

**SURFACE MOUNT
UNIDIRECTIONAL AND BIDIRECTIONAL
TRANSIENT VOLTAGE SUPPRESSORS**

STAND-OFF VOLTAGE - **6.8 to 200** Volts
POWER DISSIPATION - **1500** WATTS

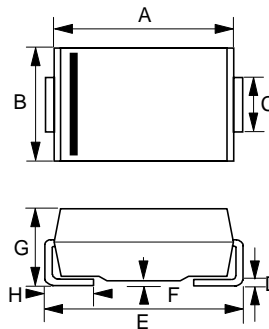
FEATURES

- Rating to 200V VBR
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-O
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min

MECHANICAL DATA

- Case : Molded plastic
- Polarity : by cathode band denotes uni-directional device
none cathode band denotes bi-directional device
- Weight : 0.007 ounces, 0.21 gram

SMC



| SMC | | |
|------|------|------|
| DIM. | MIN. | MAX. |
| A | 6.60 | 7.11 |
| B | 5.59 | 6.22 |
| C | 2.92 | 3.18 |
| D | 0.15 | 0.31 |
| E | 7.75 | 8.13 |
| F | 0.05 | 0.20 |
| G | 2.01 | 2.62 |
| H | 0.76 | 1.52 |

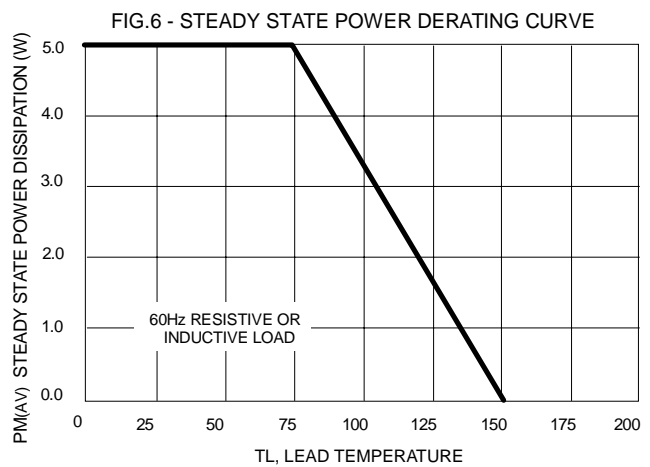
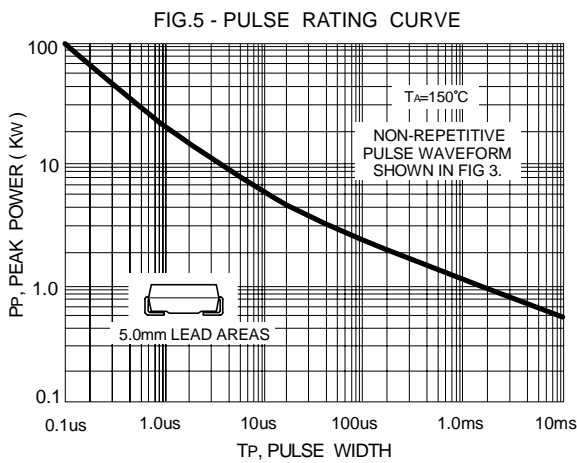
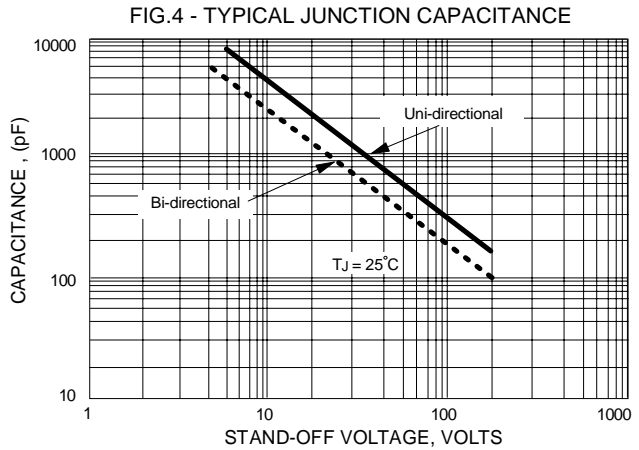
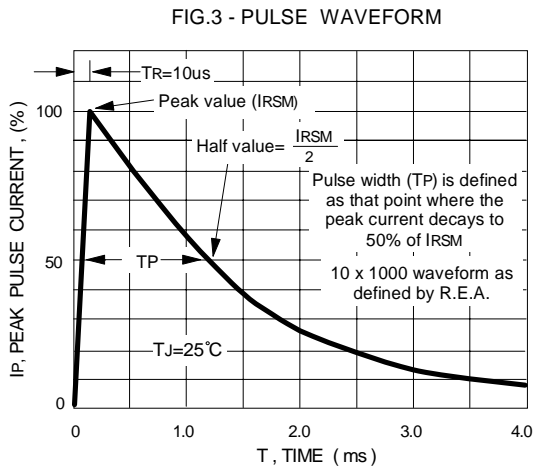
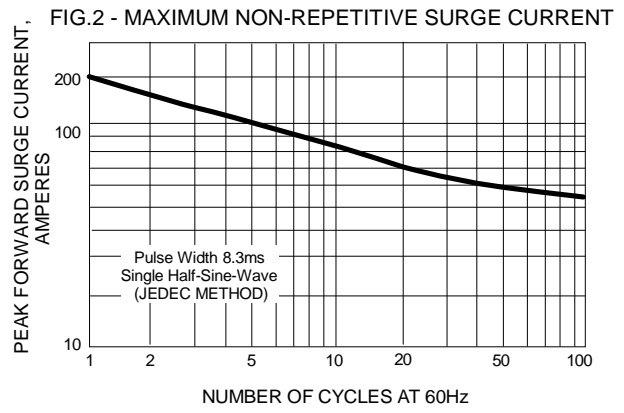
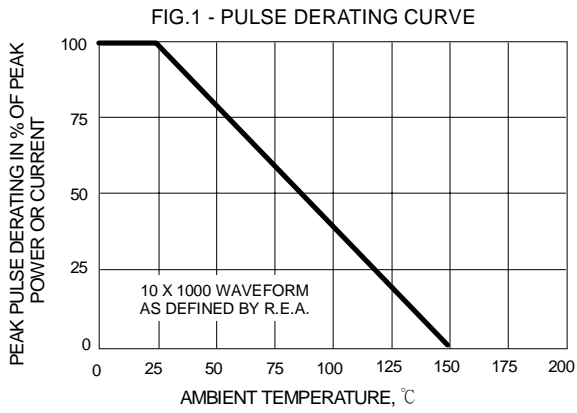
All Dimensions in millimeter

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

| CHARACTERISTICS | SYMBOLS | VALUE | UNIT |
|--|---------|--------------|-------|
| PEAK POWER DISSIPATION AT TA = 25°C, TP = 1ms (Note 1,2) | PPK | Minimum 1500 | WATTS |
| Peak Forward Surge Current 8.3ms single half sine-wave super imposed on rated load (Note 3) (JEDEC METHOD) | IFSM | 200 | AMPS. |
| Steady State Power Dissipation at TL = 75°C | PM(AV) | 5.0 | WATTS |
| Maximum Instantaneous forward voltage at 100A for unidirectional devices only (Note 3) | VF | SEE NOTE 4 | Volts |
| Operating Temperature Range | TJ | -55 to +150 | °C |
| Storage Temperature Range | TSTG | -55 to +175 | °C |

- NOTES : 1. Non-repetitive current pulse, per fig. 3 and derated above TA= 25°C per fig.1.
2. Thermal Resistance junction to Lead
3. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).
4. VF= 3.5V on SMC6.8 thru SMC90A devices and VF= 5.0V on SMC100 thru SMC200A devices.



| Device Uni-directional | Device Bi-directional | Device Marking code | | Breakdown voltage VBR Volts | | | Working Peak Reverse Voltage VRWM(Volts) | Maximum Reverse Leakage at VRWM IR (uA) | Maximum Reverse Surge Current IRSM(Amps) | Maximum Reverse Voltage at IRSM (Clamping Voltage) VRSM(Volts) |
|------------------------|-----------------------|---------------------|------|-----------------------------|------|----------|---|--|---|---|
| | | (UNI) | (BI) | Min. | Max. | @IT(mA) | | | | |
| SMC6.8 | SMC6.8C | DDK | DDM | 6.12 | 7.48 | 10.0 | 5.50 | 1000 | 139 | 10.8 |
| SMC6.8A | SMC6.8CA | DEK | DEM | 6.45 | 7.14 | 10.0 | 5.80 | 1000 | 143 | 10.5 |
| SMC7.5 | SMC7.5C | DFK | DFM | 6.75 | 8.25 | 10.0 | 6.05 | 500 | 128 | 11.7 |
| SMC7.5A | SMC7.5CA | DGK | DGM | 7.13 | 7.88 | 10.0 | 6.40 | 500 | 133 | 11.3 |
| SMC8.2 | SMC8.2C | DHK | DHM | 7.38 | 9.02 | 10.0 | 6.63 | 200 | 120 | 12.5 |
| SMC8.2A | SMC8.2CA | DKK | DKM | 7.79 | 8.61 | 10.0 | 7.02 | 200 | 124 | 12.1 |
| SMC9.1 | SMC9.1C | DLK | DLM | 8.19 | 10.0 | 10.0 | 7.37 | 50.0 | 109 | 13.8 |
| SMC9.1A | SMC9.1CA | DMK | DMM | 8.65 | 9.55 | 10.0 | 7.78 | 50.0 | 112 | 13.4 |
| SMC10 | SMC10C | DNK | DNM | 9.00 | 11.0 | 1.0 | 8.10 | 20.0 | 100 | 15.0 |
| SMC10A | SMC10CA | DPK | DPM | 9.50 | 10.5 | 1.0 | 8.55 | 20.0 | 103 | 14.5 |
| SMC11 | SMC11C | DQK | DQM | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 93 | 16.2 |
| SMC11A | SMC11CA | DRK | DRM | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 96 | 15.6 |
| SMC12 | SMC12C | DSK | DSM | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 87 | 17.3 |
| SMC12A | SMC12CA | DTK | DTM | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 90 | 16.7 |
| SMC13 | SMC13C | DUK | DUM | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 79 | 19.0 |
| SMC13A | SMC13CA | DVK | DVM | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82 | 18.2 |
| SMC15 | SMC15C | DWK | DWM | 13.5 | 16.3 | 1.0 | 12.1 | 5.0 | 68 | 22.0 |
| SMC15A | SMC15CA | DXK | DXM | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 71 | 21.2 |
| SMC16 | SMC16C | DYK | DYM | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 64 | 23.5 |
| SMC16A | SMC16CA | DZK | DZM | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 67 | 22.5 |
| SMC18 | SMC18C | EDK | EDM | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 56.5 | 26.5 |
| SMC18A | SMC18CA | EEK | EEM | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 59.5 | 25.5 |
| SMC20 | SMC20C | EFK | EFM | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 51.5 | 29.1 |
| SMC20A | SMC20CA | EGK | EGM | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 54 | 27.7 |
| SMC22 | SMC22C | EHK | EHM | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 47 | 31.9 |
| SMC22A | SMC22CA | EKK | EKM | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 49 | 30.6 |
| SMC24 | SMC24C | ELK | ELM | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 43 | 34.7 |
| SMC24A | SMC24CA | EMK | EMM | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 45 | 33.2 |
| SMC27 | SMC27C | ENK | ENM | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 38.5 | 39.1 |
| SMC27A | SMC27CA | EPK | EPM | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 40 | 37.5 |
| SMC30 | SMC30C | EQK | EQM | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 34.5 | 43.5 |
| SMC30A | SMC30CA | ERK | ERM | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 36 | 41.4 |
| SMC33 | SMC33C | ESK | ESM | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 31.5 | 47.7 |
| SMC33A | SMC33CA | ETK | ETM | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 33 | 45.7 |
| SMC36 | SMC36C | EUK | EUM | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 29 | 52.0 |
| SMC36A | SMC36CA | EVK | EVM | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 30 | 49.9 |
| SMC39 | SMC39C | EUK | EUM | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 26.5 | 56.4 |
| SMC39A | SMC39CA | EXK | EXM | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 28 | 53.9 |
| SMC43 | SMC43C | EYK | EYM | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 24 | 61.9 |
| SMC43A | SMC43CA | EZK | EZM | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 25.3 | 59.3 |

| Device Uni-directional | Device Bi-directional | Device Marking code | | Breakdown voltage VBR Volts | | | Working Peak Reverse Voltage VRWM(Volts) | Maximum Reverse Leakage at VRWM IR (uA) | Maximum Reverse Surge Current IRSM(Amps) | Maximum Reverse Voltage at IRSM (Clamping Voltage) VRSM(Volts) |
|------------------------|-----------------------|---------------------|------|-----------------------------|------|----------|--|---|--|--|
| | | (UNI) | (BI) | Min. | Max. | @IT(mA) | | | | |
| SMC47 | SMC47C | FDK | FDM | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 22.12 | 67.8 |
| SMC47A | SMC47CA | FEK | FEM | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 23.15 | 64.8 |
| SMC51 | SMC45C | FFK | FFM | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.41 | 73.5 |
| SMC51A | SMC45CA | FGK | FGM | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.40 | 70.1 |
| SMC56 | SMC56C | FHK | FHM | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 18.63 | 80.5 |
| SMC56A | SMC56CA | FKK | FKM | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.48 | 77.0 |
| SMC62 | SMC62C | FLK | FLM | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 16.85 | 89.0 |
| SMC62A | SMC62CA | FMK | FMM | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.65 | 85.0 |
| SMC68 | SMC68C | FNK | FNM | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.31 | 98.0 |
| SMC68A | SMC68CA | FPK | FPM | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.30 | 92.0 |
| SMC75 | SMC75C | FQK | FQM | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.89 | 108 |
| SMC75A | SMC75CA | FRK | FRM | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.56 | 103 |
| SMC82 | SMC82C | FSK | FSM | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.71 | 118 |
| SMC82A | SMC82CA | FTK | FTM | 77.8 | 86.0 | 1.0 | 70.1 | 5.0 | 13.27 | 113 |
| SMC91 | SMC91C | FUK | FUM | 81.9 | 100 | 1.0 | 73.7 | 5.0 | 11.45 | 131 |
| SMC91A | SMC91CA | FVK | FVM | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.00 | 125 |
| SMC100 | SMC100C | FWK | FWM | 90.0 | 110 | 1.0 | 81.0 | 5.0 | 10.42 | 144 |
| SMC100A | SMC100CA | FXK | FXM | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 10.95 | 137 |
| SMC110 | SMC110C | FYK | FYM | 99.0 | 121 | 1.0 | 89.2 | 5.0 | 9.49 | 158 |
| SMC110A | SMC110CA | FZK | FZM | 105 | 116 | 1.0 | 94.0 | 5.0 | 9.87 | 152 |
| SMC120 | SMC120C | GDK | GDM | 108 | 132 | 1.0 | 97.2 | 5.0 | 8.67 | 173 |
| SMC120A | SMC120CA | GEK | GEM | 114 | 126 | 1.0 | 102 | 5.0 | 9.09 | 165 |
| SMC130 | SMC130C | GFK | GFM | 117 | 143 | 1.0 | 105 | 5.0 | 8.02 | 187 |
| SMC130A | SMC130CA | GGK | GGM | 124 | 137 | 1.0 | 111 | 5.0 | 8.38 | 179 |
| SMC150 | SMC150C | GHK | GHM | 135 | 165 | 1.0 | 121 | 5.0 | 6.98 | 215 |
| SMC150A | SMC150CA | GKK | GKM | 143 | 158 | 1.0 | 128 | 5.0 | 7.25 | 207 |
| SMC160 | SMC160C | GLK | GLM | 144 | 176 | 1.0 | 130 | 5.0 | 6.52 | 230 |
| SMC160A | SMC160CA | GMK | GMM | 152 | 168 | 1.0 | 136 | 5.0 | 6.85 | 219 |
| SMC170 | SMC170C | GNK | GNM | 153 | 187 | 1.0 | 138 | 5.0 | 6.15 | 244 |
| SMC170A | SMC170CA | GPK | GPM | 162 | 179 | 1.0 | 145 | 5.0 | 6.41 | 234 |
| SMC180 | SMC180C | GQK | GQM | 162 | 198 | 1.0 | 146 | 5.0 | 5.81 | 258 |
| SMC180A | SMC180CA | GRK | GRM | 171 | 189 | 1.0 | 154 | 5.0 | 6.10 | 246 |
| SMC200 | SMC200C | GSK | GSM | 180 | 220 | 1.0 | 162 | 5.0 | 5.23 | 287 |
| SMC200A | SMC200CA | GTK | GTM | 190 | 210 | 1.0 | 171 | 5.0 | 5.47 | 274 |

NOTE :

- 1) Suffix 'A ' denotes 5% tolerance device, no suffix denotes 10 % tolerance device.
- 2) Add suffix 'C ' or ' CA ' after part number to specify Bi-directional devices.
- 3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double .
- 4) For Uni-directional devices VF max=3.5v at if=35 A ,0.5 sine wave of 8.3 msec .pulse width.