

## Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	25 V to 45 V
$I_{FSM}$	40 A
$V_F$	0.50 V
$T_J \text{ max.}$	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
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Find out more about Vishay's Automotive Grade Product requirements at: [www.vishay.com/applications](http://www.vishay.com/applications)



RoHS  
COMPLIANT

### 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)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Base P/NHE3 - RoHS compliant, automotive grade

**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 ( $T_A = 25\text{ °C}$ 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	8.3 ms	40			A
	10 ms				
Junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 150			°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	BYS10-25	BYS10-35	BYS10-45	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	1.0 A		V <sub>F</sub>	500			mV
Maximum DC reverse current <sup>(1)</sup>	V <sub>RRM</sub>	T <sub>J</sub> = 25 °C	I <sub>R</sub>	500			μA
		T <sub>J</sub> = 100 °C		10			mA

**Note**

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	BYS10-25	BYS10-35	BYS10-45	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
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 <sup>(1)</sup>	0.064	TR	1800	7" diameter plastic tape and reel
BYS10-45HE3/TR3 <sup>(1)</sup>	0.064	TR3	7500	13" diameter plastic tape and reel

**Note**

<sup>(1)</sup> Automotive grade

## RATINGS AND CHARACTERISTICS CURVES

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

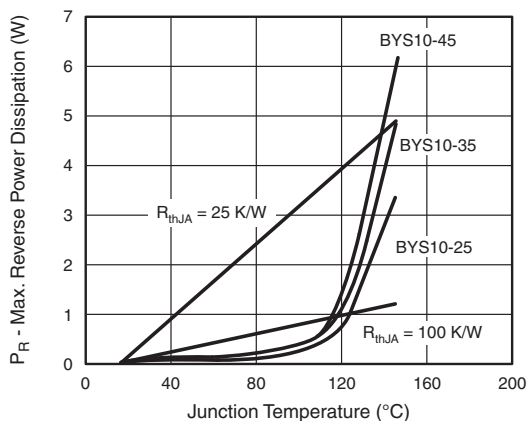


Fig. 1 - Max. Reverse Power Dissipation vs. Junction Temperature

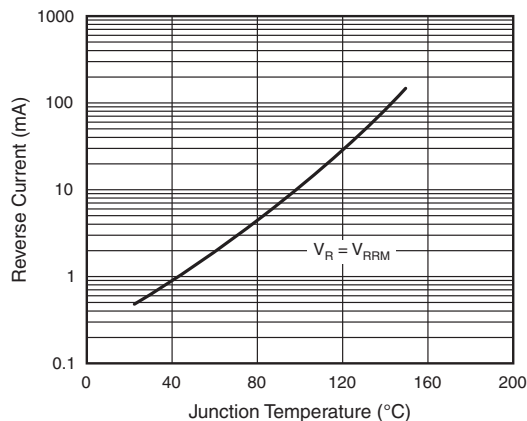


Fig. 2 - Max. Reverse Current vs. Junction Temperature

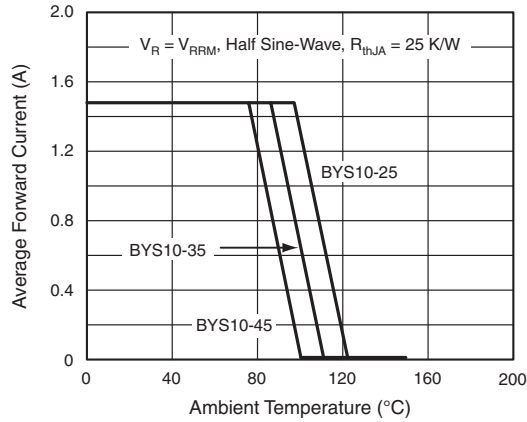


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

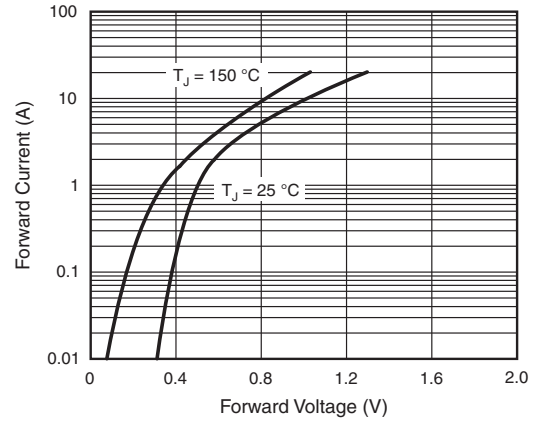


Fig. 5 - Max. Forward Current vs. Forward Voltage

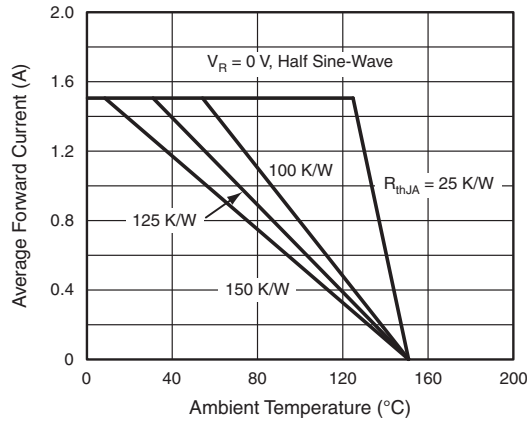


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

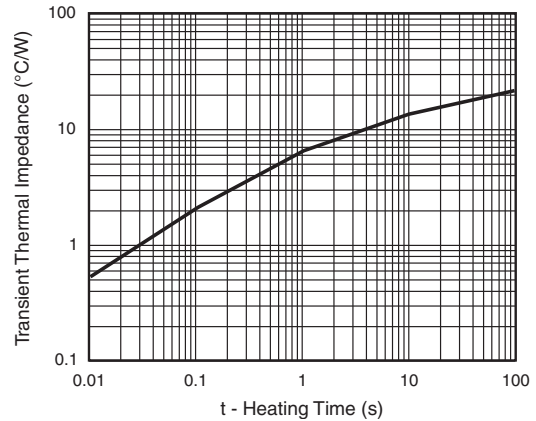
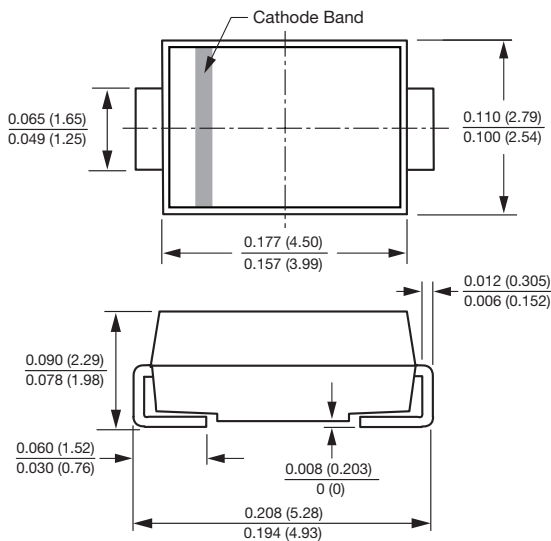


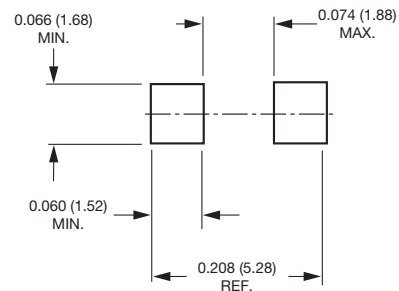
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AC (SMA)



### Mounting Pad Layout





## Disclaimer

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