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

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE Available

- 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 °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/µs
Operating junction temperature range	T_J	-65 to +150					°C
Storage temperature range	T_{STG}	-65 to +150					°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °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 °C	I_R (2)	0.2					mA
	T_A = 100 °C		6.0			5.0		

Notes

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

(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)							
PARAMETER	**SYMBOL**	**SS12**	**SS13**	**SS14**	**SS15**	**SS16**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$	88					°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

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

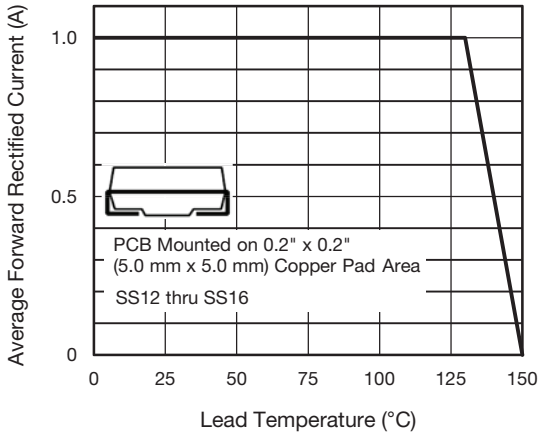

Fig. 1 - Forward Current Derating Curve

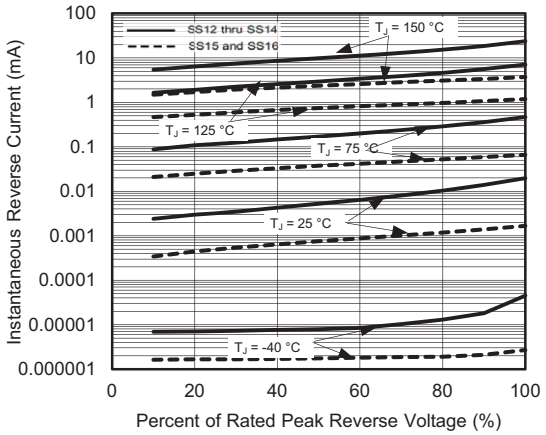

Fig. 4 - Typical Reverse Characteristics

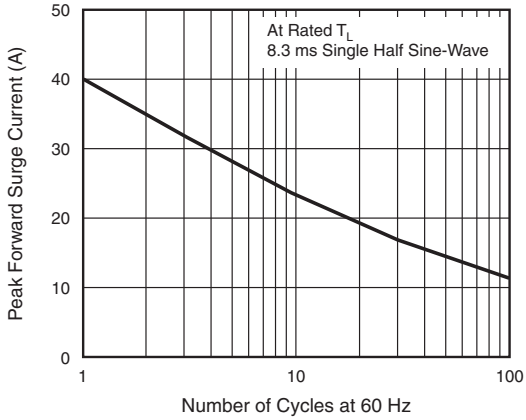

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

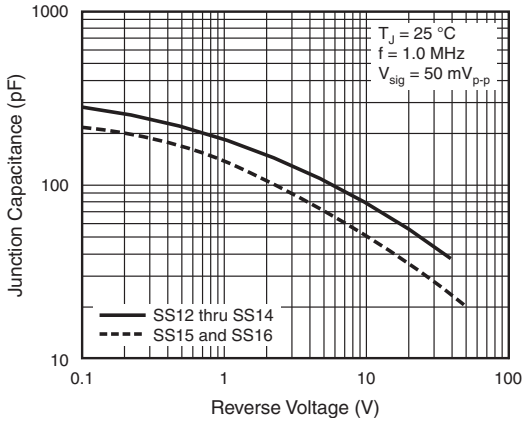

Fig. 5 - Typical Junction Capacitance

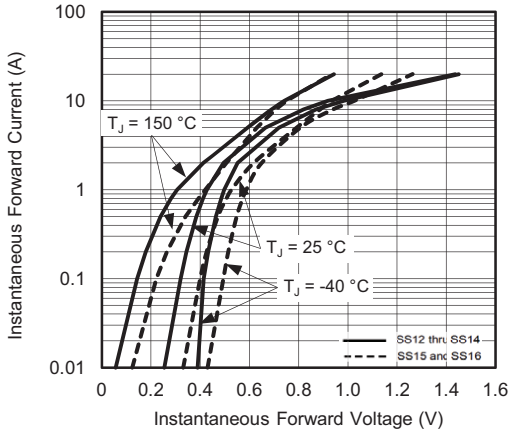

Fig. 3 - Typical Instantaneous Forward Characteristics

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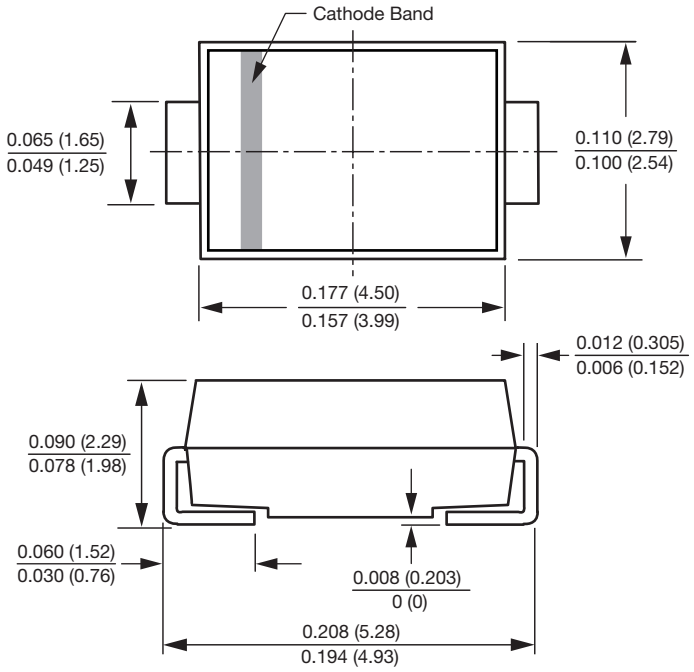
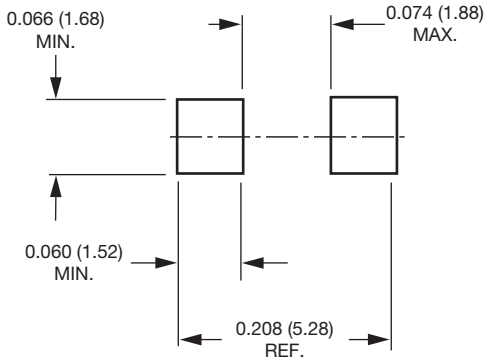
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)



Mounting Pad Layout



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