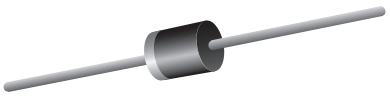
PAR® Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



P600

FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- T_J = 185 °C capability suitable for high reliability and automotive requirement
- Excellent clamping capability
- Low leakage current
- High surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
V_{WM}	24 V
V_{BR}	26.7 V to 32.6 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
Polarity	Unidirectional
Package	P600

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: P600, molded epoxy over passivated junction
Molding compound meets UL 94 V-0 flammability rating
Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B, ...)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-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)	P_{PPM}	6000	W
	with 10µs/50 ms waveform (2)		2000	
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 10/1000µs 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)

DEVICE TYPE	BREAKDOWN VOLTAGE V_{BR} AT I_T (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)
	MIN.	MAX.		
6KA24	26.7	32.6	100	24

ADDITIONAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**LIMIT**	**UNIT**
Maximum DC reverse leakage current	V_{WM} = 24 V	T_A = 25 °C	I_D	1.0	µA
		T_A = 150 °C		50	
Reverse breakdown voltage	100 mA	T_A = 150 °C min.	V_{BR}	29.7	V
		T_A = 150 °C max.		36.7	
Maximum clamping voltage	I_{PP} = 90 A (1)	T_A = 25 °C	V_C	40	V
		T_A = 150 °C		45	
Maximum instantaneous forward voltage	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_B/C (1)	2.710	C	800	13" diameter paper tape and reel

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

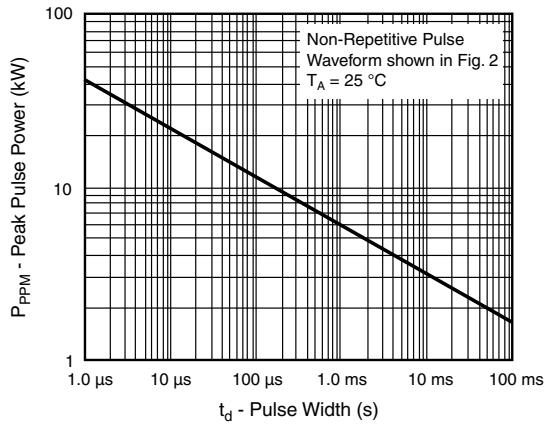


Fig. 1 - Peak Pulse Power Rating Curve

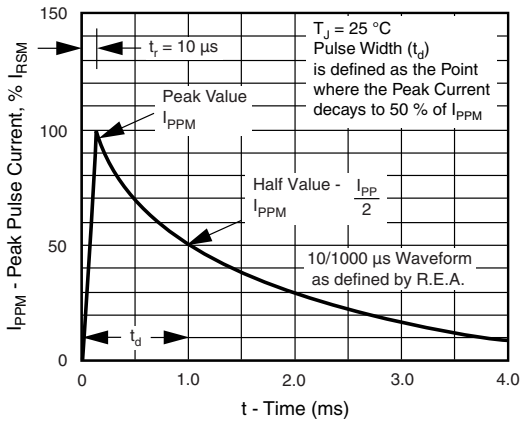


Fig. 2 - 10/1000 µs Pulse Waveform

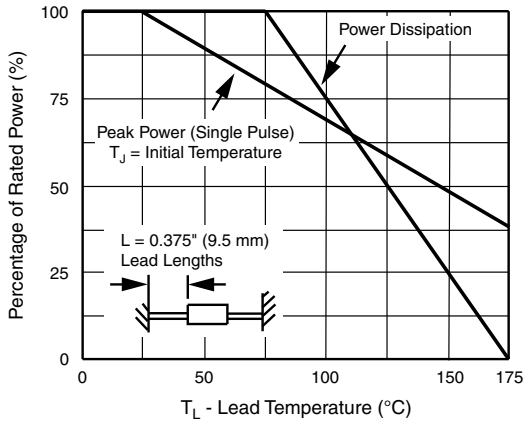


Fig. 3 - Pulse Derating Curve

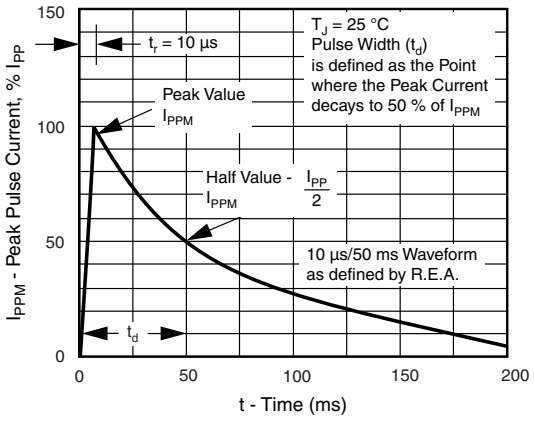


Fig. 5 - 10 µs/50 ms Pulse Waveform

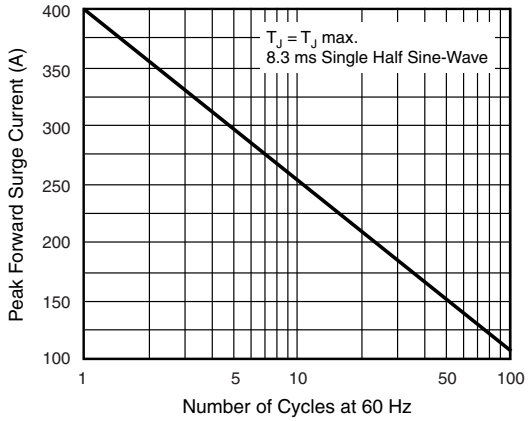
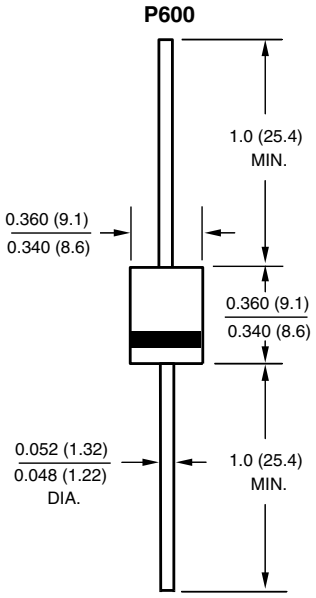


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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