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# SMCJ5.0(C)A THRU SMCJ440(C)A

## Transient Voltage Suppressor 5.0 to 440 Volts 1500 Watt

### Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- For surface mount application in order to optimize board space
- Built-in strain relief
- Glass passivated junction
- Typical  $I_D$  less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Plastic package has Underwrites Laboratory Flammability

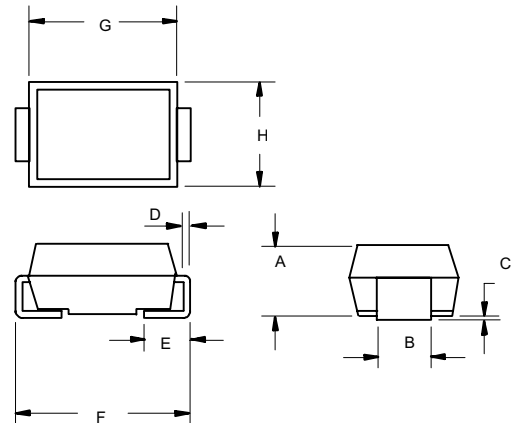
### Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals solderable per MIL-STD-750, Method 2026
- Polarity Color and denotes positive end( cathode) except Bi-directional types.
- Standard packaging 16mm tape per ( EIA 481).
- Weight 0.007 ounce, 0.21 gram

### Maximum Ratings @ 25°C Unless Otherwise Specified

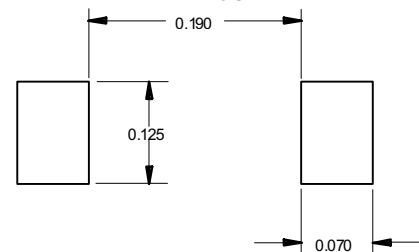
|   |                |                 |       |
|---|----------------|-----------------|-------|
| Peak Pulse Current on 10/1000us waveform(Note2, Fig4)             | $I_{PPM}$      | See Table 1     | Amps  |
| Peak Pulse Power Dissipation on 10/1000us waveform(Note2,3, Fig1) | $P_{PPM}$      | Minimum 1500    | Watts |
| Peak forward surge current (JEDEC Method) (Note 3,4)              | $I_{FSM}$      | 200.0           | Amps  |
| Operation And Storage Temperature Range                           | $T_J, T_{STG}$ | -55°C to +150°C |       |

### DO-214AB (SMC) (LEAD FRAME)



| DIM | INCHES |      | MM    |       | NOTE |
|-----|--------|------|-------|-------|------|
|     | MIN    | MA   | MIN   | MA    |      |
| A   | .079   | .103 | 2.00  | 2.62  |      |
| B   | .108   | .128 | 2.75  | 3.25  |      |
| C   | .002   | .008 | 0.051 | 0.203 |      |
| D   | .006   | .012 | 0.152 | 0.305 |      |
| E   | .030   | .050 | 0.76  | 1.27  |      |
| F   | .305   | .320 | 7.75  | 8.13  |      |
| G   | .260   | .280 | 6.60  | 7.11  |      |
| H   | .220   | .245 | 5.59  | 6.22  |      |

### SUGGESTED SOLDER PAD LAYOUT



- Notes: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.  
 2. Non-repetitive current pulse per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.  
 3. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.  
 4. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.  
 5. Unidirectional and bidirectional available, for bidirectional devices add C suffix to the part number, i.e.SMCJ5.0CA

# SMCJ5.0 THRU SMCJ440CA

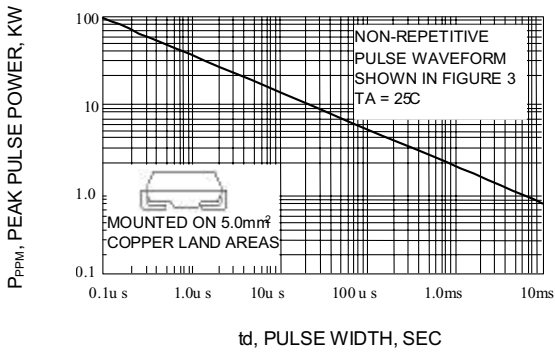


Fig. 1-PEAK PULSE POWER RATING CURVE

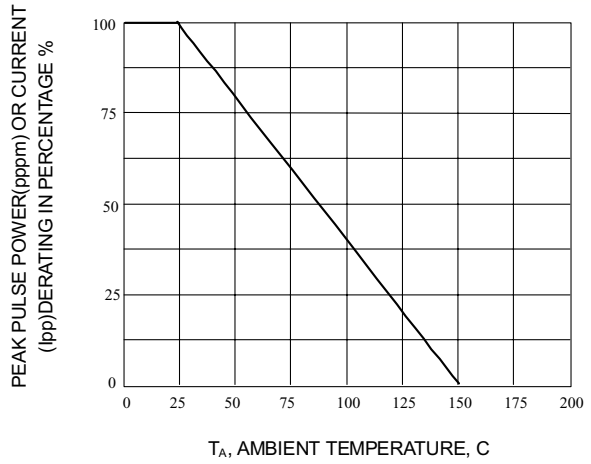


Fig. 2-PULSE DERATING CURVE

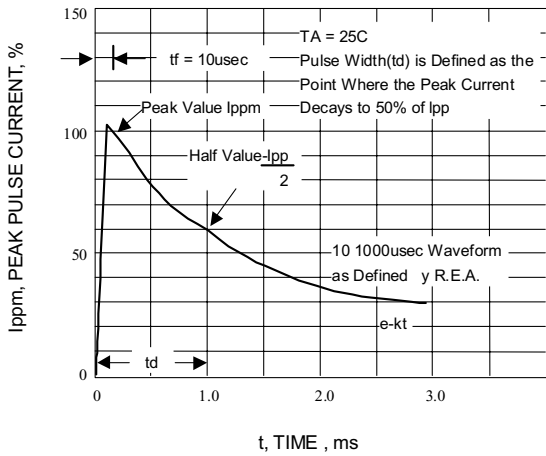


Fig. 3-PULSE WAVEFORM

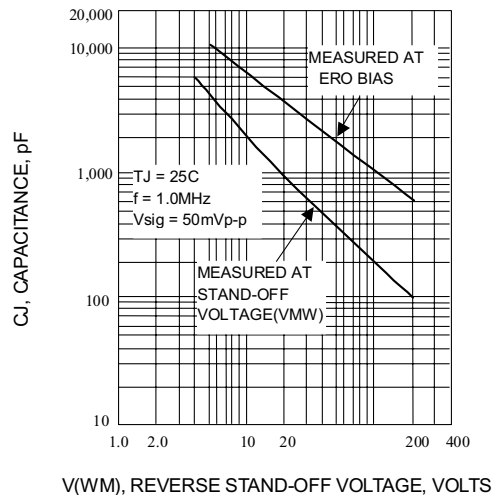


Fig. 4-TYPICAL JUNCTION CAPACITANCE

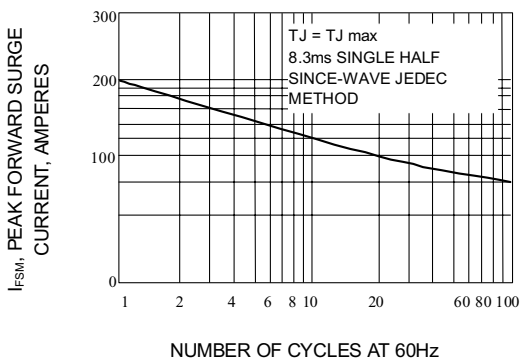


Fig. 5-MAIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

# SMCJ5.0 THRU SMCJ440CA



## ELECTRICAL CHARACTERISTICS @25°C

| Part Number |           | Reverse Stand -Off Voltage | Breakdown Voltage $V_{BR}(V)$ |       | Test Current | Max. Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage Current@ $V_{WM}$ | Marking Code |     |
|-------------|-----------|----------------------------|-------------------------------|-------|--------------|----------------------------------|--------------------|-----------------------------------|--------------|-----|
| Uni-Polar   | Bi-Polar  | $V_{WM}(V)$                | Min                           | Max   | $I_T(mA)$    | $V_C(V)$                         | $I_{PP}(A)$        | $I_D(\mu A)$                      | UNI          | BI  |
| SMCJ5.0A    | SMCJ5.0CA | 5                          | 6.4                           | 7.0   | 10           | 9.2                              | 163.0              | 800                               | GDE          | BDE |
| SMCJ6.0A    | SMCJ6.0CA | 6                          | 6.7                           | 7.4   | 10           | 10.3                             | 145.7              | 800                               | GDG          | BDG |
| SMCJ6.5A    | SMCJ6.5CA | 6.5                        | 7.2                           | 8.0   | 10           | 11.2                             | 134.0              | 500                               | GDK          | BDK |
| SMCJ7.0A    | SMCJ7.0CA | 7                          | 7.8                           | 8.6   | 10           | 12.0                             | 125.0              | 200                               | GDM          | BDM |
| SMCJ7.5A    | SMCJ7.5CA | 7.5                        | 8.3                           | 9.2   | 1            | 12.9                             | 116.3              | 100                               | GDP          | BDP |
| SMCJ8.0A    | SMCJ8.0CA | 8                          | 8.9                           | 9.8   | 1            | 13.6                             | 110.3              | 50                                | GDR          | BDR |
| SMCJ8.5A    | SMCJ8.5CA | 8.5                        | 9.4                           | 10.4  | 1            | 14.4                             | 104.2              | 20                                | GDT          | BDT |
| SMCJ9.0A    | SMCJ9.0CA | 9                          | 10.0                          | 11.1  | 1            | 15.4                             | 97.4               | 10                                | GDV          | BDV |
| SMCJ10A     | SMCJ10CA  | 10                         | 11.1                          | 12.3  | 1            | 17.0                             | 88.3               | 5                                 | GDY          | BDY |
| SMCJ11A     | SMCJ11CA  | 11                         | 12.2                          | 13.5  | 1            | 18.2                             | 82.5               | 5                                 | GDZ          | BDZ |
| SMCJ12A     | SMCJ12CA  | 12                         | 13.3                          | 14.7  | 1            | 19.9                             | 75.4               | 5                                 | GEE          | BEE |
| SMCJ13A     | SMCJ13CA  | 13                         | 14.4                          | 15.9  | 1            | 21.5                             | 69.8               | 5                                 | GEG          | BEG |
| SMCJ14A     | SMCJ14CA  | 14                         | 15.6                          | 17.2  | 1            | 23.2                             | 64.7               | 5                                 | GEK          | BEK |
| SMCJ15A     | SMCJ15CA  | 15                         | 16.7                          | 18.5  | 1            | 24.4                             | 61.5               | 5                                 | GEM          | BEM |
| SMCJ16A     | SMCJ16CA  | 16                         | 17.8                          | 19.7  | 1            | 26.0                             | 57.7               | 5                                 | GEP          | BEP |
| SMCJ17A     | SMCJ17CA  | 17                         | 18.9                          | 20.9  | 1            | 27.6                             | 54.4               | 5                                 | GER          | BER |
| SMCJ18A     | SMCJ18CA  | 18                         | 20.0                          | 22.1  | 1            | 29.2                             | 51.4               | 5                                 | GET          | BET |
| SMCJ20A     | SMCJ20CA  | 20                         | 22.2                          | 24.5  | 1            | 32.4                             | 46.3               | 5                                 | GEV          | BEV |
| SMCJ22A     | SMCJ22CA  | 22                         | 24.4                          | 26.9  | 1            | 35.5                             | 42.3               | 5                                 | GEX          | BEX |
| SMCJ24A     | SMCJ24CA  | 24                         | 26.7                          | 29.5  | 1            | 38.9                             | 38.6               | 5                                 | GEZ          | BEZ |
| SMCJ26A     | SMCJ26CA  | 26                         | 28.9                          | 31.9  | 1            | 42.1                             | 35.7               | 5                                 | GFE          | BFE |
| SMCJ28A     | SMCJ28CA  | 28                         | 31.1                          | 34.4  | 1            | 45.4                             | 33.1               | 5                                 | GFG          | BFG |
| SMCJ30A     | SMCJ30CA  | 30                         | 33.3                          | 36.8  | 1            | 48.4                             | 31.0               | 5                                 | GFK          | BFK |
| SMCJ33A     | SMCJ33CA  | 33                         | 36.7                          | 40.6  | 1            | 53.3                             | 28.2               | 5                                 | GFM          | BFM |
| SMCJ36A     | SMCJ36CA  | 36                         | 40.0                          | 44.2  | 1            | 58.1                             | 25.9               | 5                                 | GFP          | BFP |
| SMCJ40A     | SMCJ40CA  | 40                         | 44.4                          | 49.1  | 1            | 64.5                             | 23.3               | 5                                 | GFR          | BFR |
| SMCJ43A     | SMCJ43CA  | 43                         | 47.8                          | 52.8  | 1            | 69.4                             | 21.7               | 5                                 | GFT          | BFT |
| SMCJ45A     | SMCJ45CA  | 45                         | 50.0                          | 55.3  | 1            | 72.7                             | 20.6               | 5                                 | GFV          | BFV |
| SMCJ48A     | SMCJ48CA  | 48                         | 53.3                          | 58.9  | 1            | 77.4                             | 19.4               | 5                                 | GFX          | BFX |
| SMCJ51A     | SMCJ51CA  | 51                         | 56.7                          | 62.7  | 1            | 82.4                             | 18.2               | 5                                 | GFZ          | BFZ |
| SMCJ54A     | SMCJ54CA  | 54                         | 60.0                          | 66.3  | 1            | 87.1                             | 17.3               | 5                                 | GGE          | BGE |
| SMCJ58A     | SMCJ58CA  | 58                         | 64.4                          | 71.2  | 1            | 93.6                             | 16.1               | 5                                 | GGG          | BGG |
| SMCJ60A     | SMCJ60CA  | 60                         | 66.7                          | 73.7  | 1            | 96.8                             | 15.5               | 5                                 | GGK          | BGK |
| SMCJ64A     | SMCJ64CA  | 64                         | 71.1                          | 78.6  | 1            | 103.0                            | 14.6               | 5                                 | GGM          | BGM |
| SMCJ70A     | SMCJ70CA  | 70                         | 77.8                          | 86.0  | 1            | 113.0                            | 13.3               | 5                                 | GGP          | BGP |
| SMCJ75A     | SMCJ75CA  | 75                         | 83.3                          | 92.1  | 1            | 121.0                            | 12.4               | 5                                 | GGR          | BGR |
| SMCJ78A     | SMCJ78CA  | 78                         | 86.7                          | 95.8  | 1            | 126.0                            | 11.9               | 5                                 | GGT          | BGT |
| SMCJ85A     | SMCJ85CA  | 85                         | 94.4                          | 104.0 | 1            | 137.0                            | 11.0               | 5                                 | GGV          | BGV |
| SMCJ90A     | SMCJ90CA  | 90                         | 100.0                         | 111.0 | 1            | 146.0                            | 10.3               | 5                                 | GGX          | BGX |
| SMCJ100A    | SMCJ100CA | 100                        | 111.0                         | 123.0 | 1            | 162.0                            | 9.3                | 5                                 | GGZ          | BGZ |

For bi-directional type having  $V_{RWM}$  of 10volts and less, the IR limit is double. For parts without A, the VBR is  $\pm 10\%$

# SMCJ5.0 THRU SMCJ440CA



## ELECTRICAL CHARACTERISTICS @25°C

| Part Number |           | Reverse Standard - Off Voltage | Breakdown Voltage $V_{BR}(V)$ |       | Test Current | Max. Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage Current @ $V_{WM}$ | Marking Code |     |
|-------------|-----------|--------------------------------|-------------------------------|-------|--------------|----------------------------------|--------------------|------------------------------------|--------------|-----|
| Uni-Polar   | Bi-Polar  | $V_{WM}(V)$                    | Min                           | Max   | $I_T(mA)$    | $V_C(V)$                         | $I_{PP}(A)$        | $I_D(\mu A)$                       | UNI          | BI  |
| SMCJ110A    | SMCJ110CA | 110                            | 122.0                         | 135.0 | 1            | 177                              | 8.5                | 5                                  | GHE          | BHE |
| SMCJ120A    | SMCJ120CA | 120                            | 133.0                         | 147.0 | 1            | 193                              | 7.8                | 5                                  | GHG          | BHG |
| SMCJ130A    | SMCJ130CA | 130                            | 144.0                         | 159.0 | 1            | 209                              | 7.2                | 5                                  | GHK          | BHK |
| SMCJ150A    | SMCJ150CA | 150                            | 167.0                         | 185.0 | 1            | 243                              | 6.2                | 5                                  | GHM          | BHM |
| SMCJ160A    | SMCJ160CA | 160                            | 178.0                         | 197.0 | 1            | 259                              | 5.8                | 5                                  | GHP          | BHP |
| SMCJ170A    | SMCJ170CA | 170                            | 189.0                         | 209.0 | 1            | 275                              | 5.5                | 5                                  | GHR          | BHR |
| SMCJ180A    | SMCJ180CA | 180                            | 201.0                         | 222.0 | 1            | 292                              | 5.1                | 5                                  | GHT          | BHT |
| SMCJ200A    | SMCJ200CA | 200                            | 224.0                         | 247.0 | 1            | 324                              | 4.6                | 5                                  | GHV          | BHV |
| SMCJ220A    | SMCJ220CA | 220                            | 246.0                         | 272.0 | 1            | 356                              | 4.2                | 5                                  | GHX          | BHX |
| SMCJ250A    | SMCJ250CA | 250                            | 279.0                         | 309.0 | 1            | 405                              | 3.7                | 5                                  | GHZ          | BHZ |
| SMCJ300A    | SMCJ300CA | 300                            | 335.0                         | 371.0 | 1            | 486                              | 3.1                | 5                                  | GJE          | BJE |
| SMCJ350A    | SMCJ350CA | 350                            | 391.0                         | 432.0 | 1            | 567                              | 2.6                | 5                                  | GJG          | BJG |
| SMCJ400A    | SMCJ400CA | 400                            | 447.0                         | 494.0 | 1            | 648                              | 2.3                | 5                                  | GJK          | BJK |
| SMCJ440A    | SMCJ440CA | 440                            | 492.0                         | 543.0 | 1            | 713                              | 2.1                | 5                                  | GJM          | BJM |

For bi-directional type having  $V_{RWM}$  of 10volts and less, the IR limit is double. For parts without A, the VBR is  $\pm 10\%$