AUTOMOTIVE GRADE

RoHS

COMPLIANT

HALOGEN

FREE



Vishay General Semiconductor

Surface-Mount Schottky Barrier Rectifier

eSMP® Series



SMF (DO-219AB)

Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	1.0 A		
V_{RRM}	60 V		
I _{FSM}	40 A		
V_F at $I_F = 1.0$ A $(T_A = 125 ^{\circ}C)$	0.38 V		
T _J max. (AC mode)	150 °C		
T _J max. (DC forward current)	175 °C		
Package	SMF (DO-219AB)		
Circuit configuration	Single		

FEATURES

- Low profile package
- · Ideal for automated placement
- · Low forward voltage drop, low power losses
- Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Wave and reflow solderable
- AEC-Q101 qualified
 - Automotive ordering code: base P/NHM3
- Compatible to SOD-123W package case outline
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in commercial, industrial, and automotive applications.

MECHANICAL DATA

Case: SMF (DO-219AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant

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 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS1FN6	UNIT	
Device marking code		1N6		
Maximum repetitive peak reverse voltage	V_{RRM}	60	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)} (1)	1.0	Α	
Non-repetitive peak forward surge current 8.3 ms single half sine-wave at $T_{J\mbox{ (init)}}=25^{\circ}\mbox{C}$	I _{FSM}	40	А	
Operating junction and storage temperature range	T_J , T_{STG}	-55 to +150	°C	
Junction temperature in DC forward current without reverse bias	Τ _J	+175	°C	

Note

(1) Free air, mounted on recommended copper pad area



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 0.7 A$	——— T. – 25 °C	V _F ⁽¹⁾	0.42	-	- V
	I _F = 1.0 A			0.45	0.53	
	I _F = 0.7 A	T _A = 125 °C		0.33	-	
	I _F = 1.0 A			0.38	0.46	
Reverse current	V _R = 60 V	T _A = 25 °C	I _R ⁽²⁾	-	800	μA
	v _R = 60 v	T _A = 125 °C		12	35	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	90	-	pF

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T _A = 25 °c unless otherwise noted)				
PARAMETER SYMBOL SS1FN6				
Typical thermal resistance	R ₀ JA (1)(2)(3)	125	°C/W	
	R _{0JM} (2)(3)	15	- C/VV	

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) Device mounted on FR4 PCB, 2 oz. standard footprint
- (3) Thermal resistance $R_{\theta JA}$ junction to ambient; $R_{\theta JM}$ junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS1FN6-M3/H	0.015	Н	3000	7" diameter plastic tape and reel
SS1FN6-M3/I	0.015	1	10 000	13" diameter plastic tape and reel
SS1FN6HM3/H (1)	0.015	Н	3000	7" diameter plastic tape and reel
SS1FN6HM3/I (1)	0.015	I	10 000	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 noted)

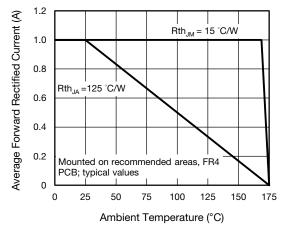


Fig. 1 - Typical Forward Current Derating Curve

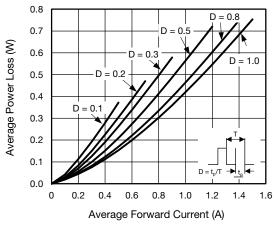


Fig. 2 - Forward Power Loss Characteristics

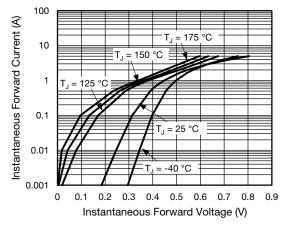


Fig. 3 - Typical Instantaneous Forward Characteristics

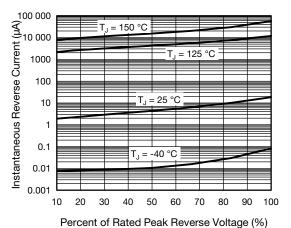


Fig. 4 - Typical Reverse Leakage Characteristics

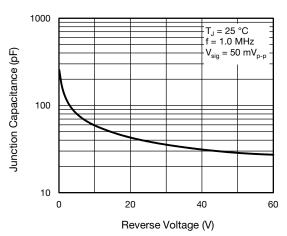


Fig. 5 - Typical Junction Capacitance

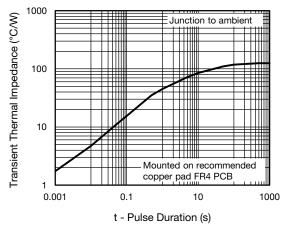
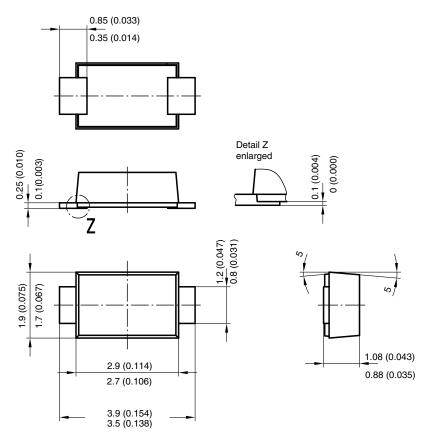


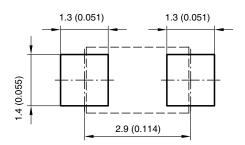
Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in millimeters (inches): SMF (DO-219AB)



Foot print recommendation:



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