RoHS



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### Vishay General Semiconductor

# **High Voltage Surface Mount Schottky Rectifier**

High Barrier Technology for Improved High Temperature Performance



DO-214AB (SMC)

PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	3.0 A				
$V_{RRM}$	90 V, 100 V				
I <sub>FSM</sub>	100 A				
V <sub>F</sub>	0.65 V				
I <sub>R</sub>	20 μΑ				
T <sub>J</sub> max.	175 °C				
Package	DO-214AB (SMC)				
Diode variations	Single				

#### **FEATURES**

- · Low profile package
- · Ideal for automated placement
- · Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3
- 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 low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

#### **MECHANICAL DATA**

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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 2 whisker test, HE3 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	SS3H9 SS3H10		UNIT	
Device marking code		MS9 MS10			
Maximum repetitive peak reverse voltage	$V_{RRM}$	90	100	V	
Working peak reverse voltage	V <sub>RWM</sub>	90	100	V	
Maximum DC blocking voltage	$V_{DC}$	90	100	V	
Maximum average forward rectified current at: T <sub>L</sub> = 115 °C	I <sub>F(AV)</sub>	3.0		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100		А	
Peak repetitive reverse surge current at t <sub>p</sub> = 2.0 μs, 1 kHz	I <sub>RRM</sub>	1.0		А	
Critical rate of rise of reverse voltage	dV/dt	10 000		V/µs	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to	°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SS3H9	SS3H10	UNIT
Maximum instantaneous forward voltage (1) $I_E = 3.0 \text{ A}$		T <sub>J</sub> = 25 °C		0.8		
Maximum instantaneous forward voltage (1)	I <sub>F</sub> = 3.0 A	T <sub>J</sub> = 125 °C	$V_{F}$	0.65		
Maximum reverse current at rated V <sub>R</sub> (2)		T <sub>J</sub> = 25 °C	1	20		μΑ
Iviaximum reverse current at rated $v_R \leftarrow$		T <sub>J</sub> = 125 °C	IR	4	1	mA

#### Notes

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

(2) Pulse test: Pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS3H9	SS3H10	UNIT	
Typical thermal resistance, junction to lead at T <sub>L</sub> = 25 °C	$R_{ heta JL}$	20		°C/W	
Typical thermal resistance, junction to ambient (1)	$R_{ heta JA}$	50		C/VV	

#### Note

(1) Units mounted on PCB with 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS3H9-E3/57T	0.235	57T	850	7" diameter plastic tape and reel		
SS3H9-E3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel		
SS3H9HE3_A/H (1)	0.235	Н	850	7" diameter plastic tape and reel		
SS3H9HE3_A/I (1)	0.235	1	3500	13" diameter plastic tape and reel		
SS3H9HE3_B/H (1)	0.235	Н	850	7" diameter plastic tape and reel		
SS3H9HE3_B/I (1)	0.235	I	3500	13" diameter plastic tape and reel		

#### Note

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

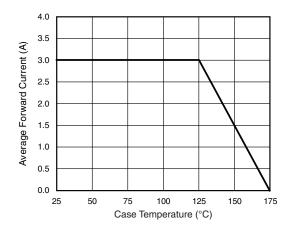


Fig. 1 - Forward Current Derating Curve

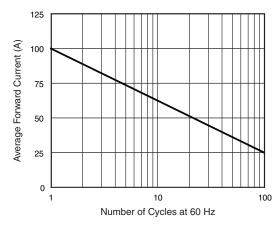


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

<sup>(1)</sup> AEC-Q101 qualified



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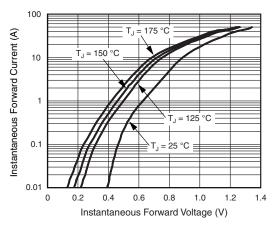


Fig. 3 - Typical Instantaneous Forward Characteristics

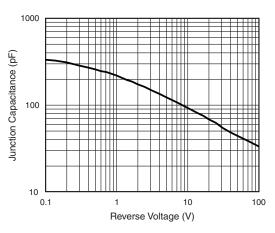


Fig. 5 - Typical Junction Capacitance

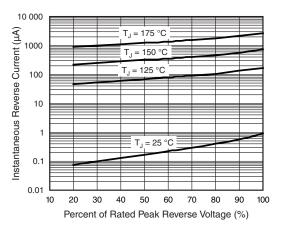


Fig. 4 - Typical Reverse Characteristics

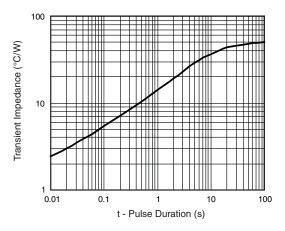
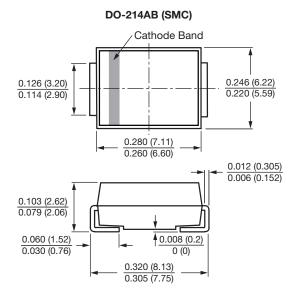
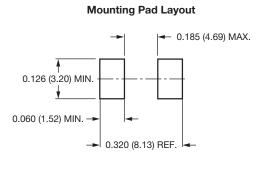


Fig. 6 - Typical Transient Thermal Impedance

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







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