

Surface Mount Schottky Barrier Rectifier


SMA (DO-214AC)

RoHS
 COMPLIANT
 HALOGEN
FREE

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Very low switching losses
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

DESIGN SUPPORT TOOLS AVAILABLE



3D Models

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	SMA (DO-214AC)
Circuit configuration	Single

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 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	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	A
Peak forward surge current single half sine-wave superimposed on rated load	8.3 ms	I_{FSM}	40	A
	10 ms		30	
Voltage rate of change (rated V_R)		dV/dt	10 000	V/ μ s
Junction and storage temperature range		T_J, T_{STG}	-55 to +150	°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	TEST CONDITIONS	SYMBOL	BYS11-90	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F^{(1)}$	750	mV
Maximum DC reverse current	V_{RRM}	$T_J = 25\text{ }^\circ\text{C}$	100	μA
		$T_J = 100\text{ }^\circ\text{C}$	1	mA

Note

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BYS11-90	UNIT
Maximum thermal resistance, junction to lead	$R_{\theta JL}$	25	$^\circ\text{C/W}$
Maximum thermal resistance, junction to ambient	$R_{\theta JA}^{(1)}$	150	$^\circ\text{C/W}$
	$R_{\theta JA}^{(2)}$	125	
	$R_{\theta JA}^{(3)}$	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-M3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYS11-90-M3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel

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

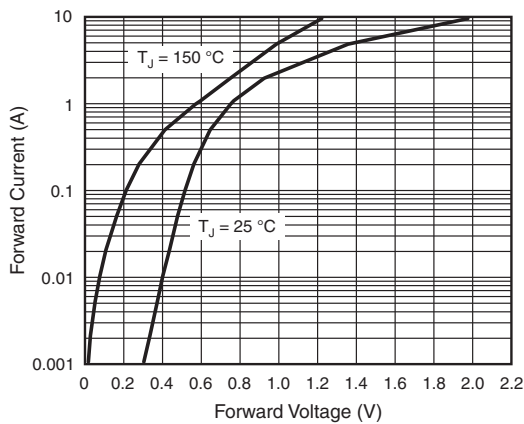


Fig. 1 - Forward Current vs. Forward Voltage

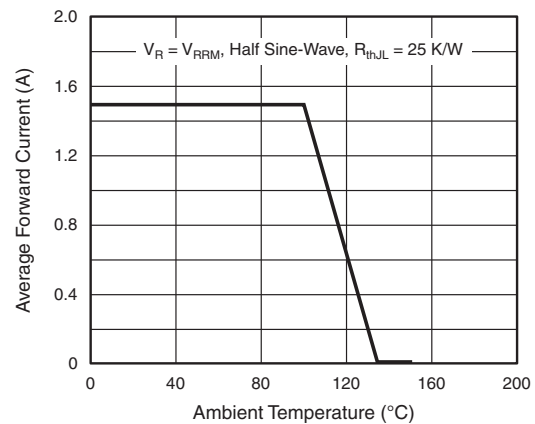


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

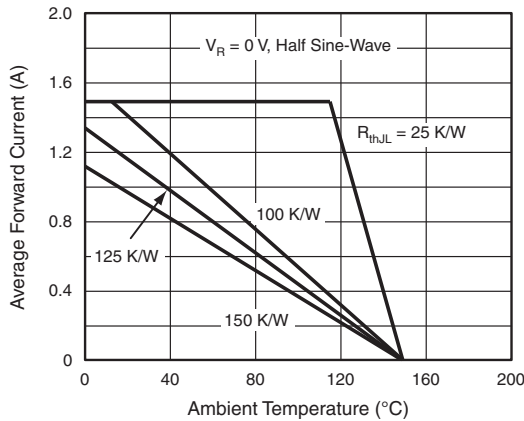


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

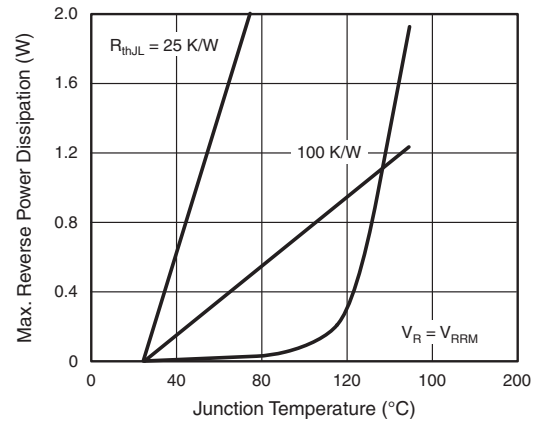


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

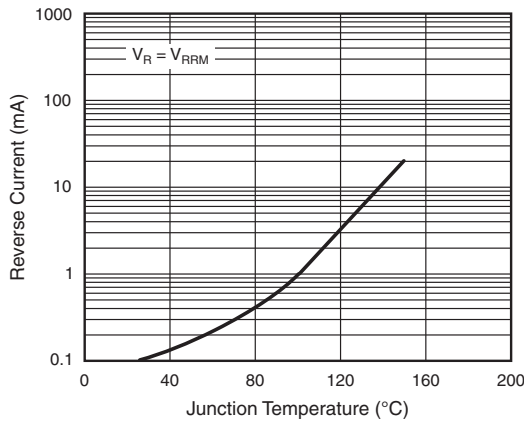


Fig. 4 - Reverse Current vs. Junction Temperature

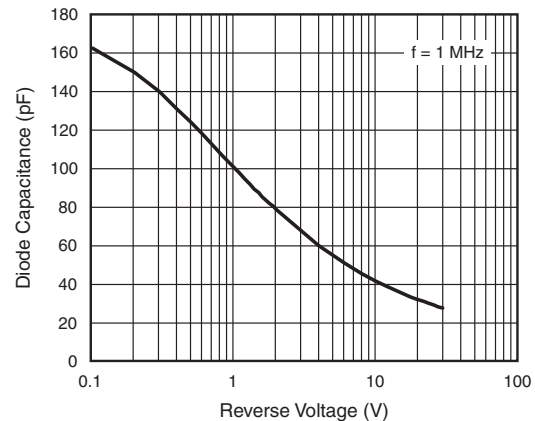
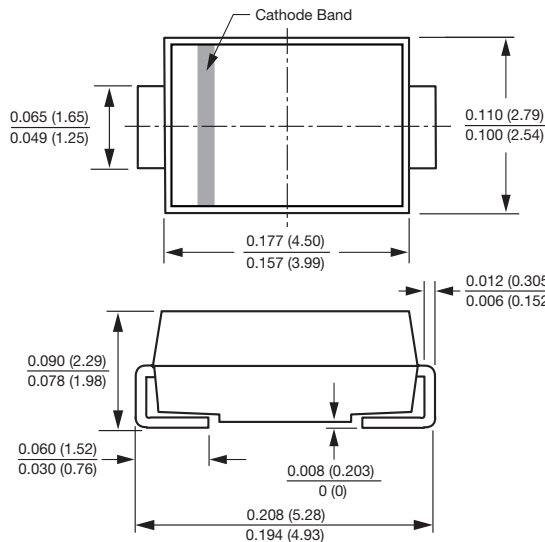


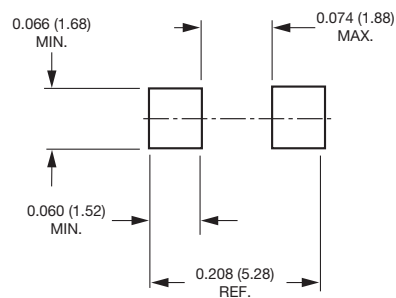
Fig. 6 - Diode Capacitance vs. Reverse Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)



Mounting Pad Layout





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