

## 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
$T_J \text{ max.}$	150 °C

### 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

### 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 ( $T_A = 25\text{ °C}$ 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	$I_{FSM}$	40 30	A
		8.3 ms 10 ms	
Voltage rate of change (rated $V_R$ )	dV/dt	10000	V/ $\mu$ 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	BYS12-90	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	$I_F = 1.0\text{ A}$ $I_F = 15\text{ mA}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F$	750 360	mV
Maximum DC reverse current <sup>(1)</sup>	$V_{RRM}$	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$I_R$	100 1	$\mu\text{A}$ mA

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

**Notes:**

- (1) Mounted on epoxy-glass hard tissue
- (2) Mounted on epoxy-glass hard tissue, 50 mm<sup>2</sup> 35  $\mu\text{m}$  Cu
- (3) Mounted on Al-oxide-ceramic (Al<sub>2</sub>O<sub>3</sub>), 50 mm<sup>2</sup> 35  $\mu\text{m}$  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 <sup>(1)</sup>	0.064	61T	1800	7" diameter plastic tape and reel
BYS12-90HE3/TR3 <sup>(1)</sup>	0.064	5AT	7500	13" diameter plastic tape and reel

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

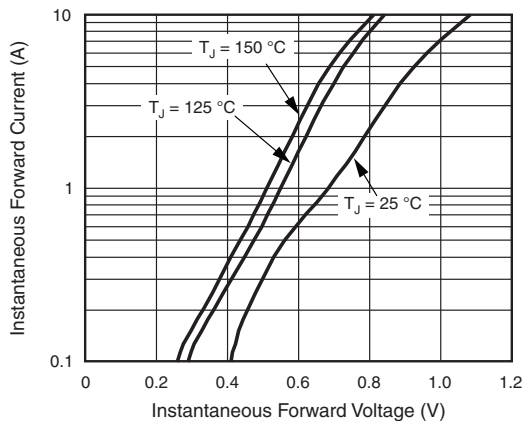


Figure 1. Forward Current vs. Forward Voltage

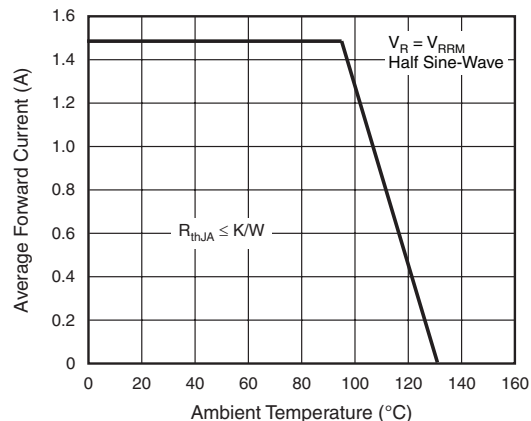


Figure 2. Max. Average Forward Current vs. Ambient Temperature

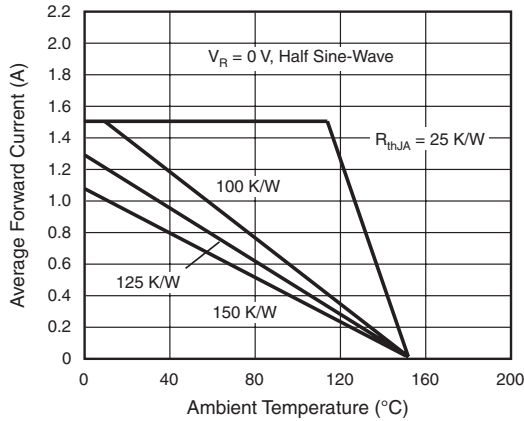


Figure 3. Max. Average Forward Current vs. Ambient Temperature

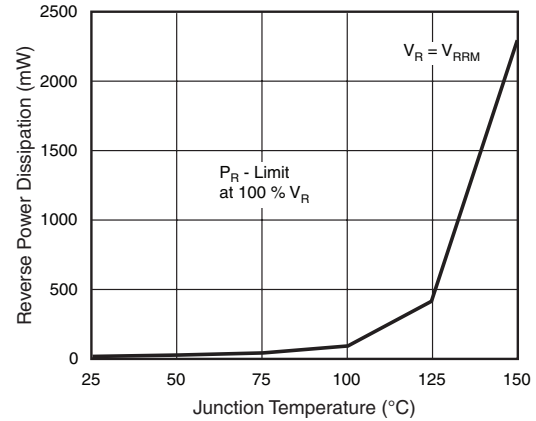


Figure 5. Max. Reverse Power Dissipation vs. Junction Temperature

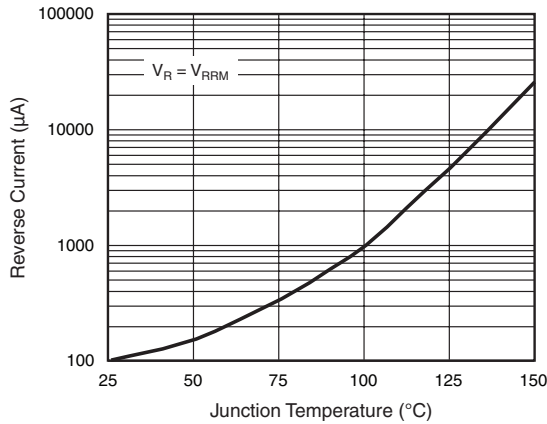


Figure 4. Reverse Current vs. Junction Temperature

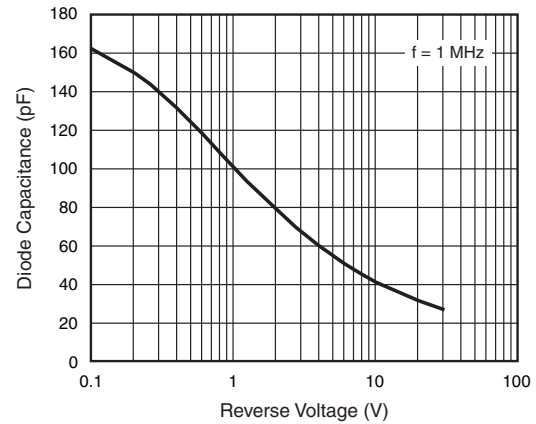
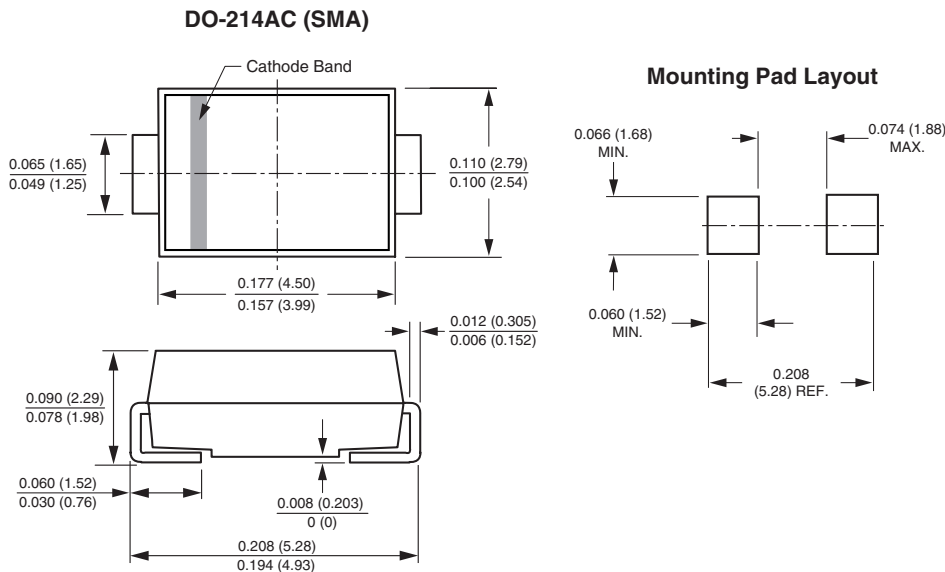


Figure 6. Diode Capacitance vs. Reverse Voltage

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





## Disclaimer

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