AUTOMOTIVE

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 <sub>F(AV)</sub>	2.0 A		
V <sub>RRM</sub>	30 V		
I <sub>FSM</sub>	50 A		
$V_F$ at $I_F = 2.0$ A ( $T_A = 125$ °C)	0.37 V		
T <sub>J</sub> max.	150 °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

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 <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SS2FL3	UNIT	
Device marking code		2L3		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	30	V	
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub> (1)	2.0	Α	
Non-repetitive peak forward surge current 8.3 ms single half sine-wave at $T_{J(init)}$ = 25 °C	I <sub>FSM</sub>	50	А	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C	

#### Note

<sup>(1)</sup> 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 <sub>F</sub> = 1.0 A	— T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.41	-	V
	$I_F = 2.0 \text{ A}$			0.47	0.54	
	I <sub>F</sub> = 1.0 A	- T <sub>A</sub> = 125 °C		0.30	-	
	$I_F = 2.0 \text{ A}$			0.37	0.45	
Reverse current	V <sub>R</sub> = 30 V	T <sub>A</sub> = 25 °C		-	200	μA
	v <sub>R</sub> = 30 v	T <sub>A</sub> = 125 °C		7	12	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	145	-	pF

### Notes

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

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °c unless otherwise noted)				
PARAMETER	SYMBOL SS2FL3			
Typical thermal resistance	R <sub>0</sub> JA (1)(2)(3)	125	°C/W	
	R <sub>0JM</sub> (2)(3)	21	J 0/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
SS2FL3-M3/H	0.015	Н	3000	7" diameter plastic tape and reel
SS2FL3-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SS2FL3HM3/H (1)	0.015	Н	3000	7" diameter plastic tape and reel
SS2FL3HM3/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)

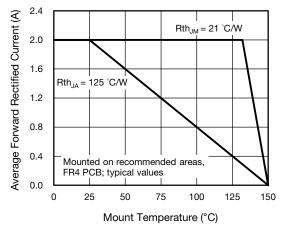


Fig. 1 - Typical Forward Current Derating Curve

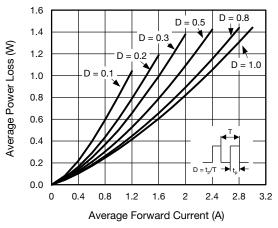


Fig. 2 - Forward Power Loss Characteristics

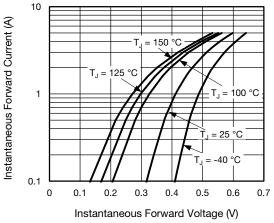


Fig. 3 - Typical Instantaneous Forward Characteristics

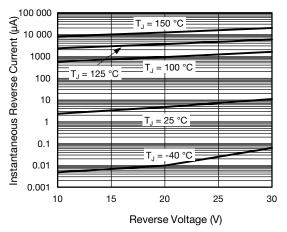


Fig. 4 - Typical Reverse Leakage Characteristics

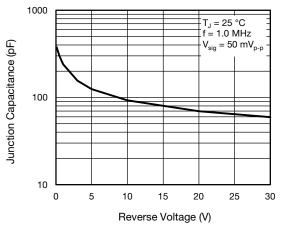


Fig. 5 - Typical Junction Capacitance

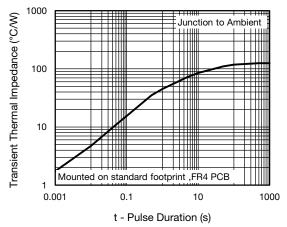
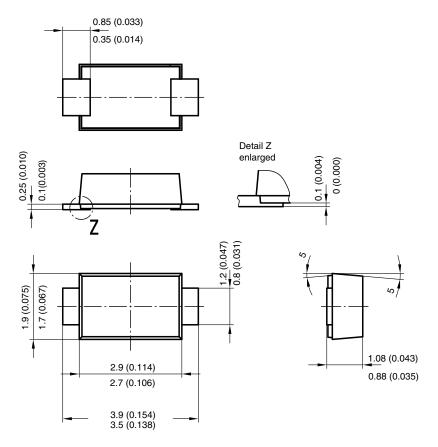


Fig. 6 - Typical Transient Thermal Impedance

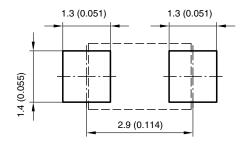


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## **PACKAGE OUTLINE DIMENSIONS** in millimeters (inches)



#### Foot print recommendation:



Created - Date: 15. February 2005 Rev. 3 - Date: 13. March 2007 Document no.: S8-V-3915.01-001 (4) 17247



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