AUTOMOTIVE GRADE

RoHS

COMPLIANT

HALOGEN

FREE



## Vishay General Semiconductor

## **Surface-Mount Schottky Barrier Rectifiers**

### eSMP® Series



SMF (DO-219AB)

Cathode O Anode

#### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS			
I <sub>F(AV)</sub>	1.0 A		
V <sub>RRM</sub>	60 V		
I <sub>FSM</sub>	40 A		
V <sub>F</sub> at I <sub>F</sub> = 1.0 A (T <sub>A</sub> = 125 °C)	0.56 V		
T <sub>J</sub> max.	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 available
  - Automotive ordering code: base P/NHM3
- Compatible to SOD-123W package case outline
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### 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

 $\ensuremath{\mathsf{J-STD}}\xspace$  -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 <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	SS1FH6	UNIT
Device marking code		16	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	60	V
Maximum average forward rectified current (fig.1)	I <sub>F(AV)</sub> (1)	1.0	А
Peak forward surge current 8.3 ms single half sine-wave T <sub>J (init)</sub> = 25 °C	I <sub>FSM</sub>	40	А
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

#### Note

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



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 0.7 A$	- T <sub>A</sub> = 25 °C		0.60	-	V
	I <sub>F</sub> = 1.0 A		V <sub>E</sub> (1)	0.64	0.70	
	I <sub>F</sub> = 0.7 A	T <sub>A</sub> = 125 °C	' '	0.53	-	
	I <sub>F</sub> = 1.0 A			0.56	0.61	
Reverse current	V 60.V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	3	μΑ
	$V_R = 60 \text{ V}$	T <sub>A</sub> = 125 °C	25 °C	90	450	
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  $\leq 5 \text{ ms}$ 

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °c unless otherwise noted)				
PARAMETER	SYMBOL	SS1FH6	UNIT	
Typical thermal resistance	R <sub>0JA</sub> (1)(2)(3)	125	°C/W	
	R <sub>0JM</sub> (1)(2)(3)	21	] 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) 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
SS1FH6-M3/H	0.015	Н	3000	7" diameter plastic tape and reel
SS1FH6-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SS1FH6HM3/H (1)	0.015	Н	3000	7" diameter plastic tape and reel
SS1FH6HM3/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<sub>A</sub> = 25 °C unless otherwise noted)

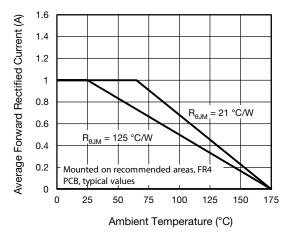


Fig. 1 - Maximum Forward Current Derating Curve

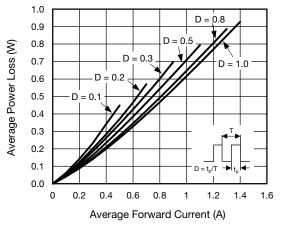


Fig. 2 - Average Power Loss Characteristics

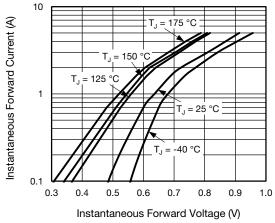


Fig. 3 - Typical Instantaneous Forward Characteristics

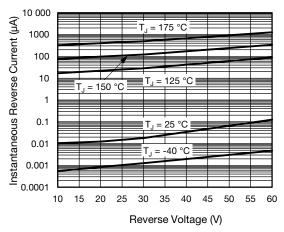


Fig. 4 - Typical Reverse Leakage Characteristics

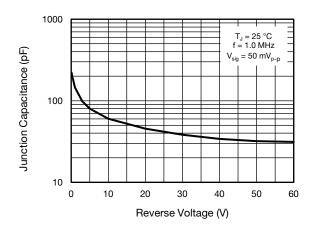


Fig. 5 - Typical Junction Capacitance

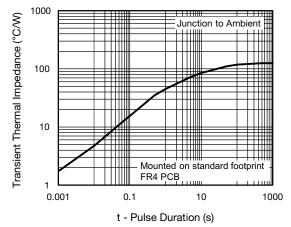
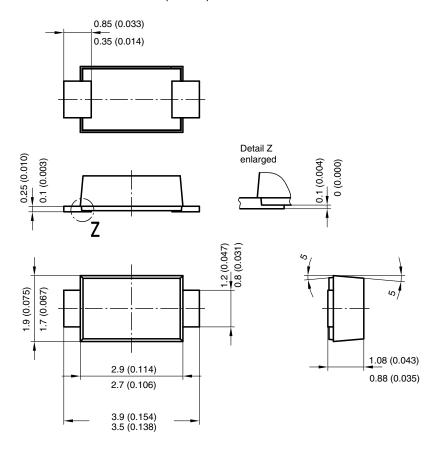


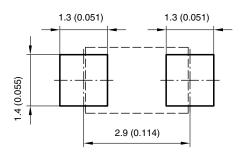
Fig. 6 - Typical Transient Thermal Impedance

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### **PACKAGE OUTLINE DIMENSIONS** in millimeters (inches)



#### Foot print recommendation:



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