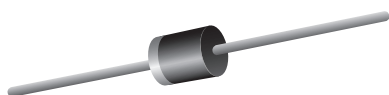


PAR[®] Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions


P600

FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- $T_J = 185\text{ }^{\circ}\text{C}$ capability suitable for high reliability and automotive requirement
- Excellent clamping capability
- Low leakage current
- High surge capability
- Solder dip $275\text{ }^{\circ}\text{C}$ 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.	$185\text{ }^{\circ}\text{C}$
Polarity	Unidirectional
Package	P600

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: 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 ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Peak pulse power dissipation	with 10/1000 μs waveform ⁽¹⁾	6000	W
	with 10 μs /50 ms waveform ⁽²⁾	2000	
Power dissipation on infinite heatsink at $T_L = 75\text{ }^{\circ}\text{C}$ (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	$^{\circ}\text{C}$

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 ($T_A = 25\text{ }^{\circ}\text{C}$ 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 ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	LIMIT	UNIT
Maximum DC reverse leakage current	$V_{WM} = 24\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	1.0	μA
		$T_A = 150\text{ }^{\circ}\text{C}$		50	
Reverse breakdown voltage	100 mA	$T_A = 150\text{ }^{\circ}\text{C min.}$	V_{BR}	29.7	V
		$T_A = 150\text{ }^{\circ}\text{C max.}$		36.7	
Maximum clamping voltage	$I_{PP} = 90\text{ A}^{(1)}$	$T_A = 25\text{ }^{\circ}\text{C}$	V_C	40	V
		$T_A = 150\text{ }^{\circ}\text{C}$		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_A/C ⁽¹⁾	2.710	C	800	13" diameter paper tape and reel

Note
⁽¹⁾ AEC-Q101 qualified

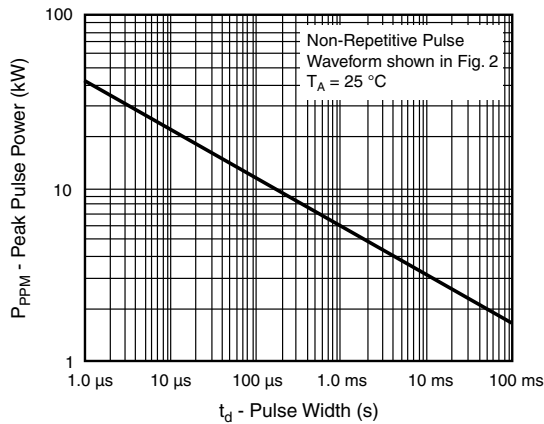
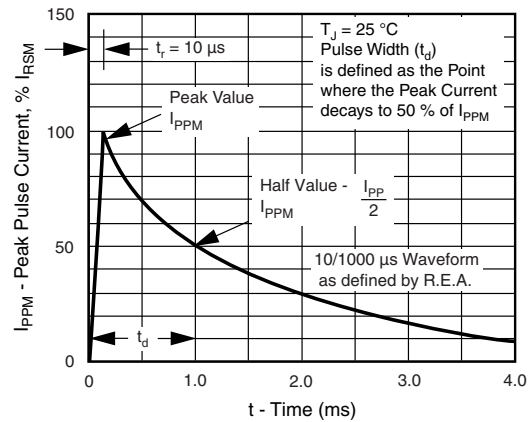
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Peak Pulse Power Rating Curve


Fig. 2 - 10/1000 μs Pulse Waveform

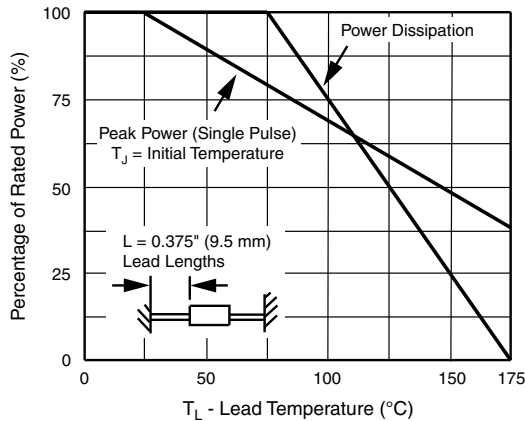


Fig. 3 - Pulse Derating Curve

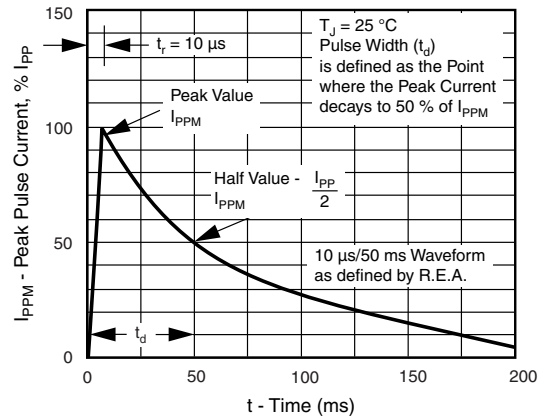
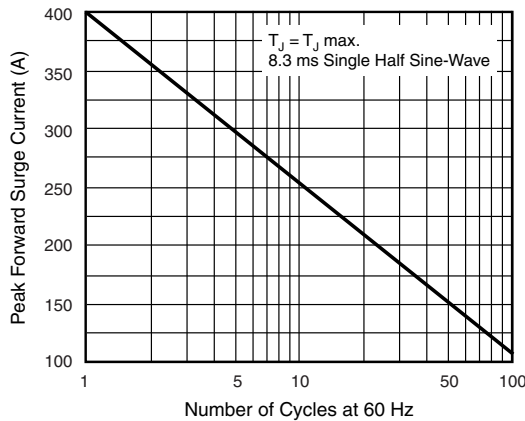
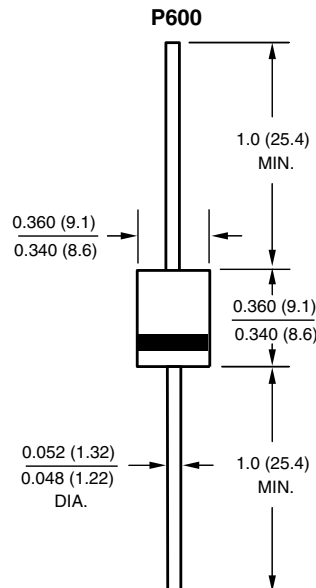

Fig. 5 - 10 μ s/50 ms Pulse Waveform


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

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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