

# High-Voltage Surface Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-214AB (SMC)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	90 V, 100 V
$I_{FSM}$	100 A
$V_F$	0.65 V
$I_R$	20 $\mu$ A
$T_J$ max.	175 °C

## 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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

## 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 - 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

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ 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	$V_{RWM}$	90	100	V
Maximum DC blocking voltage	$V_{DC}$	90	100	V
Maximum average forward rectified current at: $T_L = 115\text{ °C}$	$I_{F(AV)}$	3.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100		A
Peak repetitive reverse surge current at $t_p = 2.0\ \mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Critical rate of rise of reverse voltage	dV/dt	10 000		V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175		°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SS3H9	SS3H10	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	I <sub>F</sub> = 3.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.8		V
		T <sub>J</sub> = 125 °C		0.65		
Maximum reverse current at rated V <sub>R</sub> <sup>(2)</sup>			I <sub>R</sub>	20		μA
				4		mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 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 <sub>θJL</sub>	20		°C/W
Typical thermal resistance, junction to ambient <sup>(1)</sup>	R <sub>θJA</sub>	50		

**Note**

- (1) Units mounted on P.C.B. 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
SS3H9HE3/57T <sup>(1)</sup>	0.235	57T	850	7" diameter plastic tape and reel
SS3H9HE3/9AT <sup>(1)</sup>	0.235	9AT	3500	13" diameter plastic tape and reel
SS3H9HE3_A/H <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SS3H9HE3_A/I <sup>(1)</sup>	0.235	I	3500	13" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

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

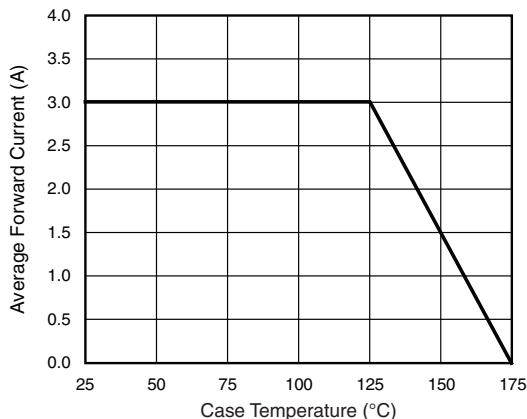


Fig. 1 - Forward Current Derating Curve

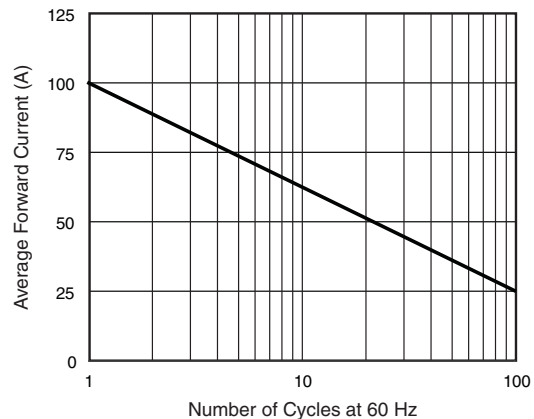


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

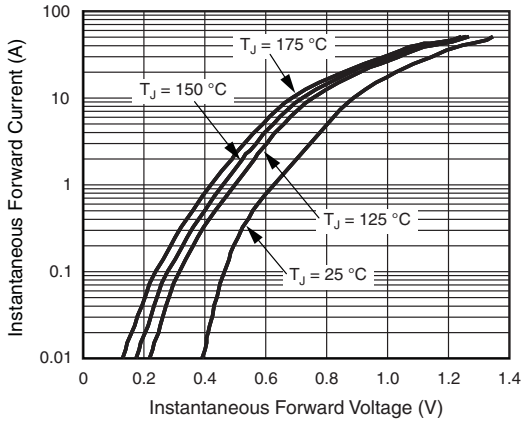


Fig. 3 - Typical Instantaneous Forward Characteristics

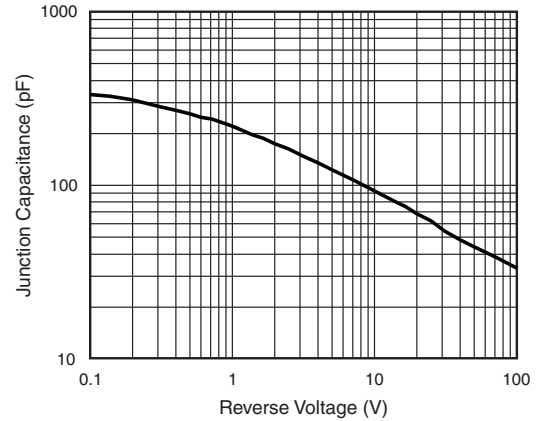


Fig. 5 - Typical Junction Capacitance

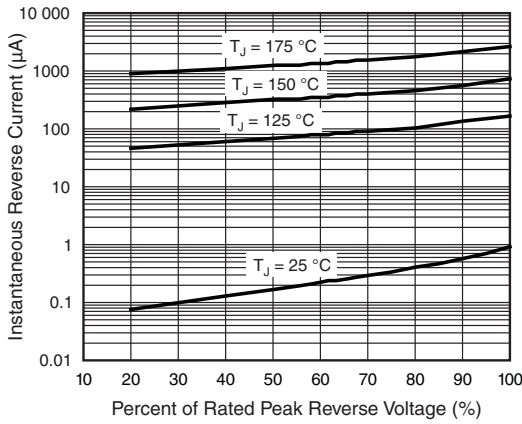


Fig. 4 - Typical Reverse Characteristics

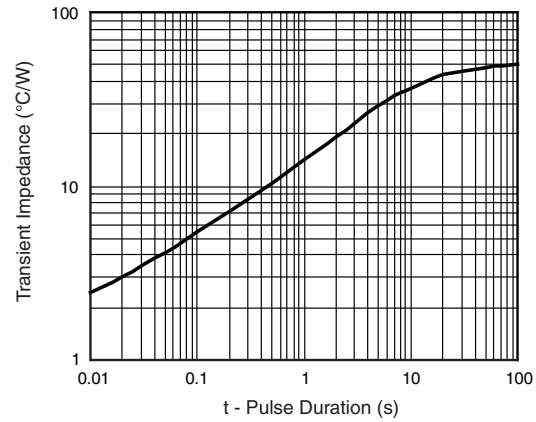
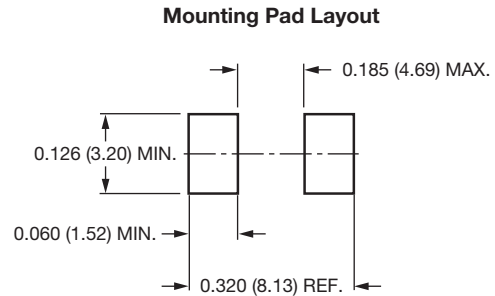
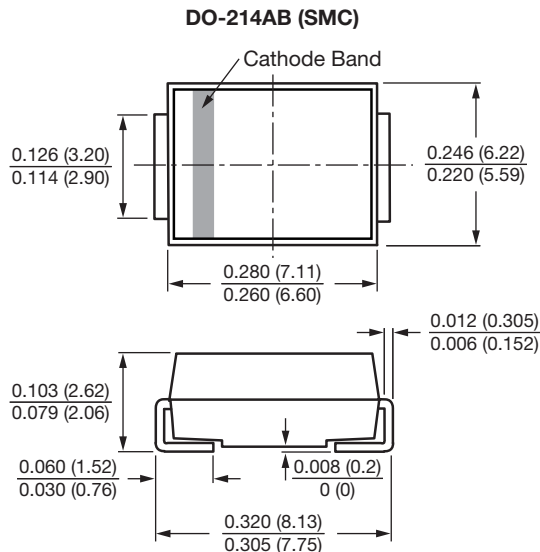


Fig. 6 - Typical Transient Thermal Impedance

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





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