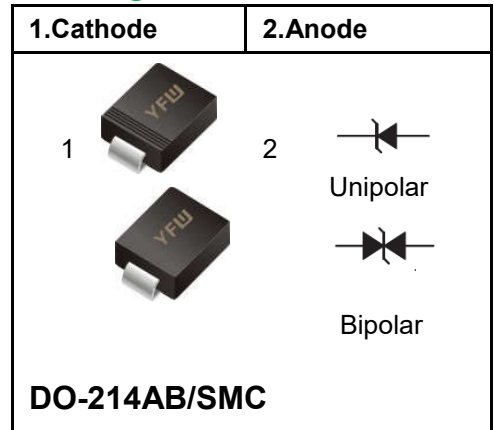


**Surface Mount Transient Voltage Suppressor Power  
5000Watts  
Stand-Off Voltage: 12V~170V**

**Pinning**



**FEATURES**

- ◆Peak power dissipation 5000w @10 x 1000 us Pulse
- ◆Low profile package.
- ◆Excellent clamping capability.
- ◆Typical I<sub>R</sub> less than 5uA when V<sub>BR</sub> above 22V.
- ◆Glass passivated junction.
- ◆Fast response time: typically less than 1.0ps from 0 Volts to BV min
- ◆IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ◆ESD protection of data lines in accordance with IEC 61000-4-2
- ◆EFT protection of data lines in accordance with IEC 61000-4-4
- ◆Halogen free and ROHS compliant
- ◆Lead-free finish

**MECHANICAL CHARACTERISTICS**

- ◆Case: SMC (DO-214AB) Molded Plastic over glass passivated junction.
- ◆Mounting Position: Any
- ◆Polarity: by cathode band denotes UNI-directional device, none cathode band denotes bi-directional device.
- ◆Terminal: Solder plated



**Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)**

| Parameter  | Symbol                               | Value          | Unit      |
|--|--------------------------------------|----------------|-----------|
| Peak Pulse Power Dissipation on 10/1000 us waveform (Note 1, 2, FIG.1) | <b>P<sub>PPM</sub></b>               | 5000           | <b>W</b>  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)    | <b>I<sub>FSM</sub></b>               | 300            | <b>A</b>  |
| Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)            | <b>I<sub>PPM</sub></b>               | See Next Table | <b>A</b>  |
| Power dissipation on Infinite heat sink at T <sub>L</sub> =50 °C       | <b>P<sub>D</sub></b>                 | 6.5            | <b>W</b>  |
| Operating Junction Temperature and Storage Temperature Range           | <b>T<sub>J</sub>,T<sub>STG</sub></b> | -55 to +150    | <b>°C</b> |

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2.
- 2.Mounted on 8.0x8.0mm<sup>2</sup> (0.03mm thick) Copper Pads to each terminal.
- 3.Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

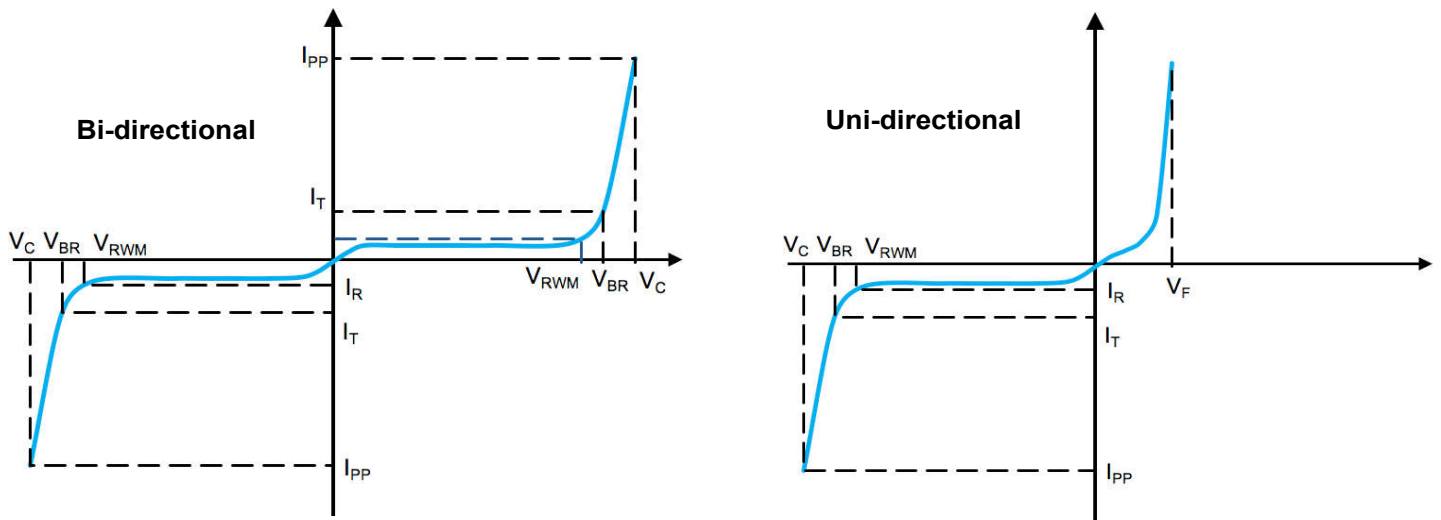
## Electrical Specification @ Tamb 25°C

| Type Number |              | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RMW</sub> |
|-------------|--------------|---------|------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (Uni)       | (Bi)         | (Uni)   | (Bi) | V <sub>RMW</sub> (V)      | V <sub>BR MIN</sub> (V)                | V <sub>BR MAX</sub> (V)                 | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (uA)               |
| 5.0SMDJ12A  | 5.0SMDJ12CA  | 5PEP    | 5BEP | 12.0                      | 13.30                                  | 14.70                                   | 10                  | 19.9                                      | 252.00              | 800                               |
| 5.0SMDJ13A  | 5.0SMDJ13CA  | 5PEQ    | 5BEQ | 13.0                      | 14.40                                  | 15.90                                   | 10                  | 21.5                                      | 233.00              | 500                               |
| 5.0SMDJ14A  | 5.0SMDJ14CA  | 5PER    | 5BER | 14.0                      | 15.60                                  | 17.20                                   | 10                  | 23.2                                      | 216.00              | 200                               |
| 5.0SMDJ15A  | 5.0SMDJ15CA  | 5PES    | 5BES | 15.0                      | 16.70                                  | 18.50                                   | 1                   | 24.4                                      | 205.00              | 100                               |
| 5.0SMDJ16A  | 5.0SMDJ16CA  | 5PET    | 5BET | 16.0                      | 17.80                                  | 20.50                                   | 1                   | 26.0                                      | 193.00              | 50                                |
| 5.0SMDJ17A  | 5.0SMDJ17CA  | 5PEU    | 5BEU | 17.0                      | 18.90                                  | 20.90                                   | 1                   | 27.6                                      | 181.00              | 20                                |
| 5.0SMDJ18A  | 5.0SMDJ18CA  | 5PEV    | 5BEV | 18.0                      | 20.00                                  | 22.10                                   | 1                   | 29.2                                      | 172.00              | 10                                |
| 5.0SMDJ20A  | 5.0SMDJ20CA  | 5PEW    | 5BEW | 20.0                      | 22.20                                  | 24.50                                   | 1                   | 32.4                                      | 155.00              | 5                                 |
| 5.0SMDJ22A  | 5.0SMDJ22CA  | 5PEX    | 5BEX | 22.0                      | 24.40                                  | 26.90                                   | 1                   | 35.5                                      | 141.00              | 5                                 |
| 5.0SMDJ24A  | 5.0SMDJ24CA  | 5PEZ    | 5BEZ | 24.0                      | 26.70                                  | 29.50                                   | 1                   | 38.9                                      | 129.00              | 5                                 |
| 5.0SMDJ26A  | 5.0SMDJ26CA  | 5PFE    | 5BFE | 26.0                      | 28.90                                  | 31.90                                   | 1                   | 42.1                                      | 119.00              | 5                                 |
| 5.0SMDJ28A  | 5.0SMDJ28CA  | 5PFG    | 5BFG | 28.0                      | 31.10                                  | 34.40                                   | 1                   | 45.4                                      | 110.00              | 5                                 |
| 5.0SMDJ30A  | 5.0SMDJ30CA  | 5PFK    | 5BFK | 30.0                      | 33.30                                  | 36.80                                   | 1                   | 48.4                                      | 103.00              | 5                                 |
| 5.0SMDJ33A  | 5.0SMDJ33CA  | 5PFM    | 5BFM | 33.0                      | 36.70                                  | 40.60                                   | 1                   | 53.3                                      | 93.90               | 5                                 |
| 5.0SMDJ36A  | 5.0SMDJ36CA  | 5PFP    | 5BFP | 36.0                      | 40.00                                  | 44.20                                   | 1                   | 58.1                                      | 86.10               | 5                                 |
| 5.0SMDJ40A  | 5.0SMDJ40CA  | 5PFR    | 5BFR | 40.0                      | 44.40                                  | 49.10                                   | 1                   | 64.5                                      | 77.60               | 5                                 |
| 5.0SMDJ43A  | 5.0SMDJ43CA  | 5PFT    | 5BFT | 43.0                      | 47.80                                  | 52.80                                   | 1                   | 69.4                                      | 72.10               | 5                                 |
| 5.0SMDJ45A  | 5.0SMDJ45CA  | 5PFV    | 5BFV | 45.0                      | 50.00                                  | 55.30                                   | 1                   | 72.7                                      | 68.80               | 5                                 |
| 5.0SMDJ48A  | 5.0SMDJ48CA  | 5PFX    | 5BFX | 48.0                      | 53.30                                  | 58.90                                   | 1                   | 77.4                                      | 64.70               | 5                                 |
| 5.0SMDJ51A  | 5.0SMDJ51CA  | 5PFZ    | 5BFZ | 51.0                      | 56.70                                  | 62.70                                   | 1                   | 82.4                                      | 60.70               | 5                                 |
| 5.0SMDJ54A  | 5.0SMDJ54CA  | 5PGE    | 5BGE | 54.0                      | 60.00                                  | 66.30                                   | 1                   | 87.1                                      | 57.50               | 5                                 |
| 5.0SMDJ58A  | 5.0SMDJ58CA  | 5PGG    | 5BGG | 58.0                      | 64.40                                  | 71.20                                   | 1                   | 93.6                                      | 53.50               | 5                                 |
| 5.0SMDJ60A  | 5.0SMDJ60CA  | 5PGK    | 5BGK | 60.0                      | 66.70                                  | 73.70                                   | 1                   | 96.8                                      | 51.70               | 5                                 |
| 5.0SMDJ64A  | 5.0SMDJ64CA  | 5PGM    | 5BGM | 64.0                      | 71.10                                  | 78.60                                   | 1                   | 103.0                                     | 48.60               | 5                                 |
| 5.0SMDJ70A  | 5.0SMDJ70CA  | 5PGP    | 5BGP | 70.0                      | 77.80                                  | 86.00                                   | 1                   | 113.0                                     | 44.30               | 5                                 |
| 5.0SMDJ75A  | 5.0SMDJ75CA  | 5PGR    | 5BGR | 75.0                      | 83.00                                  | 92.10                                   | 1                   | 121.0                                     | 41.40               | 5                                 |
| 5.0SMDJ78A  | 5.0SMDJ78CA  | 5PGT    | 5BGT | 78.0                      | 86.00                                  | 95.80                                   | 1                   | 126.0                                     | 39.70               | 5                                 |
| 5.0SMDJ85A  | 5.0SMDJ85CA  | 5PGV    | 5BGV | 85.0                      | 94.00                                  | 104.00                                  | 1                   | 137.0                                     | 36.50               | 5                                 |
| 5.0SMDJ90A  | 5.0SMDJ90CA  | 5PGX    | 5BGX | 90.0                      | 100.00                                 | 111.00                                  | 1                   | 146.0                                     | 34.30               | 5                                 |
| 5.0SMDJ100A | 5.0SMDJ100CA | 5PGZ    | 5BGZ | 100.0                     | 111.00                                 | 123.00                                  | 1                   | 162.0                                     | 30.90               | 5                                 |
| 5.0SMDJ110A | 5.0SMDJ110CA | 5PHE    | 5BHE | 110.0                     | 122.00                                 | 135.00                                  | 1                   | 177.0                                     | 28.30               | 5                                 |
| 5.0SMDJ120A | 5.0SMDJ120CA | 5PHG    | 5BHG | 120.0                     | 133.00                                 | 147.00                                  | 1                   | 193.0                                     | 26.00               | 5                                 |
| 5.0SMDJ130A | 5.0SMDJ130CA | 5PHK    | 5BHK | 130.0                     | 144.00                                 | 159.00                                  | 1                   | 209.0                                     | 24.00               | 5                                 |
| 5.0SMDJ150A | 5.0SMDJ150CA | 5PHM    | 5BHM | 150.0                     | 167.00                                 | 185.00                                  | 1                   | 243.0                                     | 20.60               | 5                                 |
| 5.0SMDJ160A | 5.0SMDJ160CA | 5PHP    | 5BHP | 160.0                     | 178.00                                 | 197.00                                  | 1                   | 259.0                                     | 19.30               | 5                                 |
| 5.0SMDJ170A | 5.0SMDJ170CA | 5PHR    | 5BHR | 170.0                     | 189.00                                 | 209.00                                  | 1                   | 275.0                                     | 18.20               | 5                                 |

※ For Bi-directional type having V<sub>RMW</sub> of 20 Volts and less, the I<sub>R</sub> limit is double

※ For parts without A, the VBR is ± 10% and VC is 5% higher than with A parts.

**I-V Curve Characteristics**



- $P_{PPM}$**  Peak Pulse Power Dissipation - Max power dissipation
- $V_{RWM}$**  Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- $V_{BR}$**  Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current ( $I_T$ )
- $V_C$**  Clamping Voltage – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)
- $I_R$**  Reverse Leakage Current – Current measured at  $V_R$
- $V_F$**  Forward Voltage Drop for Uni-directional



Fig.1 - Peak Pulse Power Rating

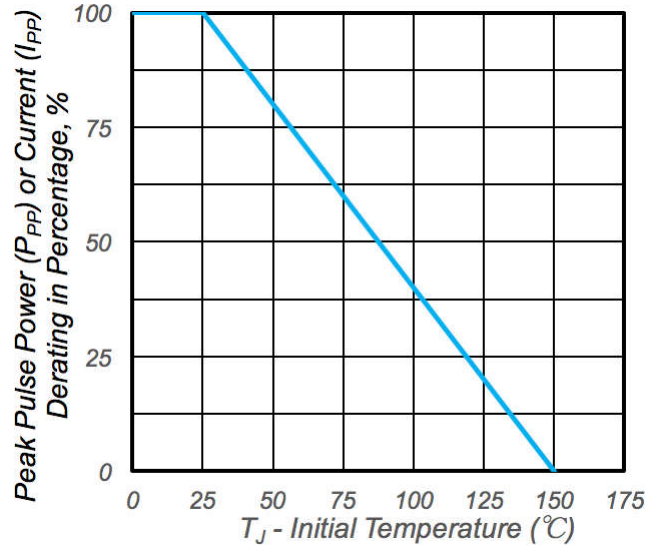


Fig.2 - Pulse Derating Curve



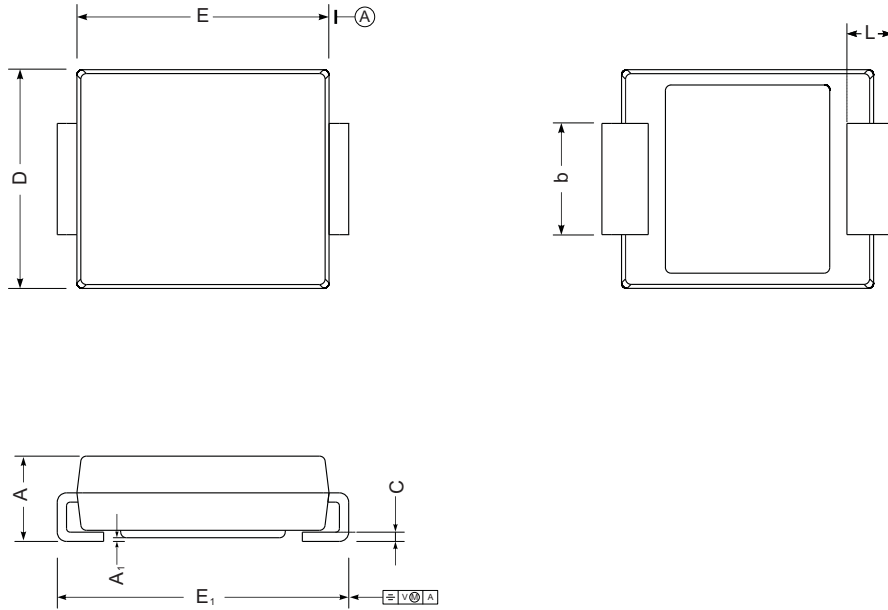
Fig.3 - Pulse Waveform



Fig.4 - Typical Junction Capacitance

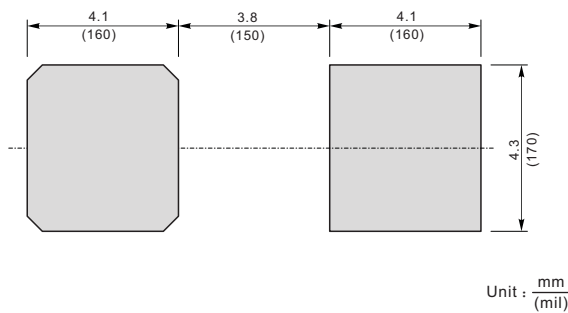
**Package Outline DO-214AB SMC**

Plastic surface mounted package; 2 leads



| UNIT |     | A    | E   | D   | E <sub>1</sub> | A <sub>1</sub> | C    | L   | b    |
|------|-----|------|-----|-----|----------------|----------------|------|-----|------|
| mm   | max | 2.62 | 7.0 | 6.2 | 8.0            | 0.21           | 0.31 | 1.6 | 3.25 |
|      | min | 2.00 | 6.5 | 5.6 | 7.6            | 0.05           | 0.15 | 0.9 | 2.75 |
| mil  | max | 103  | 276 | 244 | 315            | 8.3            | 12   | 63  | 128  |
|      | min | 79   | 256 | 220 | 299            | 2.0            | 5.9  | 35  | 108  |

**The recommended mounting pad size**



**Summary of Packing Options**

| Package      | Packing Description | Packing Quantity | Industry Standard |
|--------------|---------------------|------------------|-------------------|
| DO-214AB SMC | Tape/Reel, 13" reel | 3000             | EIA-481-1         |

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