

Vishay General Semiconductor

# Low V<sub>F</sub> Surface Mount Schottky Rectifier



DO-214AC (SMA)

1.5 A

20 V, 30 V

50 A

0.34 V

125 °C

**PRIMARY CHARACTERISTICS** 

I<sub>F(AV)</sub>

V<sub>RRM</sub>

IFSM

 $V_{F}$ 

T<sub>.1</sub> max.

#### FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Very low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

### **TYPICAL APPLICATIONS**

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

### **MECHANICAL DATA**

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified ("\_X" denotes revision code e.g. A, B, .....)

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SL12	SL13	UNIT		
Device marking code		SL2	SL3			
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	20	30	V		
Maximum RMS voltage	V <sub>RMS</sub>	14	21	V		
Maximum DC blocking voltage	V <sub>DC</sub>	20	30	V		
Maximum average forward rectified current at $T_L = 105 \text{ °C}$ (fig. 1)	I <sub>F(AV)</sub>	1.5		А		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50		А		
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/µs		
Operating junction temperature range	TJ	- 55 to + 125		°C		
Storage temperature range	T <sub>STG</sub>	- 55 to + 150		°C		



1

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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	SL12	SL13	UNIT	
Maximum instantaneous forward voltage at <sup>(1)</sup>	I <sub>F</sub> = 0.1 A	T <sub>A</sub> = 125 °C	V <sub>F</sub>	0.230		V	
		T <sub>A</sub> = 25 °C		0.360			
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 125 °C		0.340			
		T <sub>A</sub> = 25 °C					
Maximum DC reverse current		T <sub>A</sub> = 25 °C	- I <sub>R</sub>	0.2		mA	
at rated DC blocking voltage <sup>(1)</sup>		T <sub>A</sub> = 100 °C		6.	0	ША	

Note

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SL12	SL13	UNIT		
Maximum thermal resistance <sup>(1)</sup>	$R_{ ext{ heta}JA}$	88		°C/W		
	$R_{ ext{ heta}JL}$	28				

Note

 $^{(1)}\,$  P.C.B. mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SL13-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel		
SL13-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel		
SL13HE3/61T (1)	0.064	61T	1800	7" diameter plastic tape and reel		
SL13HE3/5AT <sup>(1)</sup>	0.064	5AT	7500	13" diameter plastic tape and reel		
SL13HE3_A/H <sup>(1)</sup>	0.064	Н	1800	7" diameter plastic tape and reel		
SL13HE3_A/I (1)	0.064		7500	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified

#### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

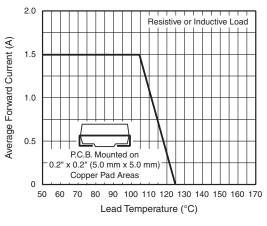


Fig. 1 - Forward Current Derating Curve

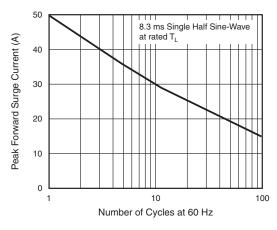


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

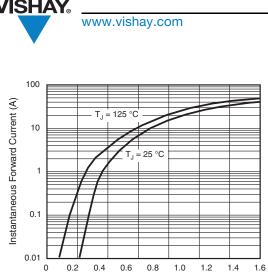
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2

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Instantaneous Forward Voltage (V)

Fig. 3 - Typical Instantaneous Forward Characteristics

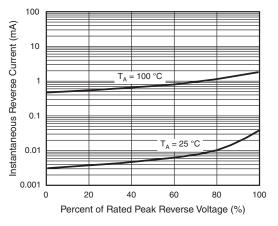
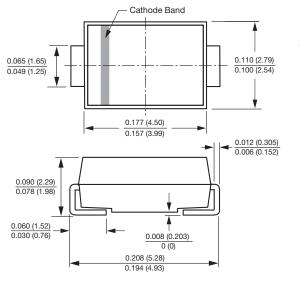
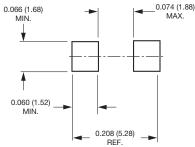


Fig. 4 - Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-214AC (SMA)



## Mounting Pad Layout



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3

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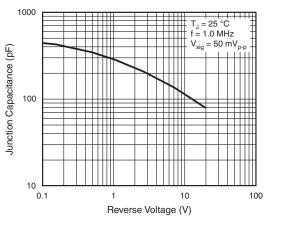


Fig. 5 - Typical Junction Capacitance



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