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)

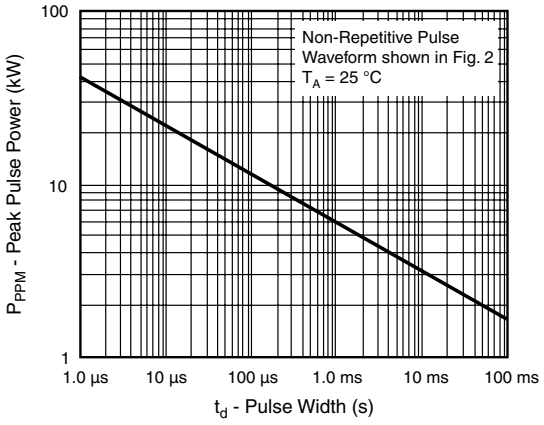


Figure 1. Peak Pulse Power Rating Curve

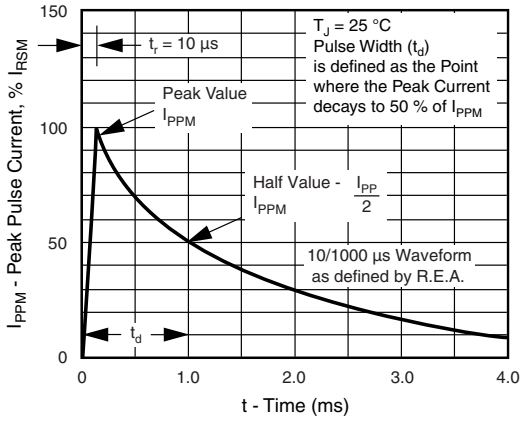


Figure 2. 10/1000 µs Pulse Waveform

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

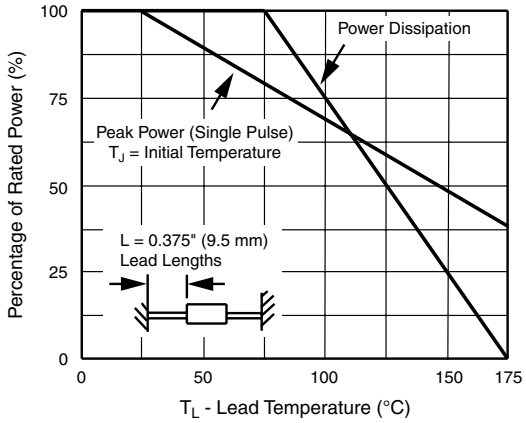


Figure 3. Pulse Derating Curve

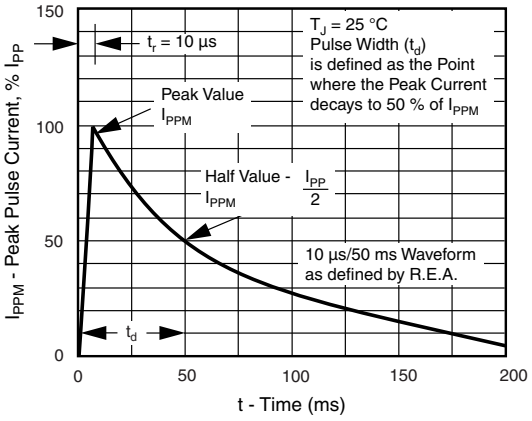


Figure 5. 10 µs/50 ms Pulse Waveform

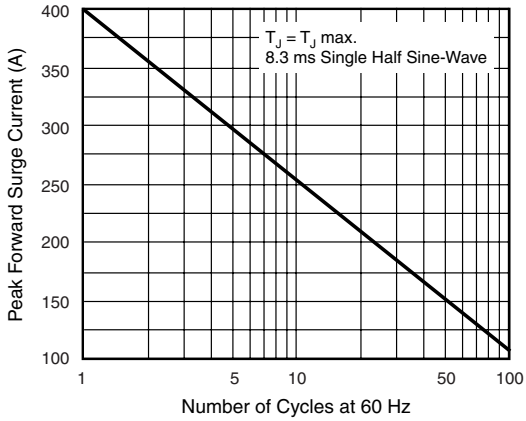
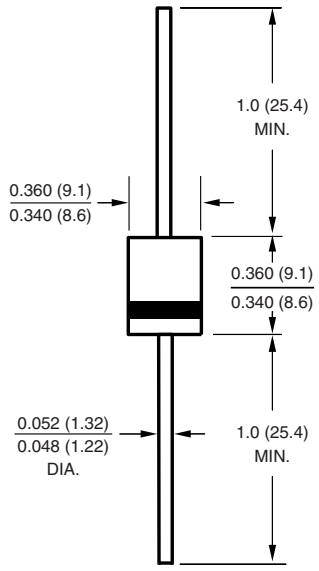


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Style P600



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