Automotive Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

Case Style P600

Patented*

*Patent #'s
4,980,315
5,166,769
5,278,094

FEATURES

- Patented PAR® construction
- Excellent clamping capability
- Low leakage current
- High surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Pb e3 RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
V_{WM}	24 V
P_{PPM} (10 x 1000 µs)	6000 W
P_{PPM} (10 µs/50 ms)	2000 W
P_D	6.5 W
I_{RSM}	90 A
I_{FSM}	400 A
T_J max.	185 °C

MECHANICAL DATA

Case: P600, molded epoxy over passivated junction

Molding compound meets UL 94 V-0 flammability rating

Base P/NHE3 - RoHS compliant, high reliability/ automotive grade (AEC Q101 qualified)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

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

PARAMETER	SYMBOL	LIMIT	UNIT
Peak pulse power dissipation with 10/1000 µs waveform (1) with 10 µs/50 ms waveform (2)	P_{PPM}	6000 2000	W
Power dissipation on infinite heatsink at T_L = 75 °C (Fig. 3)	P_D	6.5	W
Maximum working stand-off voltage	V_{WM}	24	V
Peak forward surge current 8.3 ms single half sine-wave (3)	I_{FSM}	400	A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 185	°C

Notes:

(1) Non-repetitive current pulse, per Fig. 2, with a 10/1000 µs waveform

(2) Non-repetitive current pulse, per Fig. 5, with a 10 µs/50 ms waveform

(3) Measured on 8.3 ms half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute maximum

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**LIMIT**	**UNIT**
Maximum DC reverse leakage current	at V_{WM} = 24 V,	T_A = 25 °C T_A = 150 °C	I_D	1.0 50	µA
Reverse breakdown voltage	at 100 mA,	T_A = 25 °C min. T_A = 25 °C max. T_A = 150 °C min. T_A = 150 °C max.	V_{BR}	26.7 32.6 29.7 36.7	V
Maximum clamping voltage	at I_{PP} = 90 A (1),	T_A = 25 °C T_A = 150 °C	V_C	40 45	V
Maximum instantaneous forward voltage	at 100 A (2)		V_F	1.8	V

Notes:

(1) Measured on 80 µs square pulse width

(2) Measured on 300 µs square pulse width

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
6KA24HE3/54 (1)	2.710	54	800	13" diameter paper tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

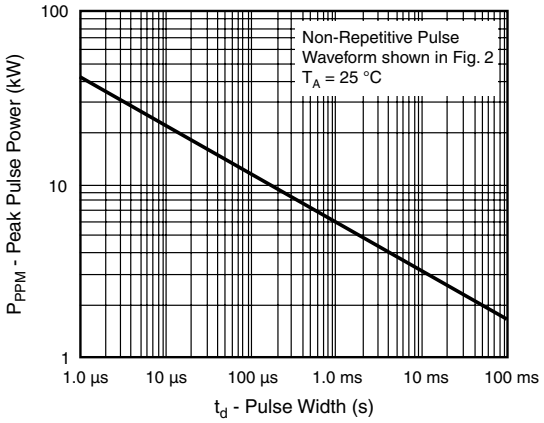


Figure 1. Peak Pulse Power Rating Curve

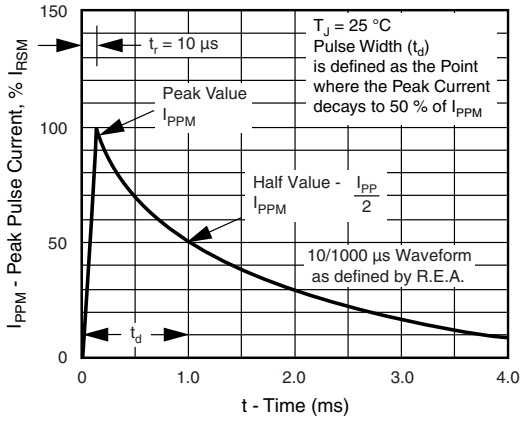


Figure 2. 10/1000 µs Pulse Waveform

For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

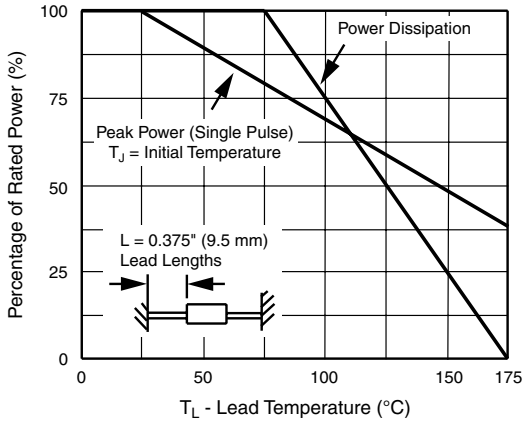


Figure 3. Pulse Derating Curve

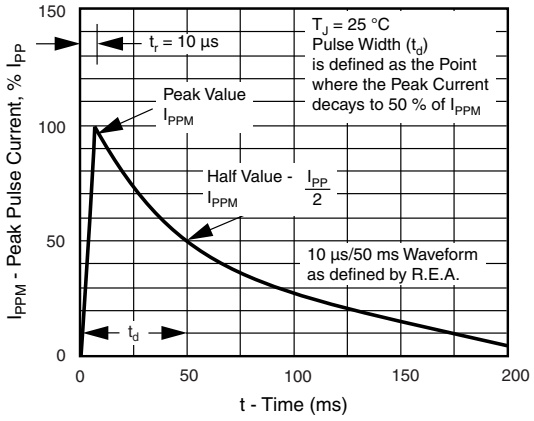


Figure 5. 10 µs/50 ms Pulse Waveform

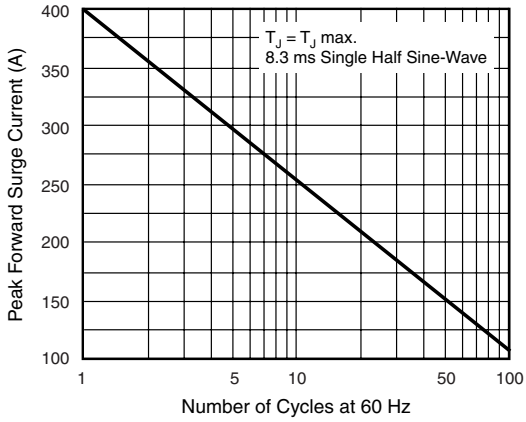
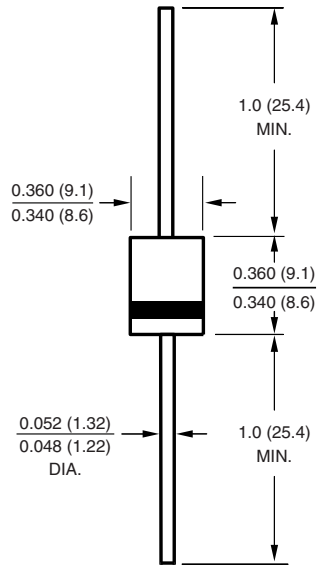


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Style P600



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.