

Low Capacitance TRANSZORB[®] Transient Voltage Suppressors


DO-15 (DO-204AC)

RoHS
COMPLIANT

FEATURES

- Glass passivated chip junction
- 500 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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, and telecommunication.

MECHANICAL DATA

Case: DO-15 (DO-204AC)

Molded epoxy over passivated body

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant and commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes cathode end

PRIMARY CHARACTERISTICS

| | |
|------------|------------------|
| V_{WM} | 5.0 V to 50 V |
| V_{BR} | 7.6 V to 55.5 V |
| P_{PPM} | 500 W |
| P_D | 3.0 W |
| T_J max. | 175 °C |
| Polarity | Unidirectional |
| Package | DO-15 (DO-204AC) |

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|----------------|----------------|------|
| Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾ | P_{PPM} | 500 | W |
| Peak pulse current with a 10/1000 μ s waveform (fig. 3) ⁽¹⁾ | I_{PPM} | See next table | A |
| Power dissipation on infinite heatsink at $T_L = 75$ °C (fig. 2) | P_D | 3.0 | W |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +175 | °C |

Note

⁽¹⁾ Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25$ °C per fig. 2

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

| PART NUMBER | BREAKDOWN VOLTAGE AT $I_T = 1.0\text{ mA}$ V_{BR} (V) | STAND-OFF VOLTAGE ⁽¹⁾ V_{WM} (V) | MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA) | MAXIMUM CLAMPING VOLTAGE AT $I_{PP} = 5.0\text{ A}$ V_C (V) | MAXIMUM PEAK PULSE CURRENT PER FIG. 3 I_{PP} (A) | MAXIMUM JUNCTION CAPACITANCE AT 0 V (pF) | WORKING INVERSE BLOCKING VOLTAGE V_{WIB} (V) | INVERSE BLOCKING LEAKAGE CURRENT V_{WIB} I_{IB} (mA) | PEAK INVERSE BLOCKING VOLTAGE V_{PIB} (V) |
|-------------|---|---|---|---|--|--|--|--|---|
| | MIN. | | | | | | | | |
| SAC5.0 | 7.60 | 5 | 300 | 10.0 | 44 | 50 | 75 | 1.0 | 100 |
| SAC6.0 | 7.90 | 6 | 300 | 11.2 | 41 | 50 | 75 | 1.0 | 100 |
| SAC7.0 | 8.33 | 7 | 300 | 12.6 | 38 | 50 | 75 | 1.0 | 100 |
| SAC8.0 | 8.89 | 8 | 100 | 13.4 | 36 | 50 | 75 | 1.0 | 100 |
| SAC8.5 | 9.44 | 8.5 | 50 | 14.0 | 34 | 50 | 75 | 1.0 | 100 |
| SAC10 | 11.10 | 10 | 5.0 | 16.3 | 29 | 50 | 75 | 1.0 | 100 |
| SAC12 | 13.30 | 12 | 5.0 | 19.0 | 25 | 50 | 75 | 1.0 | 100 |
| SAC15 | 16.70 | 15 | 5.0 | 23.6 | 20 | 50 | 75 | 1.0 | 100 |
| SAC18 | 20.00 | 18 | 5.0 | 28.8 | 15 | 50 | 75 | 1.0 | 100 |
| SAC22 | 24.40 | 22 | 5.0 | 35.4 | 14 | 50 | 75 | 1.0 | 100 |
| SAC26 | 28.90 | 26 | 5.0 | 42.3 | 11.1 | 50 | 75 | 1.0 | 100 |
| SAC30 | 33.30 | 30 | 5.0 | 48.6 | 10.0 | 50 | 75 | 1.0 | 100 |
| SAC36 | 40.00 | 36 | 5.0 | 60.0 | 8.6 | 50 | 75 | 1.0 | 100 |
| SAC45 | 50.00 | 45 | 5.0 | 77.0 | 6.8 | 50 | 150 | 1.0 | 200 |
| SAC50 | 55.50 | 50 | 5.0 | 88.0 | 5.8 | 50 | 150 | 1.0 | 200 |

Note

⁽¹⁾ Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25\text{ }^\circ\text{C}$ per fig. 2

ORDERING INFORMATION (Example)

| PREFERRED PIN | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| SAC5.0-E3/54 | 0.432 | 54 | 4000 | 13" diameter paper tape and reel |

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

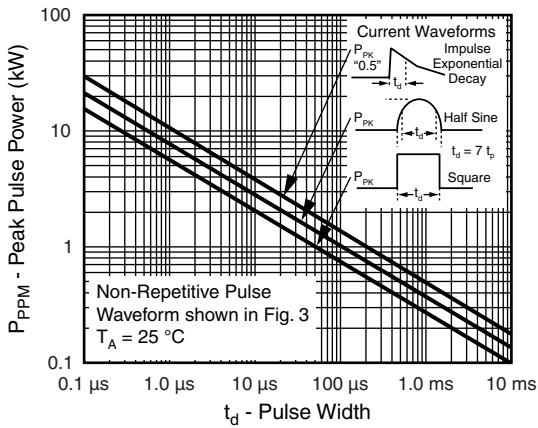


Fig. 1 - Peak Pulse Power Rating Curve

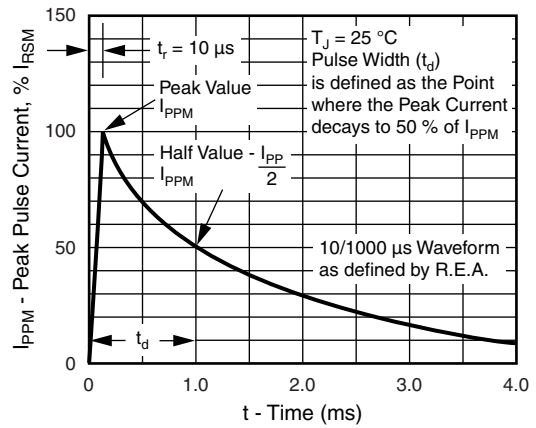


Fig. 3 - Pulse Waveform

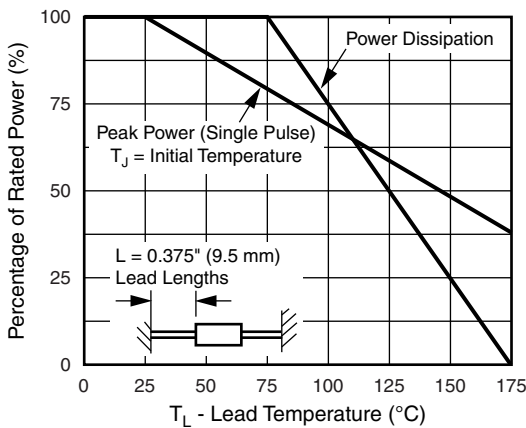
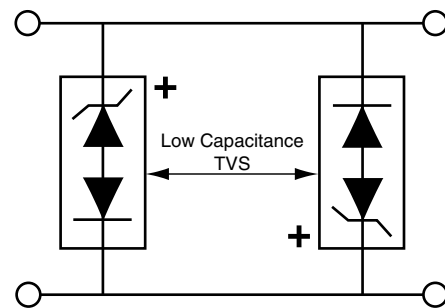


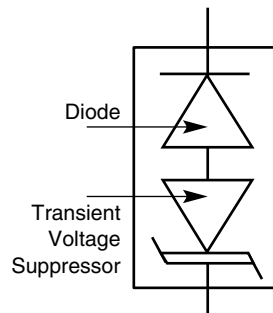
Fig. 2 - Power Derating Curve



Application Note: Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection.

Fig. 4 - AC Line Protection Application

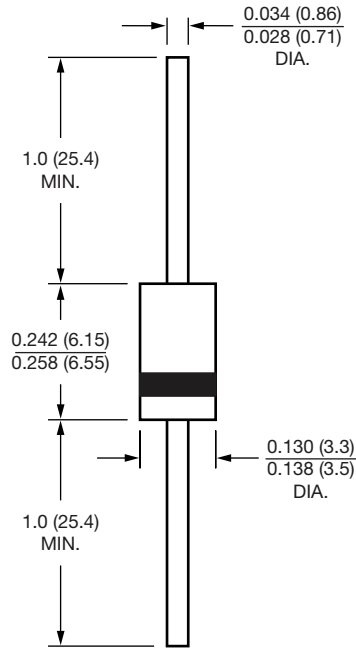
SCHEMATIC





PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)



Note

- Dimensions of mold length and diameter do not include mold flash and gate burr, mold flash shall not exceed 0.015 inch per side. These dimensions are measured at the outermost extreme of the plastic body



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