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3D Models

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## Vishay General Semiconductor

# High Current Density Surface-Mount Schottky Barrier Rectifiers



8.0 A

20 V, 30 V

150 A

20 mJ

0.472 V

150 °C

SMPC (TO-277A)

Single

**LINKS TO ADDITIONAL RESOURCES** 

PRIMARY CHARACTERISTICS

 $I_{F(AV)}$ 

 $V_{RRM}$ 

 $I_{FSM}$ 

 $\mathsf{E}_{\mathsf{AS}}$ 

 $V_F$  at  $I_F = 8.0 A$ 

T<sub>.I</sub> max.

Package

Circuit configuration

## **FEATURES**

- Very low profile typical height of 1.1 mm
- · Ideal for automated placement
- · Low forward voltage drop
- · Low power loss, high efficiency
- Low thermal resistance
- 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 <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

#### **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

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SS8P2L	SS8P3L	UNIT		
Device marking code		S82	S83			
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	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				
Non-repetitive avalanche energy at I <sub>AS</sub> = 2 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 +150		°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage	V <sub>F</sub> (1)	$I_F = 4.0 \text{ A}$	T <sub>A</sub> = 25 °C	0.447	-	V	
		$I_F = 8.0 \text{ A}$		0.533	0.57		
		I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 125 °C	0.357	-		
		I <sub>F</sub> = 8.0 A		0.472	0.49		
Maximum reverse current		<sub>2)</sub> V <sub>R</sub> = 30 V	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	55	200	μA	
	I <sub>R (2)</sub>		T <sub>A</sub> = 125 °C	24	35	mA	
Typical junction capacitance	CJ	4.0 V, 1 MHz		330	-	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 noted)						
PARAMETER	SYMBOL	SS8P2L	SS8P3L	UNIT		
Typical thermal resistance	R <sub>0JA</sub> (1)	60		°C/W		
Typical trieffial resistance	$R_{ heta JL}$	3.5		G/ VV		

#### Note

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

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS8P3L-M3/86A	0.1	86A	1500	7" diameter plastic tape and reel		
SS8P3L-M3/87A	0.1	87A	6500	13" diameter plastic tape and reel		
SS8P3LHM3_A/H (1)	0.1	Н	1500	7" diameter plastic tape and reel		
SS8P3LHM3_A/I (1)	0.1	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)

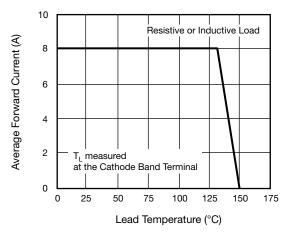


Fig. 1 - Maximum Forward Current Derating Curve

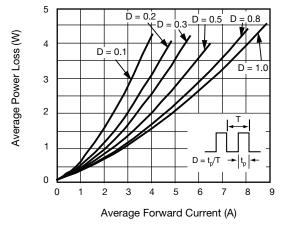


Fig. 2 - Forward Power Loss Characteristics

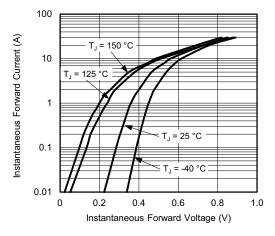


Fig. 3 - Typical Instantaneous Forward Characteristics

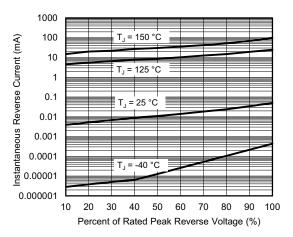


Fig. 4 - Typical Reverse Leakage Characteristics

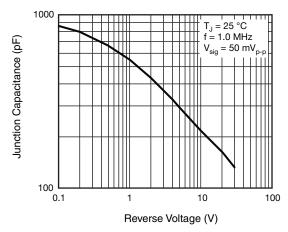


Fig. 5 - Typical Junction Capacitance

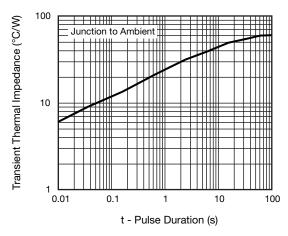
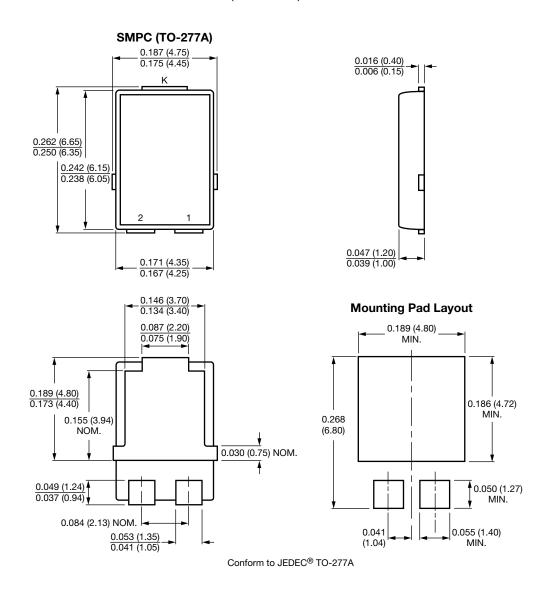


Fig. 6 - Typical Transient Thermal Impedance



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





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