

# S-5.0SMDJ\*\*\* CA Series

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 11 TO 170 Volts, 5000 Watt Peak Pulse Power

### 1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0ps
- Typical IR less than 1uA above 10V
- High temperature soldering guaranteed:  
260°C/10 seconds,
- Weight: 0.26g
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



### 2. MECHANICAL DATA

**Case:** JEDEC DO-214AB (SMC)

**Terminals:** Plated leads, solderable per MIL-STD-202, Method 208

**Polarity:** Without Color band denoted cathode

**Mounting Position:** Any

### 3. MAXIMUM RATINGS (Ta = 25°C)

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%.

| RATING   | VALUE        | UNITS |
|--|--------------|-------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (Note 1) | Minimum 5000 | Watts |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2)            | 6.5          | Watts |
| Operating Temperature Range  | -55 to +150  | °C    |
| Storage Temperature Range  | -55 to +150  | °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.

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| Bi-Directional Part Number | Device marking code | Reverse Stand-off Voltage VRWM (V) | Breakdown Voltage VBR (V) Min. @IT | Breakdown Voltage VBR (V) Max. @IT | Test Current IT (mA) | Maximum Clamping Voltage @IPP VC (V) | Peak Pulse Current Ipp (A) | Reverse Leakage @VRWM IR (uA) |
|----------------------------|---------------------|------------------------------------|------------------------------------|------------------------------------|----------------------|--------------------------------------|----------------------------|-------------------------------|
| S-5.0SMDJ11CA              | 5.0SMDJ11CA         | 11                                 | 12.2                               | 13.5                               | 10                   | 18.2                                 | 275.0                      | 800                           |
| S-5.0SMDJ12CA              | 5.0SMDJ12CA         | 12                                 | 13.3                               | 14.7                               | 10                   | 19.9                                 | 252.0                      | 800                           |
| S-5.0SMDJ13CA              | 5.0SMDJ13CA         | 13                                 | 14.4                               | 15.9                               | 10                   | 21.5                                 | 233.0                      | 500                           |
| S-5.0SMDJ14CA              | 5.0SMDJ14CA         | 14                                 | 15.6                               | 17.2                               | 10                   | 23.2                                 | 216.0                      | 200                           |
| S-5.0SMDJ15CA              | 5.0SMDJ15CA         | 15                                 | 16.7                               | 18.5                               | 1                    | 24.4                                 | 205.0                      | 100                           |
| S-5.0SMDJ16CA              | 5.0SMDJ16CA         | 16                                 | 17.8                               | 19.7                               | 1                    | 26                                   | 193.0                      | 50                            |
| S-5.0SMDJ17CA              | 5.0SMDJ17CA         | 17                                 | 18.9                               | 20.9                               | 1                    | 27.6                                 | 181.0                      | 20                            |
| S-5.0SMDJ18CA              | 5.0SMDJ18CA         | 18                                 | 20                                 | 22.1                               | 1                    | 29.2                                 | 172.0                      | 10                            |
| S-5.0SMDJ20CA              | 5.0SMDJ20CA         | 20                                 | 22.2                               | 24.5                               | 1                    | 32.4                                 | 155.0                      | 5                             |
| S-5.0SMDJ22CA              | 5.0SMDJ22CA         | 22                                 | 24.4                               | 26.9                               | 1                    | 35.5                                 | 141.0                      | 5                             |
| S-5.0SMDJ24CA              | 5.0SMDJ24CA         | 24                                 | 26.7                               | 29.5                               | 1                    | 38.9                                 | 129.0                      | 2                             |
| S-5.0SMDJ26CA              | 5.0SMDJ26CA         | 26                                 | 28.9                               | 31.9                               | 1                    | 42.1                                 | 119.0                      | 2                             |
| S-5.0SMDJ28CA              | 5.0SMDJ28CA         | 28                                 | 31.1                               | 34.4                               | 1                    | 45.4                                 | 110.0                      | 2                             |
| S-5.0SMDJ30CA              | 5.0SMDJ30CA         | 30                                 | 33.3                               | 36.8                               | 1                    | 48.4                                 | 103.0                      | 2                             |
| S-5.0SMDJ33CA              | 5.0SMDJ33CA         | 33                                 | 36.7                               | 40.6                               | 1                    | 53.3                                 | 93.9                       | 2                             |
| S-5.0SMDJ36CA              | 5.0SMDJ36CA         | 36                                 | 40                                 | 44.2                               | 1                    | 58.1                                 | 86.1                       | 2                             |
| S-5.0SMDJ40CA              | 5.0SMDJ40CA         | 40                                 | 44.4                               | 49.1                               | 1                    | 64.5                                 | 77.6                       | 2                             |
| S-5.0SMDJ43CA              | 5.0SMDJ43CA         | 43                                 | 47.8                               | 52.8                               | 1                    | 69.4                                 | 72.1                       | 2                             |
| S-5.0SMDJ45CA              | 5.0SMDJ45CA         | 45                                 | 50                                 | 55.3                               | 1                    | 72.7                                 | 68.8                       | 2                             |
| S-5.0SMDJ48CA              | 5.0SMDJ48CA         | 48                                 | 53.3                               | 58.9                               | 1                    | 77.4                                 | 64.7                       | 2                             |
| S-5.0SMDJ51CA              | 5.0SMDJ51CA         | 51                                 | 56.7                               | 62.7                               | 1                    | 82.4                                 | 60.7                       | 2                             |
| S-5.0SMDJ54CA              | 5.0SMDJ54CA         | 54                                 | 60                                 | 66.3                               | 1                    | 87.1                                 | 57.5                       | 2                             |
| S-5.0SMDJ58CA              | 5.0SMDJ58CA         | 58                                 | 64.4                               | 71.2                               | 1                    | 93.6                                 | 53.5                       | 2                             |
| S-5.0SMDJ60CA              | 5.0SMDJ60CA         | 60                                 | 66.7                               | 73.7                               | 1                    | 96.8                                 | 51.7                       | 2                             |
| S-5.0SMDJ64CA              | 5.0SMDJ64CA         | 64                                 | 71.1                               | 78.6                               | 1                    | 103                                  | 48.6                       | 2                             |
| S-5.0SMDJ70CA              | 5.0SMDJ70CA         | 70                                 | 77.8                               | 86                                 | 1                    | 113                                  | 44.3                       | 2                             |
| S-5.0SMDJ75CA              | 5.0SMDJ75CA         | 75                                 | 83.3                               | 92.1                               | 1                    | 121                                  | 41.4                       | 2                             |
| S-5.0SMDJ78CA              | 5.0SMDJ78CA         | 78                                 | 86.7                               | 95.8                               | 1                    | 126                                  | 39.7                       | 2                             |
| S-5.0SMDJ85CA              | 5.0SMDJ85CA         | 85                                 | 94.4                               | 104                                | 1                    | 137                                  | 36.5                       | 2                             |
| S-5.0SMDJ90CA              | 5.0SMDJ90CA         | 90                                 | 100                                | 111                                | 1                    | 146                                  | 34.3                       | 2                             |
| S-5.0SMDJ100CA             | 5.0SMDJ100CA        | 100                                | 111                                | 123                                | 1                    | 162                                  | 30.9                       | 2                             |
| S-5.0SMDJ110CA             | 5.0SMDJ110CA        | 110                                | 122                                | 135                                | 1                    | 177                                  | 28.3                       | 2                             |
| S-5.0SMDJ120CA             | 5.0SMDJ120CA        | 120                                | 133                                | 147                                | 1                    | 193                                  | 26.0                       | 2                             |
| S-5.0SMDJ130CA             | 5.0SMDJ130CA        | 130                                | 144                                | 159                                | 1                    | 209                                  | 24.0                       | 2                             |
| S-5.0SMDJ150CA             | 5.0SMDJ150CA        | 150                                | 167                                | 185                                | 1                    | 243                                  | 20.6                       | 2                             |
| S-5.0SMDJ160CA             | 5.0SMDJ160CA        | 160                                | 178                                | 197                                | 1                    | 259                                  | 19.3                       | 2                             |
| S-5.0SMDJ170CA             | 5.0SMDJ170CA        | 170                                | 189                                | 209                                | 1                    | 275                                  | 18.2                       | 2                             |

**5. ELECTRICAL CHARACTERISTICS CURVES**

Fig. 1-Peak Pulse Power Rating Curve

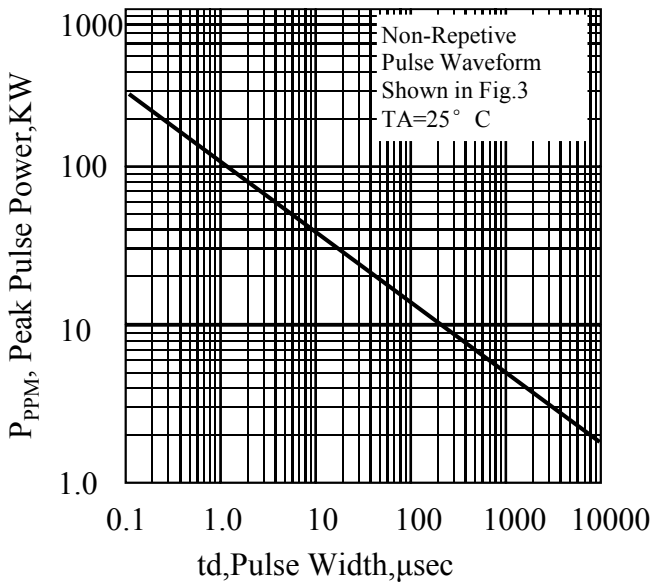


Fig. 2-Pulse Derating Curve

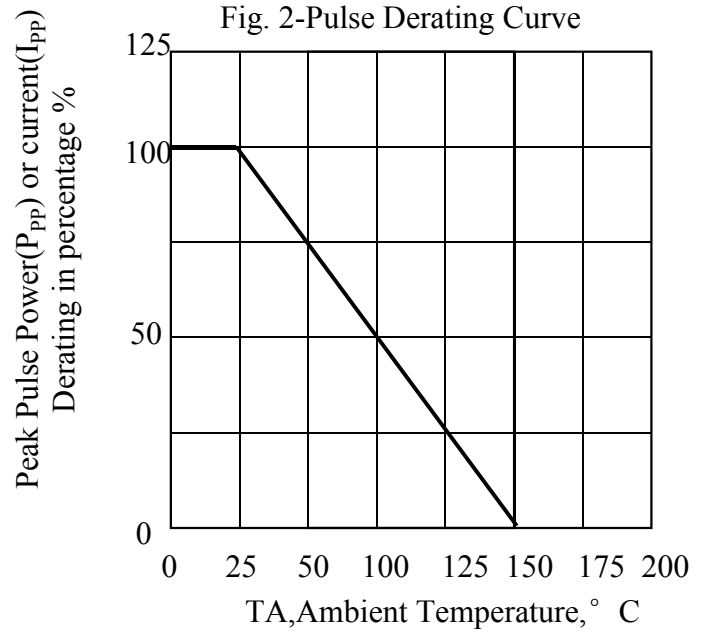
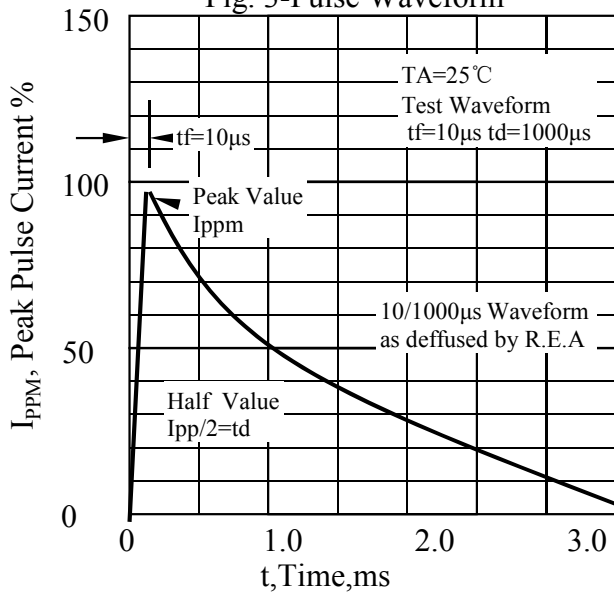
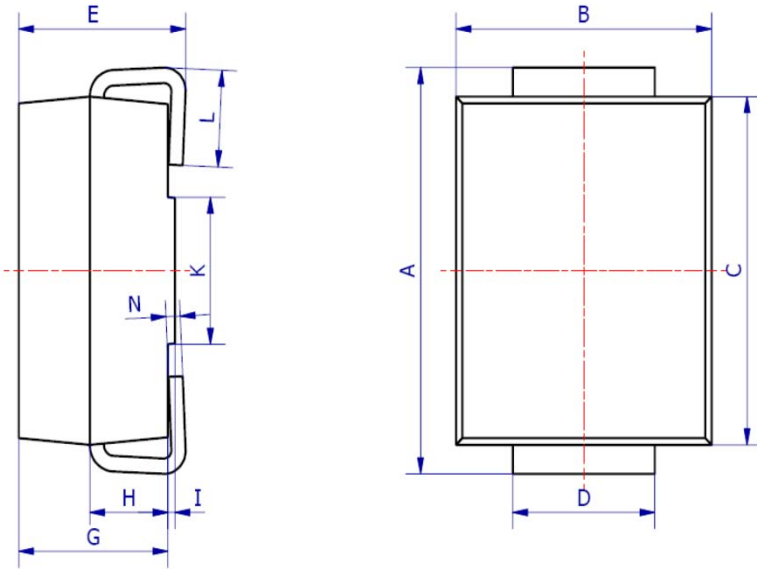


Fig. 3-Pulse Waveform

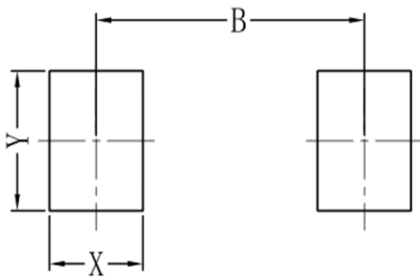


### 6. OUTLINE AND DIMENSIONS



| SMC                  |      |      |      |
|----------------------|------|------|------|
| DIM                  | Min  | Max  | Typ. |
| A                    | 7.70 | 8.30 | 8.00 |
| B                    | 5.85 | 6.25 | 6.05 |
| C                    | 6.65 | 7.05 | 6.85 |
| D                    | 2.80 | 3.20 | 3.00 |
| E                    | 2.45 | 2.85 | 2.65 |
| G                    | 2.10 | 2.50 | 2.30 |
| H                    | 1.00 | 1.40 | 1.20 |
| I                    | 0.05 | 0.15 | 0.10 |
| K                    | 4.30 | 4.70 | 4.50 |
| L                    | 1.00 | 1.50 | 1.25 |
| N                    | 0.10 | 0.30 | 0.20 |
| All Dimensions in mm |      |      |      |

### 7. SOLDERING FOOTPRINT



| SMC |      |
|-----|------|
| DIM | (mm) |
| X   | 1.60 |
| Y   | 3.30 |
| B   | 6.60 |