SS12, SS13, SS14, SS15, SS16

Vishay General Semiconductor

Surface Mount Schottky Barrier Rectifier



SMA (DO-214AC)

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 <u>www.vishay.com/doc?99912</u>

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			А		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	40			А		
Voltage rate of change (rated V _R)	dV/dt	10 000			V/µs		
Operating junction temperature range	TJ	-65 to +150			°C		
Storage temperature range	T _{STG}	-65 to +150 °C			°C		

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COMPLIANT

HALOGEN

FREE





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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	T _A = 25 °C	I _R ⁽²⁾			0.2		m/		
rated DC blocking voltage	T _A = 100 °C	'R \-/		6.0		5.	.0		

Notes

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

⁽²⁾ Pulse test: pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	SYMBOL	SS12	SS13	SS14	SS15	SS16	UNIT
Typical thermal resistance ⁽¹⁾	R _{0JA}	88					°C/W
	$R_{\theta JL}$	28					0/10

Note

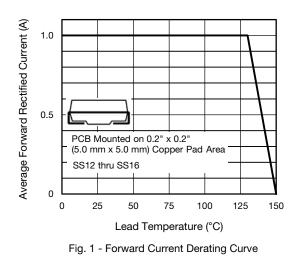
⁽¹⁾ PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

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	н	1800	7" diameter plastic tape and reel				
SS16HE3_B/I (1)	0.064	l	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	Н	1800	7" diameter plastic tape and reel				
SS16HM3_B/I ⁽¹⁾	0.064		7500	13" diameter plastic tape and reel				

Note

⁽¹⁾ AEC-Q101 qualified

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



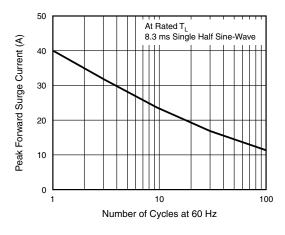


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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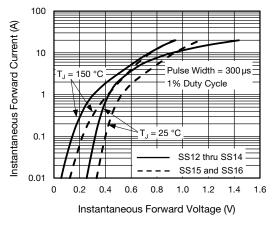


Fig. 3 - Typical Instantaneous Forward Characteristics

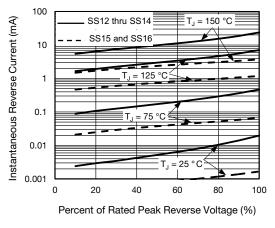


Fig. 4 - Typical Reverse Characteristics



SMA (DO-214AC) Cathode Band **Mounting Pad Layout** 0.074 (1.88) 0.066 (1.68) MIN. MAX. 0.065 (1.65) 0.110 (2.79) 0.049 (1.25) 0 100 (2 54) 4 0.177 (4.50) 0.157 (3.99) 0.060 (1.52) 0.012 (0.305) 0.006 (0.152) MIN. 0.208 (5.28) 0.090 (2.29) REF 0.078 (1.98) 0.060 (1.52) 0.008 (0.203) 0 (0) 0.208 (5.28) 0.194 (4.93) 3

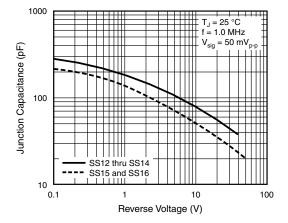


Fig. 5 - Typical Junction Capacitance

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