



1.5SMC6.8A thru 1.5SMC550CA

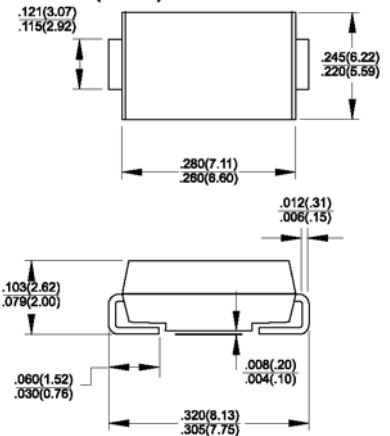
Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Breakdown Voltage 6.8 to 550V

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 10/1000us waveform, repetition rate (duty cycle): 0.01%
- ◆ Very fast response time
- ◆ High temperature soldering: 250°C/10 seconds at terminals
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0



DO-214AB (SMC)



Mechanical Data

- ◆ Case: JEDEC DO-214AB (SMC) molded plastic over passivated junction
- ◆ Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ Polarity: For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- ◆ Weight: 0.007oz., 0.21g

Devices for Bidirectional Applications

For bi-directional devices, use suffix CA (e.g. 1.5SMC10CA). Electrical characteristics apply in both directions.

Maximum Ratings and Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | Value | Unit |
|---|-----------------|----------------|--------------------|
| Peak pulse power dissipation with a 10/1000us waveform ⁽¹⁾ ⁽²⁾ (Fig. 1) | P_{PPM} | Minimum 1500 | W |
| Peak pulse current with a 10/1000us waveform ⁽¹⁾ (Fig. 3) | I_{PPM} | See Next Table | A |
| Power dissipation on infinite heatsink, $T_A=50^\circ\text{C}$ | $P_{M(AV)}$ | 6.5 | W |
| Peak forward surge current 8.3ms single half sine-wave uni-directional only ⁽²⁾ | I_{FSM} | 200 | Amps |
| Thermal resistance junction to ambient air ⁽³⁾ | $R_{\theta JA}$ | 75 | $^\circ\text{C/W}$ |
| Thermal resistance junction to leads | $R_{\theta JL}$ | 15 | $^\circ\text{C/W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

- Notes:**
1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ 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

Ratings at 25°C ambient temperature unless otherwise specified. $V_F=3.5V$ at $I_F=100A$ (uni-directional only)

| Device type | Device marking code | | Breakdown voltage $V_{(BR)}$ (Volts) ⁽¹⁾ | | Test current at I_T (mA) | Stand-off voltage V_{WM} (Volts) | Maximum reverse leakage at V_{WM} at $I_D^{(4)}$ (uA) | Maximum peak pulse current $I_{PPM}^{(2)}$ (A) | Maximum clamping voltage at I_{PPM} V_C (Volts) | Maximum temperature coefficient of $V_{(BR)}$ (% / °C) |
|-------------|---------------------|------|---|-------|----------------------------|------------------------------------|---|--|---|--|
| | UNI | BI | Min. | Max. | | | | | | |
| 1.5SMC6.8A | 6V8A | 6V8C | 6.45 | 7.14 | 10 | 5.80 | 1000 | 143 | 10.5 | 0.057 |
| 1.5SMC7.5A | 7V5A | 7V5C | 7.13 | 7.88 | 10 | 6.40 | 500 | 133 | 11.3 | 0.061 |
| 1.5SMC8.2A | 8V2A | 8V2C | 7.79 | 8.61 | 10 | 7.02 | 200 | 124 | 12.1 | 0.065 |
| 1.5SMC9.1A | 9V1A | 9V1C | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 112 | 13.4 | 0.068 |
| 1.5SMC10A | 10A | 10C | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 103 | 14.5 | 0.073 |
| 1.5SMC11A | 11A | 11C | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 96.2 | 15.6 | 0.075 |
| 1.5SMC12A | 12A | 12C | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 89.8 | 16.7 | 0.078 |
| 1.5SMC13A | 13A | 13C | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82.4 | 18.2 | 0.081 |
| 1.5SMC15A | 15A | 15C | 14.3 | 15.8 | 1.0 | 12.8 | 1.0 | 70.8 | 21.2 | 0.084 |
| 1.5SMC16A | 16A | 16C | 15.2 | 16.8 | 1.0 | 13.6 | 1.0 | 66.7 | 22.5 | 0.086 |
| 1.5SMC18A | 18A | 18C | 17.1 | 18.9 | 1.0 | 15.3 | 1.0 | 59.5 | 25.2 | 0.089 |
| 1.5SMC20A | 20A | 20C | 19.0 | 21.0 | 1.0 | 17.1 | 1.0 | 54.2 | 27.7 | 0.090 |
| 1.5SMC22A | 22A | 22C | 20.9 | 23.1 | 1.0 | 18.8 | 1.0 | 49.0 | 30.6 | 0.092 |
| 1.5SMC24A | 24A | 24C | 22.8 | 25.2 | 1.0 | 20.5 | 1.0 | 45.2 | 33.2 | 0.094 |
| 1.5SMC27A | 27A | 27C | 25.7 | 28.4 | 1.0 | 23.1 | 1.0 | 40.0 | 37.5 | 0.096 |
| 1.5SMC30A | 30A | 30C | 28.5 | 31.5 | 1.0 | 25.6 | 1.0 | 36.2 | 41.4 | 0.097 |
| 1.5SMC33A | 33A | 33C | 31.4 | 34.7 | 1.0 | 28.2 | 1.0 | 32.8 | 45.7 | 0.098 |
| 1.5SMC36A | 36A | 36C | 34.2 | 37.8 | 1.0 | 30.8 | 1.0 | 30.1 | 49.9 | 0.099 |
| 1.5SMC39A | 39A | 39C | 37.1 | 41.0 | 1.0 | 33.3 | 1.0 | 27.8 | 53.9 | 0.100 |
| 1.5SMC43A | 43A | 43C | 40.9 | 45.2 | 1.0 | 36.8 | 1.0 | 25.3 | 59.3 | 0.101 |
| 1.5SMC47A | 47A | 47C | 44.7 | 49.4 | 1.0 | 40.2 | 1.0 | 23.1 | 64.8 | 0.101 |
| 1.5SMC51A | 51A | 51C | 48.5 | 53.6 | 1.0 | 43.6 | 1.0 | 21.4 | 70.1 | 0.102 |
| 1.5SMC56A | 56A | 56C | 53.2 | 58.8 | 1.0 | 47.8 | 1.0 | 19.5 | 77.0 | 0.103 |
| 1.5SMC62A | 62A | 62C | 58.9 | 65.1 | 1.0 | 53.0 | 1.0 | 17.6 | 85.0 | 0.104 |
| 1.5SMC68A | 68A | 68C | 64.6 | 71.4 | 1.0 | 58.1 | 1.0 | 16.3 | 92.0 | 0.104 |
| 1.5SMC75A | 75A | 75C | 71.3 | 78.8 | 1.0 | 64.1 | 1.0 | 14.6 | 104 | 0.105 |
| 1.5SMC82A | 82A | 82C | 77.9 | 86.1 | 1.0 | 70.1 | 1.0 | 13.3 | 113 | 0.105 |
| 1.5SMC91A | 91A | 91C | 86.5 | 95.5 | 1.0 | 77.8 | 1.0 | 12.0 | 125 | 0.106 |
| 1.5SMC100A | 100A | 100C | 95.0 | 105 | 1.0 | 85.5 | 1.0 | 10.9 | 137 | 0.106 |
| 1.5SMC110A | 110A | 110C | 105 | 116 | 1.0 | 94.0 | 1.0 | 9.9 | 152 | 0.107 |
| 1.5SMC120A | 120A | 120C | 114 | 126 | 1.0 | 102 | 1.0 | 9.1 | 165 | 0.107 |
| 1.5SMC130A | 130A | 130C | 124 | 137 | 1.0 | 111 | 1.0 | 8.4 | 179 | 0.107 |
| 1.5SMC150A | 150A | 150C | 143 | 158 | 1.0 | 128 | 1.0 | 7.2 | 207 | 0.106 |
| 1.5SMC160A | 160A | 160C | 152 | 168 | 1.0 | 136 | 1.0 | 6.8 | 219 | 0.108 |
| 1.5SMC170A | 170A | 170C | 162 | 179 | 1.0 | 145 | 1.0 | 6.4 | 234 | 0.108 |
| 1.5SMC180A | 180A | 180C | 171 | 189 | 1.0 | 154 | 1.0 | 6.1 | 246 | 0.108 |
| 1.5SMC200A | 200A | 200C | 190 | 210 | 1.0 | 171 | 1.0 | 5.5 | 274 | 0.108 |
| 1.5SMC220A | 220A | 220C | 209 | 231 | 1.0 | 185 | 1.0 | 4.6 | 328 | 0.108 |
| 1.5SMC250A | 250A | 250C | 237 | 263 | 1.0 | 214 | 1.0 | 4.4 | 344 | 0.108 |
| 1.5SMC300A | 300A | 300C | 285 | 315 | 1.0 | 256 | 1.0 | 3.7 | 414 | 0.108 |
| 1.5SMC350A | 350A | 350C | 332 | 368 | 1.0 | 300 | 1.0 | 3.2 | 482 | 0.108 |
| 1.5SMC400A | 400A | 400C | 380 | 420 | 1.0 | 342 | 1.0 | 2.8 | 548 | 0.108 |
| 1.5SMC440A | 440A | 440C | 418 | 462 | 1.0 | 376 | 1.0 | 2.5 | 602 | 0.108 |
| 1.5SMC480A | 480A | 480C | 456 | 504 | 1.0 | 408 | 1.0 | 2.3 | 658 | 0.108 |
| 1.5SMC510A | 510A | 510C | 485 | 535 | 1.0 | 434 | 1.0 | 2.1 | 698 | 0.108 |
| 1.5SMC530A | 530A | 530C | 503.5 | 556.5 | 1.0 | 477 | 1.0 | 2.1 | 725 | 0.108 |
| 1.5SMC540A | 540A | 540C | 513 | 567 | 1.0 | 459 | 1.0 | 2.0 | 740 | 0.108 |
| 1.5SMC550A | 550A | 550C | 522.5 | 577.5 | 1.0 | 495 | 1.0 | 2.0 | 760 | 0.108 |

- Notes:**
1. $V_{(BR)}$ measured after I_T applied for 300us, I_T =square wave pulse or equivalent
 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

RATINGS AND CHARACTERISTIC CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

