

3D Models

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### Vishay General Semiconductor

# **High Current Density Surface-Mount High Voltage Schottky Rectifier**



**LINKS TO ADDITIONAL RESOURCES** 

## **FEATURES**

• Very low profile - typical height of 1.1 mm



COMPLIANT

HALOGEN FREE

· Ideal for automated placement

· Guardring for overvoltage protection

• High barrier technology, T<sub>.I</sub> = 175 °C maximum

• Low leakage current

 Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

• AEC-Q101 qualified available

Automotive ordering code: base P/NHM3

• Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

#### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

### **MECHANICAL DATA**

Case: SMPC (TO-277A)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3\_X - halogen-free, 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

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	8.0 A			
V <sub>RRM</sub>	90 V, 100 V			
I <sub>FSM</sub>	150 A			
E <sub>AS</sub>	20 mJ			
V <sub>F</sub> at I <sub>F</sub> = 8.0 A	0.720 V			
I <sub>R</sub>	0.18 µA			
T <sub>J</sub> max.	175 °C			
Package	SMPC (TO-277A)			
Circuit configuration	Single			

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS8PH9	SS8PH10	UNIT	
Device marking code		8H9	8H10		
Maximum repetitive peak reverse voltage	$V_{RRM}$	90	100	V	
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	8.0		А	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	150		А	
Non-repetitive avalanche energy at I <sub>AS</sub> = 2.0 A, T <sub>J</sub> = 25 °C	E <sub>AS</sub>	20		mJ	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175		°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.769	-	V
	I <sub>F</sub> = 8.0 A			0.850	0.90	
	I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 125 °C		0.634	-	
	I <sub>F</sub> = 8.0 A			0.720	0.76	
Reverse current	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	0.18	2.0	μΑ
	nated V <sub>R</sub>	T <sub>A</sub> = 125 °C		110	300	
Typical junction capacitance	4.0 V, 1 MHz		CJ	140	-	pF

### Notes

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)					
PARAMETER	SYMBOL	SS8PH9 SS8PH10 UNIT			
Typical thermal resistance	R <sub>eJA</sub> (1)	65		°C/W	
Typical thermal resistance	$R_{ heta JL}$	3			

#### Note

(1) Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SS8PH10-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel	
SS8PH10-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel	
SS8PH10HM3_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel	
SS8PH10HM3_A/I (1)	0.10	I	6500	13" diameter plastic tape and reel	

#### Note

(1) AEC-Q101 qualified

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### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

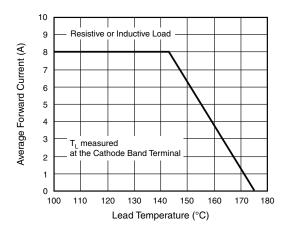


Fig. 1 - Maximum Forward Current Derating Curve

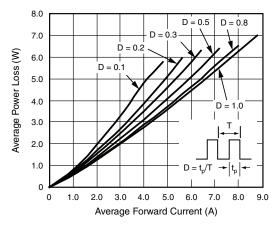


Fig. 2 - Forward Power Loss Characteristics

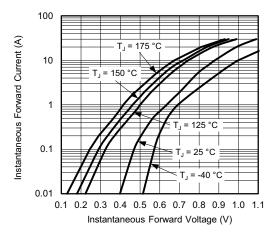


Fig. 3 - Typical Instantaneous Forward Characteristics

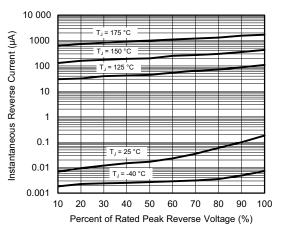


Fig. 4 - Typical Reverse Characteristics

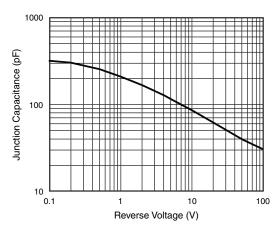


Fig. 5 - Typical Junction Capacitance

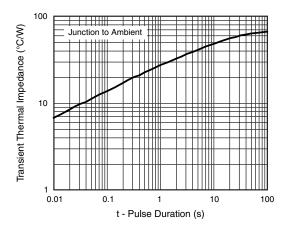
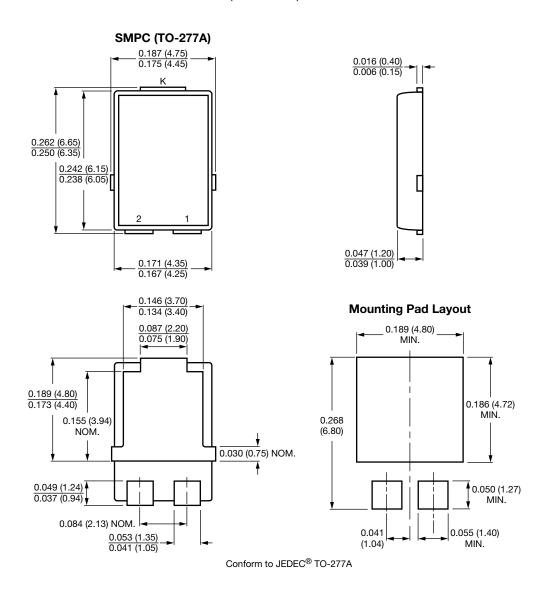


Fig. 6 - Typical Transient Thermal Impedance



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### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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