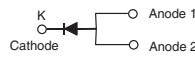


## High Current Density Surface Mount Schottky Barrier Rectifiers

### eSMP® Series


**TO-277A (SMPC)**

 AUTOMOTIVE  
GRADE  
Available

**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### 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](http://www.vishay.com/doc?99912)

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant and AEC-Q101 qualified

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	
$I_{F(AV)}$	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	TO-277A (SMPC)
Diode variations	Single

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		
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



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 4.0 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</sub> <sup>(2)</sup>	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	C <sub>J</sub>	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 <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS8P2L	SS8P3L	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	60		°C/W
	R <sub>θJL</sub>	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
SS8P3LHM3/86A <sup>(1)</sup>	0.1	86A	1500	7" diameter plastic tape and reel
SS8P3LHM3/87A <sup>(1)</sup>	0.1	87A	6500	13" diameter plastic tape and reel
SS8P3LHM3_A/H <sup>(1)</sup>	0.1	H	1500	7" diameter plastic tape and reel
SS8P3LHM3_A/I <sup>(1)</sup>	0.1	I	6500	13" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

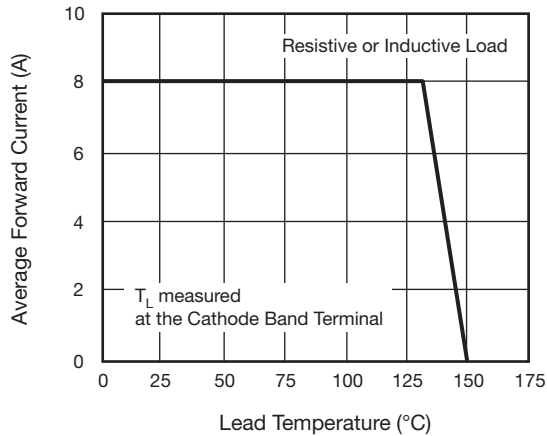


Fig. 1 - Maximum Forward Current Derating Curve

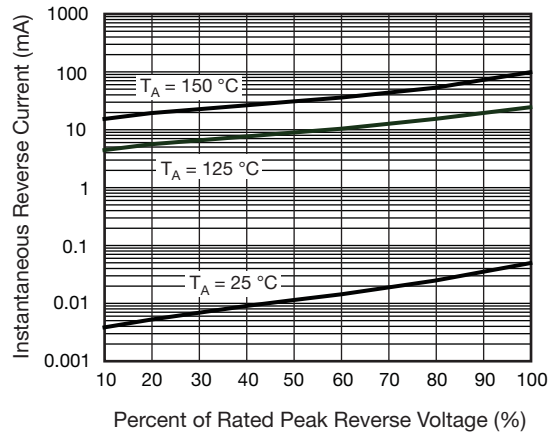


Fig. 4 - Typical Reverse Leakage Characteristics

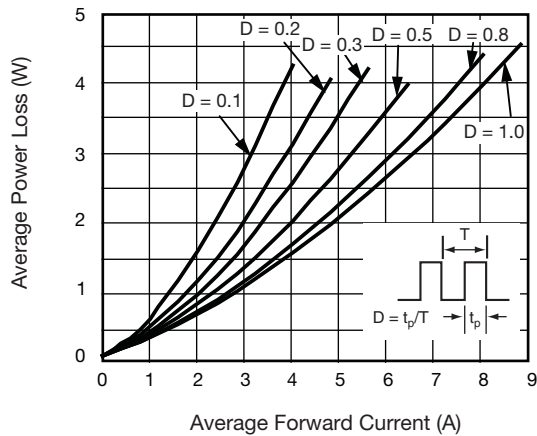


Fig. 2 - Forward Power Loss Characteristics

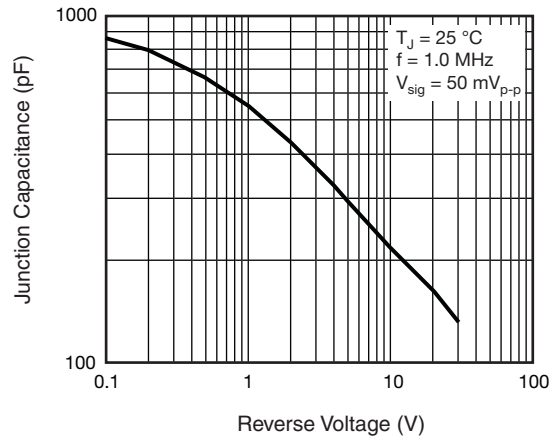


Fig. 5 - Typical Junction Capacitance

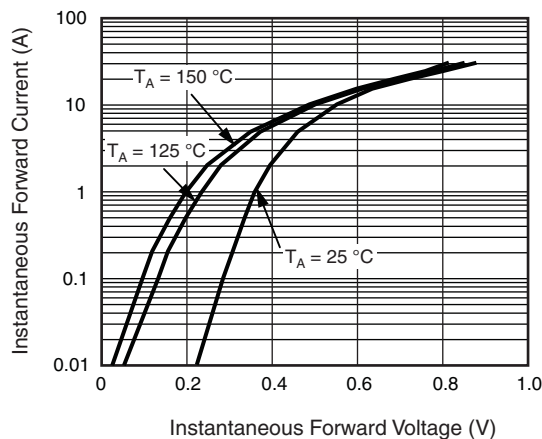


Fig. 3 - Typical Instantaneous Forward Characteristics

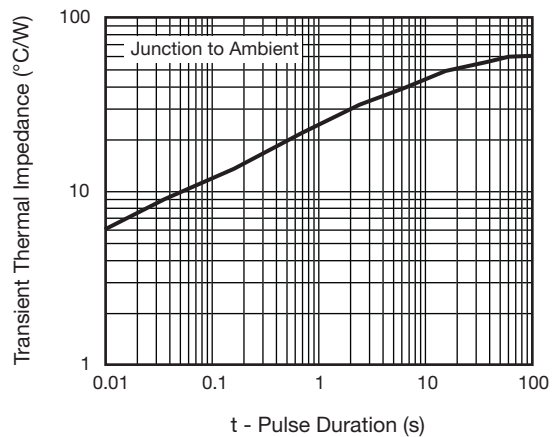
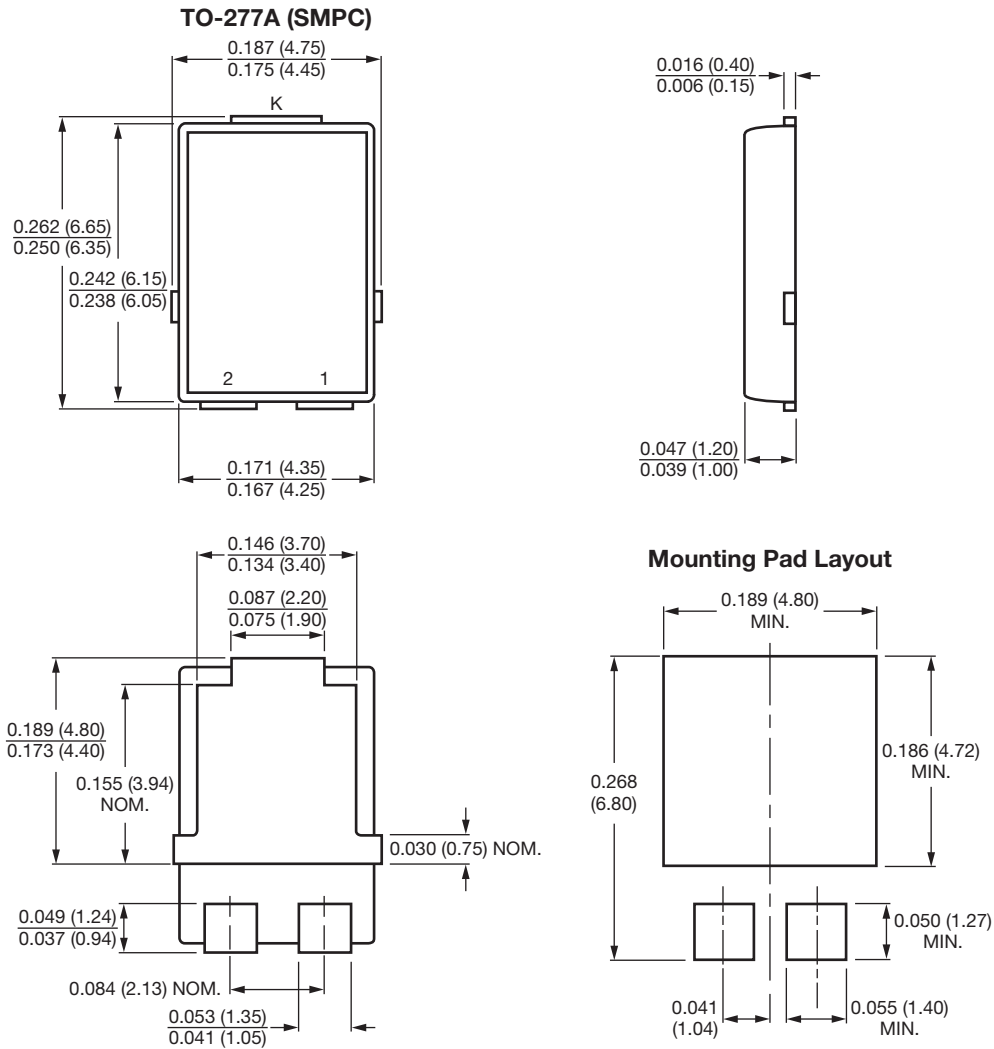


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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