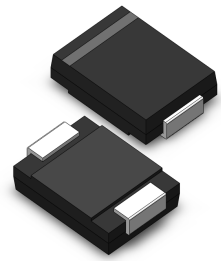
# 1.5SMC6.8A(CA) - 1.5SMC440A(CA)

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE RANGE: 6.8 - 440 V**
**POWER: 1500Watts**



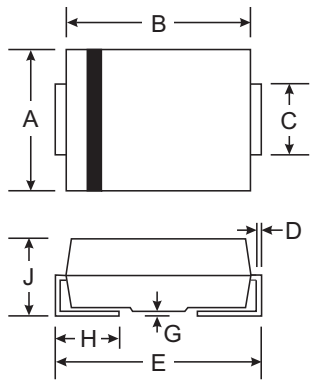
## Features

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O

## Mechanical Data

- Case :DO-214AB(SMC)
- Terminals : Solder plated , solderable per MIL-STD-750, method 2026
- Marking: Date Code and Marking Code See Page 2
- Weight: 0.21 grams (approximate)

RoHS COMPLIANT




| SMC/DO-214AB | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 5.59 | 6.22 |
| **B** | 6.60 | 7.11 |
| **C** | 2.75 | 3.18 |
| **D** | 0.15 | 0.31 |
| **E** | 7.75 | 8.13 |
| **G** | 0.10 | 0.20 |
| **H** | 0.76 | 1.52 |
| **J** | 2.00 | 2.62 |
| **All Dimensions in mm** | | |

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power Dissipation (Non repetitive current pulse derated above $T_A$ = 25°C) (Note 1) | $P_{PK}$ | 1500 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3) | $I_{FSM}$ | 200 | A |
| Steady State Power Dissipation @ $T_L$ = 75°C | $PM_{(AV)}$ | 5.0 | W |
| Instantaneous Forward Voltage @ $I_{PP}$ = 100A (Notes 1 & 3) | $V_F$ | See Note 5 | V |
| Operating Temperature Range | $T_j$ | -55 to +150 | °C |
| Storage Temperature Range | $T_{STG}$ | -55 to +175 | °C |

NOTES:1. Non-repetitive current pulse ,per Fig. 3 and derated above $T_A$=25℃ per Fig. 1.

2. Thermal Resistance junction to Lead.

3. 8.3ms single half-wave duty cycle=4 pulses per minutes maximum (uni-directional units only).

| TYPE | | Reverse Stand-Off Voltage | Breakdown Voltage Min. @$I_T$ | Breakdown Voltage Max. @ $I_T$ | Test Current | Maximum Clamping Voltage @$I_{PP}$ | Peak Pulse Current | Reverse Leakage @$V_{RWM}$ |
|---|---|---|---|---|---|---|---|---|
| (UNI) | (BI) | $V_{RWM}$(V) | $V_{BR\ MIN}$(V) | $V_{BR\ MAX}$(V) | $I_T$ (mA) | $V_C$(V) | $I_{PP}$(A) | $I_R$(uA) |
| 1.5SMC6.8 | 1.5SMC6.8C | 5.50 | 6.12 | 7.48 | 10 | 10.8 | 140.7 | 1000.0 |
| 1.5SMC6.8A | 1.5SMC6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 144.8 | 1000.0 |
| 1.5SMC7.5 | 1.5SMC7.5C | 6.05 | 6.75 | 8.25 | 10 | 11.7 | 129.9 | 500.0 |
| 1.5SMC7.5A | 1.5SMC7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 134.5 | 500.0 |
| 1.5SMC8.2 | 1.5SMC8.2C | 6.63 | 7.38 | 9.02 | 10 | 12.5 | 121.6 | 200.0 |
| 1.5SMC8.2A | 1.5SMC8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 125.6 | 200.0 |
| 1.5SMC9.1 | 1.5SMC9.1C | 7.37 | 8.19 | 10.0 | 1.0 | 13.8 | 110.1 | 50.0 |
| 1.5SMC9.1A | 1.5SMC9.1CA | 7.78 | 8.65 | 9.55 | 1.0 | 13.4 | 113.4 | 50.0 |
| 1.5SMC10 | 1.5SMC10C | 8.10 | 9.00 | 11.0 | 1.0 | 15.0 | 101.3 | 10.0 |
| 1.5SMC10A | 1.5SMC10CA | 8.55 | 9.50 | 10.5 | 1.0 | 14.5 | 104.8 | 10.0 |
| 1.5SMC11 | 1.5SMC11C | 8.92 | 9.90 | 12.1 | 1.0 | 16.2 | 93.8 | 5.0 |
| 1.5SMC11A | 1.5SMC11CA | 9.40 | 10.5 | 11.6 | 1.0 | 15.6 | 97.4 | 5.0 |
| 1.5SMC12 | 1.5SMC12C | 9.72 | 10.8 | 13.2 | 1.0 | 17.3 | 87.9 | 5.0 |
| 1.5SMC12A | 1.5SMC12CA | 10.2 | 11.4 | 12.6 | 1.0 | 16.7 | 91.0 | 5.0 |
| 1.5SMC13 | 1.5SMC13C | 10.5 | 11.7 | 14.3 | 1.0 | 19.0 | 80.0 | 5.0 |
| 1.5SMC13A | 1.5SMC13CA | 11.1 | 12.4 | 13.7 | 1.0 | 18.2 | 83.5 | 5.0 |
| 1.5SMC15 | 1.5SMC15C | 12.1 | 13.5 | 16.5 | 1.0 | 22.0 | 69.1 | 5.0 |
| 1.5SMC15A | 1.5SMC15CA | 12.8 | 14.3 | 15.8 | 1.0 | 21.2 | 71.7 | 5.0 |
| 1.5SMC16 | 1.5SMC16C | 12.9 | 14.4 | 17.6 | 1.0 | 23.5 | 64.7 | 5.0 |
| 1.5SMC16A | 1.5SMC16CA | 13.6 | 15.2 | 16.8 | 1.0 | 22.5 | 67.6 | 5.0 |
| 1.5SMC18 | 1.5SMC18C | 14.5 | 16.2 | 19.8 | 1.0 | 26.5 | 57.4 | 5.0 |
| 1.5SMC18A | 1.5SMC18CA | 15.3 | 17.1 | 18.9 | 1.0 | 25.2 | 60.3 | 5.0 |
| 1.5SMC20 | 1.5SMC20C | 16.2 | 18.0 | 22.0 | 1.0 | 29.1 | 52.2 | 5.0 |
| 1.5SMC20A | 1.5SMC20CA | 17.1 | 19.0 | 21.0 | 1.0 | 27.7 | 54.9 | 5.0 |
| 1.5SMC22 | 1.5SMC22C | 17.8 | 19.8 | 24.2 | 1.0 | 31.9 | 47.6 | 5.0 |
| 1.5SMC22A | 1.5SMC22CA | 18.8 | 20.9 | 23.1 | 1.0 | 30.6 | 49.7 | 5.0 |
| 1.5SMC24 | 1.5SMC24C | 19.4 | 21.6 | 26.4 | 1.0 | 34.7 | 43.8 | 5.0 |
| 1.5SMC24A | 1.5SMC24CA | 20.5 | 22.8 | 25.2 | 1.0 | 33.2 | 45.8 | 5.0 |
| 1.5SMC27 | 1.5SMC27C | 21.8 | 24.3 | 29.7 | 1.0 | 39.1 | 38.9 | 5.0 |
| 1.5SMC27A | 1.5SMC27CA | 23.1 | 25.7 | 28.4 | 1.0 | 37.5 | 40.5 | 5.0 |
| 1.5SMC30 | 1.5SMC30C | 24.3 | 27.0 | 33.0 | 1.0 | 43.5 | 34.9 | 5.0 |
| 1.5SMC30A | 1.5SMC30CA | 25.6 | 28.5 | 31.5 | 1.0 | 41.4 | 36.7 | 5.0 |
| 1.5SMC33 | 1.5SMC33C | 26.8 | 29.7 | 36.3 | 1.0 | 47.7 | 31.9 | 5.0 |
| 1.5SMC33A | 1.5SMC33CA | 28.2 | 31.4 | 34.7 | 1.0 | 45.7 | 33.3 | 5.0 |
| 1.5SMC36 | 1.5SMC36C | 29.1 | 32.4 | 39.6 | 1.0 | 52.0 | 29.2 | 5.0 |
| 1.5SMC36A | 1.5SMC36CA | 30.8 | 34.2 | 37.8 | 1.0 | 49.9 | 30.5 | 5.0 |
| 1.5SMC39 | 1.5SMC39C | 31.6 | 35.1 | 42.9 | 1.0 | 56.4 | 27.0 | 5.0 |
| 1.5SMC39A | 1.5SMC39CA | 33.3 | 37.1 | 41.0 | 1.0 | 53.9 | 28.2 | 5.0 |
| 1.5SMC43 | 1.5SMC43C | 34.8 | 38.7 | 47.3 | 1.0 | 61.9 | 24.6 | 5.0 |
| 1.5SMC43A | 1.5SMC43CA | 36.8 | 40.9 | 45.2 | 1.0 | 59.3 | 25.6 | 5.0 |
| 1.5SMC47 | 1.5SMC47C | 38.1 | 42.3 | 51.7 | 1.0 | 67.8 | 22.4 | 5.0 |
| 1.5SMC47A | 1.5SMC47CA | 40.2 | 44.7 | 49.4 | 1.0 | 64.8 | 23.5 | 5.0 |
| 1.5SMC51 | 1.5SMC51C | 41.3 | 45.9 | 56.1 | 1.0 | 73.5 | 20.7 | 5.0 |
| 1.5SMC51A | 1.5SMC51CA | 43.6 | 48.5 | 53.6 | 1.0 | 70.1 | 21.7 | 5.0 |
| 1.5SMC56 | 1.5SMC56C | 45.4 | 50.4 | 61.6 | 1.0 | 80.5 | 18.9 | 5.0 |
| 1.5SMC56A | 1.5SMC56CA | 47.8 | 53.2 | 58.8 | 1.0 | 77.0 | 19.7 | 5.0 |

| TYPE | | Reverse Stand-Off Voltage | Breakdown Voltage Min. @$I_T$ | Breakdown Voltage Max. @ $I_T$ | Test Current | Maximum Clamping Voltage @$I_{PP}$ | Peak Pulse Current | Reverse Leakage @$V_{RWM}$ |
|---|---|---|---|---|---|---|---|---|
| (UNI) | (BI) | $V_{RWM}$(V) | $V_{BR\ MIN}$(V) | $V_{BR\ MAX}$(V) | $I_T$ (mA) | $V_C$(V) | $I_{PP}$(A) | $I_R$(uA) |
| 1.5SMC62 | 1.5SMC62C | 50.2 | 55.8 | 68.2 | 1.0 | 89.0 | 17.1 | 5.0 |
| 1.5SMC62A | 1.5SMC62CA | 53.0 | 58.9 | 65.1 | 1.0 | 85.0 | 17.9 | 5.0 |
| 1.5SMC68 | 1.5SMC68C | 55.1 | 61.2 | 74.8 | 1.0 | 98.0 | 13.5 | 5.0 |
| 1.5SMC68A | 1.5SMC68CA | 58.1 | 64.6 | 71.4 | 1.0 | 92.0 | 16.5 | 5.0 |
| 1.5SMC75 | 1.5SMC75C | 60.7 | 67.5 | 82.5 | 1.0 | 108 | 14.1 | 5.0 |
| 1.5SMC75A | 1.5SMC75CA | 64.1 | 71.3 | 78.8 | 1.0 | 103 | 14.8 | 5.0 |
| 1.5SMC82 | 1.5SMC82C | 66.4 | 73.8 | 90.2 | 1.0 | 118 | 12.9 | 5.0 |
| 1.5SMC82A | 1.5SMC82CA | 70.1 | 77.9 | 86.1 | 1.0 | 113 | 13.5 | 5.0 |
| 1.5SMC91 | 1.5SMC91C | 73.7 | 81.9 | 100 | 1.0 | 131 | 11.6 | 5.0 |
| 1.5SMC91A | 1.5SMC91CA | 77.8 | 86.5 | 95.5 | 1.0 | 125 | 12.2 | 5.0 |
| 1.5SMC100 | 1.5SMC100C | 81.0 | 90.0 | 110 | 1.0 | 144 | 10.6 | 5.0 |
| 1.5SMC100A | 1.5SMC100CA | 85.5 | 95.0 | 105 | 1.0 | 137 | 11.1 | 5.0 |
| 1.5SMC110 | 1.5SMC110C | 89.2 | 99.0 | 121 | 1.0 | 158 | 9.6 | 5.0 |
| 1.5SMC110A | 1.5SMC110CA | 94.0 | 105 | 116 | 1.0 | 152 | 10.0 | 5.0 |
| 1.5SMC120 | 1.5SMC120C | 97.2 | 108 | 132 | 1.0 | 173 | 8.7 | 5.0 |
| 1.5SMC120A | 1.5SMC120CA | 102 | 114 | 126 | 1.0 | 165 | 9.2 | 5.0 |
| 1.5SMC130 | 1.5SMC130C | 105 | 117 | 143 | 1.0 | 187 | 8.1 | 5.0 |
| 1.5SMC130A | 1.5SMC130CA | 111 | 124 | 137 | 1.0 | 179 | 8.5 | 5.0 |
| 1.5SMC150 | 1.5SMC150C | 121 | 135 | 165 | 1.0 | 215 | 7.1 | 5.0 |
| 1.5SMC150A | 1.5SMC150CA | 128 | 143 | 158 | 1.0 | 207 | 7.3 | 5.0 |
| 1.5SMC160 | 1.5SMC160C | 130 | 144 | 176 | 1.0 | 230 | 6.6 | 5.0 |
| 1.5SMC160A | 1.5SMC160CA | 136 | 152 | 168 | 1.0 | 219 | 6.9 | 5.0 |
| 1.5SMC170 | 1.5SMC170C | 138 | 153 | 187 | 1.0 | 244 | 6.2 | 5.0 |
| 1.5SMC170A | 1.5SMC170CA | 145 | 162 | 179 | 1.0 | 234 | 6.5 | 5.0 |
| 1.5SMC180 | 1.5SMC180C | 146 | 162 | 198 | 1.0 | 258 | 5.9 | 5.0 |
| 1.5SMC180A | 1.5SMC180CA | 154 | 171 | 189 | 1.0 | 246 | 6.2 | 5.0 |
| 1.5SMC200 | 1.5SMC200C | 162 | 180 | 220 | 1.0 | 287 | 5.3 | 5.0 |
| 1.5SMC200A | 1.5SMC200CA | 171 | 190 | 210 | 1.0 | 274 | 5.5 | 5.0 |
| 1.5SMC220 | 1.5SMC220C | 175 | 198 | 242 | 1.0 | 344 | 4.4 | 5.0 |
| 1.5SMC220A | 1.5SMC220CA | 185 | 209 | 231 | 1.0 | 328 | 4.6 | 5.0 |
| 1.5SMC250 | 1.5SMC250C | 202 | 225 | 275 | 1.0 | 360 | 4.2 | 5.0 |
| 1.5SMC250A | 1.5SMC250CA | 214 | 237 | 263 | 1.0 | 344 | 4.4 | 5.0 |
| 1.5SMC300 | 1.5SMC300C | 243 | 270 | 330 | 1.0 | 430 | 3.5 | 5.0 |
| 1.5SMC300A | 1.5SMC300CA | 256 | 285 | 315 | 1.0 | 414 | 3.7 | 5.0 |
| 1.5SMC350 | 1.5SMC350C | 284 | 315 | 385 | 1.0 | 504 | 3.0 | 5.0 |
| 1.5SMC350A | 1.5SMC350CA | 300 | 333 | 368 | 1.0 | 482 | 3.2 | 5.0 |
| 1.5SMC400 | 1.5SMC400C | 324 | 360 | 440 | 1.0 | 574 | 2.6 | 5.0 |
| 1.5SMC400A | 1.5SMC400CA | 342 | 380 | 420 | 1.0 | 548 | 2.8 | 5.0 |
| 1.5SMC440 | 1.5SMC440C | 356 | 396 | 484 | 1.0 | 631 | 2.4 | 5.0 |
| 1.5SMC440A | 1.5SMC440CA | 376 | 418 | 462 | 1.0 | 600 | 2.5 | 5.0 |

## Ratings and Characteristic Curves $T_A$=25°C unless otherwise noted

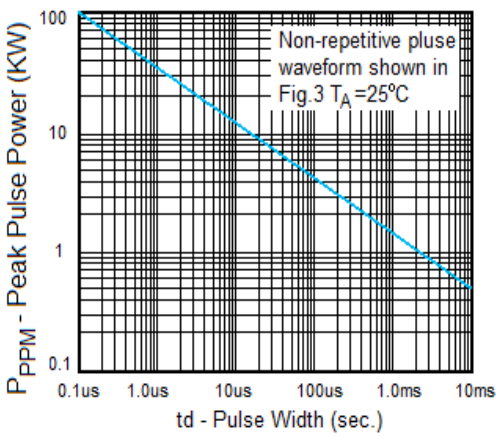


Fig. 1 Peak Pulse Power Rating

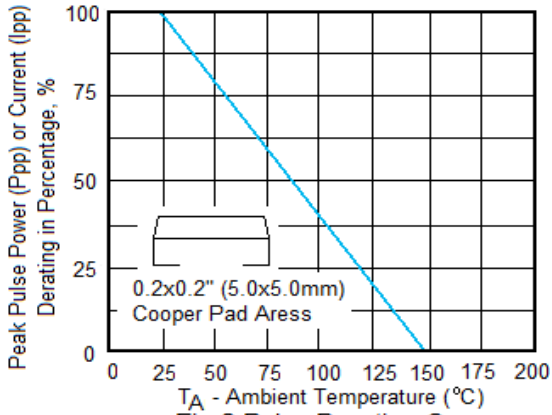


Fig.2 Pulse Derating Cure

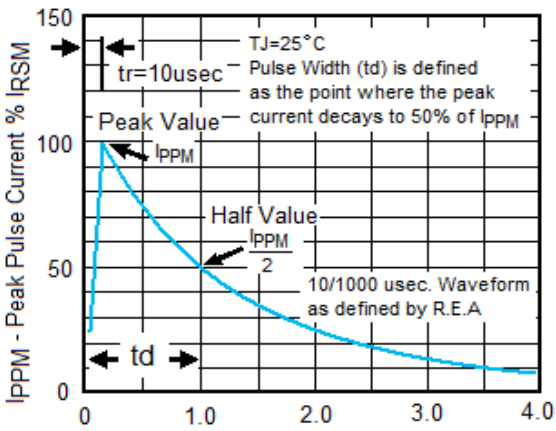


Fig.3 Pulse Waveform

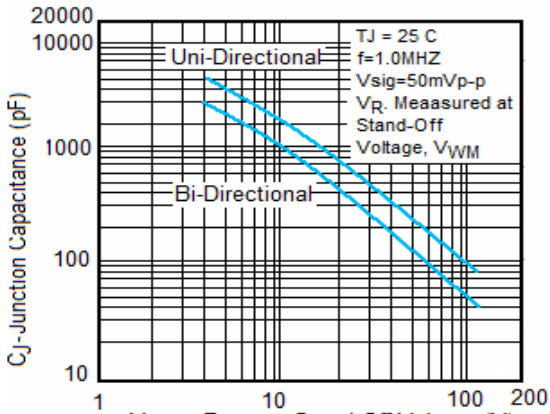


Fig. 4- Typical Junction Capacitance