COMPLIANT

HALOGEN FREE



Vishay General Semiconductor

# High Current Density Surface Mount Schottky Barrier Rectifiers



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	8.0 A			
V <sub>RRM</sub>	20 V, 30 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	0.472 V			
T <sub>J</sub> max.	150 °C			
Package SMPC (TO-277/				
Circuit configuration	Single			

#### **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.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></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 gualified

("\_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 <sub>RRM</sub>	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 <sub>F</sub> = 8.0 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	I <sub>R (2)</sub>	I <sub>R (2)</sub> V <sub>R</sub> = 30 V	T <sub>A</sub> = 25 °C	55	200	μA
			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	OL SS8P2L SS8P3L UNIT				
Tunical thormal registance	R <sub>0JA</sub> <sup>(1)</sup>	60		°C/W		
Typical thermal resistance	$R_{ hetaJL}$	3.5				

#### Note

<sup>(1)</sup> 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)

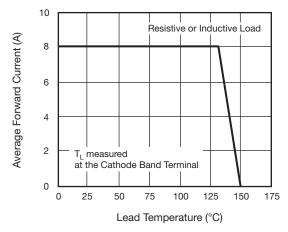


Fig. 1 - Maximum Forward Current Derating Curve

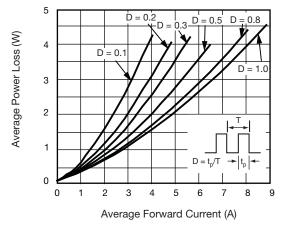


Fig. 2 - Forward Power Loss Characteristics

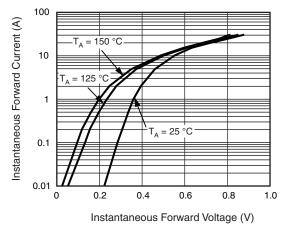


Fig. 3 - Typical Instantaneous Forward Characteristics

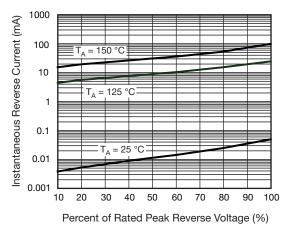


Fig. 4 - Typical Reverse Leakage Characteristics

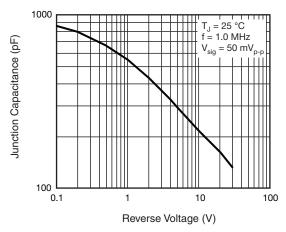


Fig. 5 - Typical Junction Capacitance

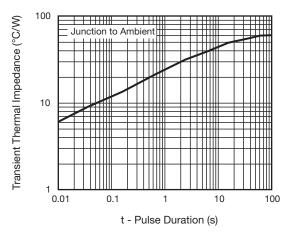
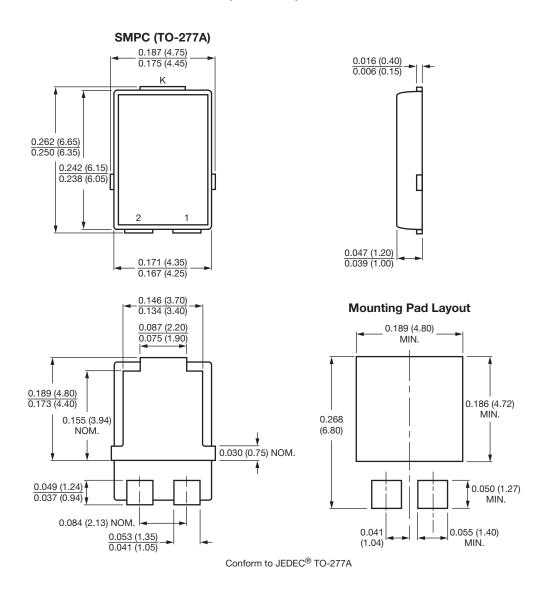


Fig. 6 - Typical Transient Thermal Impedance



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





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