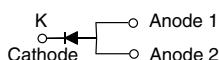


High Current Density Surface-Mount High Voltage Schottky Rectifier

eSMP® Series



SMPC (TO-277A)



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Guardring for overvoltage protection
- High barrier technology, $T_J = 175\text{ }^{\circ}\text{C}$ maximum
- Low leakage current
- Enhanced for high surge endurance
- Meets MSL level 1, per J-STD-020, LF maximum peak of $260\text{ }^{\circ}\text{C}$
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

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 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	100 V
I_{FSM}	85 A
V_F at $I_F = 8.0\text{ A}$	0.720 V
T_J max.	$175\text{ }^{\circ}\text{C}$
Package	SMPC (TO-277A)
Circuit configuration	Single

MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	SS8PH102S	UNIT
Device marking code		8H102S	
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}^{(1)}$	8	A
	$I_{F(AV)}^{(2)}$	2.8	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	85	A
Operating junction temperature range	$T_J^{(3)}$	-40 to +175	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +175	$^{\circ}\text{C}$

Notes

(1) Mounted on 30 mm x 30 mm pad areas aluminum PCB

(2) Free air, mounted on recommended copper pad area, 2 oz, FR4 PCB

(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 _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.78	-	V
	I _F = 8.0 A			0.85	0.90	
	I _F = 4.0 A	T _A = 125 °C		0.64	-	
	I _F = 8.0 A			0.72	0.76	
Reverse current	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	0.02	-	μA
		T _A = 125 °C		50	-	
	V _R = 100 V	T _A = 25 °C		-	1.2	μA
		T _A = 125 °C		100	250	
Typical junction capacitance	4.0 V, 1 MHz		C _J	90	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)			
PARAMETER	SYMBOL	SS8PH102S	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	80	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(3)}$	4.5	

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) Free air mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient(3) Mounted on 30 mm x 30 mm aluminum PCB; thermal resistance $R_{\theta JM}$ - junction to mount**ORDERING INFORMATION TABLE**

Device code	SS	8	P	H	10	2	S	H	M3
	①	②	③	④	⑤	⑥	⑦	⑧	⑨
①	- Vishay planar Schottky product								
②	- Current rating (8 = 8 A)								
③	- Package type (P = SMPC (TO-277A))								
④	- Process type option (H = low I_R)								
⑤	- Voltage rating (10 = 100 V)								
⑥	- Planar Schottky generation option (2 = gen 2)								
⑦	- Special option (S = special option)								
⑧	- Quality grade (H = AEC-Q101 qualified, - = industry grade)								
⑨	- Material / Environment category								
	(M3 = halogen-free, RoHS-compliant, and termination lead (Pb)-free)								

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS8PH102S-M3/H	0.10	H	1500	7" diameter plastic tape and reel
SS8PH102S-M3/I	0.10	I	6500	13" diameter plastic tape and reel
SS8PH102SHM3/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel
SS8PH102SHM3/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

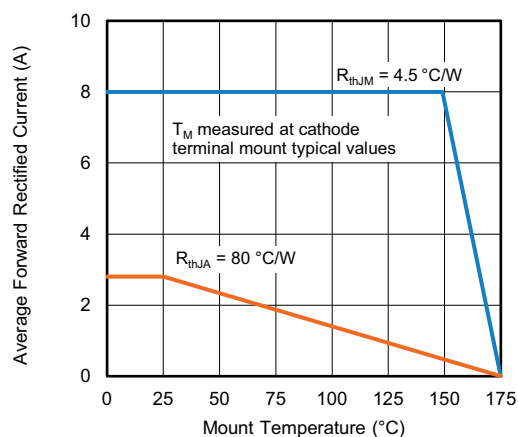
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

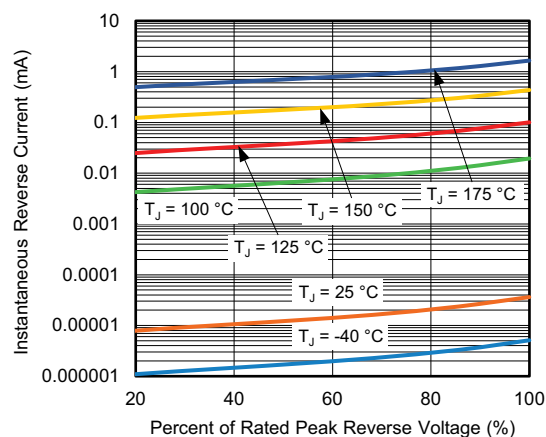


Fig. 4 - Typical Reverse Characteristics

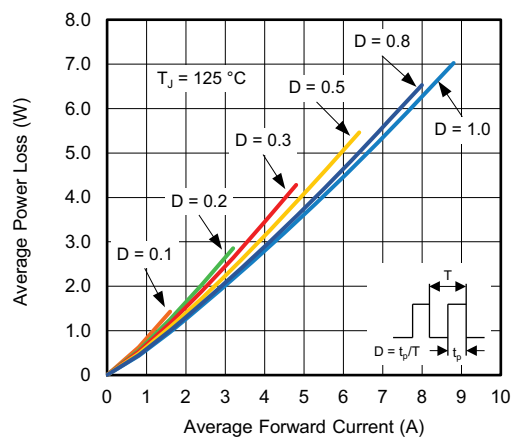


Fig. 2 - Forward Power Loss Characteristics

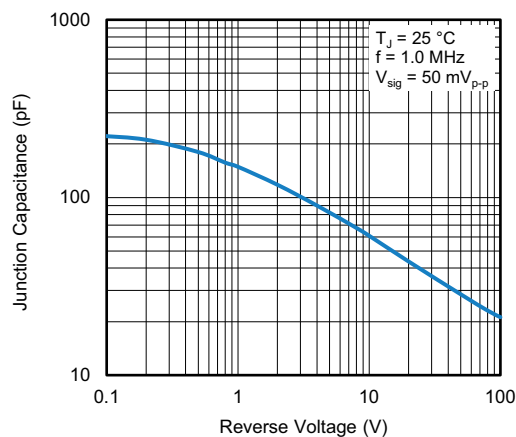


Fig. 5 - Typical Junction Capacitance

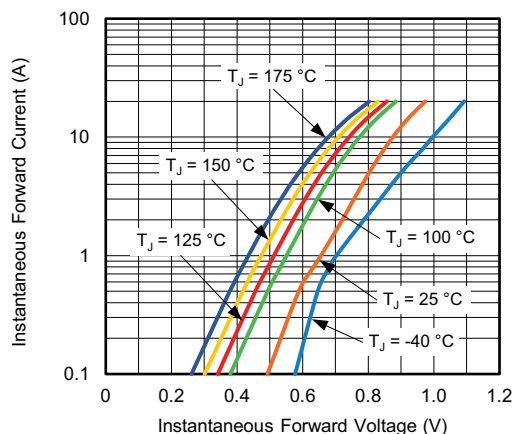


Fig. 3 - Typical Instantaneous Forward Characteristics

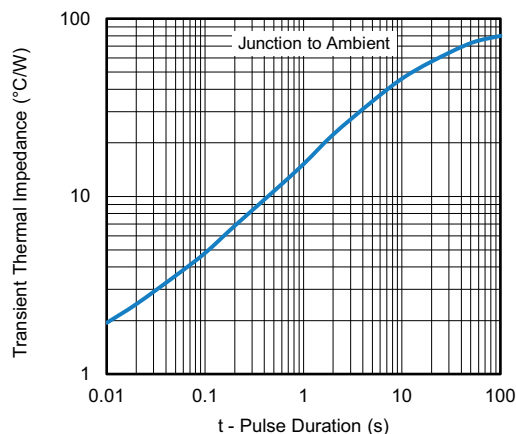
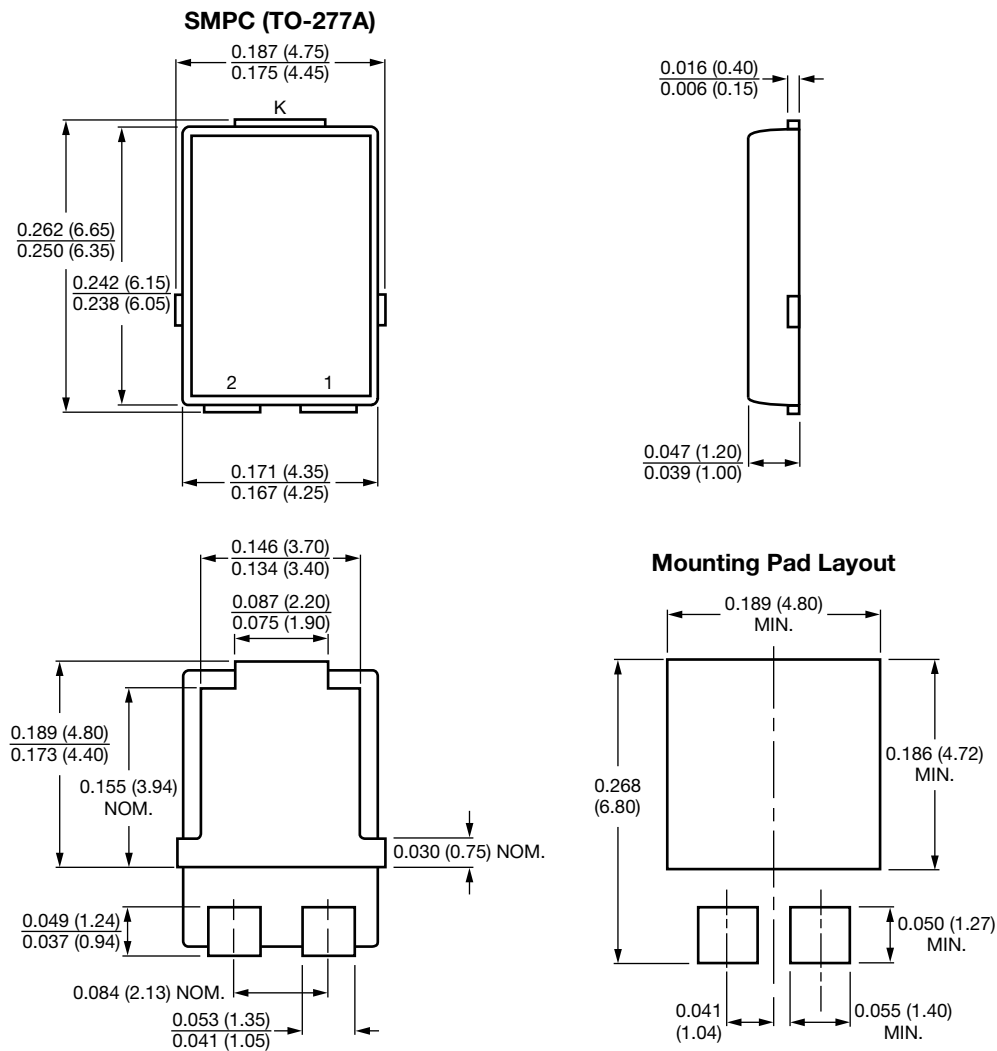


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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