

## 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
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### 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

### 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, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix

meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

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



**ELECTRICAL CHARACTERISTICS** (TA = 25 °C unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	BYS11-90	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	1.0 A	V <sub>F</sub>	750	mV
Maximum DC reverse current <sup>(1)</sup>	V <sub>RRM</sub>	T <sub>J</sub> = 25 °C	100	μA
		T <sub>J</sub> = 100 °C	1	mA

**Note**

<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle

**THERMAL CHARACTERISTICS** (TA = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	BYS11-90	UNIT
Maximum thermal resistance, junction to lead	R <sub>θJL</sub>	25	°C/W
Maximum thermal resistance, junction to ambient	R <sub>θJA</sub> <sup>(1)</sup>	150	°C/W
	R <sub>θJA</sub> <sup>(2)</sup>	125	
	R <sub>θJA</sub> <sup>(3)</sup>	100	

**Notes**

- <sup>(1)</sup> Mounted on epoxy-glass hard tissue
- <sup>(2)</sup> Mounted on epoxy-glass hard tissue, 50 mm<sup>2</sup> 35 μm Cu
- <sup>(3)</sup> Mounted on Al-oxide-ceramic (Al<sub>2</sub>O<sub>3</sub>), 50 mm<sup>2</sup> 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 <sup>(1)</sup>	0.064	TR	1800	7" diameter plastic tape and reel
BYS11-90HE3/TR3 <sup>(1)</sup>	0.064	TR3	7500	13" diameter plastic tape and reel

**Note**

<sup>(1)</sup> AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

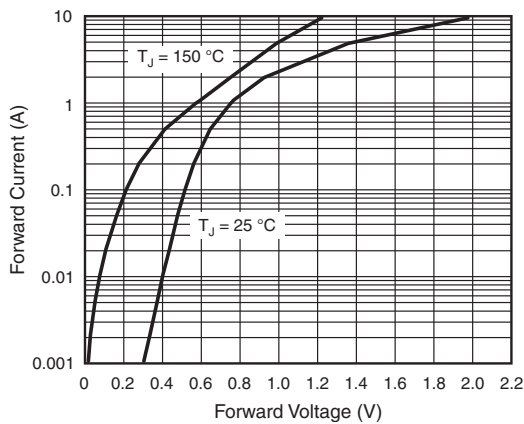


Fig. 1 - Forward Current vs. Forward Voltage

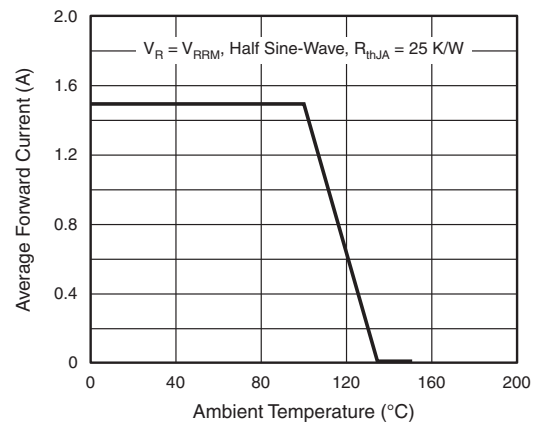


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

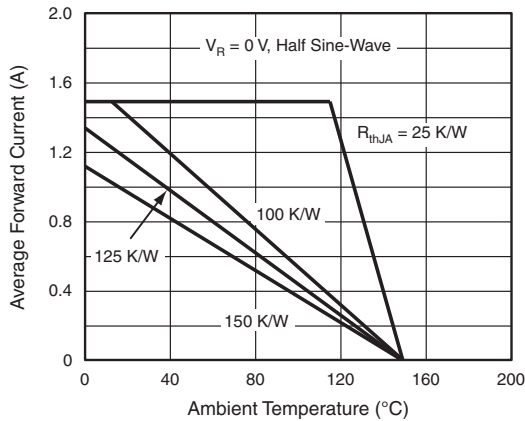


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

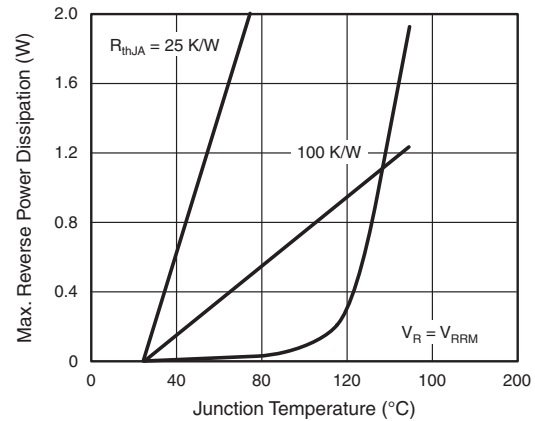


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

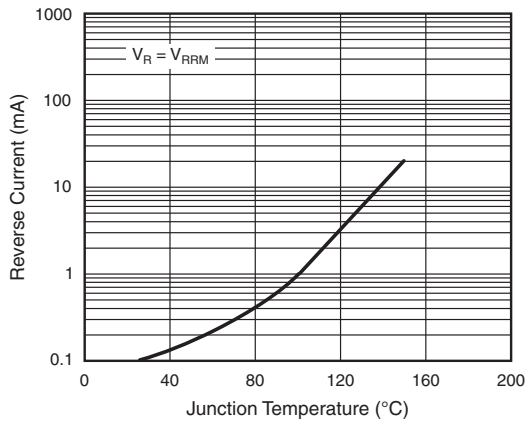


Fig. 4 - Reverse Current vs. Junction Temperature

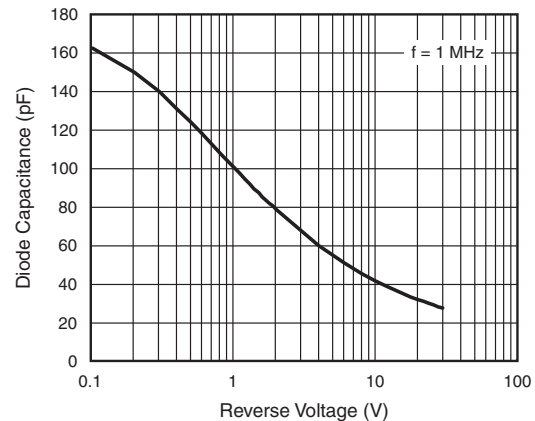
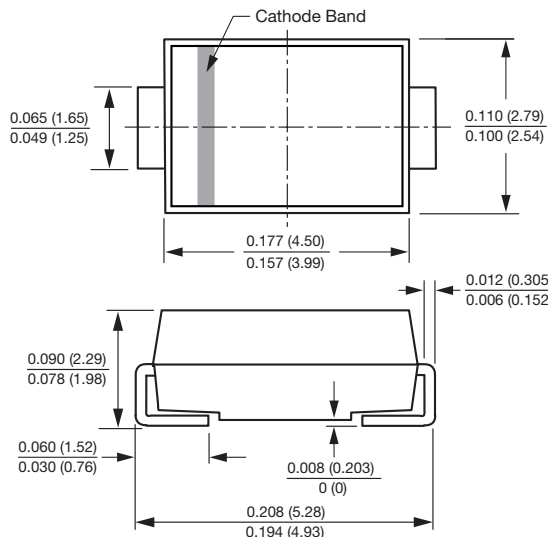


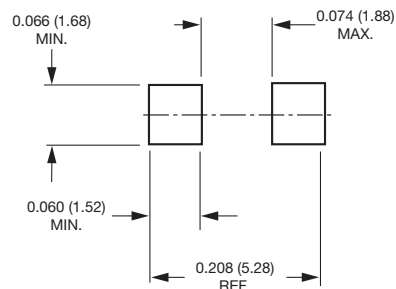
Fig. 6 - Diode Capacitance vs. Reverse Voltage

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

**DO-214AC (SMA)**



**Mounting Pad Layout**





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