Surface Mount Automotive Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

*Patent #'s:
4,980,315
5,166,769
5,278,095

DO-218AB

FEATURES

- Patented PAR® construction
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge spec
- Meets MSL level 1, per J-STD-020C, LF max peak of 245 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
V_{BR}	27 V
P_{PPM} (10 x 1000 µs)	6600 W
P_D	8.0 W
I_{RSM}	130 A
I_{FSM}	700 A
T_J max.	175 °C

MECHANICAL DATA

Case: DO-218AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

HE3 suffix for high reliability grade (AEC Q101 qualified)

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	
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	at 10 mA	V_Z	24.0		30.0	V
Zener voltage temperature coefficient	at I_Z = 10 mA	V_{ZTC}			36	mV/°C
Clamping voltage for 10 µs/10 ms exponentially decaying waveform	at I_{PP} = 75 A	V_C			40.0	V
Instantaneous forward voltage (1)	at 6.0 A at 100 A	V_F		0.93	0.98	V
Reverse leakage current	at rated V_{WM} T_J = 25 °C T_J = 175 °C	I_R			1.0 50.0	µA

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	2.605	2D	750	13" diameter paper tape and reel, anode towards the sprocket hole

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

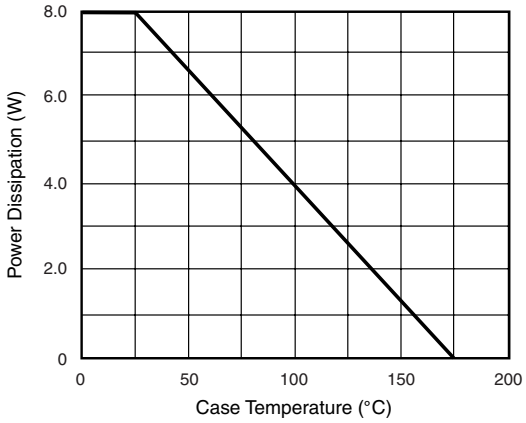


Figure 1. Power Derating Curve

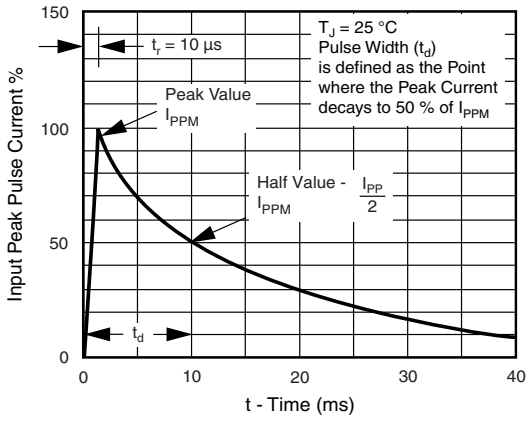


Figure 3. Pulse Waveform

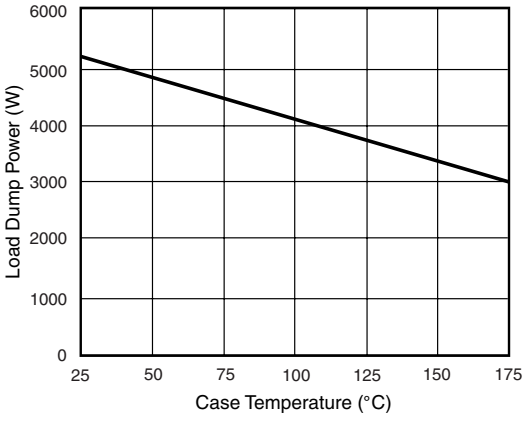


Figure 2. Load Dump Power Characteristics
(10 ms Exponential Waveform)

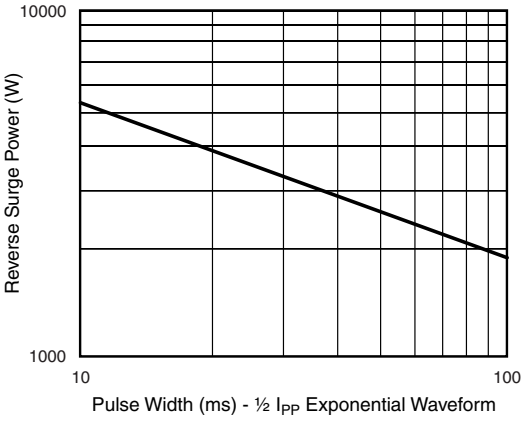


Figure 4. Reverse Power Capability

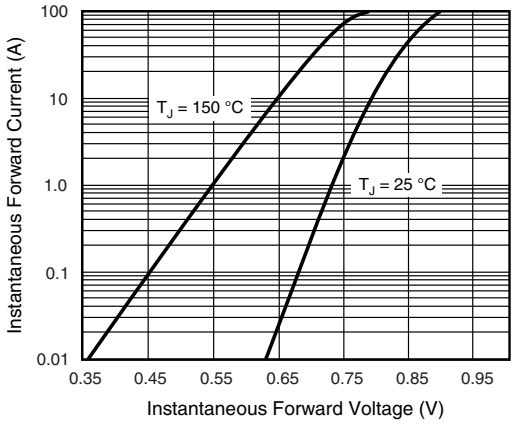


Figure 5. Typical Instantaneous Forward Characteristics

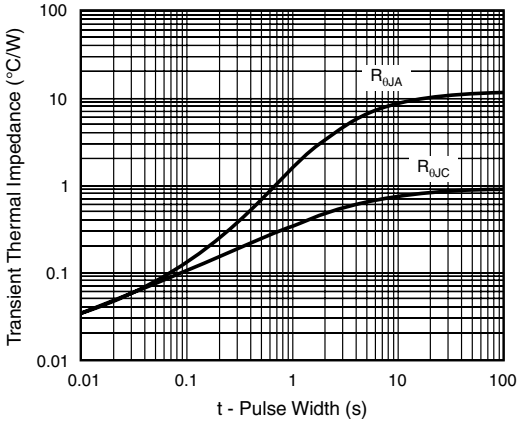


Figure 7. Typical Transient Thermal Impedance

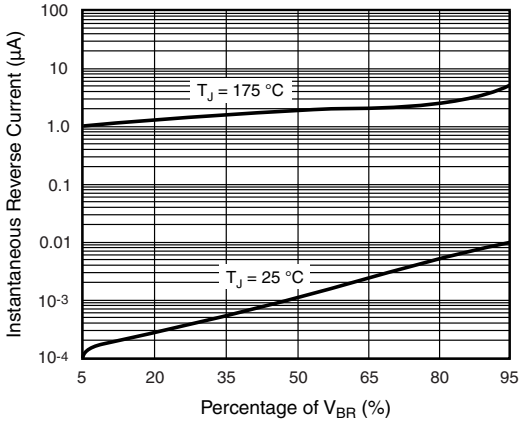
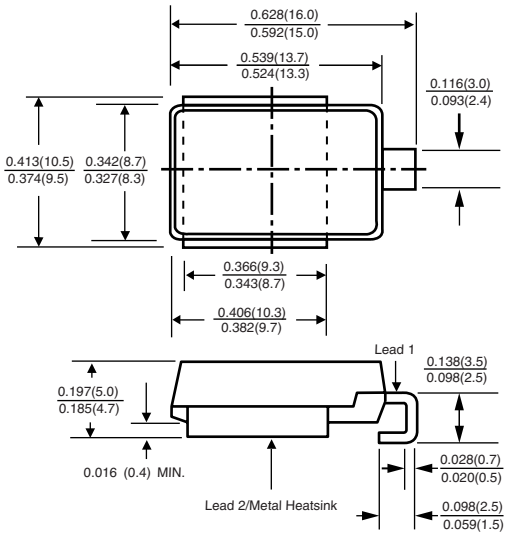


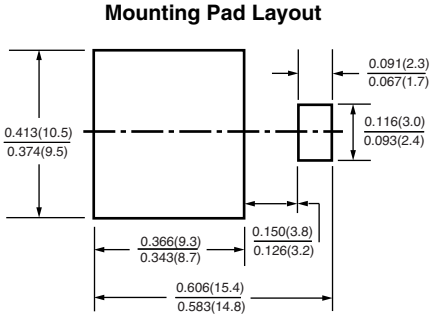
Figure 6. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-218AB



Mounting Pad Layout



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.