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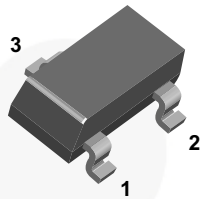
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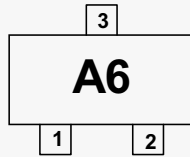


February 2015

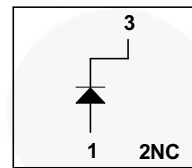
# BAS16 Small Signal Diode



SOT-23



Connection Diagram



## Ordering Information

Part Number	Top Mark	Package	Packing Method
BAS16	A6	SOT-23 3L	Tape and Reel, 7 inch Reel, 3000 pcs
BAS16_D87Z	A6	SOT-23 3L	Tape and Reel, 13 inch Reel, 10000 pcs

## Absolute Maximum Ratings<sup>(1), (2)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{RRM}$	Maximum Repetitive Reverse Voltage	85	V
$I_{F(AV)}$	Average Rectified Forward Current	200	mA
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	Pulse Width = 1.0 second	1.0
		Pulse Width = 1.0 microsecond	2.0
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	-55 to +150	$^\circ\text{C}$

### Notes:

1. These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

### Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

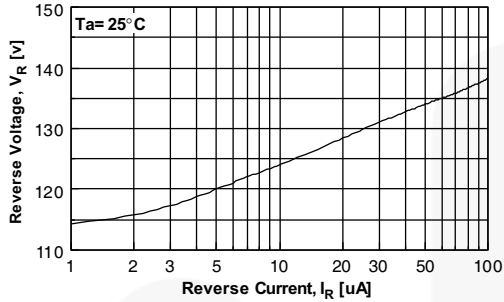
Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$

### Electrical Characteristics

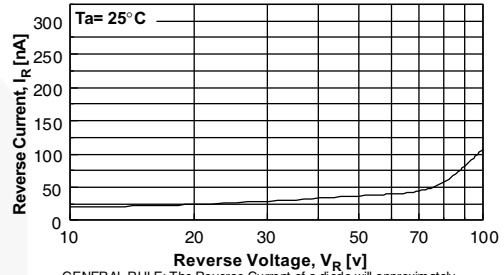
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_R$	Breakdown Voltage	$I_R = 5.0 \mu\text{A}$	85		V
$V_F$	Forward Voltage	$I_F = 1.0 \text{ mA}$		715	mV
		$I_F = 10 \text{ mA}$		855	mV
		$I_F = 50 \text{ mA}$		1.0	V
		$I_F = 150 \text{ mA}$		1.25	V
$I_R$	Reverse Current	$V_R = 75 \text{ V}$		1.0	$\mu\text{A}$
		$V_R = 25 \text{ V}, T_A = 150^\circ\text{C}$		30	
		$V_R = 75 \text{ V}, T_A = 150^\circ\text{C}$		50	
$C_T$	Total Capacitance	$V_R = 0, f = 1.0 \text{ MHz}$		2.0	pF
$t_{rr}$	Reverse Recovery Time	$I_F = I_R = 10 \text{ mA}, I_{RR} = 1.0 \text{ mA}, R_L = 100 \Omega$		6.0	ns

## Typical Performance Characteristics

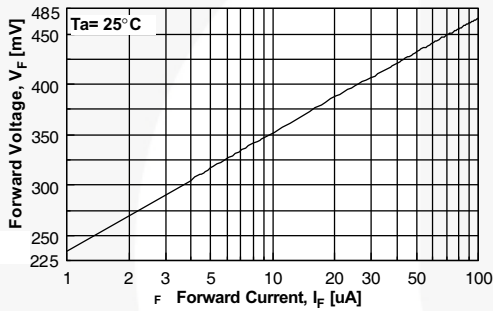


**Figure 1. Reverse Voltage vs. Reverse Current**  
 $V_R$  - 1.0 to 100  $\mu A$

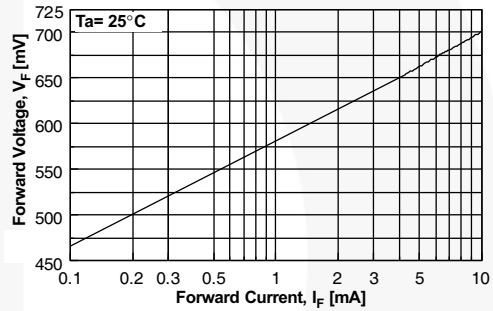


GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

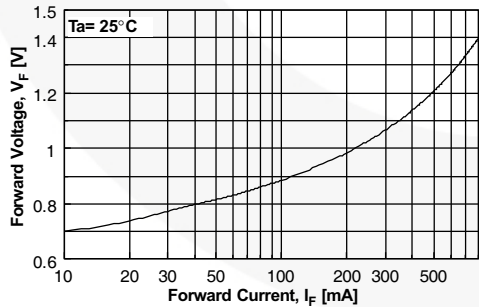
**Figure 2. Reverse Current vs. Reverse Voltage**  
 $I_R$  - 10 to 100 V



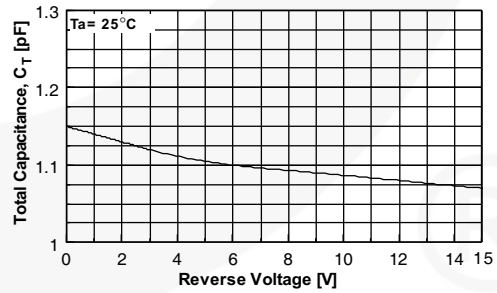
**Figure 3. Forward Voltage vs. Forward Current**  
 $V_F$  - 1.0 to 100  $\mu A$



**Figure 4. Forward Voltage vs. Forward Current**  
 $V_F$  - 1.0 to 100 mA



**Figure 5. Forward Voltage vs. Forward Current**  
 $V_F$  - 10 to 800 mA



**Figure 6. Total Capacitance**

Typical Performance Characteristics (Continued)

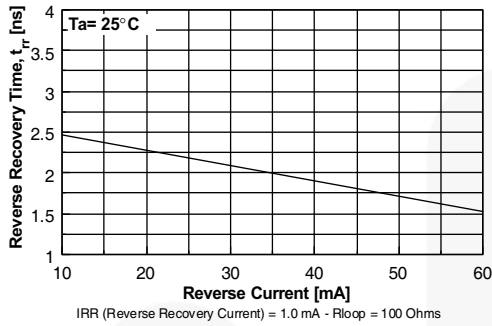


Figure 7. Reverse Recovery Time vs. Reverse Current

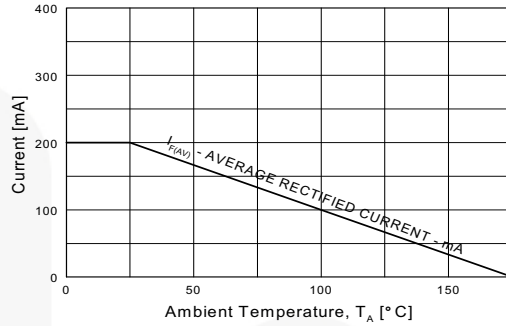


Figure 8. Average Rectified Current ( $I_{F(AV)}$ ) vs. Ambient Temperature ( $T_A$ )

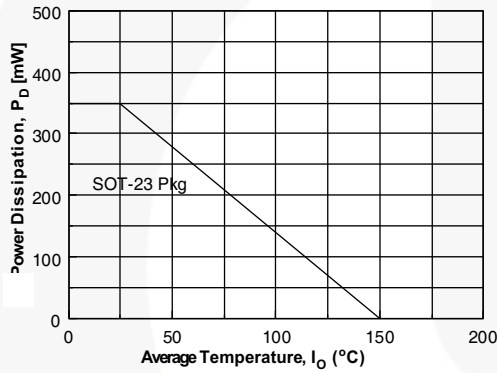


Figure 9. Power Derating Curve

Physical Dimensions

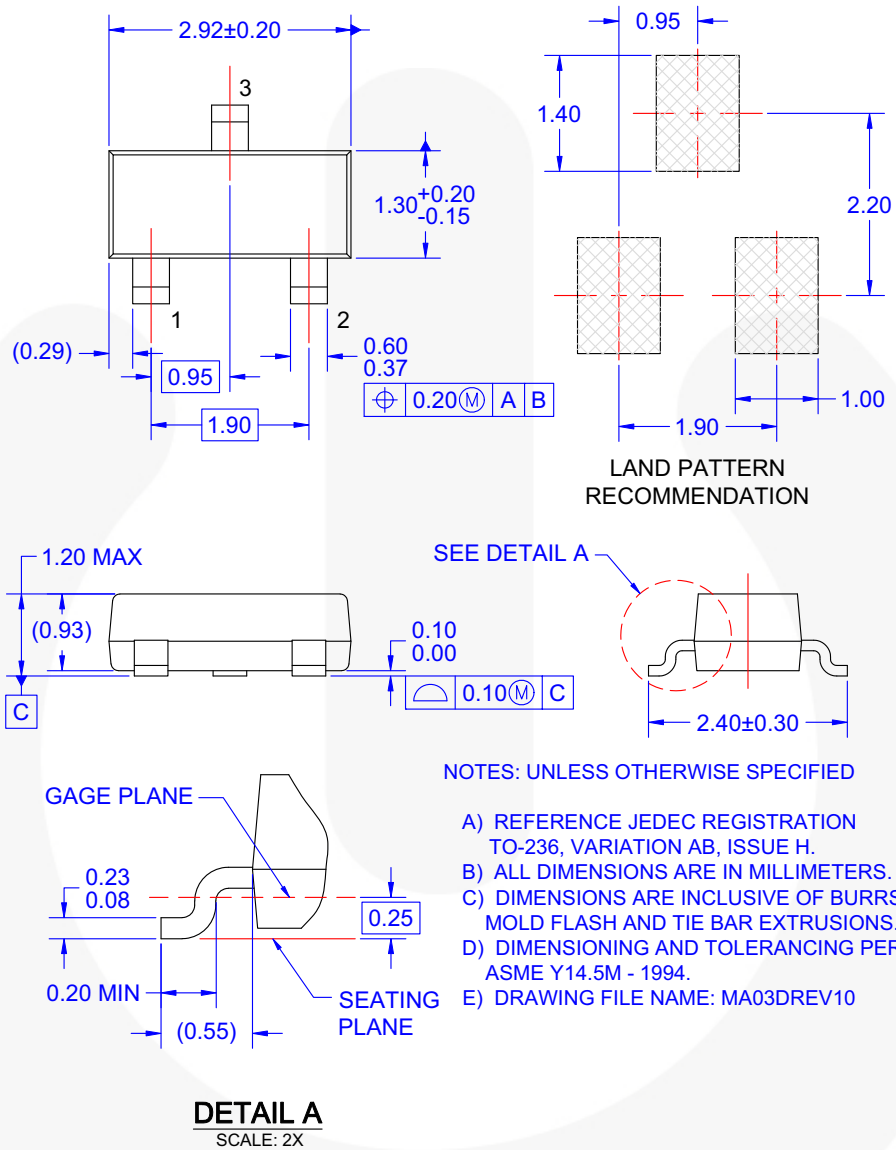







Figure 10. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE



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