



## Features

- ✧ UL Recognized File # E-326243
- ✧ For surface mounted application in order to optimize board space
- ✧ 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 material used carries Underwriters Laboratory Flammability Classification 94V-0
- ✧ 1500 watts peak pulse power capability with a 10 x 1000 us waveform
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode

## Mechanical Data

- ✧ Case: Molded plastic
- ✧ Terminals: Solder plated
- ✧ Polarity: Indicated by cathode band
- ✧ Standard packaging: 16mm tape (EIA STD RS-481)
- ✧ Weight: 0.21grams

## Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

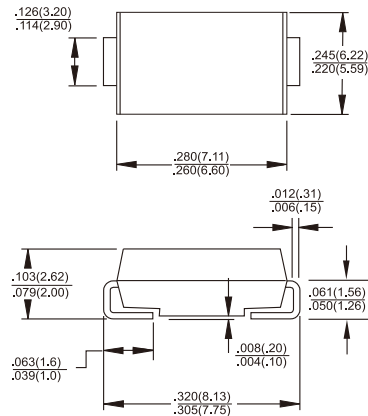
| Type Number                                                                                                                          | Symbol          | Value        | Units        |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|--------------|
| Peak Power Dissipation at $T_A=25^\circ C$ , $T_p=1ms$ ( Note 1)                                                                     | $P_{PK}$        | Minimum 1500 | Watts        |
| Power Dissipation on Infinite Heatsink, $T_A=50^\circ C$                                                                             | $P_D$           | 6.5          | 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         |
| Thermal Resistance Junction to Ambient Air (Note 4)                                                                                  | $R_{\theta JA}$ | 50           | $^\circ C/W$ |
| Thermal Resistance Junction to Leads                                                                                                 | $R_{\theta JL}$ | 15           | $^\circ C/W$ |
| Operating and Storage Temperature Range                                                                                              | $T_J, T_{STG}$  | -55 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 16mm<sup>2</sup> (.035mm Thick) Copper Pads to Each Terminal.
  3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Maximum.
  4. Mounted on 16mm<sup>2</sup> (.035mm thick) land areas.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types 1.5SMC6.8 through Types 1.5SMC200A.
2. Electrical Characteristics Apply in Both Directions.

## 1.5SMC SERIES 1500 Watts Surface Mount Transient Voltage Suppressor SMC/DO-214AB



Dimensions in inches and (millimeters)

### Marking Diagram



XXX = Specific Device Code  
G = Green Compound  
Y = Year  
M = Work Month

## RATINGS AND CHARACTERISTIC CURVES (1.5SMC SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

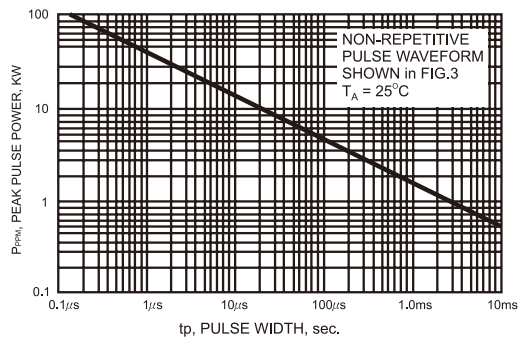


FIG.2- PULSE DERATING CURVE

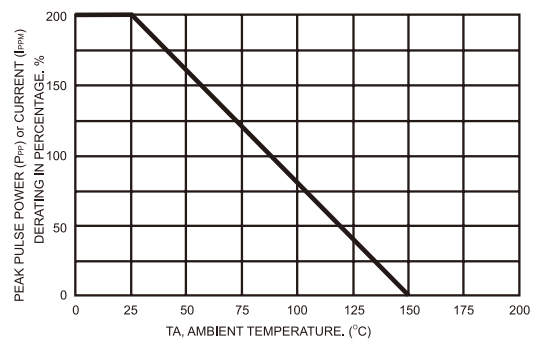


FIG.3- CLAMPING POWER PULSE WAVEFORM

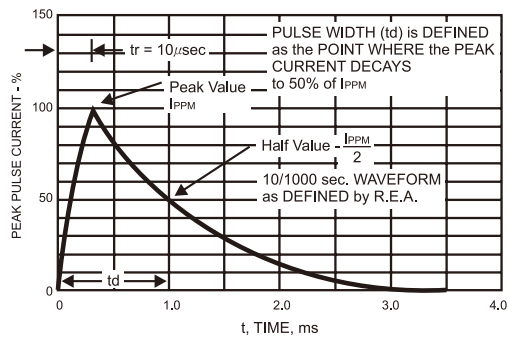


FIG.4- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

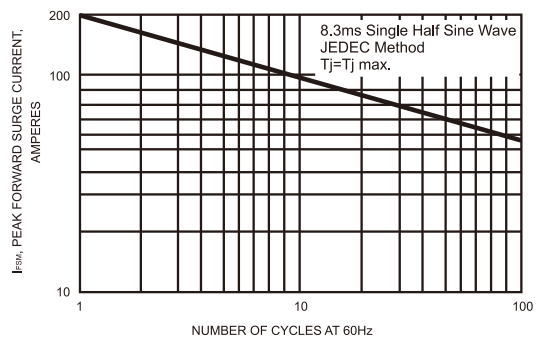
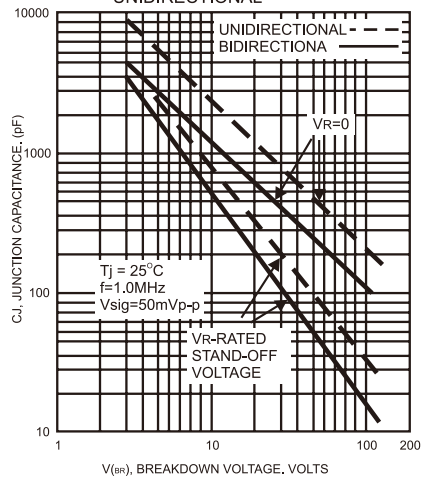


FIG.5- TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL



ELECTRICAL CHARACTERISTICS (T<sub>A</sub> =25°C unless otherwise noted)

| Device     | Device Marking Code | Breakdown Voltage (Note 1) |      | Test Current   | Stand-Off Voltage | Maximum Reverse Leakage @ V <sub>WM</sub> | Maximum Peak Pulse Current | Maximum Clamping Voltage @ I <sub>PPM</sub> | Maximum Temperature Coefficient |
|------------|---------------------|----------------------------|------|----------------|-------------------|-------------------------------------------|----------------------------|---------------------------------------------|---------------------------------|
|            |                     | V <sub>BR</sub>            |      | I <sub>T</sub> | V <sub>WM</sub>   | I <sub>D</sub>                            | I <sub>PPM</sub>           | V <sub>C</sub>                              | V <sub>BR</sub>                 |
|            |                     | V                          |      | mA             | V                 | uA                                        | A                          | V                                           | % / °C                          |
|            |                     | Min.                       | Max. |                |                   |                                           | (Note 2)                   |                                             |                                 |
| 1.5SMC6.8  | DDJ                 | 6.12                       | 7.48 | 10             | 5.50              | 1000                                      | 145                        | 10.8                                        | 0.057                           |
| 1.5SMC6.8A | DEJ                 | 6.46                       | 7.14 | 10             | 5.80              | 1000                                      | 150                        | 10.5                                        | 0.057                           |
| 1.5SMC7.5  | DFJ                 | 6.75                       | 8.25 | 10             | 6.05              | 500                                       | 134                        | 11.7                                        | 0.061                           |
| 1.5SMC7.5A | DGJ                 | 7.13                       | 7.88 | 10             | 6.40              | 500                                       | 139                        | 11.3                                        | 0.061                           |
| 1.5SMC8.2  | DHJ                 | 7.38                       | 9.02 | 10             | 6.63              | 200                                       | 126                        | 12.5                                        | 0.065                           |
| 1.5SMC8.2A | DKJ                 | 7.79                       | 8.61 | 10             | 7.02              | 200                                       | 130                        | 12.1                                        | 0.065                           |
| 1.5SMC9.1  | DLJ                 | 8.19                       | 10.0 | 1              | 7.37              | 50                                        | 114                        | 13.8                                        | 0.068                           |
| 1.5SMC9.1A | DMJ                 | 8.65                       | 9.55 | 1              | 7.78              | 50                                        | 117                        | 13.4                                        | 0.068                           |
| 1.5SMC10   | DNJ                 | 9.00                       | 11.0 | 1              | 8.10              | 10                                        | 105                        | 15.0                                        | 0.073                           |
| 1.5SMC10A  | DPJ                 | 9.50                       | 10.5 | 1              | 8.55              | 10                                        | 108                        | 14.5                                        | 0.073                           |
| 1.5SMC11   | DQJ                 | 9.90                       | 12.1 | 1              | 8.92              | 5                                         | 97                         | 16.2                                        | 0.075                           |
| 1.5SMC11A  | DRJ                 | 10.5                       | 11.6 | 1              | 9.40              | 5                                         | 100                        | 15.6                                        | 0.075                           |
| 1.5SMC12   | DSJ                 | 10.8                       | 13.2 | 1              | 9.72              | 5                                         | 91                         | 17.3                                        | 0.078                           |
| 1.5SMC12A  | DTJ                 | 11.4                       | 12.6 | 1              | 10.2              | 5                                         | 94                         | 16.7                                        | 0.078                           |
| 1.5SMC13   | DUJ                 | 11.7                       | 14.3 | 1              | 10.5              | 5                                         | 82                         | 19.0                                        | 0.081                           |
| 1.5SMC13A  | DVJ                 | 12.4                       | 13.7 | 1              | 11.1              | 5                                         | 86                         | 18.2                                        | 0.081                           |
| 1.5SMC15   | DWJ                 | 13.5                       | 16.5 | 1              | 12.1              | 5                                         | 71                         | 22.0                                        | 0.084                           |
| 1.5SMC15A  | DXJ                 | 14.3                       | 15.8 | 1              | 12.8              | 5                                         | 74                         | 21.2                                        | 0.084                           |
| 1.5SMC16   | DYJ                 | 14.4                       | 17.6 | 1              | 12.9              | 5                                         | 67                         | 23.5                                        | 0.086                           |
| 1.5SMC16A  | DZJ                 | 15.2                       | 16.8 | 1              | 13.6              | 5                                         | 70                         | 22.5                                        | 0.086                           |
| 1.5SMC18   | EDJ                 | 16.2                       | 19.8 | 1              | 14.5              | 5                                         | 59                         | 26.5                                        | 0.088                           |
| 1.5SMC18A  | EEJ                 | 17.1                       | 18.9 | 1              | 15.3              | 5                                         | 60                         | 25.5                                        | 0.088                           |
| 1.5SMC20   | EFJ                 | 18.0                       | 22.0 | 1              | 16.2              | 5                                         | 54                         | 29.1                                        | 0.090                           |
| 1.5SMC20A  | EGJ                 | 19.0                       | 21.0 | 1              | 17.1              | 5                                         | 56                         | 27.7                                        | 0.090                           |
| 1.5SMC22   | EHJ                 | 19.8                       | 24.2 | 1              | 17.8              | 5                                         | 49                         | 31.9                                        | 0.092                           |
| 1.5SMC22A  | EKJ                 | 20.9                       | 23.1 | 1              | 18.8              | 5                                         | 51                         | 30.6                                        | 0.092                           |
| 1.5SMC24   | ELJ                 | 21.6                       | 26.4 | 1              | 19.4              | 5                                         | 45                         | 34.7                                        | 0.094                           |
| 1.5SMC24A  | EMJ                 | 22.8                       | 25.2 | 1              | 20.5              | 5                                         | 47                         | 33.2                                        | 0.094                           |
| 1.5SMC27   | ENJ                 | 24.3                       | 29.7 | 1              | 21.8              | 5                                         | 40                         | 39.1                                        | 0.096                           |
| 1.5SMC27A  | EPJ                 | 25.7                       | 28.4 | 1              | 23.1              | 5                                         | 42                         | 37.5                                        | 0.096                           |
| 1.5SMC30   | EQJ                 | 27.0                       | 33.0 | 1              | 24.3              | 5                                         | 36                         | 43.5                                        | 0.097                           |
| 1.5SMC30A  | ERJ                 | 28.5                       | 31.5 | 1              | 25.6              | 5                                         | 38                         | 41.4                                        | 0.097                           |
| 1.5SMC33   | ESJ                 | 29.7                       | 36.3 | 1              | 26.8              | 5                                         | 33                         | 47.7                                        | 0.098                           |
| 1.5SMC33A  | ETJ                 | 31.4                       | 34.7 | 1              | 28.2              | 5                                         | 34                         | 45.7                                        | 0.098                           |
| 1.5SMC36   | EUJ                 | 32.4                       | 39.6 | 1              | 29.1              | 5                                         | 30                         | 52.0                                        | 0.099                           |
| 1.5SMC36A  | EVJ                 | 34.2                       | 37.8 | 1              | 30.8              | 5                                         | 31                         | 49.9                                        | 0.099                           |
| 1.5SMC39   | EWJ                 | 35.1                       | 42.9 | 1              | 31.6              | 5                                         | 27                         | 56.4                                        | 0.100                           |
| 1.5SMC39A  | EXJ                 | 37.1                       | 41.0 | 1              | 33.3              | 5                                         | 29                         | 53.9                                        | 0.100                           |
| 1.5SMC43   | EYJ                 | 38.7                       | 47.3 | 1              | 34.8              | 5                                         | 25                         | 61.9                                        | 0.101                           |
| 1.5SMC43A  | EZJ                 | 40.9                       | 45.2 | 1              | 36.8              | 5                                         | 26                         | 59.3                                        | 0.101                           |
| 1.5SMC47   | FDJ                 | 42.3                       | 51.7 | 1              | 38.1              | 5                                         | 23                         | 67.8                                        | 0.101                           |
| 1.5SMC47A  | FEJ                 | 44.7                       | 49.4 | 1              | 40.2              | 5                                         | 24                         | 64.8                                        | 0.101                           |
| 1.5SMC51   | FFJ                 | 45.9                       | 56.1 | 1              | 41.3              | 5                                         | 21                         | 73.5                                        | 0.102                           |
| 1.5SMC51A  | FGJ                 | 48.5                       | 53.6 | 1              | 43.6              | 5                                         | 22                         | 70.1                                        | 0.102                           |
| 1.5SMC56   | FHJ                 | 50.4                       | 61.6 | 1              | 45.4              | 5                                         | 19                         | 80.5                                        | 0.103                           |
| 1.5SMC56A  | FKJ                 | 53.2                       | 58.8 | 1              | 47.8              | 5                                         | 20                         | 77.0                                        | 0.103                           |
| 1.5SMC62   | FLJ                 | 55.8                       | 68.2 | 1              | 50.2              | 5                                         | 17                         | 89.0                                        | 0.104                           |
| 1.5SMC62A  | FMJ                 | 58.9                       | 65.1 | 1              | 53.0              | 5                                         | 18                         | 85.0                                        | 0.104                           |
| 1.5SMC68   | FNJ                 | 61.2                       | 74.8 | 1              | 55.1              | 5                                         | 16                         | 98.0                                        | 0.104                           |
| 1.5SMC68A  | FPJ                 | 64.6                       | 71.4 | 1              | 58.1              | 5                                         | 17                         | 92.0                                        | 0.104                           |
| 1.5SMC75   | FQJ                 | 67.5                       | 82.5 | 1              | 60.7              | 5                                         | 14                         | 108                                         | 0.105                           |
| 1.5SMC75A  | FRJ                 | 71.3                       | 78.8 | 1              | 64.1              | 5                                         | 15                         | 103                                         | 0.105                           |
| 1.5SMC82   | FSJ                 | 73.8                       | 90.2 | 1              | 66.4              | 5                                         | 13                         | 118                                         | 0.105                           |
| 1.5SMC82A  | FTJ                 | 77.9                       | 86.1 | 1              | 70.1              | 5                                         | 13.9                       | 113                                         | 0.105                           |

ELECTRICAL CHARACTERISTICS (T<sub>A</sub> =25°C unless otherwise noted)

| Device     | Device Marking Code | Breakdown Voltage (Note 1) |      | Test Current   | Stand-Off Voltage | Maximum Reverse Leakage @ V <sub>WM</sub> | Maximum Peak Pulse Current | Maximum Clamping Voltage @ I <sub>PPM</sub> | Maximum Temperature Coefficient |
|------------|---------------------|----------------------------|------|----------------|-------------------|-------------------------------------------|----------------------------|---------------------------------------------|---------------------------------|
|            |                     | V <sub>BR</sub>            |      | I <sub>T</sub> | V <sub>WM</sub>   | I <sub>D</sub>                            | I <sub>PPM</sub>           | V <sub>C</sub>                              | V <sub>BR</sub>                 |
|            |                     | V                          |      | mA             | V                 | uA                                        | A                          | V                                           | % / °C                          |
|            |                     | Min.                       | Max. |                |                   |                                           | (Note 2)                   |                                             |                                 |
| 1.5SMC91   | FUJ                 | 81.9                       | 100  | 1              | 73.7              | 5                                         | 12.0                       | 131                                         | 0.106                           |
| 1.5SMC91A  | FVJ                 | 86.5                       | 95.5 | 1              | 77.8              | 5                                         | 12.6                       | 125                                         | 0.106                           |
| 1.5SMC100  | FWJ                 | 90.0                       | 110  | 1              | 81.0              | 5                                         | 10.9                       | 144                                         | 0.106                           |
| 1.5SMC100A | FXJ                 | 95.0                       | 105  | 1              | 85.5              | 5                                         | 11.4                       | 137                                         | 0.106                           |
| 1.5SMC110  | FYJ                 | 99.0                       | 121  | 1              | 89.2              | 5                                         | 9.9                        | 158                                         | 0.107                           |
| 1.5SMC110A | FZJ                 | 105                        | 116  | 1              | 94.0              | 5                                         | 10.3                       | 152                                         | 0.107                           |
| 1.5SMC120  | GDJ                 | 108                        | 132  | 1              | 97.2              | 5                                         | 9.1                        | 173                                         | 0.107                           |
| 1.5SMC120A | GEJ                 | 114                        | 126  | 1              | 102               | 5                                         | 9.5                        | 165                                         | 0.107                           |
| 1.5SMC130  | GFJ                 | 117                        | 143  | 1              | 105               | 5                                         | 8.4                        | 187                                         | 0.107                           |
| 1.5SMC130A | GGJ                 | 124                        | 137  | 1              | 111               | 5                                         | 8.7                        | 179                                         | 0.107                           |
| 1.5SMC150  | GHJ                 | 135                        | 165  | 1              | 121               | 5                                         | 7.3                        | 215                                         | 0.108                           |
| 1.5SMC150A | GKJ                 | 143                        | 158  | 1              | 128               | 5                                         | 7.6                        | 207                                         | 0.108                           |
| 1.5SMC160  | GLJ                 | 144                        | 176  | 1              | 130               | 5                                         | 6.8                        | 230                                         | 0.108                           |
| 1.5SMC160A | GMJ                 | 152                        | 168  | 1              | 136               | 5                                         | 7.1                        | 219                                         | 0.108                           |
| 1.5SMC170  | GNJ                 | 153                        | 187  | 1              | 138               | 5                                         | 6.4                        | 244                                         | 0.108                           |
| 1.5SMC170A | GPJ                 | 162                        | 179  | 1              | 145               | 5                                         | 6.7                        | 234                                         | 0.108                           |
| 1.5SMC180  | GQJ                 | 162                        | 198  | 1              | 146               | 5                                         | 6.1                        | 258                                         | 0.108                           |
| 1.5SMC180A | GRJ                 | 171                        | 189  | 1              | 154               | 5                                         | 6.4                        | 246                                         | 0.108                           |
| 1.5SMC200  | GSJ                 | 180                        | 220  | 1              | 162               | 5                                         | 5.4                        | 287                                         | 0.108                           |
| 1.5SMC200A | GTJ                 | 190                        | 210  | 1              | 171               | 5                                         | 5.7                        | 274                                         | 0.108                           |

Notes:

1. V<sub>BR</sub> measure after I<sub>T</sub> applied for 300us, I<sub>T</sub>=square wave pulse or equivalent.
2. Surge current waveform per Figure. 3 and derate per Figure. 2.
3. For bipolar types having V<sub>WM</sub> of 10 volts and under, the I<sub>D</sub> limit is doubled.
4. For bidirectional use C or CA suffix for types 1.5SMC6.8 through 1.5SMC200A
5. All terms and symbols are consistent with ANSI/IEEE C62.35.