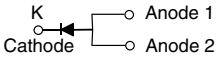
High Current Density Surface-Mount Glass Passivated Rectifiers

eSMP® Series

SMPC (TO-277A)



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

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

LINKS TO ADDITIONAL RESOURCES

3D Models

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

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_J = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 4 A	T_J = 25 °C	V_F (1)	0.91	-	V
	I_F = 8 A			0.97	1.10	
	I_F = 4 A	T_J = 125 °C		0.79	-	
	I_F = 8 A			0.87	0.95	
Reverse current	Rated V_R	T_J = 25 °C	I_R (2)	-	5	µA
		T_J = 125 °C		92	250	
Max. reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	5.0	-	µs
Typical junction capacitance	4.0 V, 1 MHz		C_J	60	-	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 specified)						
PARAMETER	**SYMBOL**	**S8PG**	**S8PJ**	**S8PK**	**S8PM**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)(2)	82				°C/W
	$R_{\theta JM}$ (3)	3.5				

Notes

(1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$

(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 °C unless otherwise noted)

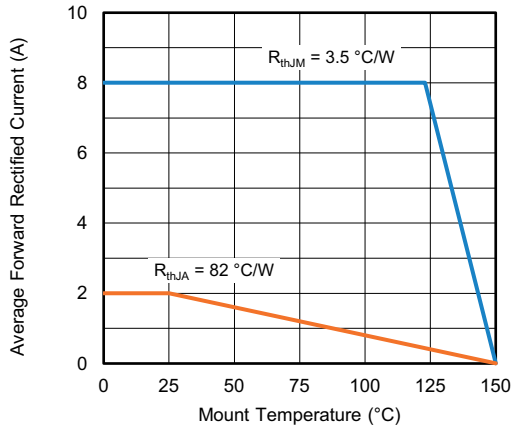


Fig. 1 - Maximum Forward Current Derating Curve

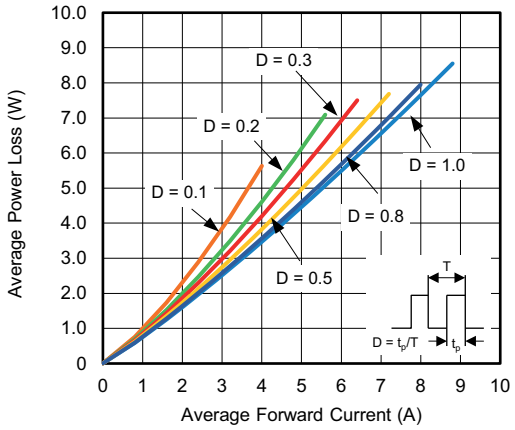


Fig. 2 - Forward Power Loss Characteristics

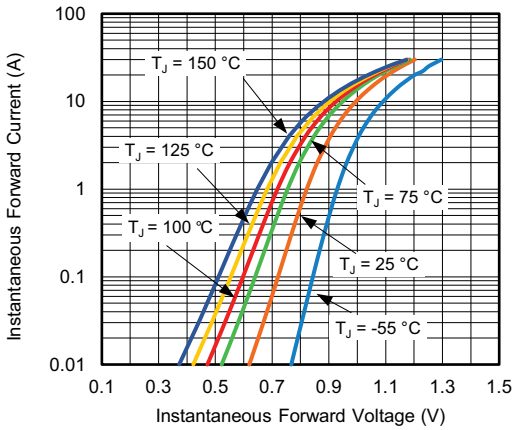


Fig. 3 - Typical Instantaneous Forward Characteristics

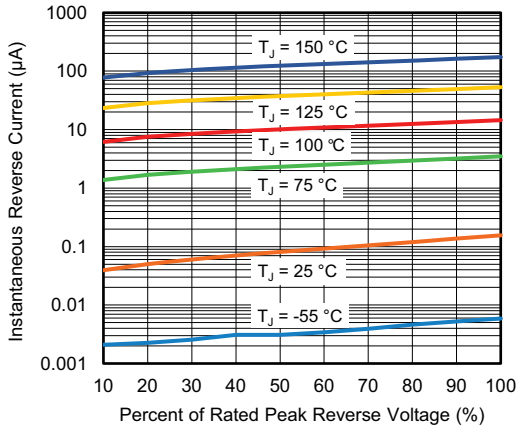


Fig. 4 - Typical Reverse Leakage Characteristics

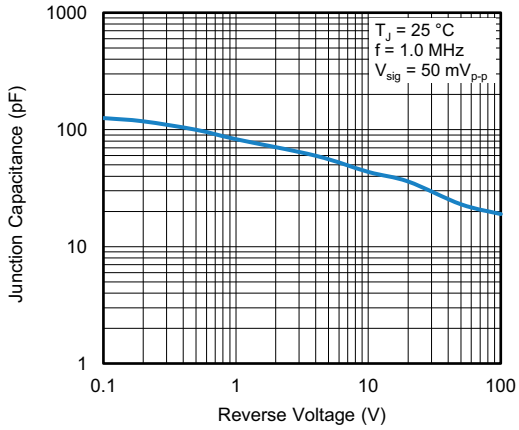


Fig. 5 - Typical Junction Capacitance

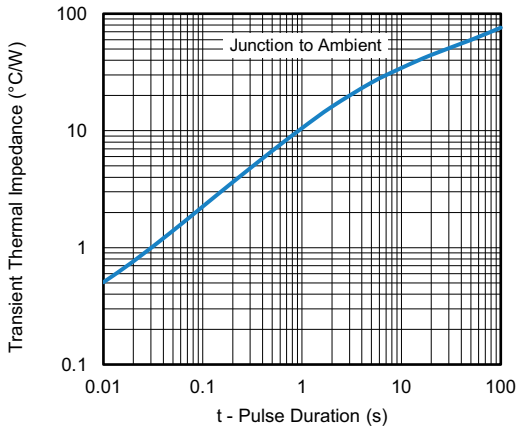
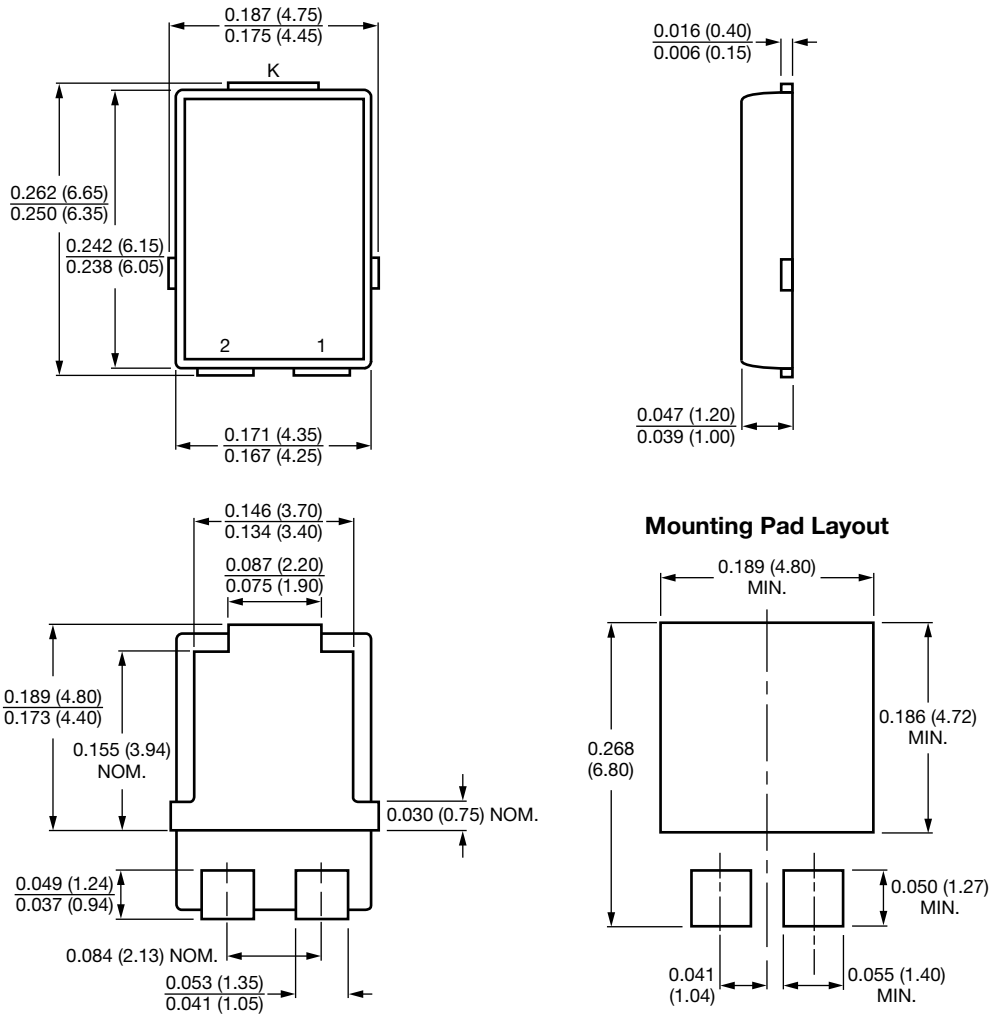


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPC (TO-277A)



Conform to JEDEC® TO-277A

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