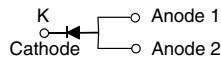


## High Current Density Surface-Mount Glass Passivated Rectifiers

### eSMP® Series



### SMPC (TO-277A)



### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8 A
$V_{RRM}$	400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	230 A
$I_R$	5 $\mu$ A
$V_F$ at $I_F = 8$ A	0.87 V
$T_J$ max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

### FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Glass passivated pellet chip junction
- Low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, and telecommunication.

### 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

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	S8PG	S8PJ	S8PK	S8PM	UNIT
Device marking code		S8PG	S8PJ	S8PK	S8PM	
Max. repetitive peak reverse voltage	$V_{RRM}$	400	600	800	1000	V
Average forward current	$I_{F(AV)}^{(1)}$	8				A
	$I_{F(AV)}^{(2)}$	2				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	230				A
Operating junction and storage temperature range	$T_J^{(3)}, T_{STG}$	-55 to +150				°C

### Notes

- (1) Mounted on 3 cm x 3 cm aluminum pad area
- (2) Free air mounted on recommended pad area
- (3) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 4 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.91	-	V
	I <sub>F</sub> = 8 A			0.97	1.10	
	I <sub>F</sub> = 4 A	T <sub>J</sub> = 125 °C		0.79	-	
	I <sub>F</sub> = 8 A			0.87	0.95	
Reverse current	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	5	μA
		T <sub>J</sub> = 125 °C		92	250	
Max. reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	5.0	-	μs
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	60	-	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 specified)						
PARAMETER	SYMBOL	S8PG	S8PJ	S8PK	S8PM	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	82				°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	3.5				

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>
- (2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint
- (3) Thermal resistance junction-to-mount to follow JEDEC® 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S8PM-M3/H	0.10	H	1500	7" diameter plastic tape and reel
S8PM-M3/I	0.10	I	6500	13" diameter plastic tape and reel



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

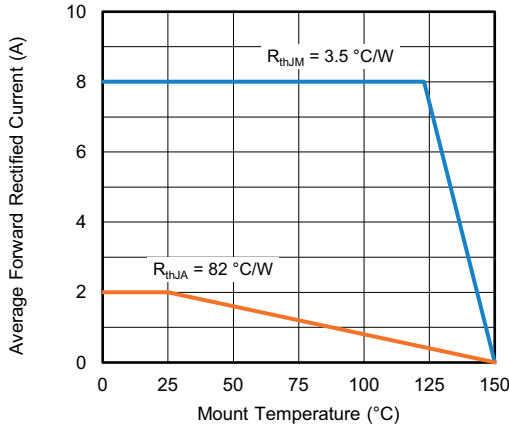


Fig. 1 - Maximum Forward Current Derating Curve

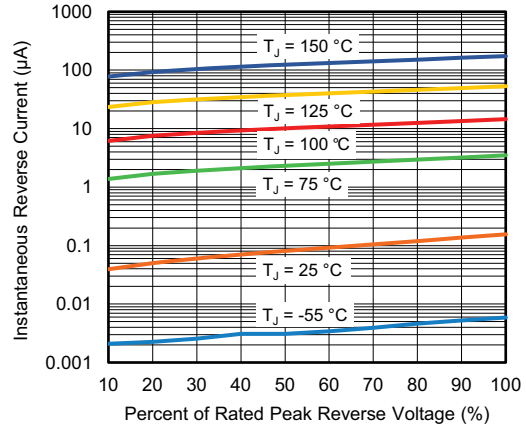


Fig. 4 - Typical Reverse Leakage Characteristics

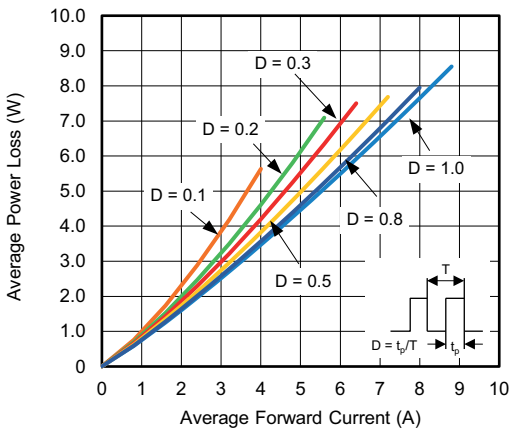


Fig. 2 - Forward Power Loss Characteristics

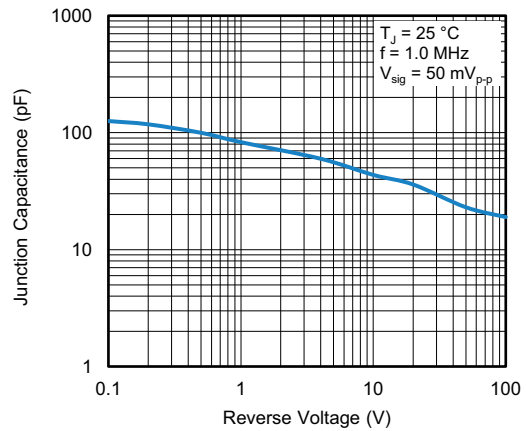


Fig. 5 - Typical Junction Capacitance

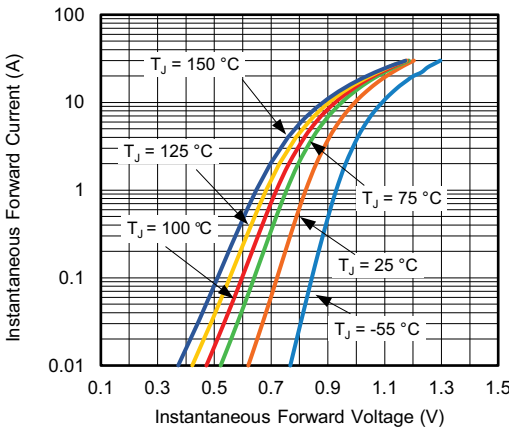


Fig. 3 - Typical Instantaneous Forward Characteristics

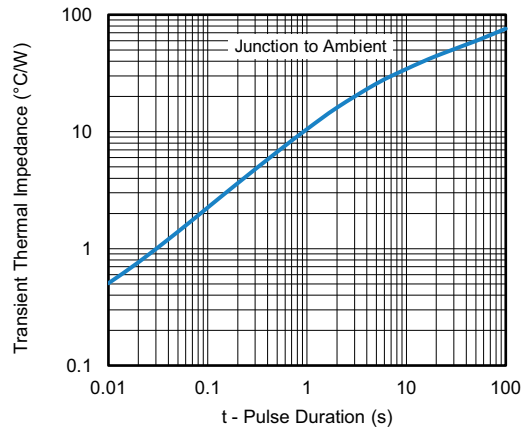
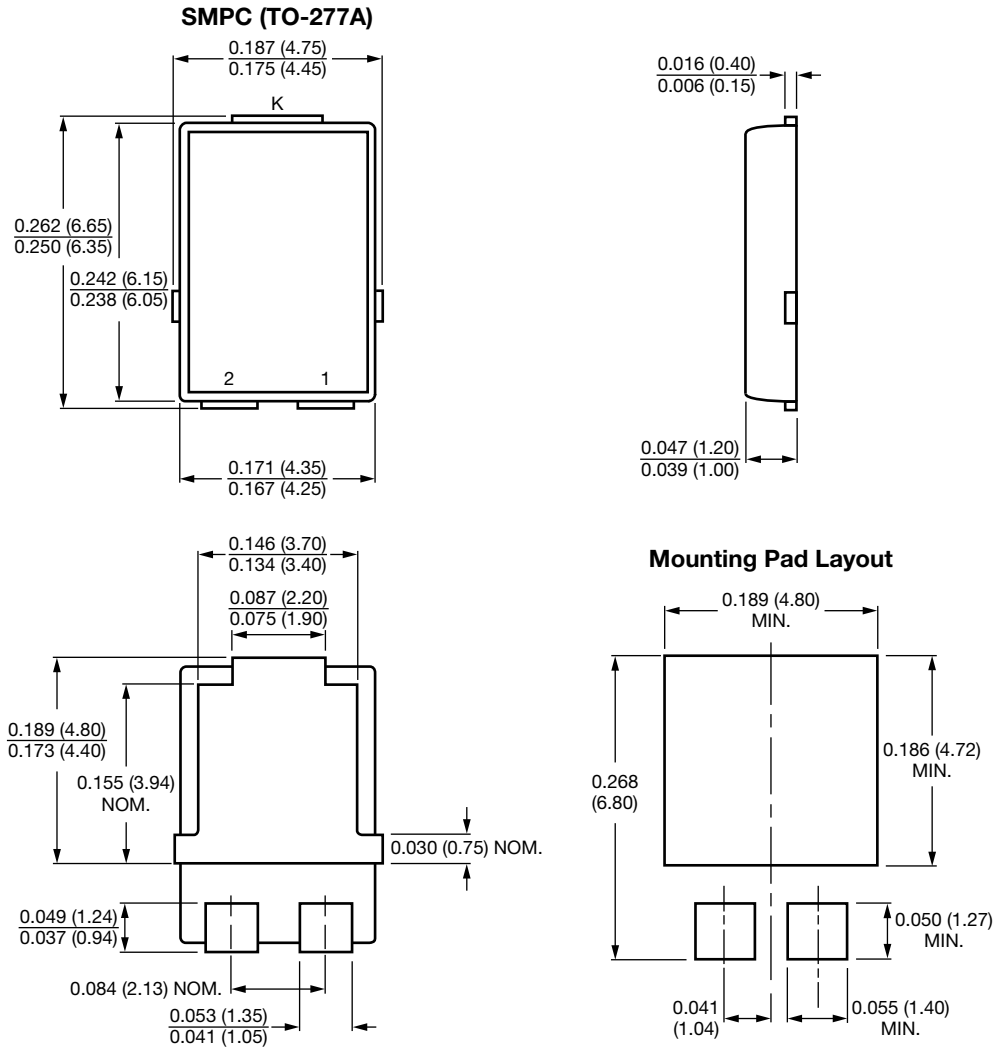


Fig. 6 - Typical Transient Thermal Impedance



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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