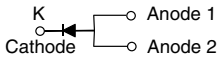
High Current Density Surface-Mount Schottky Barrier Rectifiers

eSMP® Series

SMPC (TO-277A)



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 www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	20 V, 30 V
I_{FSM}	150 A
E_{AS}	20 mJ
V_F at I_F = 8.0 A	0.472 V
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

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

MAXIMUM RATINGS (T_A = 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)	$I_{F(AV)}$	8.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	150		A
Non-repetitive avalanche energy at I_{AS} = 2 A, T_J = 25 °C	E_{AS}	20		mJ
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150		°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	V_F (1)	I_F = 4.0 A	T_A = 25 °C	0.447	-	V
		I_F = 8.0 A		0.533	0.57	
		I_F = 4.0 A	T_A = 125 °C	0.357	-	
		I_F = 8.0 A		0.472	0.49	
Maximum reverse current	I_R (2)	V_R = 30 V	T_A = 25 °C	55	200	µA
			T_A = 125 °C	24	35	mA
Typical junction capacitance	C_J	4.0 V, 1 MHz		330	-	pF

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS8P2L	SS8P3L	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	60		°C/W
	$R_{\theta JL}$	3.5		

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	H	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_A = 25 °C unless otherwise noted)

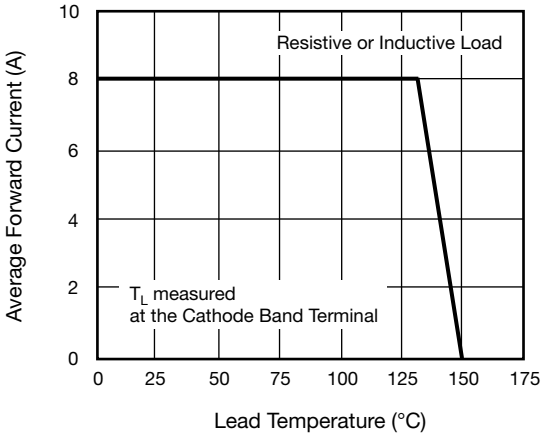

Fig. 1 - Maximum Forward Current Derating Curve

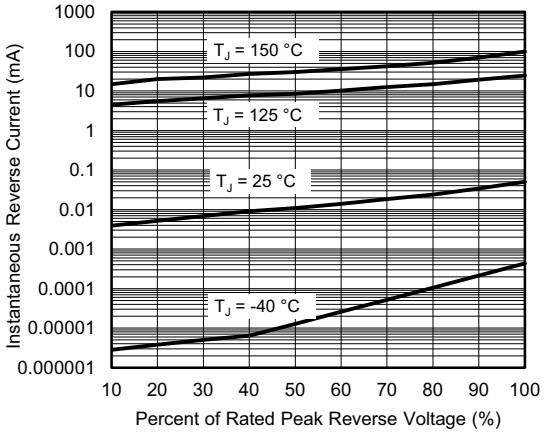

Fig. 4 - Typical Reverse Leakage Characteristics

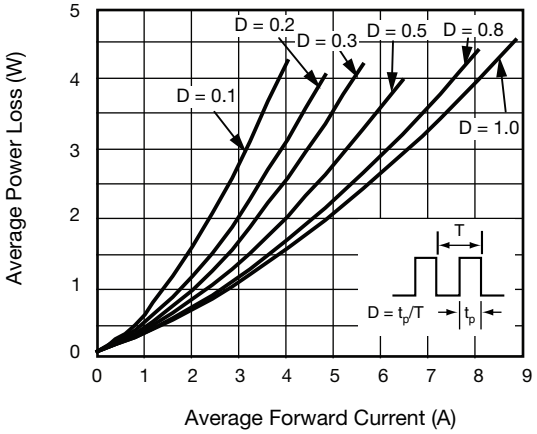

Fig. 2 - Forward Power Loss Characteristics

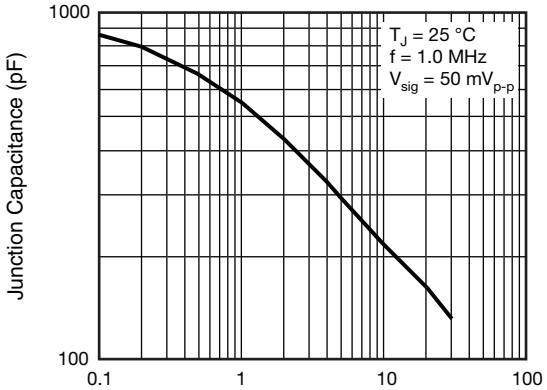

Fig. 5 - Typical Junction Capacitance

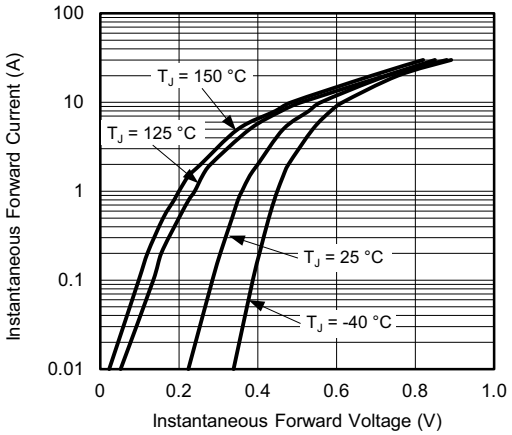

Fig. 3 - Typical Instantaneous Forward Characteristics

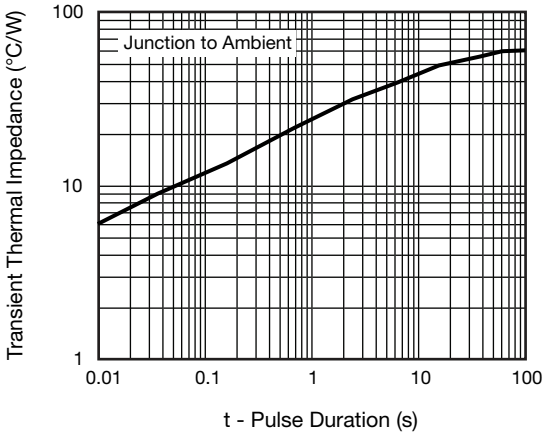

Fig. 6 - Typical Transient Thermal Impedance

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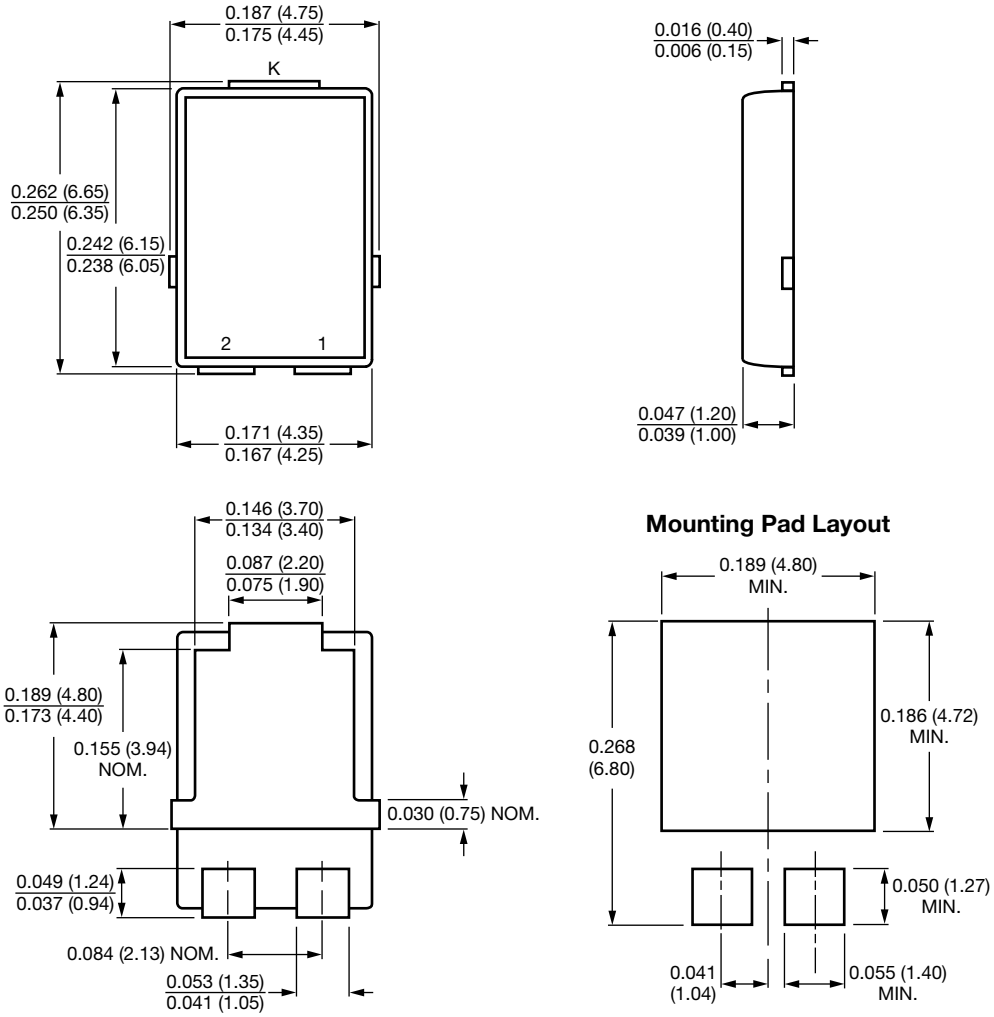
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPC (TO-277A)



Conform to JEDEC® TO-277A

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