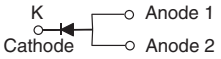
High Current Density Surface Mount Schottky Barrier Rectifiers

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 losses
- 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

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	30 V, 40 V
I_{FSM}	150 A
E_{AS}	20 mJ
V_F at I_F = 3.0 A	0.335 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	SS3P3L	SS3P4L	UNIT
Device marking code		S33	S34	
Maximum repetitive peak reverse voltage	V_{RRM}	30	40	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	3.0		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} = 2.0 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	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Maximum instantaneous forward voltage	I_F = 1.5 A	T_A = 25 °C	V_F (1)	0.384	-	V
	I_F = 3.0 A			0.427	0.47	
	I_F = 1.5 A	T_A = 125 °C		0.268	-	
	I_F = 3.0 A			0.335	0.38	
Maximum reverse current	Rated V_R	T_A = 25 °C	I_R (2)	61.8	250	µA
		T_A = 125 °C		26.7	40	mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	280	-	µA

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 specified)				
PARAMETER	**SYMBOL**	**SS3P3L**	**SS3P4L**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	60		°C/W
	$R_{\theta JL}$	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**
SS3P4L-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS3P4L-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS3P4LHM3_A/H (1)	0.10	H	1500	7" diameter plastic tape and reel
SS3P4LHM3_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_A = 25 °C unless otherwise specified)

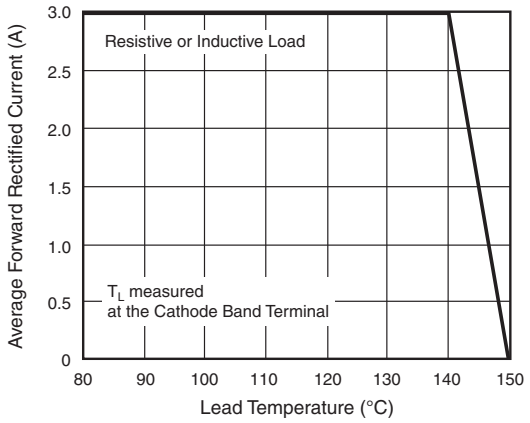

Fig. 1 - Forward Current Derating Curve

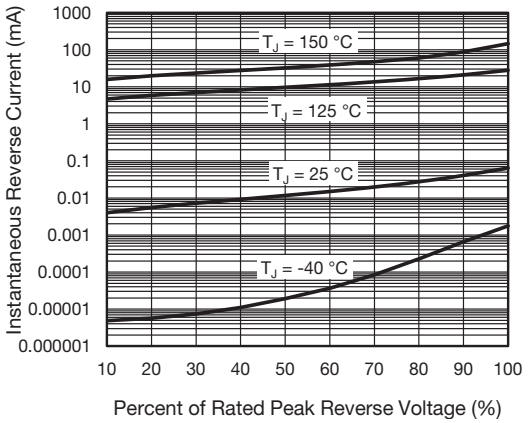

Fig. 4 - Typical Reverse Leakage Characteristics

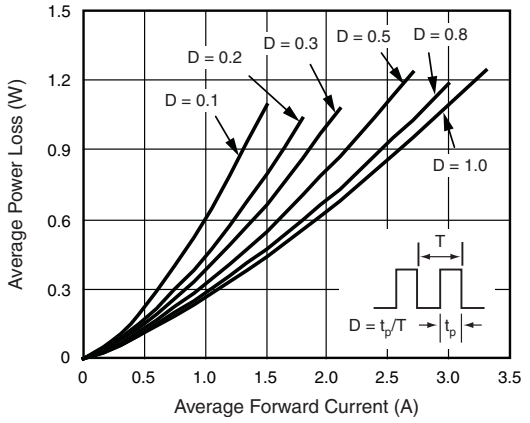

Fig. 2 - Forward Power Loss Characteristics

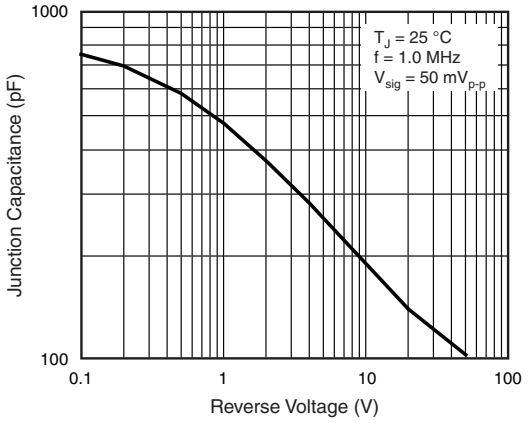

Fig. 5 - Typical Junction Capacitance

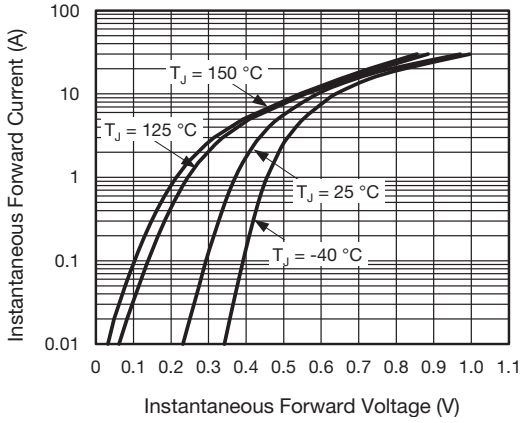

Fig. 3 - Typical Instantaneous Forward Characteristics

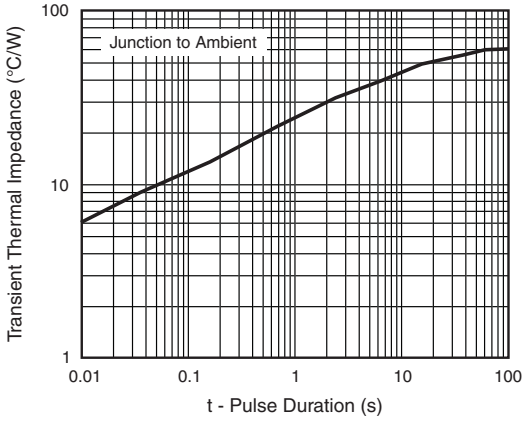

Fig. 6 - Typical Transient Thermal Impedance

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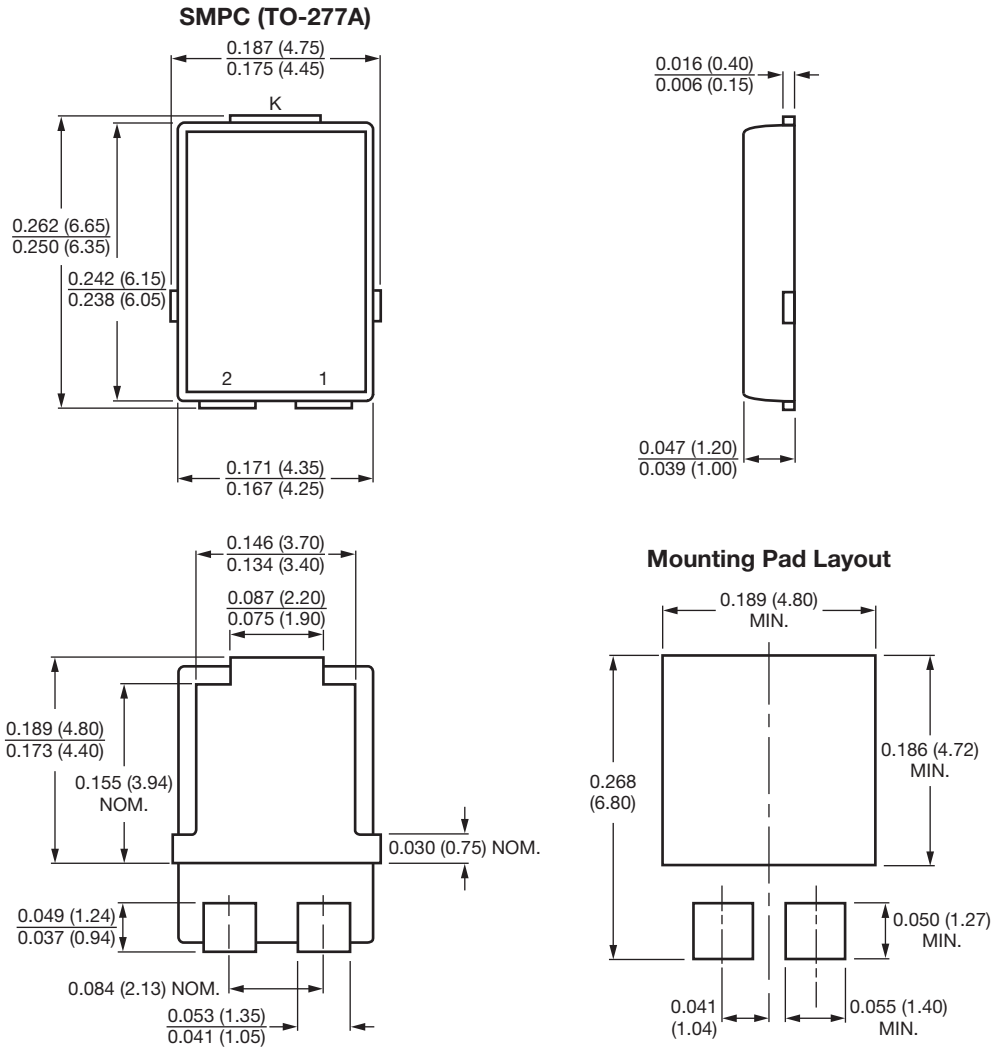
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A

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