



Surface Mount TRANSZORB® Transient Voltage Suppressors



SMC (DO-214AB)



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Available in bi-directional polarity only
- 3000 W peak pulse power capability with a (10/1000 μ s) waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Not recommended for PCB bottom side wave mounting
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------|
| V_{BR} | 24.4 V to 95.8 V |
| V_{WM} | 22 V to 78 V |
| P_{PPM} | 3000 W |
| T_J max. | 150 °C |
| Polarity | Bi-directional |
| Package | SMC (DO-214AB) |

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

MECHANICAL DATA

Case: SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: no marking on bi-directional types

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|--|-----------------|----------------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Peak pulse power dissipation with a 10/1000 μ s waveform | $P_{PPM}^{(1)}$ | 3000 | W |
| Peak pulse current with a 10/1000 μ s waveform | $I_{PPM}^{(1)}$ | See next table | A |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | °C |

Note

(1) Non-repetitive current pulse and derated above $T_A = 25\text{ °C}$



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|---------------------|---|------|-------------------------|--------------------------------|---|---|---|
| DEVICE TYPE | DEVICE MARKING CODE | BREAKDOWN VOLTAGE $V_{BR}^{(1)}$ (V) AT I_T | | TEST CURRENT I_T (mA) | STAND-OFF VOLTAGE V_{WM} (V) | MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA) | MAX. PEAK PULSE SURGE CURRENT $I_{PPM}^{(2)}$ (A) | MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V) |
| | | MIN. | MAX. | | | | | |
| SMC3K22CA | 3BEX | 24.4 | 26.9 | 1.0 | 22 | 2.0 | 84.5 | 35.5 |
| SMC3K24CA | 3BEZ | 26.7 | 29.5 | 1.0 | 24 | 2.0 | 77.1 | 38.9 |
| SMC3K26CA | 3BFE | 28.9 | 31.9 | 1.0 | 26 | 2.0 | 71.3 | 42.1 |
| SMC3K28CA | 3BFG | 31.1 | 34.4 | 1.0 | 28 | 2.0 | 66.1 | 45.4 |
| SMC3K30CA | 3BFK | 33.3 | 36.8 | 1.0 | 30 | 2.0 | 62.0 | 48.4 |
| SMC3K33CA | 3BFM | 36.7 | 40.6 | 1.0 | 33 | 2.0 | 56.3 | 53.3 |
| SMC3K36CA | 3BFP | 40.0 | 44.2 | 1.0 | 36 | 2.0 | 51.6 | 58.1 |
| SMC3K40CA | 3BFR | 44.4 | 49.1 | 1.0 | 40 | 2.0 | 46.5 | 64.5 |
| SMC3K43CA | 3BFT | 47.8 | 52.8 | 1.0 | 43 | 2.0 | 43.2 | 69.4 |
| SMC3K45CA | 3GFV | 50.0 | 55.3 | 1.0 | 45 | 2.0 | 41.3 | 72.7 |
| SMC3K48CA | 3GFX | 53.3 | 58.9 | 1.0 | 48 | 2.0 | 38.8 | 77.4 |
| SMC3K51CA | 3GFZ | 56.7 | 62.7 | 1.0 | 51 | 2.0 | 36.4 | 82.4 |
| SMC3K54CA | 3GGE | 60.0 | 66.3 | 1.0 | 54 | 2.0 | 34.4 | 87.1 |
| SMC3K58CA | 3GGG | 64.4 | 71.2 | 1.0 | 58 | 2.0 | 32.1 | 93.6 |
| SMC3K60CA | 3GGK | 66.7 | 73.7 | 1.0 | 60 | 2.0 | 31.0 | 96.8 |
| SMC3K64CA | 3GGM | 71.1 | 78.6 | 1.0 | 64 | 2.0 | 29.1 | 103 |
| SMC3K70CA | 3GGP | 77.8 | 86.0 | 1.0 | 70 | 2.0 | 26.5 | 113 |
| SMC3K75CA | 3GGR | 83.3 | 92.1 | 1.0 | 75 | 2.0 | 24.8 | 121 |
| SMC3K78CA | 3GGT | 86.7 | 95.8 | 1.0 | 78 | 2.0 | 23.8 | 126 |

Notes

- (1) Pulse test: $t_p \leq 50\text{ ms}$
(2) Surge current waveform per fig. 3 and derated per fig.2
(3) All terms and symbols are consistent with ANSI/IEEE C62.35

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SMC3K22CA-M3/57 | 0.257 | 57 | 850 | 7" diameter plastic tape and reel |
| SMC3K22CA-M3/9A | 0.257 | 9A | 3500 | 13" diameter plastic tape and reel |
| SMC3K22CAHM3/57 ⁽¹⁾ | 0.257 | 57 | 850 | 7" diameter plastic tape and reel |
| SMC3K22CAHM3/9A ⁽¹⁾ | 0.257 | 9A | 3500 | 13" diameter plastic tape and reel |

Note

- (1) AEC-Q101 qualified



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

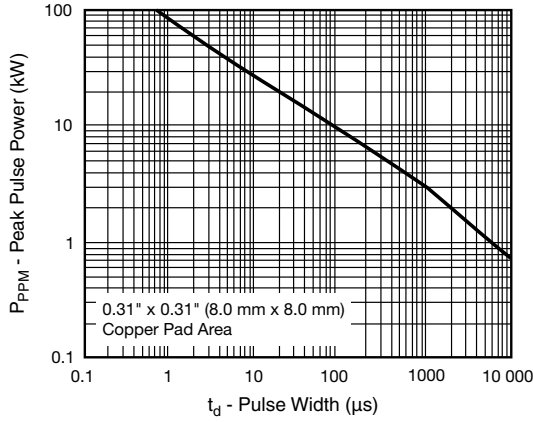


Fig. 1 - Peak Pulse Power Derating Curve

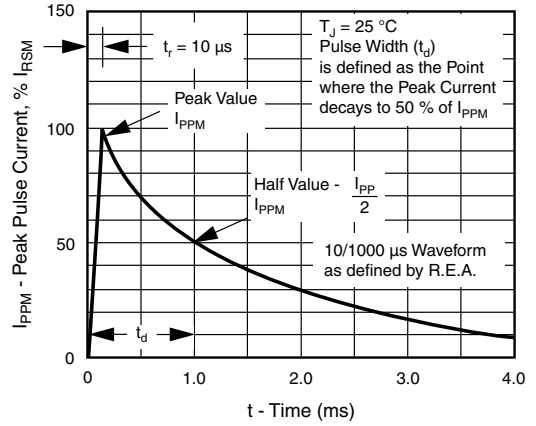


Fig. 3 - Pulse Waveform

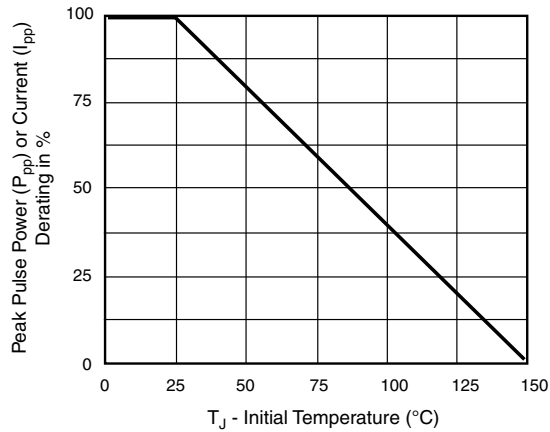


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

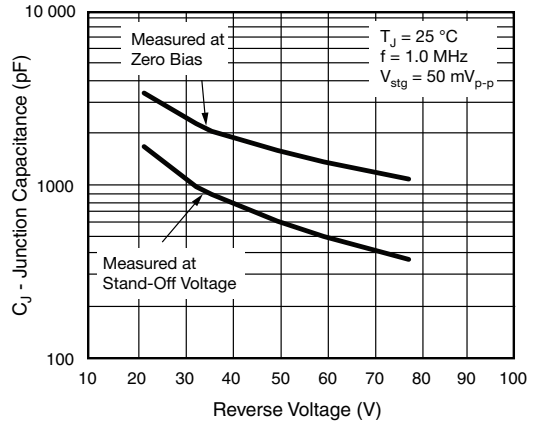
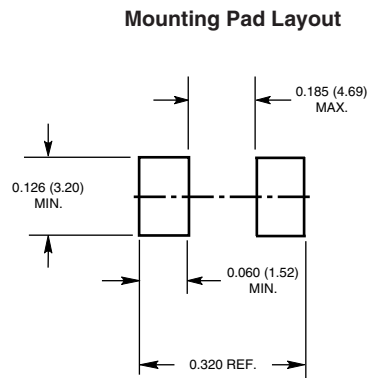
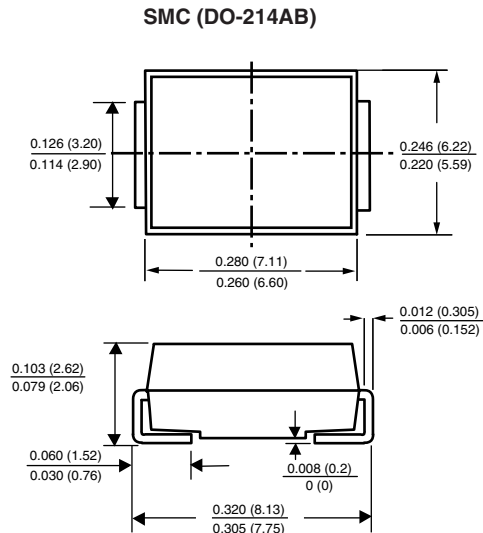


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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