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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}	25 V to 45 V
I_{FSM}	40 A
V_F	0.50 V
T_J max.	150 °C

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

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	BYS10-25	BYS10-35	BYS10-45	UNIT
Device marking code		BYS 025	BYS 035	BYS 045	
Maximum repetitive peak reverse voltage	V_{RRM}	25	35	45	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
Junction and storage temperature range	T_J, T_{STG}	- 65 to + 150			°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	BYS10-25	BYS10-35	BYS10-45	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	1.0 A		V_F	500			mV
Maximum DC reverse current ⁽¹⁾	V_{RRM}	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	I_R		500 10		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	BYS10-25	BYS10-35	BYS10-45	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⁾		$^\circ\text{C/W}$	

Notes:

- (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 (Al₂O₃), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BYS10-45-E3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYS10-45-E3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel
BYS10-45HE3/TR ⁽¹⁾	0.064	TR	1800	7" diameter plastic tape and reel
BYS10-45HE3/TR3 ⁽¹⁾	0.064	TR3	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)

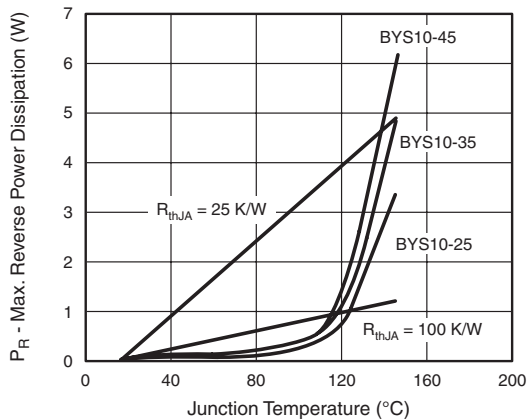


Figure 1. Max. Reverse Power Dissipation vs. Junction Temperature

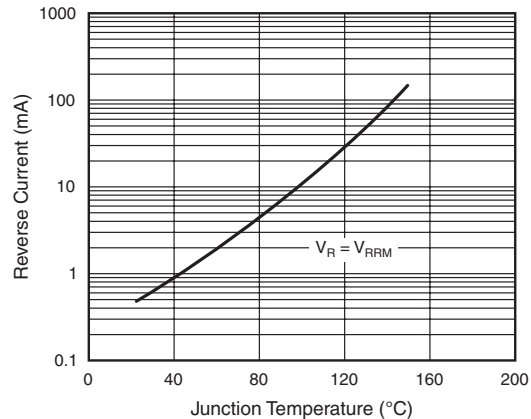


Figure 2. Max. Reverse Current vs. Junction Temperature

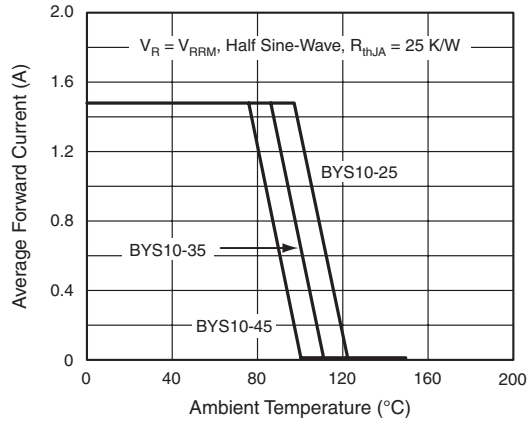


Figure 3. Max. Average Forward Current vs. Ambient Temperature

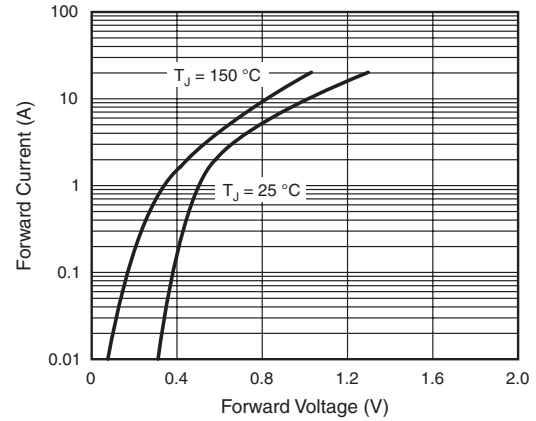


Figure 5. Max. Forward Current vs. Forward Voltage

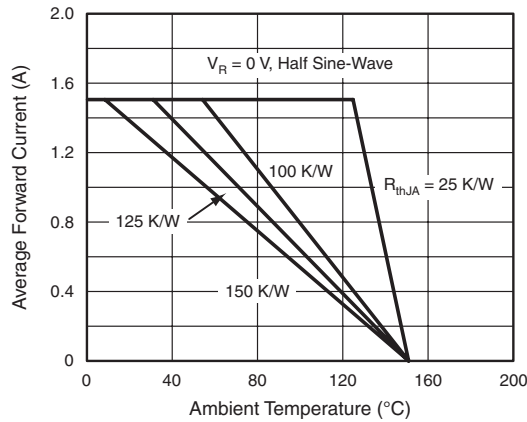


Figure 4. Max. Average Forward Current vs. Ambient Temperature

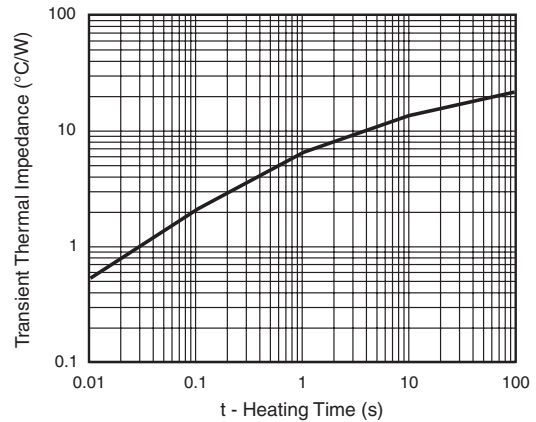
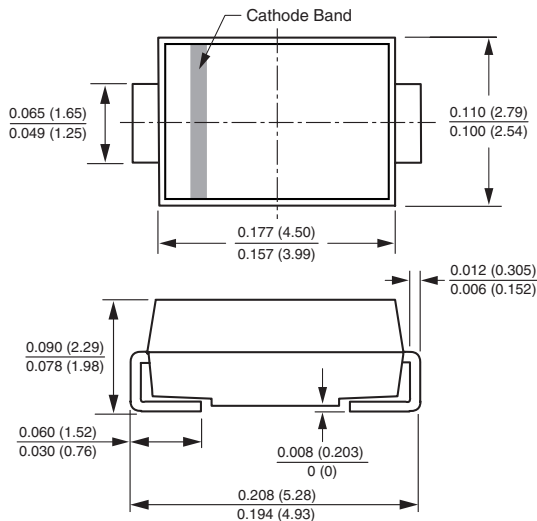


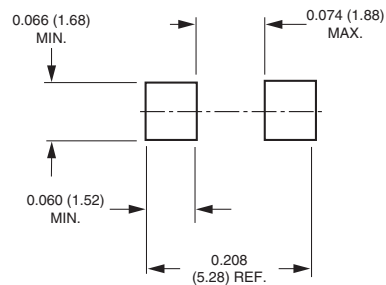
Figure 6. Diode Capacitance vs. Reverse Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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