – 1K per Bulk box, 10K/carton

57 – 850 per 7" plastic Reel (16mm tape), 8.5K/carton

9A – 3.5K per 13" plastic Reel (16mm tape), 35K/carton



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|-------------|-------|
| Peak power dissipation with a 10/1000 μ s waveform | PPPM | 1500 | W |
| Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only | V _F | 3.5 | Volts |
| Power dissipation on infinite heatsink, T _A = 50°C | P _{M(AV)} | 6.5 | W |
| Peak forward surge current 8.3ms single half sine-wave uni-directional only ⁽²⁾ | I _{FSM} | 200 | A |
| Thermal resistance junction to ambient air ⁽³⁾ | R _{θJA} | 75 | °C/W |
| Thermal resistance junction to leads | R _{θJL} | 15 | °C/W |
| Operating junction and storage temperature range | T _J , T _{STG} | -65 to +150 | °C |

Notes: (1) Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig. 2

(2) Mounted on 0.31 x 0.31" (8.0 x 8.0mm) copper pads to each terminal

(3) Mounted on minimum recommended pad layout

Electrical Characteristics

| General Semiconductor Part Number | Device Marking Code | | Breakdown Voltage $V_{(BR)}$ at $I_T^{(1)}$ (V) | | Test Current I_T (mA) | Stand-off Voltage V_{WM} (V) | Maximum Reverse Leakage at V_{WM} $I_D^{(4)}$ (μ A) | Maximum Peak Pulse Current $I_{PPM}^{(2)}$ (A) | Maximum Clamping Voltage at I_{PPM} V_C (V) | Maximum Temp. Coefficient of $V_{(BR)}$ (% / °C) |
|-----------------------------------|---------------------|------|---|------|-------------------------|--------------------------------|--|--|---|--|
| | UNI | BI | MIN | MAX | | | | | | |
| 1.5SMC6.8A(CA) | 6V8A | 6V8C | 6.45 | 7.14 | 10 | 5.8 | 1000 | 143 | 10.5 | 0.057 |
| 1.5SMC7.5A(CA) | 7V5A | 7V5C | 7.13 | 7.88 | 10 | 6.4 | 500 | 133 | 11.3 | 0.061 |
| 1.5SMC8.2A(CA) | 8V2A | 8V2C | 7.79 | 8.61 | 10 | 7.02 | 200 | 124 | 12.1 | 0.065 |
| 1.5SMC9.1A(CA) | 9V1A | 9V1C | 8.65 | 9.55 | 1 | 7.78 | 50 | 112 | 13.4 | 0.068 |
| 1.5SMC10A(CA) | 10A | 10C | 9.5 | 10.5 | 1 | 8.55 | 10 | 103 | 14.5 | 0.073 |
| 1.5SMC11A(CA) | 11A | 11C | 10.5 | 11.6 | 1 | 9.4 | 5 | 96.2 | 15.6 | 0.075 |
| 1.5SMC12A(CA) | 12A | 12C | 11.4 | 12.6 | 1 | 10.2 | 5 | 89.8 | 16.7 | 0.078 |
| 1.5SMC13A(CA) | 13A | 13C | 12.4 | 13.7 | 1 | 11.1 | 5 | 82.4 | 18.2 | 0.081 |
| 1.5SMC15A(CA) | 15A | 15C | 14.3 | 15.8 | 1 | 12.8 | 1 | 70.8 | 21.2 | 0.084 |
| 1.5SMC16A(CA) | 16A | 16C | 15.2 | 16.8 | 1 | 13.6 | 1 | 66.7 | 22.5 | 0.086 |
| 1.5SMC18A(CA) | 18A | 18C | 17.1 | 18.9 | 1 | 15.3 | 1 | 59.5 | 25.2 | 0.089 |
| 1.5SMC20A(CA) | 20A | 20C | 19 | 21 | 1 | 17.1 | 1 | 54.2 | 27.7 | 0.09 |
| 1.5SMC22A(CA) | 22A | 22C | 20.9 | 23.1 | 1 | 18.8 | 1 | 49 | 30.6 | 0.092 |
| 1.5SMC24A(CA) | 24A | 24C | 22.8 | 25.2 | 1 | 20.5 | 1 | 45.2 | 33.2 | 0.09 |
| 1.5SMC27A(CA) | 27A | 27C | 25.7 | 28.4 | 1 | 23.1 | 1 | 40 | 37.5 | 0.096 |
| 1.5SMC30A(CA) | 30A | 30C | 28.5 | 31.5 | 1 | 25.6 | 1 | 36.2 | 41.4 | 0.097 |
| 1.5SMC33A(CA) | 33A | 33C | 31.4 | 34.7 | 1 | 28.2 | 1 | 32.8 | 45.7 | 0.098 |
| 1.5SMC36A(CA) | 36A | 36C | 34.2 | 37.8 | 1 | 30.8 | 1 | 30.1 | 49.9 | 0.099 |
| 1.5SMC39A(CA) | 39A | 39C | 37.1 | 41 | 1 | 33.3 | 1 | 27.8 | 53.9 | 0.1 |
| 1.5SMC43A(CA) | 43A | 43C | 40.9 | 45.2 | 1 | 36.8 | 1 | 25.3 | 59.3 | 0.101 |
| 1.5SMC47A(CA) | 47A | 47C | 44.7 | 49.4 | 1 | 40.2 | 1 | 23.1 | 64.8 | 0.101 |
| 1.5SMC51A(CA) | 51A | 51C | 48.5 | 53.6 | 1 | 43.6 | 1 | 21.4 | 70.1 | 0.102 |
| 1.5SMC56A(CA) | 56A | 56C | 53.2 | 58.8 | 1 | 47.8 | 1 | 19.5 | 77 | 0.103 |
| 1.5SMC62A(CA) | 62A | 62C | 58.9 | 65.1 | 1 | 53 | 1 | 17.6 | 85 | 0.104 |
| 1.5SMC68A(CA) | 68A | 68C | 64.6 | 71.4 | 1 | 58.1 | 1 | 16.3 | 92 | 0.104 |
| 1.5SMC75A(CA) | 75A | 75C | 71.3 | 78.8 | 1 | 64.1 | 1 | 14.6 | 104 | 0.105 |
| 1.5SMC82A(CA) | 82A | 82C | 77.9 | 86.1 | 1 | 70.1 | 1 | 13.3 | 113 | 0.105 |
| 1.5SMC91A(CA) | 91A | 91C | 86.5 | 95.5 | 1 | 77.8 | 1 | 12 | 125 | 0.106 |
| 1.5SMC100A(CA) | 100A | 100C | 95 | 105 | 1 | 85.5 | 1 | 10.9 | 137 | 0.106 |
| 1.5SMC110A(CA) | 110A | 110C | 105 | 116 | 1 | 94 | 1 | 9.9 | 152 | 0.107 |
| 1.5SMC120A(CA) | 120A | 120C | 114 | 126 | 1 | 102 | 1 | 9.1 | 165 | 0.107 |
| 1.5SMC130A(CA) | 130A | 130C | 124 | 137 | 1 | 111 | 1 | 8.4 | 179 | 0.107 |
| 1.5SMC150A(CA) | 150A | 150C | 143 | 158 | 1 | 128 | 1 | 7.2 | 207 | 0.106 |
| 1.5SMC160A(CA) | 160A | 160C | 152 | 168 | 1 | 136 | 1 | 6.8 | 219 | 0.108 |
| 1.5SMC170A(CA) | 170A | 170C | 162 | 179 | 1 | 145 | 1 | 6.4 | 234 | 0.108 |
| 1.5SMC180A(CA) | 180A | 180C | 171 | 189 | 1 | 154 | 1 | 6.1 | 246 | 0.108 |
| 1.5SMC200A(CA) | 200A | 200C | 190 | 210 | 1 | 171 | 1 | 5.5 | 274 | 0.108 |
| 1.5SMC220A(CA) | 220A | 220C | 209 | 231 | 1 | 185 | 1 | 4.6 | 328 | 0.108 |
| 1.5SMC250A(CA) | 250A | — | 237 | 263 | 1 | 214 | 1 | 4.4 | 344 | 0.11 |
| 1.5SMC300A(CA) | 300A | — | 285 | 315 | 1 | 256 | 1 | 3.6 | 414 | 0.11 |
| 1.5SMC350A(CA) | 350A | — | 333 | 368 | 1 | 300 | 1 | 3.1 | 482 | 0.11 |
| 1.5SMC400A(CA) | 400A | — | 380 | 420 | 1 | 342 | 1 | 2.7 | 548 | 0.11 |
| 1.5SMC440A(CA) | 440A | — | 418 | 462 | 1 | 376 | 1 | 2.5 | 602 | 0.11 |
| 1.5SMC480A(CA) | 480A | — | 456 | 504 | 1 | 408 | 1 | 2.28 | 658 | 0.11 |
| 1.5SMC510A(CA) | 510A | — | 485 | 535 | 1 | 434 | 1 | 2.15 | 698 | 0.11 |
| 1.5SMC540A(CA) | 540A | — | 513 | 567 | 1 | 459 | 1 | 2.03 | 740 | 0.11 |

- Notes: (1) Pulse test: $t_p \leq 50ms$
(2) Surge current waveform per Fig. 3 and derate per Fig. 2
(3) All terms and symbols are consistent with ANSI/IEEE CA62.35
(4) For bidirectional types with V_R 10 volts and less, the I_D limit is doubled

Fig. 1 – Peak Pulse Power Rating Curve

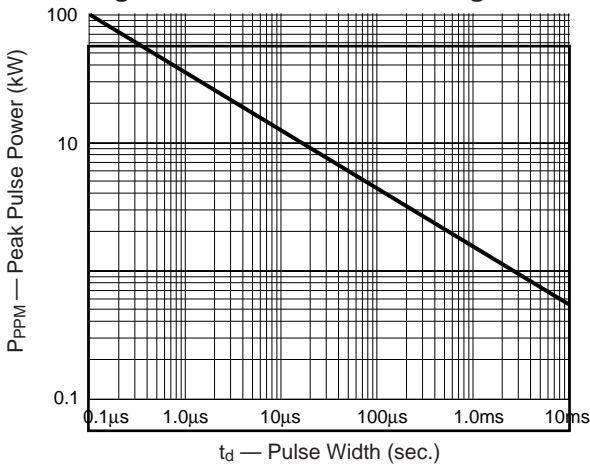


Fig. 2 – Pulse Derating Curve

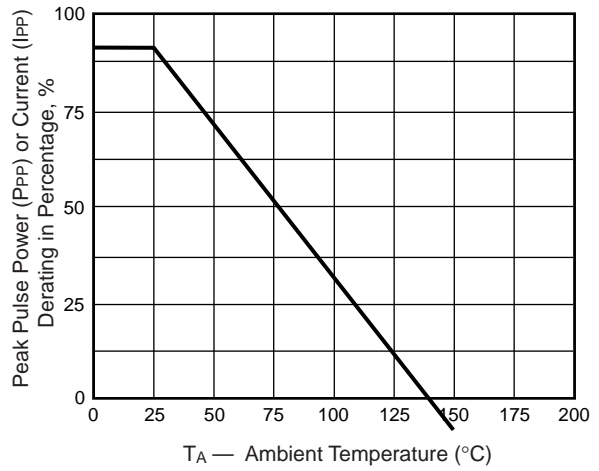


Fig. 3 – Pulse Waveform

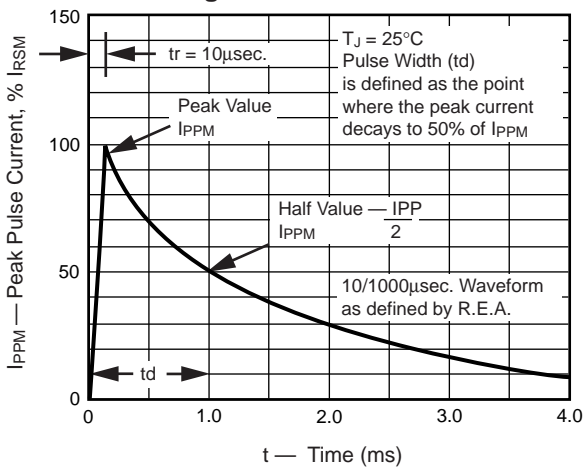


Fig. 4 – Typical Junction Capacitance Uni-Directional

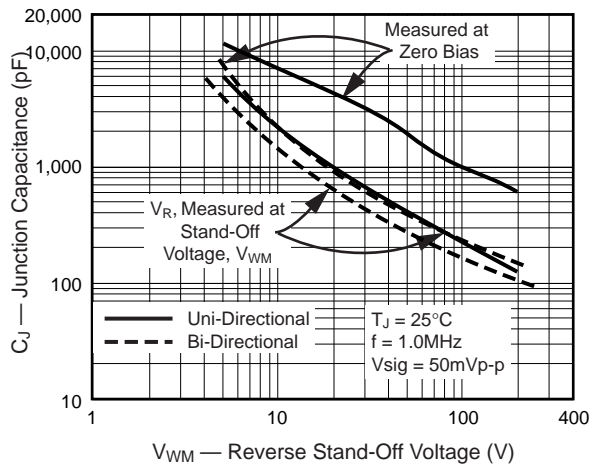


Fig. 5 – Typical Transient Thermal Impedance

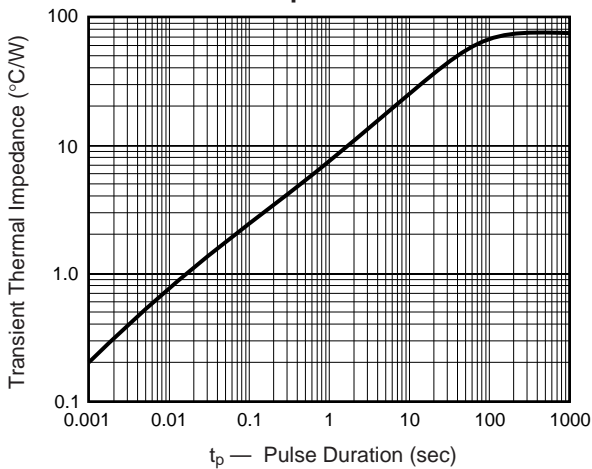
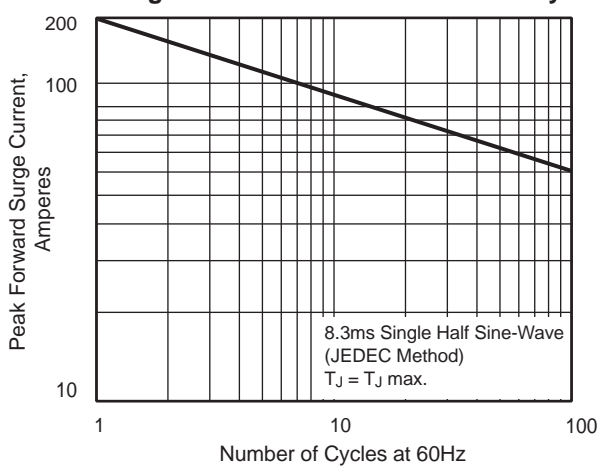


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only



ORDERING INFORMATION

| Order Code | Package | Baseqty | Deliverymode |
|----------------|---------|---------|---------------|
| UMW 1.5SMCxxA | SMC | 850 | Tape and reel |
| UMW 1.5SMCxxCA | SMC | 850 | Tape and reel |