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# Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

# **Surface-Mount Schottky Barrier Rectifier**



**SMA (DO-214AC)** 



### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2.0 A				
$V_{RRM}$	20 V, 30 V, 40 V				
I <sub>FSM</sub>	40 A				
V <sub>F</sub> at I <sub>F</sub> = 2.0 A	0.517 V				
T <sub>J</sub> max.	150 °C				
Package	SMA (DO-214AC)				
Circuit configuration	Single				

### **FEATURES**

- Low profile package
- · Ideal for automated placement
- · Low forward voltage drop, low power losses
- High efficiency
- 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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

### **TYPICAL APPLICATIONS**

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

### **MECHANICAL DATA**

Case: SMA (DO-214AC)

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

J-31D-002 and JE3D 22-B102

M3 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	SS22S	SS23S	SS24S	UNIT	
Device marking code		22S	23\$	24S		
Maximum repetitive peak reverse voltage		20	30	40	V	
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	2.0			Α	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	40		А		
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/µs		
Operating junction and storage temperature range	T <sub>J,</sub> T <sub>STG</sub>	-55 to +150			°C	

<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 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.436	-	V	
	I <sub>F</sub> = 2 A			0.517	0.55	v	
Reverse current	Datad V	T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	13	200	μA	
	Rated V <sub>R</sub>	T <sub>J</sub> = 100 °C		1.65	8	mA	
Typical junction capacitance	4.0 V, 1 MHz		CJ	130	-	pF	

### **Notes**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms



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THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBOL SS22S SS23S SS24S		UNIT		
Typical thermal resistance	R <sub>eJA</sub> (1)	75			°C/W	
	R <sub>eJL</sub> (1)	25				

### Note

(1) PCB mounted with 0.4" x 0.4" (10 mm x 10 mm) copper pad areas

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
SS24S-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel			
SS24S-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel			

# RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

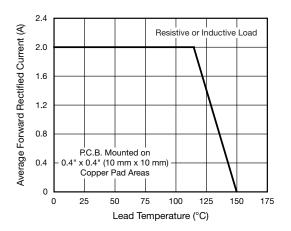


Fig. 1 - Forward Current Derating Curve

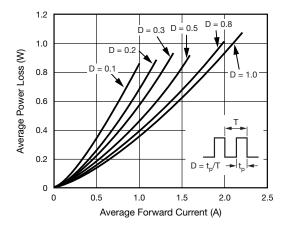


Fig. 2 - Forward Power Loss Characteristics

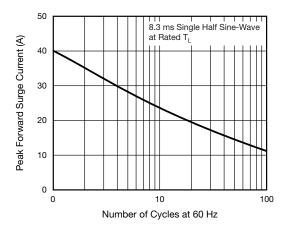


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

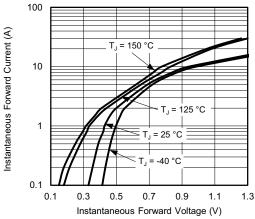


Fig. 4 - Typical Instantaneous Forward Characteristics



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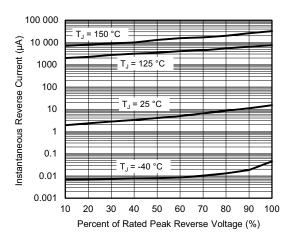


Fig. 5 - Typical Reverse Leakage Characteristics

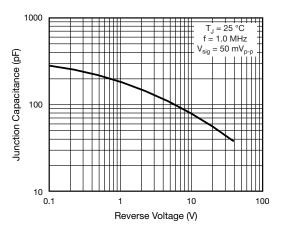
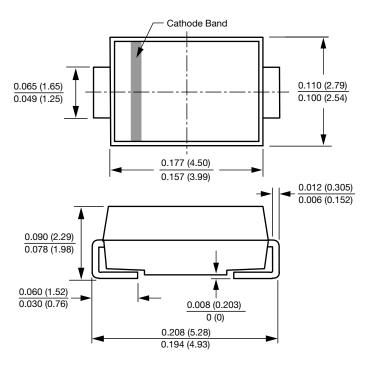


Fig. 6 - Typical Junction Capacitance

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

### SMA (DO-214AC)



# 0.066 (1.68) MIN. 0.060 (1.52) MIN. 0.208 (5.28) REF.



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