

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-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



MAJOR RATINGS AND 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, free-wheeling diodes, oring 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-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	BYS11-90	UNIT
Device marking code		BYS 109	
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
Voltage rate of change (rated V_R)	dv/dt	10000	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⁾	at 1.0 A	V_F	750	mV
Maximum DC reverse current ⁽¹⁾	at V_{RRM} $T_j = 25\text{ }^\circ\text{C}$ $T_j = 100\text{ }^\circ\text{C}$	I_R	100 1	μA 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 lead	$R_{\theta JL}$	25	$^\circ\text{C/W}$
Maximum thermal resistance - junction ambient	$R_{\theta JA}$	150 ⁽¹⁾ 125 ⁽²⁾ 100 ⁽³⁾	$^\circ\text{C/W}$

Note:

- (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 (Al_2O_3), 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 & Reel
BYS11-90-E3/TR3	0.064	TR3	7500	13" Diameter Plastic Tape & Reel
BYS11-90HE3/TR ⁽¹⁾	0.064	TR	1800	7" Diameter Plastic Tape & Reel
BYS11-90HE3/TR3 ⁽¹⁾	0.064	TR3	7500	13" Diameter Plastic Tape & Reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

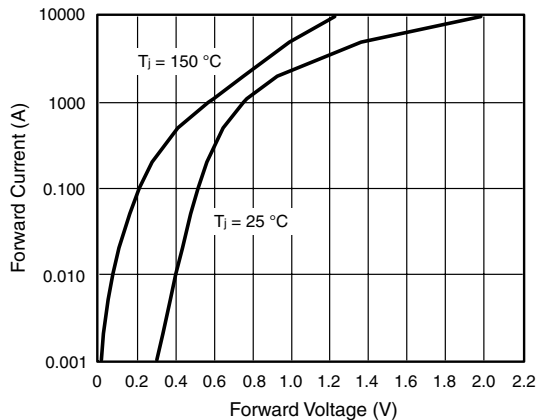


Figure 1. Forward Current vs. Forward Voltage

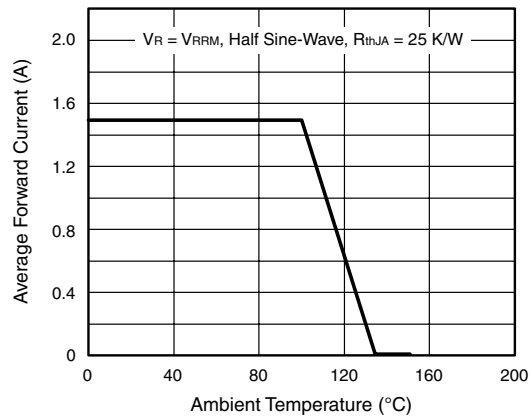


Figure 2. Max. Average Forward Current vs. Ambient Temperature

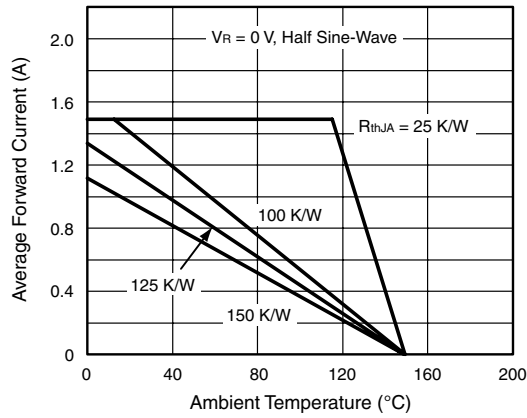


Figure 3. Max. Average Forward Current vs. Ambient Temperature

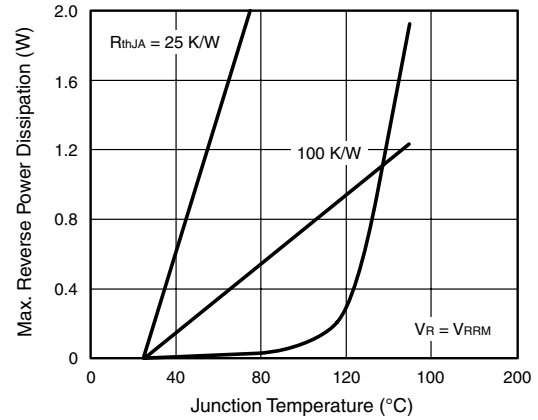


Figure 5. Max Reverse Power Dissipation vs. Junction Temperature

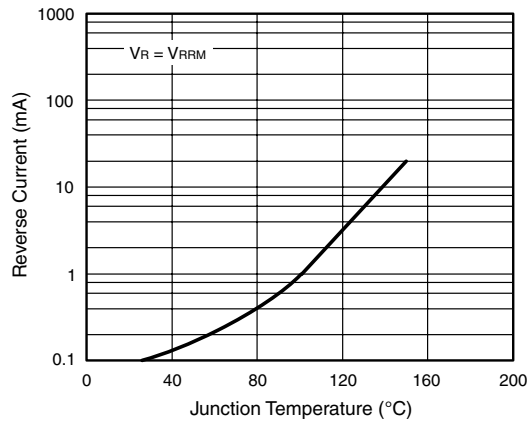


Figure 4. Reverse Current vs. Junction Temperature

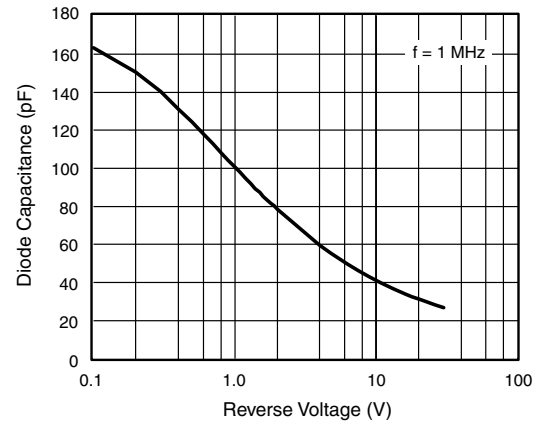
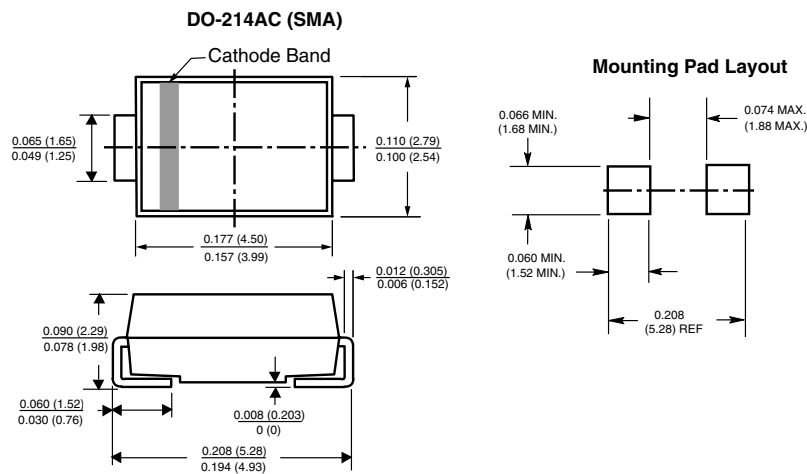


Figure 6. Diode Capacitance vs. Reverse Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)




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