

## Surface Mount Schottky Barrier Rectifier

### Major Ratings and Characteristics

$I_{F(AV)}$	1.5 A
$V_{RRM}$	90 V
$I_{FSM}$	40 A
$V_F$	0.75 V
$T_j \text{ max.}$	150 °C



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
- Solder Dip 260 °C, 40 seconds



### 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

### Typical Applications

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

### Maximum Ratings

$T_A = 25\text{ °C}$  unless otherwise specified

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
		at 8.3 ms at 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 specified

Parameter	Test condition	Symbol	BYS11-90	Unit
Maximum instantaneous forward voltage	at 1.0 A <sup>(1)</sup>	$V_F$	750	mV
Maximum DC reverse current	at $V_{RRM}$ <sup>(1)</sup> $T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$I_R$	100 1	$\mu\text{A}$ mA

Notes:

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

### Thermal Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

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 <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 ( $\text{Al}_2\text{O}_3$ ), 50 mm<sup>2</sup> 35  $\mu\text{m}$  Cu

### Ratings and Characteristics Curves

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

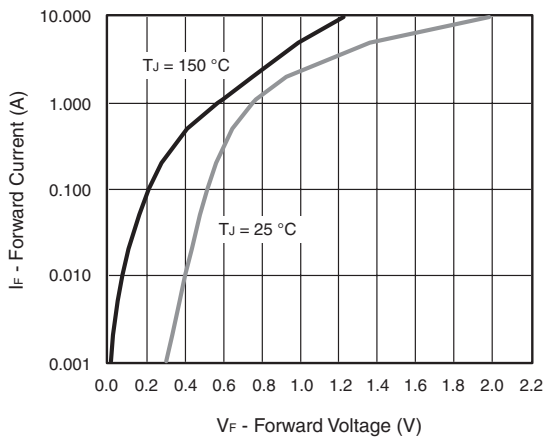


Figure 1. Forward Current vs. Forward Voltage

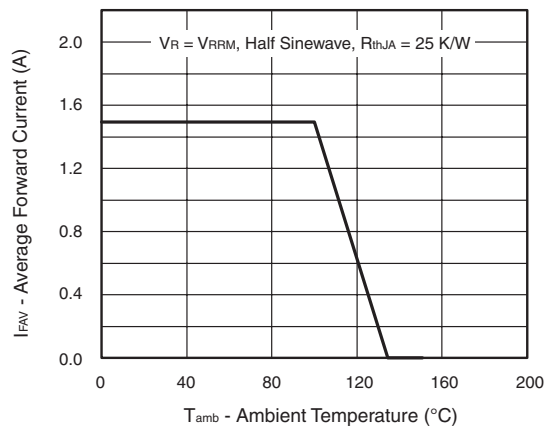


Figure 2. Max. Average Forward Current vs. Ambient Temperature

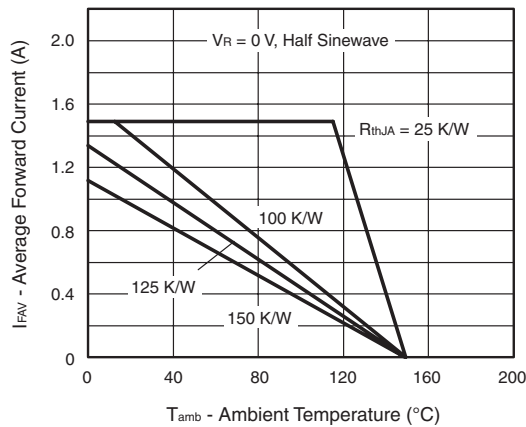


Figure 3. Max. Average Forward Current vs. Ambient Temperature

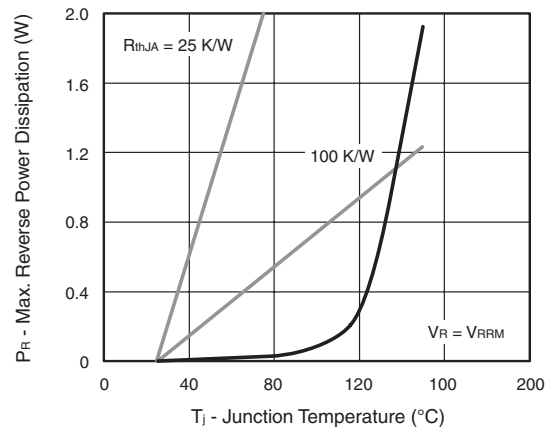


Figure 5. Max Reverse Power Dissipation vs. Junction Temperature

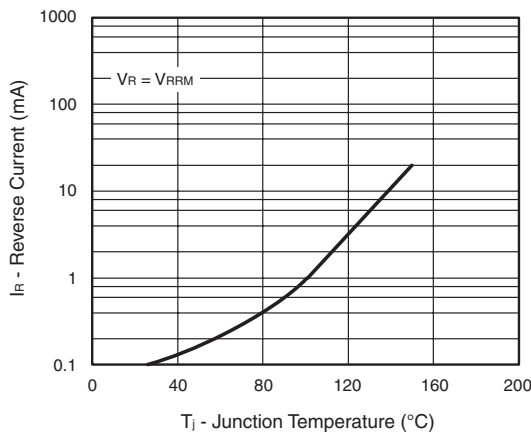


Figure 4. Reverse Current vs. Junction Temperature

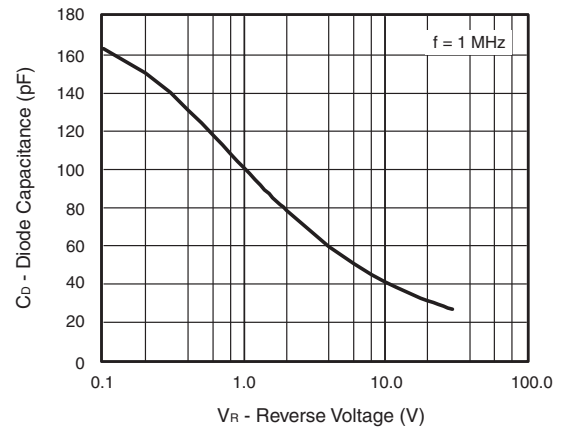
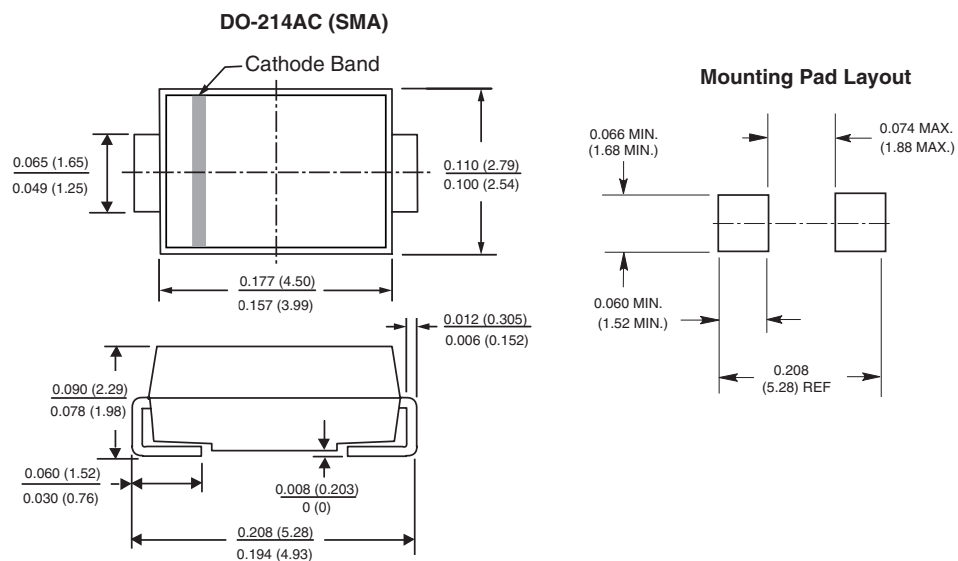


Figure 6. Diode Capacitance vs. Reverse Voltage

### Package outline dimensions in inches (millimeters)





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