



**THE DATASHEET OF
SS13HE3/5AT**



Surface-Mount Schottky Barrier Rectifier


SMA (DO-214AC)

Cathode Anode

LINKS TO ADDITIONAL RESOURCES



Design Tools



Related Documents



3D Models



Simulation Tools



SPICE Models



Application Notes



Technical Notes



Marking

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	20 V, 30 V, 40 V, 50 V, 60 V
I_{FSM}	40 A
V_F	0.50 V, 0.75 V
T_J max.	150 °C
Package	SMA (DO-214AC)
Circuit configuration	Single

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- 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 or P/NHM3
- 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: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified
 Base P/NHM3_X - halogen-free, 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, M3, HE3, and HM3 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	SS12	SS13	SS14	SS15	SS16	UNIT
Device marking code		S2	S3	S4	S5	S6	V
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	V
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	V
Maximum average forward rectified current at T_L (fig. 1)	$I_{F(AV)}$	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	40					A
Voltage rate of change (rated V_R)	dV/dt	10 000					V/ μ s
Operating junction temperature range	T_J	-65 to +150					°C
Storage temperature range	T_{STG}	-65 to +150					°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	SS12	SS13	SS14	SS15	SS16	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F^{(1)}$	0.50			0.75		V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	0.2					mA
	$T_A = 100\text{ }^\circ\text{C}$		6.0		5.0			

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	SS12	SS13	SS14	SS15	SS16	UNIT	
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	88						$^\circ\text{C/W}$
	$R_{\theta JL}$	28						

Note

- (1) PCB mounted with 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
SS16-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SS16-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SS16HE3_B/H ⁽¹⁾	0.064	H	1800	7" diameter plastic tape and reel
SS16HE3_B/I ⁽¹⁾	0.064	I	7500	13" diameter plastic tape and reel
SS16-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SS16-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SS16HM3_B/H ⁽¹⁾	0.064	H	1800	7" diameter plastic tape and reel
SS16HM3_B/I ⁽¹⁾	0.064	I	7500	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)

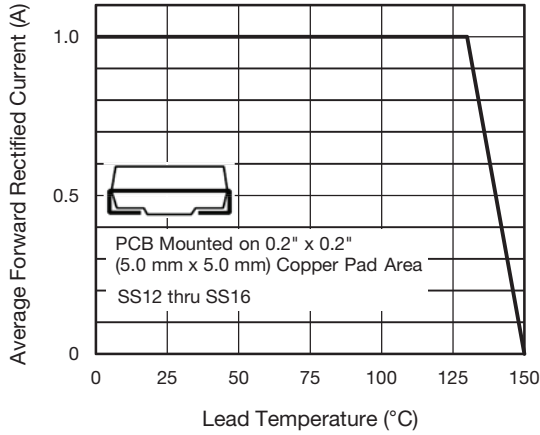


Fig. 1 - Forward Current Derating Curve

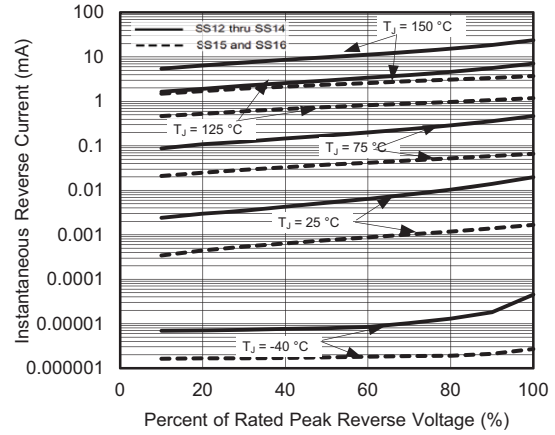


Fig. 4 - Typical Reverse Characteristics

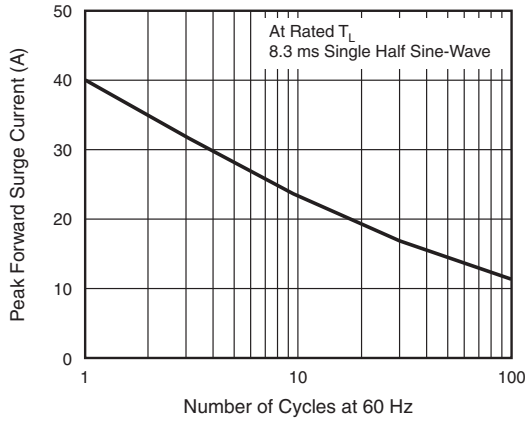


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

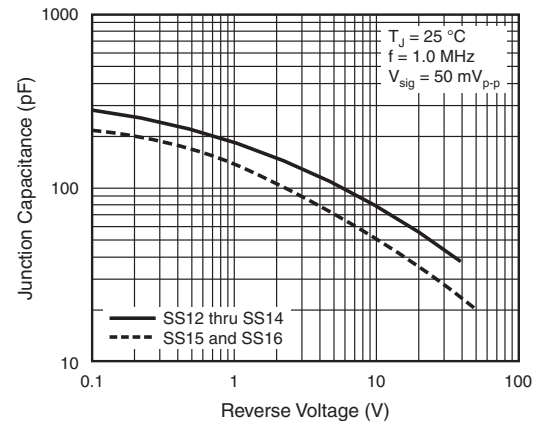


Fig. 5 - Typical Junction Capacitance

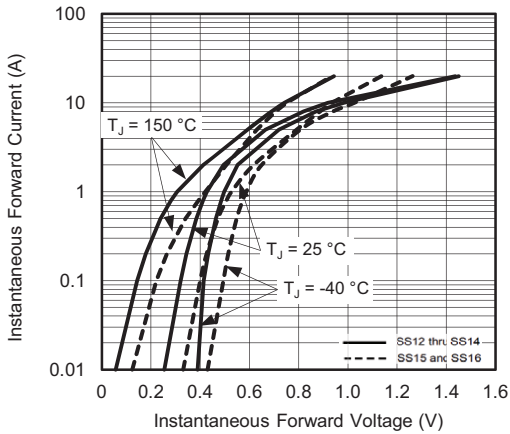


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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