

High Voltage Surface Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-214AB (SMC)



RoHS
COMPLIANT

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

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

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 μ A
T_J max.	175 °C
Package	DO-214AB (SMC)
Diode variations	Single

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 $t_p = 2.0$ μ s, 1 kHz	I_{RRM}	1.0		A
Critical rate of rise of reverse voltage	dV/dt	10 000		V/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175		°C



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

Notes

- ⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle
- ⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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 ⁽¹⁾	$R_{\theta JA}$	50		

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	H	850	7" diameter plastic tape and reel
SS3H9HE3_A/I ⁽¹⁾	0.235	I	3500	13" diameter plastic tape and reel
SS3H9HE3_B/H ⁽¹⁾	0.235	H	850	7" diameter plastic tape and reel
SS3H9HE3_B/I ⁽¹⁾	0.235	I	3500	13" diameter plastic tape and reel

Note

- ⁽¹⁾ AEC-Q101 qualified

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

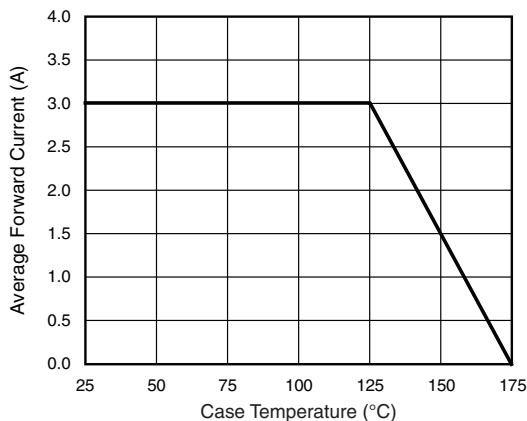


Fig. 1 - Forward Current Derating Curve

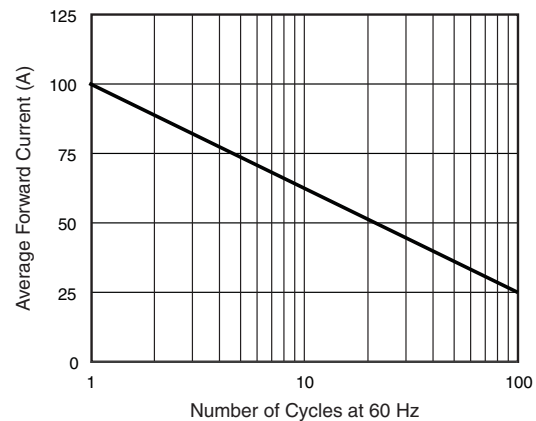


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

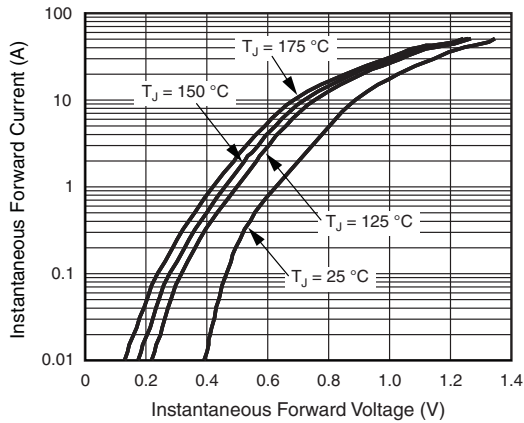


Fig. 3 - Typical Instantaneous Forward Characteristics

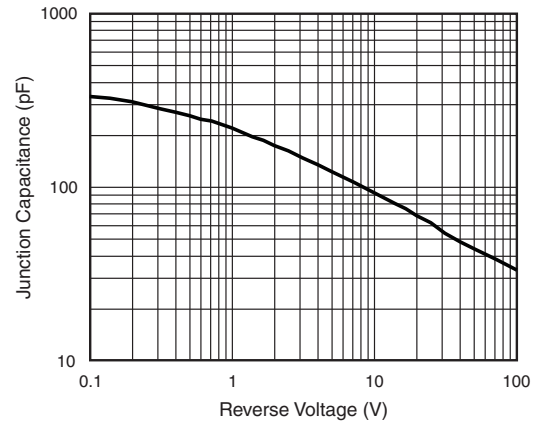


Fig. 5 - Typical Junction Capacitance

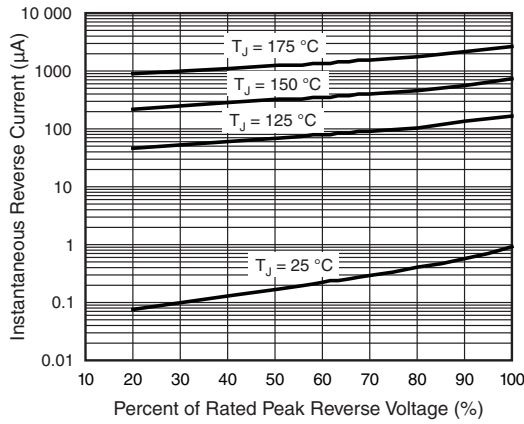


Fig. 4 - Typical Reverse Characteristics

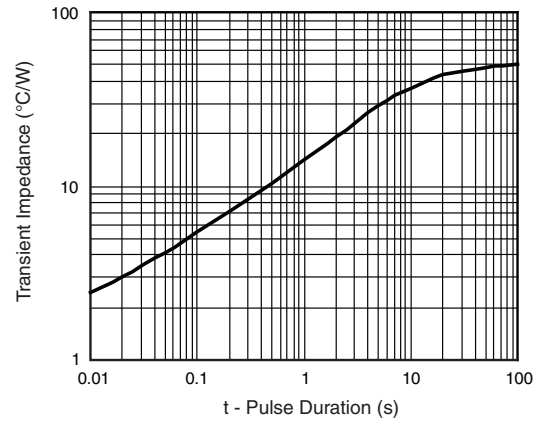
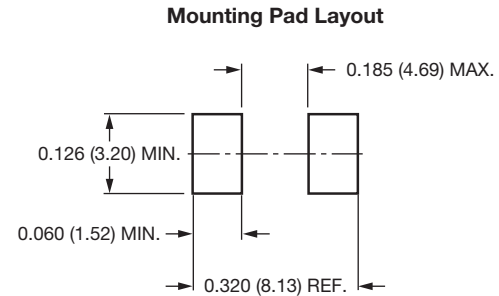
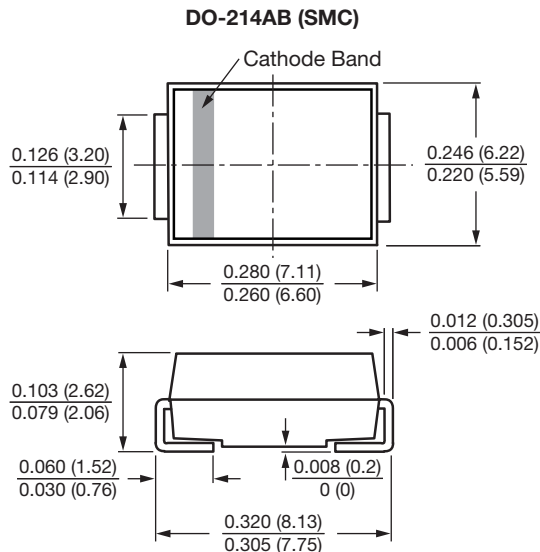


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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