# Surface Mount PAR® Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

DO-218AB

## FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- $T_J$ = 175 °C capability suitable for high reliability and automotive requirement
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge specification
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

RoHS COMPLIANT

| PRIMARY CHARACTERISTICS | |
|---|---|
| $V_{BR}$ | 27 V |
| $P_{PPM}$ (10 x 1000 µs) | 6600 W |
| $P_D$ | 8 W |
| $I_{RSM}$ | 130 A |
| $I_{FSM}$ | 700 A |
| $T_J$ max. | 175 °C |

## TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

## MECHANICAL DATA

**Case:** DO-218AB
Molding compound meets UL 94 V-0 flammability rating
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Heatsink is anode

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

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Peak pulse power dissipation with 10/1000 µs waveform | $P_{PPM}$ | 6600 | W |
| Power dissipation on infinite heatsink at $T_C$ = 25 °C (fig. 1) | $P_D$ | 8.0 | W |
| Non-repetitive peak reverse surge current for 10 µs/10 ms exponentially decaying waveform | $I_{RSM}$ | 130 | A |
| Maximum working stand-off voltage | $V_{WM}$ | 22.0 | V |
| Peak forward surge current 8.3 ms single half sine-wave | $I_{FSM}$ | 700 | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | - 55 to + 175 | °C |

| ELECTRICAL CHARACTERISTICS ($T_C$ = 25 °C unless otherwise noted) | | | | | | | |
|---|---|---|---|---|---|---|---|
| PARAMETER | TEST CONDITIONS | | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Reverse Zener voltage | $I_Z$ = 10 mA | | $V_Z$ | 24.0 | - | 30.0 | V |
| Zener voltage temperature coefficient | $I_Z$ = 10 mA | | $V_{ZTC}$ | - | - | 36 | mV/°C |
| Clamping voltage for 10 µs/10 ms exponentially decaying waveform | $I_{PP}$ = 75 A | | $V_C$ | - | - | 40.0 | V |
| Instantaneous forward voltage | $I_F$ = 6.0 A | | $V_F$ (1) | - | - | 0.98 | V |
| | $I_F$ = 100 A | | | - | 0.93 | - | |
| Reverse leakage current | Rated $V_{WM}$ | $T_J$ = 25 °C | $I_R$ | - | - | 1.0 | µA |
| | | $T_J$ = 175 °C | | - | - | 50.0 | |

**Note**

(1) Measured on a 300 µs square pulse width

| THERMAL CHARACTERISTICS ($T_C$ = 25 °C unless otherwise noted) | | | |
|---|---|---|---|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Typical thermal resistance, junction to case | $R_{\theta JC}$ | 0.90 | °C/W |

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SM8A27HE3/2D (1) | 2.605 | 2D | 750 | 13" diameter plastic tape and reel, anode towards the sprocket hole |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

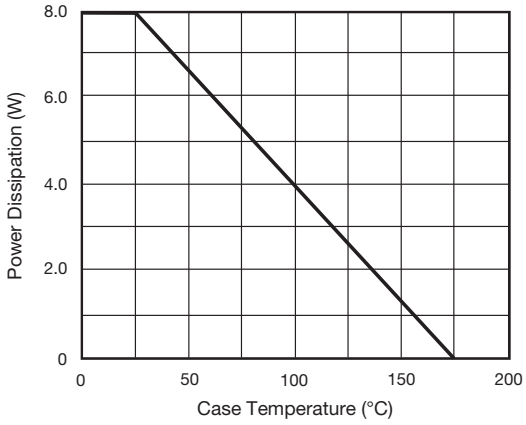



Fig. 1 - Power Derating Curve

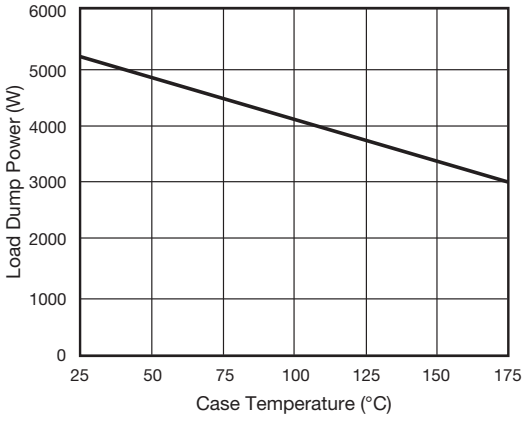



Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

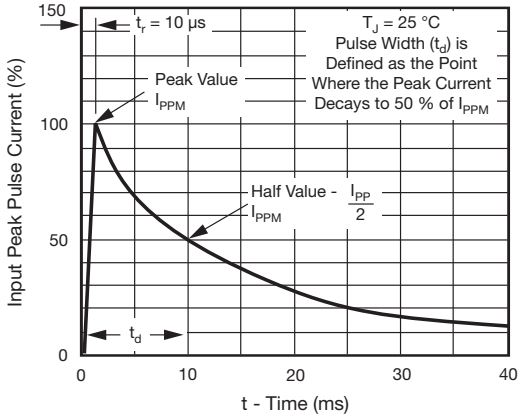



Fig. 3 - Pulse Waveform

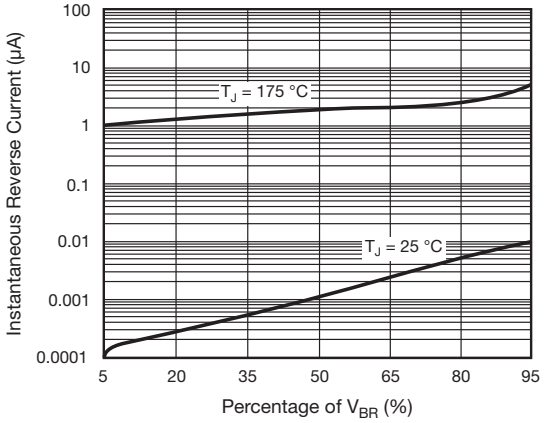



Fig. 6 - Typical Reverse Characteristics

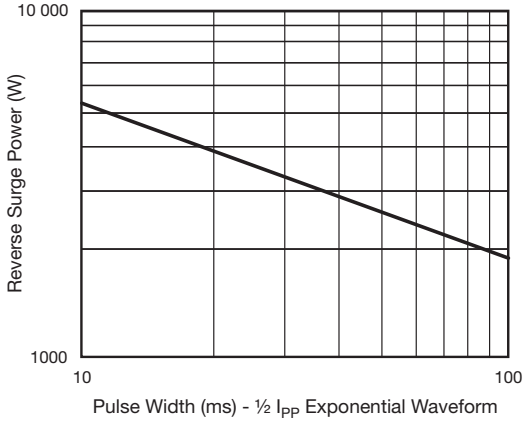



Fig. 4 - Reverse Power Capability

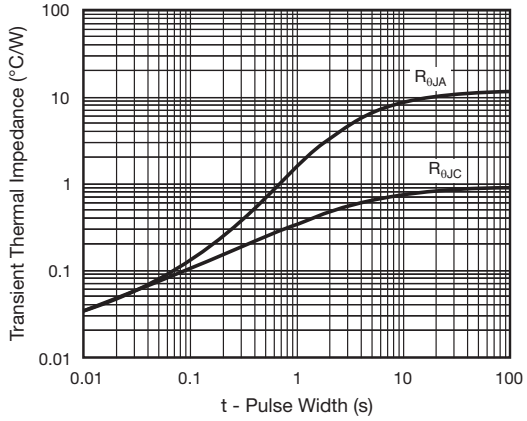



Fig. 7 - Typical Transient Thermal Impedance

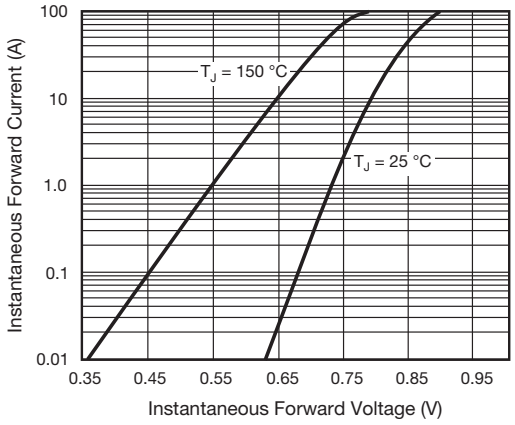
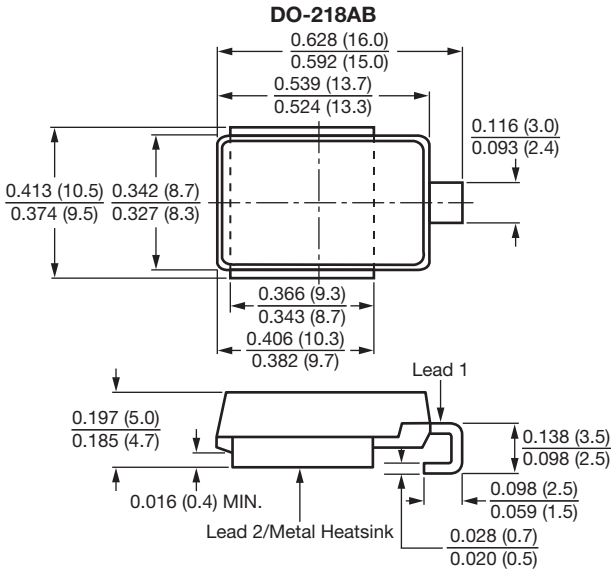
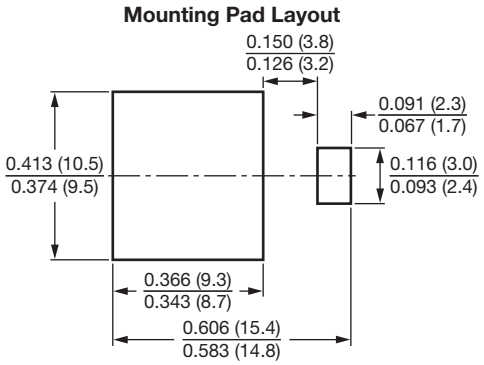



Fig. 5 - Typical Instantaneous Forward Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



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