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Vishay General Semiconductor

Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS				
I _{F(AV)}	1.5 A			
V_{RRM}	90 V			
I _{FSM}	40 A			
V _F	0.75 V			
T _J max.	150 °C			
Package	DO-214AC (SMA)			
Diode variations	Single			

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Manualana and talahan Iaaaa
- Very low switching losses
- 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 <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, oring diode, DC/DC converters, and reverse battery protection.

MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant and AEC-Q101 qualified 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 cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	BYS11-90	UNIT
Device marking code			BYS109	
Maximum repetitive peak reverse voltage		V_{RRM}	90	V
Maximum average forward rectified current		I _{F(AV)}	1.5	А
Peak forward surge current single half sine-wave	8.3 ms	,	40	^
superimposed on rated load	10 ms	IFSM	30	A
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs
Junction and storage temperature range		T _J , T _{STG}	-55 to +150	°C



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		TEST CONDITIONS		SYMBOL	BYS11-90	UNIT
Maximum instantaneous forward voltage (1)	1.0 A		1.0 A		V _F	750	mV
Maximum DC reverse current (1)	V _{RRM}	T _J = 25 °C	I _R	100	μA		
Maximum DC reverse current (**)		T _J = 100 °C		1	mA		

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SYMBOL BYS11-90		
Maximum thermal resistance, junction to lead		25	°C/W	
	R _{0JA} (1)	150		
Maximum thermal resistance, junction to ambient	R _{0JA} (2)	125	°C/W	
		100		

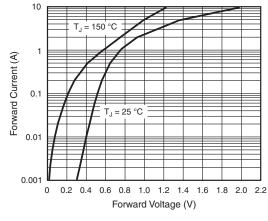
Notes

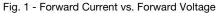
- (1) Mounted on epoxy-glass hard tissue
- (2) Mounted on epoxy-glass hard tissue, 50 mm² 35 μm Cu
- (3) Mounted on Al-oxide-ceramic (Al₂O₃), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
BYS11-90-E3/TR	0.064	TR	1800	7" diameter plastic tape and reel	
BYS11-90-E3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel	
BYS11-90HE3/TR (1)	0.064	TR	1800	7" diameter plastic tape and reel	
BYS11-90HE3/TR3 (1)	0.064	TR3	7500	13" diameter plastic tape and reel	
BYS11-90HE3_A/H (1)	0.064	Н	1800	7" diameter plastic tape and reel	
BYS11-90HE3_A/I (1)	0.064	I	7500	13" diameter plastic tape and reel	

Note

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





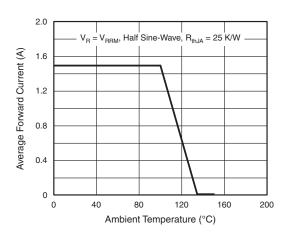


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

⁽¹⁾ AEC-Q101 qualified



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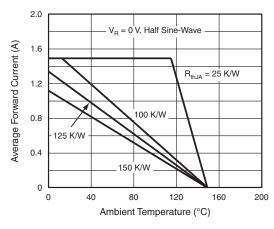


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

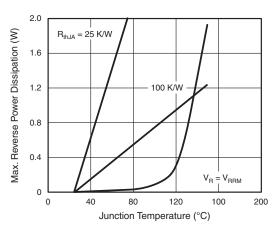


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

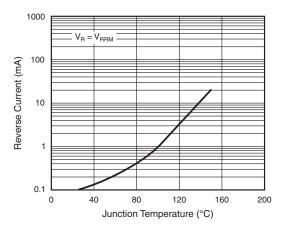


Fig. 4 - Reverse Current vs. Junction Temperature

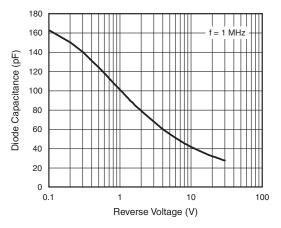
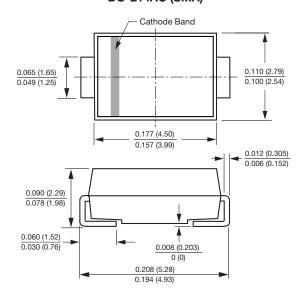
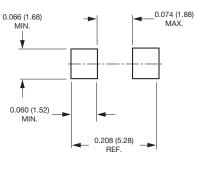


Fig. 6 - Diode Capacitance vs. Reverse Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-214AC (SMA)



Mounting Pad Layout





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