

# High Voltage Surface-Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



SMC (DO-214AB)



## LINKS TO ADDITIONAL RESOURCES



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
Package	SMC (DO-214AB)
Circuit configuration	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 [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:** SMC (DO-214AB)

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 ( $T_A = 25$ °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	$V_{RWM}$	90	100	V
Maximum DC blocking voltage	$V_{DC}$	90	100	V
Maximum average forward rectified current at: $T_L = 115$ °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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	SS3H9	SS3H10	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	$I_F = 3.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	0.8		V
		$T_J = 125\text{ }^\circ\text{C}$	0.65		
Maximum reverse current at rated $V_R$ <sup>(2)</sup>		$T_J = 25\text{ }^\circ\text{C}$	20		$\mu\text{A}$
		$T_J = 125\text{ }^\circ\text{C}$	4		mA

**Notes**

- <sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- <sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SS3H9	SS3H10	UNIT
Typical thermal resistance, junction-to-lead at $T_L = 25\text{ }^\circ\text{C}$	$R_{\theta JL}$	20		$^\circ\text{C/W}$
Typical thermal resistance, junction-to-ambient <sup>(1)</sup>	$R_{\theta JA}$	50		

**Note**

- <sup>(1)</sup> Units mounted on PCB with 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

<b>ORDERING INFORMATION</b> (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_B/H <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SS3H9HE3_B/I <sup>(1)</sup>	0.235	I	3500	13" diameter plastic tape and reel

**Note**

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

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

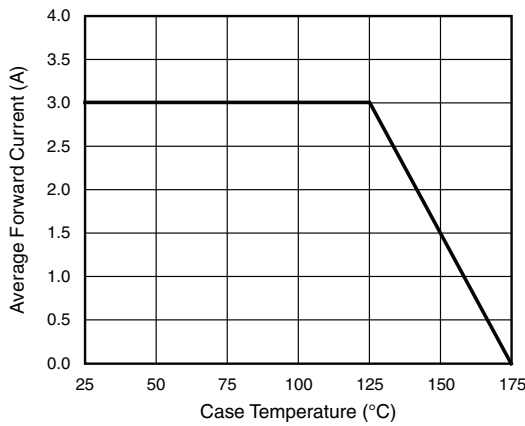


Fig. 1 - Forward Current Derating Curve

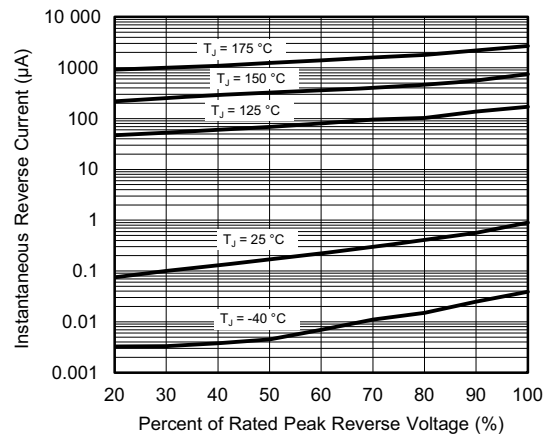


Fig. 4 - Typical Reverse Characteristics

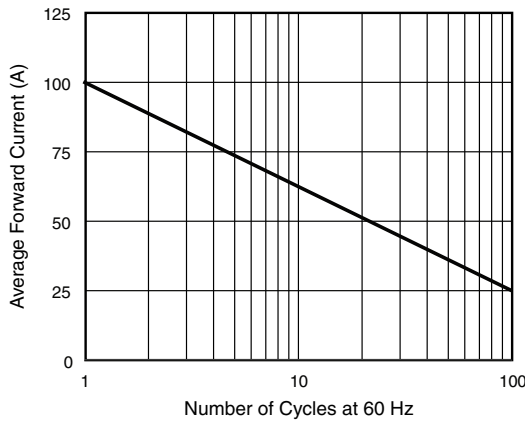


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

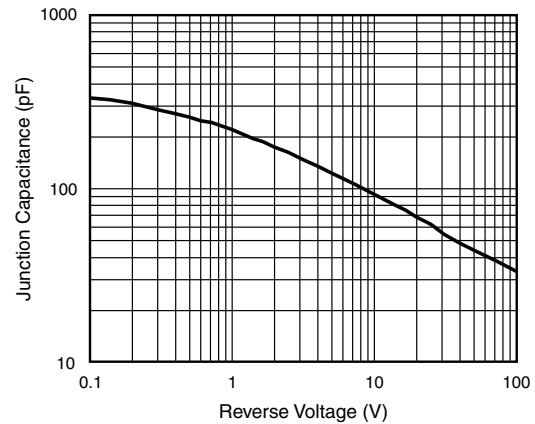


Fig. 5 - Typical Junction Capacitance

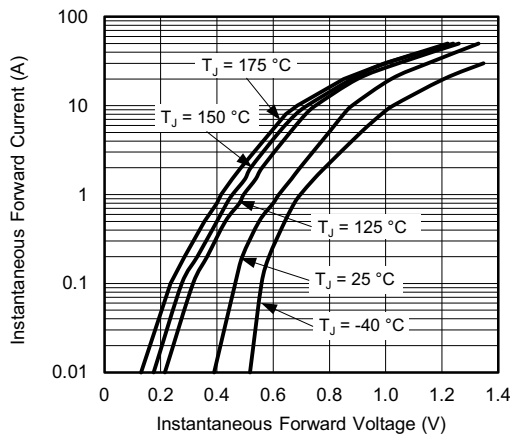


Fig. 3 - Typical Instantaneous Forward Characteristics

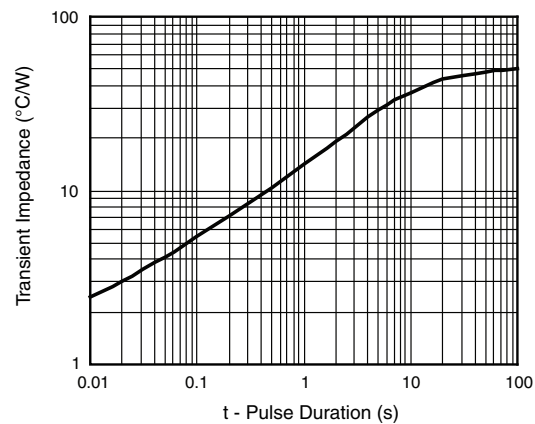
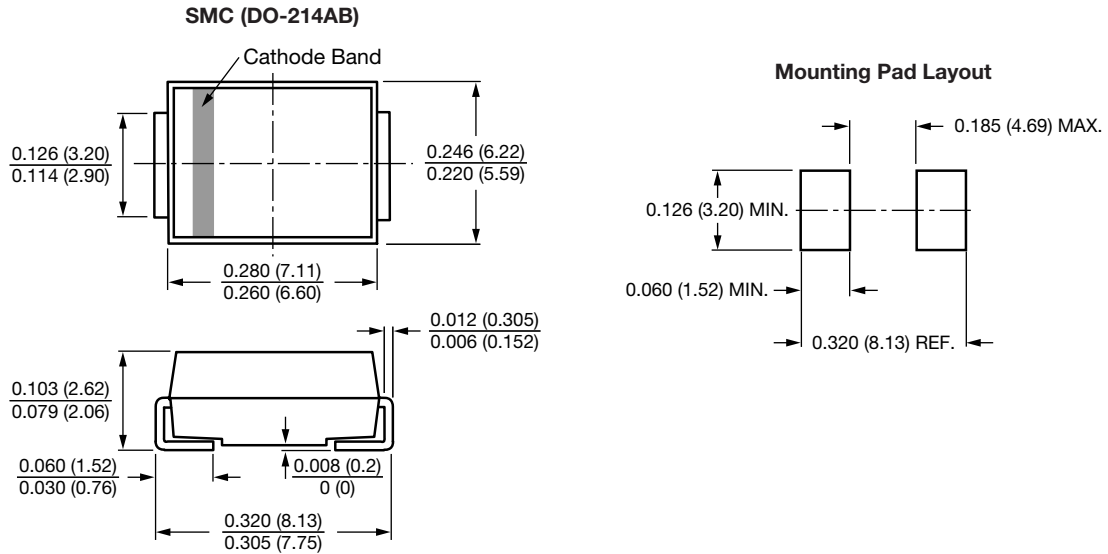


Fig. 6 - Typical Transient Thermal Impedance



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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