

3000W, 10V - 100V Surface Mount Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified
- Ideal for automated placement
- Glass passivated chip junction
- Excellent clamping capability
- Meets ISO 7637-2 (Pulse 1/2a/2b/3a/3b)
- Fast response time: Typically less than 1.0ps
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| V_{WM} | 10 - 100 | V |
| V_{BR} | 11.1 - 123 | V |
| P_{PK} | 3000 | W |
| $T_{J\ MAX}$ | 175 | °C |
| Package | DO-214AB (SMC) | |
| Configuration | Single die | |

APPLICATIONS

- Immunization of sensitive devices in telecommunications, consumer electronics, and industrial equipment from electrostatic discharge (ESD) and transient voltages induced by load switching and lightning.



MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.290g (approximately)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | |
|--|-----------|-------------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Peak power dissipation at $T_A = 25^\circ\text{C}$, $t_p = 1\text{ms}^{(1)}$ | P_{PK} | 3000 | W |
| Steady state power dissipation at $T_A = 25^\circ\text{C}$ | P_D | 6.5 | W |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 300 | A |
| Forward Voltage @ $I_F = 100\text{A}$ for Unidirectional only ⁽²⁾ | V_F | 3.5 / 5.0 | V |
| Junction temperature | T_J | -55 to +175 | °C |
| Storage temperature | T_{STG} | -55 to +175 | °C |

Notes:

1. Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.2
2. $V_F = 3.5\text{V}$ on SMDJ10AH - SMDJ90AH devices and $V_F = 5.0\text{V}$ on SMDJ100AH

Devices for bipolar applications

1. For bidirectional use CAH suffix for SMDJ10AH – SMDJ64AH
2. Electrical characteristics apply in both directions

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|-------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 75 | °C/W |
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 15 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | | |
|---|-----------|--------------|-----|------------------------------------|------|-------------------------|--|--|--|--|
| Part number | | Marking code | | Breakdown voltage $V_{BR}@I_T$ (V) | | Test current I_T (mA) | Working stand-off voltage V_{WM} (V) | Maximum Reverse Leakage $I_R@V_{WM}$ (μA) | Maximum peak impulse current I_{PPM} (A) | Maximum clamping voltage $V_C@I_{PPM}$ (V) |
| | | | | Min | Max | | | | | |
| Uni | Bi | Uni | Bi | Min | Max | | | | | |
| SMDJ10AH | SMDJ10CAH | PDX | DDX | 11.1 | 12.3 | 1 | 10 | 5 | 176.5 | 17.0 |
| SMDJ11AH | SMDJ11CAH | PDZ | DDZ | 12.2 | 13.5 | 1 | 11 | 1 | 164.8 | 18.2 |
| SMDJ12AH | SMDJ12CAH | PEE | DEE | 13.3 | 14.7 | 1 | 12 | 1 | 150.8 | 19.9 |
| SMDJ13AH | SMDJ13CAH | PEG | DEG | 14.4 | 15.9 | 1 | 13 | 1 | 139.5 | 21.5 |
| SMDJ14AH | SMDJ14CAH | PEK | DEK | 15.6 | 17.2 | 1 | 14 | 1 | 129.3 | 23.2 |
| SMDJ15AH | SMDJ15CAH | PEM | DEM | 16.7 | 18.5 | 1 | 15 | 1 | 123.0 | 24.4 |
| SMDJ16AH | SMDJ16CAH | PEP | DEP | 17.8 | 19.7 | 1 | 16 | 1 | 115.4 | 26.0 |
| SMDJ17AH | SMDJ17CAH | PER | DER | 18.9 | 20.9 | 1 | 17 | 1 | 108.7 | 27.6 |
| SMDJ18AH | SMDJ18CAH | PET | DET | 20.0 | 22.1 | 1 | 18 | 1 | 102.7 | 29.2 |
| SMDJ20AH | SMDJ20CAH | PEV | DEV | 22.2 | 24.5 | 1 | 20 | 1 | 92.6 | 32.4 |
| SMDJ22AH | SMDJ22CAH | PEX | DEX | 24.4 | 26.9 | 1 | 22 | 1 | 84.5 | 35.5 |
| SMDJ24AH | SMDJ24CAH | PEZ | DEZ | 26.7 | 29.5 | 1 | 24 | 1 | 77.1 | 38.9 |
| SMDJ26AH | SMDJ26CAH | PFE | DFE | 28.9 | 31.9 | 1 | 26 | 1 | 71.3 | 42.1 |
| SMDJ28AH | SMDJ28CAH | PFG | DFG | 31.1 | 34.4 | 1 | 28 | 1 | 66.1 | 45.4 |
| SMDJ30AH | SMDJ30CAH | PFK | DFK | 33.3 | 36.8 | 1 | 30 | 1 | 62.0 | 48.4 |
| SMDJ33AH | SMDJ33CAH | PFM | DFM | 36.7 | 40.6 | 1 | 33 | 1 | 56.3 | 53.3 |
| SMDJ36AH | SMDJ36CAH | PFV | DFV | 40.0 | 44.2 | 1 | 36 | 1 | 51.6 | 58.1 |
| SMDJ40AH | SMDJ40CAH | PFR | DFR | 44.4 | 49.1 | 1 | 40 | 1 | 46.5 | 64.5 |
| SMDJ43AH | SMDJ43CAH | PFT | DFT | 47.8 | 52.8 | 1 | 43 | 1 | 43.2 | 69.4 |
| SMDJ45AH | SMDJ45CAH | PFV | DFV | 50.0 | 55.3 | 1 | 45 | 1 | 41.3 | 72.7 |
| SMDJ48AH | SMDJ48CAH | PFX | DFX | 53.3 | 58.9 | 1 | 48 | 1 | 38.8 | 77.4 |
| SMDJ51AH | SMDJ51CAH | PFZ | DFZ | 56.7 | 62.7 | 1 | 51 | 1 | 36.4 | 82.4 |
| SMDJ54AH | SMDJ54CAH | PGE | DGE | 60.0 | 66.3 | 1 | 54 | 1 | 34.4 | 87.1 |
| SMDJ58AH | SMDJ58CAH | PGG | DGG | 64.4 | 71.2 | 1 | 58 | 1 | 32.1 | 93.6 |
| SMDJ60AH | SMDJ60CAH | PGK | DGK | 66.7 | 73.7 | 1 | 60 | 1 | 31.0 | 96.8 |
| SMDJ64AH | SMDJ64CAH | PGM | DGM | 71.1 | 78.6 | 1 | 64 | 1 | 29.1 | 103 |
| SMDJ70AH | | PGP | | 77.8 | 86.0 | 1 | 70 | 1 | 26.5 | 113 |
| SMDJ75AH | | PGR | | 83.3 | 92.1 | 1 | 75 | 1 | 24.8 | 121 |
| SMDJ78AH | | PGT | | 86.7 | 95.8 | 1 | 78 | 1 | 23.8 | 126 |
| SMDJ85AH | | PGV | | 94.4 | 104 | 1 | 85 | 1 | 21.9 | 137 |
| SMDJ90AH | | PGX | | 100 | 111 | 1 | 90 | 1 | 20.5 | 146 |
| SMDJ100AH | | PGZ | | 111 | 123 | 1 | 100 | 1 | 18.5 | 162 |

| ORDERING INFORMATION | | |
|------------------------------------|----------------|---------------------|
| ORDERING CODE⁽¹⁾ | PACKAGE | PACKING |
| SMDJxH | DO-214AB (SMC) | 3,000 / Tape & Reel |

Notes:

- “x” defines voltage from 10V(SMDJ10AH) to 100V(SMDJ100AH)
 “x” defines voltage from 10V(SMDJ10CAH) to 64V(SMDJ64CAH)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

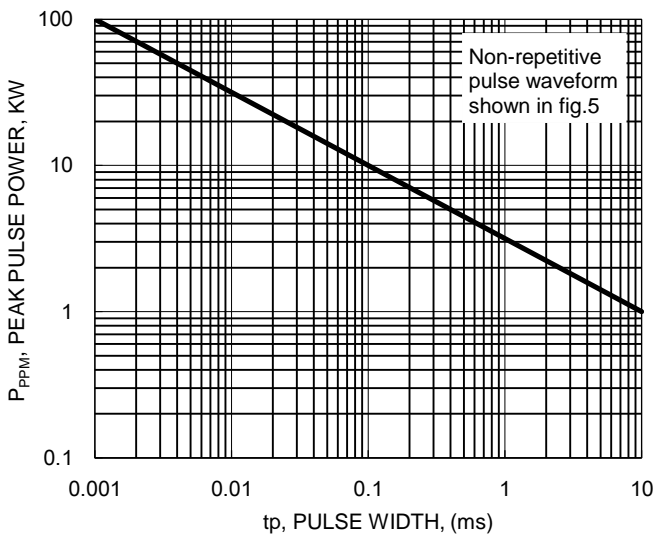


Fig.2 Pulse Derating Curve

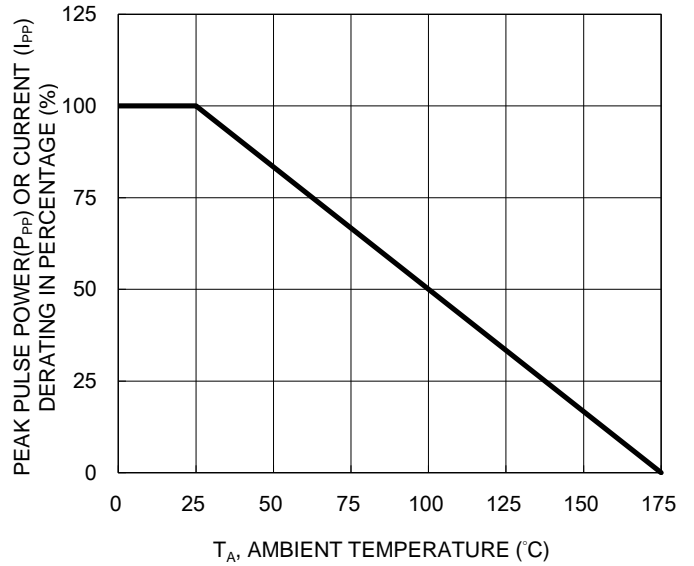


Fig.3 Typical Junction Capacitance

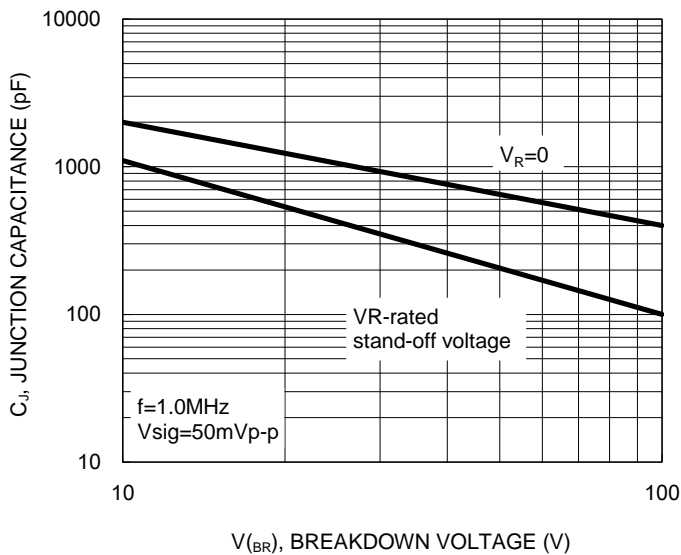
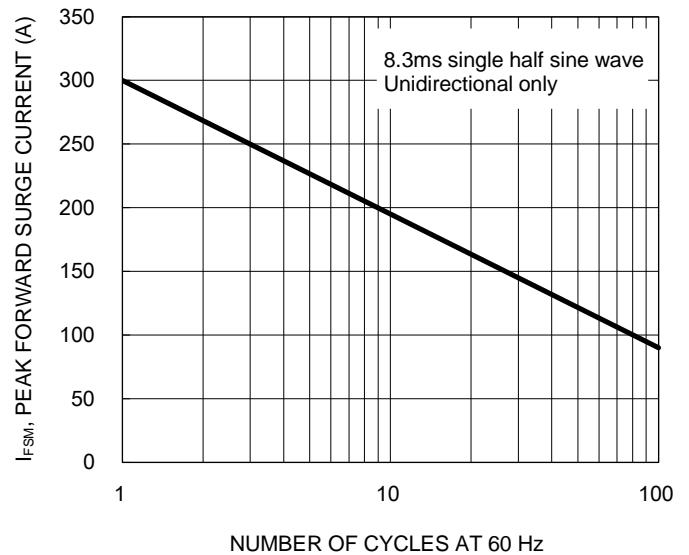


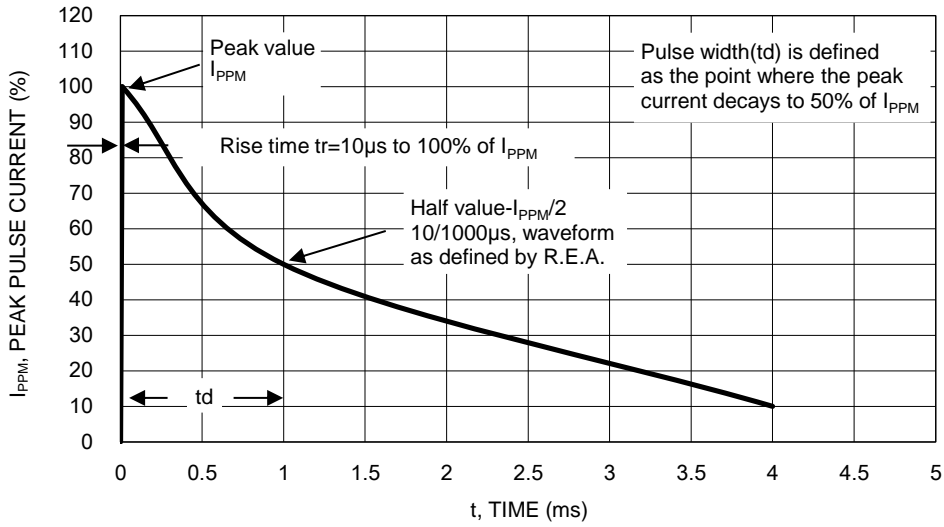
Fig.4 Maximum Non-repetitive Forward Surge Current



CHARACTERISTICS CURVES

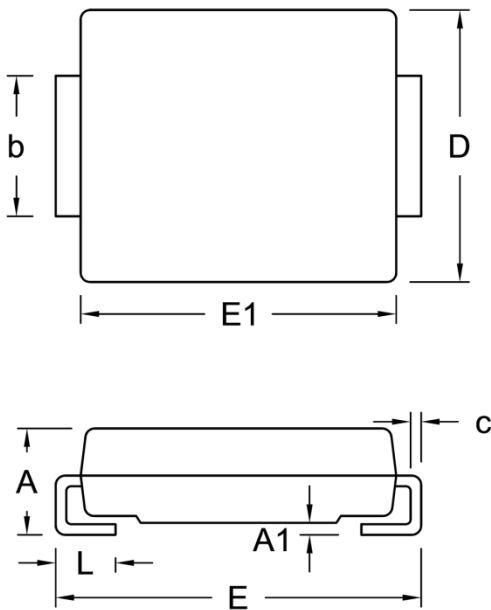
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.5 Clamping Power Pulse Waveform



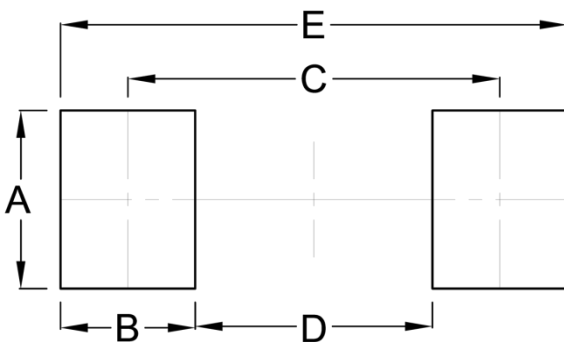
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.00 | 2.62 | 0.079 | 0.103 |
| A1 | 0.10 | 0.20 | 0.004 | 0.008 |
| b | 2.90 | 3.20 | 0.114 | 0.126 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 5.59 | 6.22 | 0.220 | 0.245 |
| E | 7.75 | 8.13 | 0.305 | 0.320 |
| E1 | 6.60 | 7.11 | 0.260 | 0.280 |
| L | 1.00 | 1.60 | 0.039 | 0.063 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 3.30 | 0.130 |
| B | 2.50 | 0.098 |
| C | 6.90 | 0.272 |
| D | 4.40 | 0.173 |
| E | 9.40 | 0.370 |

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

Cathode band for uni-directional products only