Surface Mount Schottky Barrier Rectifier

DO-214AC (SMA)

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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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	BYS12-90	UNIT
Device marking code			BYS 209	
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 10 ms	I_{FSM}	40 30	A
Voltage rate of change (rated V_R)		dV/dt	10000	V/µs
Junction and storage temperature range		T_J, T_{STG}	- 55 to + 150	°C

For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**BYS12-90**	**UNIT**
Maximum instantaneous forward voltage (1)	I_F = 1.0 A I_F = 15 mA	T_J = 25 °C	V_F	750 360	mV
Maximum DC reverse current (1)	V_{RRM}	T_J = 25 °C T_J = 100 °C	I_R	100 1	µA mA

Note:

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BYS12-90**	**UNIT**
Maximum thermal resistance - junction lead	$R_{\theta JL}$	25	°C/W
Maximum thermal resistance - junction ambient	$R_{\theta JA}$	150 (1) 125 (2) 100 (3)	°C/W

Notes:

(1) Mounted on epoxy-glass hard tissue

(2) Mounted on epoxy-glass hard tissue, 50 mm^2 35 µm Cu

(3) Mounted on Al-oxide-ceramic (Al_2O_3), 50 mm^2 35 µm Cu

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
BYS12-90-E3/TR	0.064	61T	1800	7" diameter plastic tape and reel
BYS12-90-E3/TR3	0.064	5AT	7500	13" diameter plastic tape and reel
BYS12-90HE3/TR (1)	0.064	61T	1800	7" diameter plastic tape and reel
BYS12-90HE3/TR3 (1)	0.064	5AT	7500	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

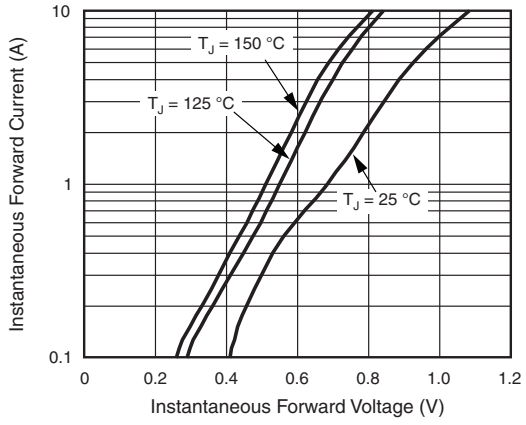

Figure 1. Forward Current vs. Forward Voltage

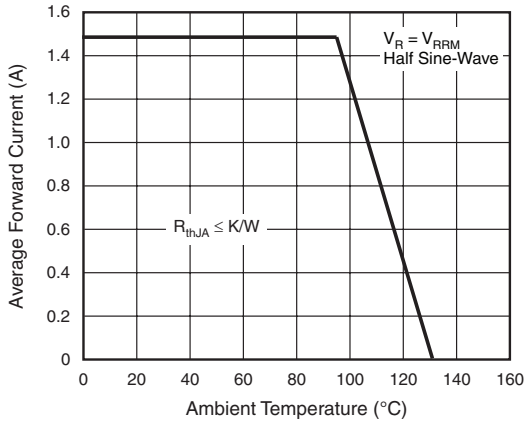

Figure 2. Max. Average Forward Current vs. Ambient Temperature

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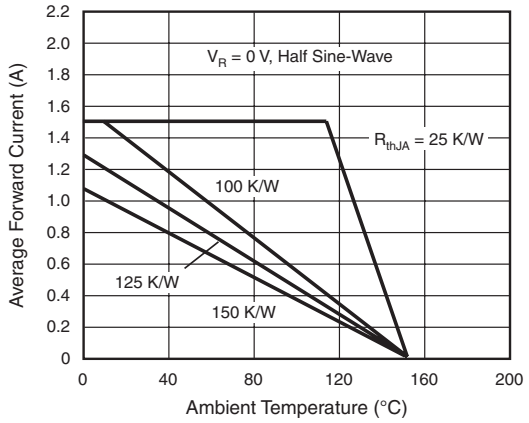


Figure 3. Max. Average Forward Current vs. Ambient Temperature

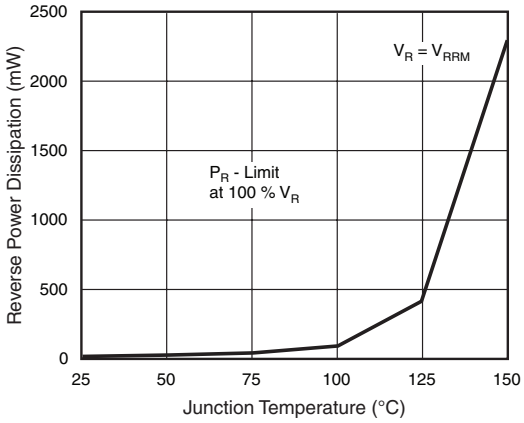


Figure 5. Max. Reverse Power Dissipation vs. Junction Temperature

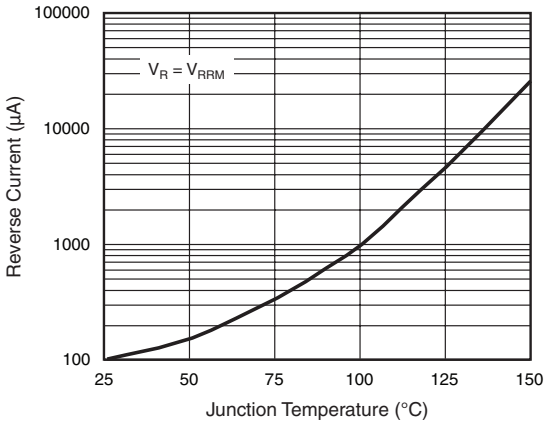


Figure 4. Reverse Current vs. Junction Temperature

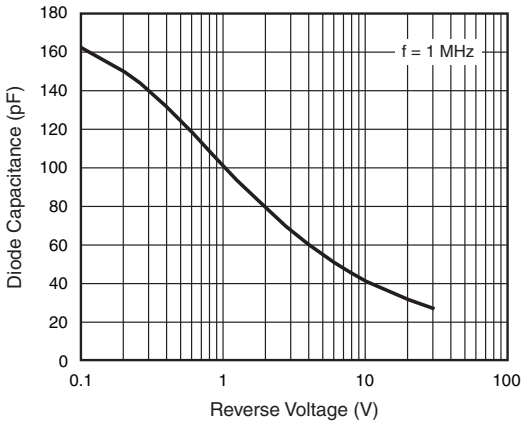
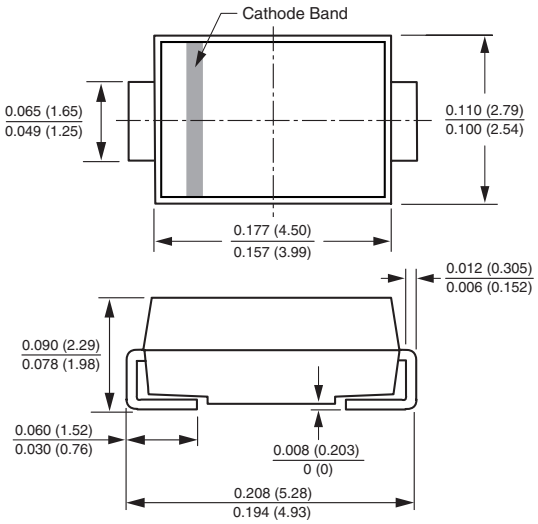


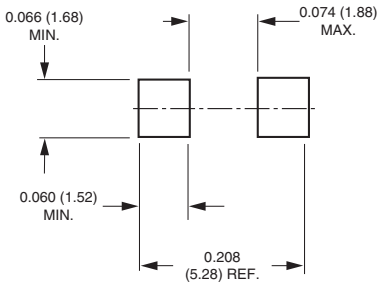
Figure 6. Diode Capacitance vs. Reverse Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout



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