

## Vishay General Semiconductor

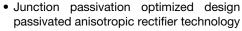
# PAR® Transient Voltage Suppressors

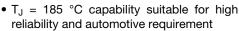
High Temperature Stability and High Reliability Conditions

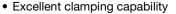


PRIMARY CHARACTERISTICS				
$V_{WM}$	24 V			
$V_{BR}$	26.7 V to 32.6 V			
P <sub>PPM</sub> (10 x 1000 μs)	6000 W			
P <sub>PPM</sub> (10 μs/50 ms)	2000 W			
$P_{D}$	6.5 W			
I <sub>RSM</sub>	90 A			
I <sub>FSM</sub>	400 A			
T <sub>J</sub> max.	185 °C			
Polarity	Uni-directional			
Package	P600			

### **FEATURES**







- · 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 <a href="https://www.vishav.com/doc?99912">www.vishav.com/doc?99912</a>

### 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 <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	LIMIT	UNIT	
Peak pulse power dissipation	with 10/1000 µs waveform (1)	D	6000	W	
	with 10µs/50 ms waveform (2)	P <sub>PPM</sub>	2000	VV	
Power dissipation on infinite heatsink at T <sub>L</sub> = 75 °C (fig. 3)		$P_{D}$	6.5	W	
Maximum working stand-off voltage		V <sub>WM</sub>	24	V	
Peak forward surge current 8.3 r	ns single half sine-wave <sup>(3)</sup>	I <sub>FSM</sub>	400	Α	
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-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

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
DEVICE TYPE	BREAKDOWN VOLTAGE V <sub>BR</sub> AT I <sub>T</sub> (V)		TEST CURRENT I <sub>T</sub> (mA)	STAND-OFF VOLTAGE V <sub>WM</sub>	
	MIN.	MAX.	(IIIA)	(V)	
6KA24	26.7	32.6	100	24	



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ADDITIONAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	LIMIT	UNIT
Maximum DC reverse leakage current	V <sub>WM</sub> = 24 V	T <sub>A</sub> = 25 °C	I <sub>D</sub>	1.0	μΑ
		T <sub>A</sub> = 150 °C		50	
Reverse breakdown voltage	100 mA	T <sub>A</sub> = 150 °C min.	- V <sub>BR</sub>	29.7	V
		$T_A = 150  ^{\circ}\text{C max}.$		36.7	
Maximum clamping voltage	I <sub>PP</sub> = 90 A <sup>(1)</sup>	T <sub>A</sub> = 25 °C	V <sub>C</sub>	40	V
		T <sub>A</sub> = 150 °C		45	
Maximum instantaneous forward voltage	100 A <sup>(2)</sup>		V <sub>F</sub>	1.8	V

#### **Notes**

<sup>(2)</sup> 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	С	800	13" diameter paper tape and reel

#### Note

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

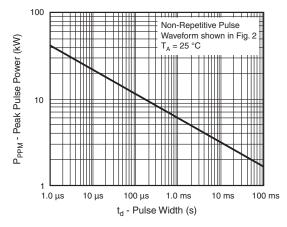


Fig. 1 - Peak Pulse Power Rating Curve

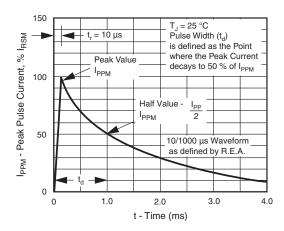


Fig. 2 - 10/1000 µs Pulse Waveform

 $<sup>^{(1)}</sup>$  Measured on 80  $\mu s$  square pulse width

<sup>(1)</sup> AEC-Q101 qualified



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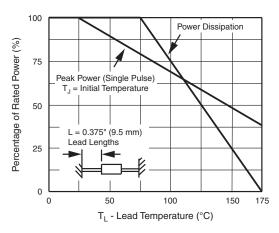
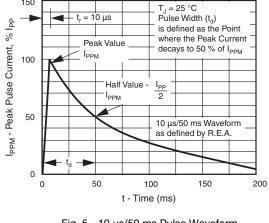


Fig. 3 - Pulse Derating Curve



150

Fig. 5 - 10 µs/50 ms Pulse Waveform

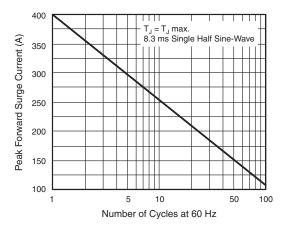
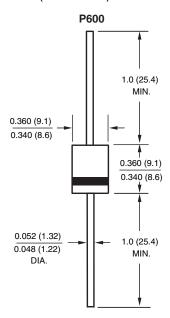


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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