



# BAV19 / 20 / 21



DO-35

Color Band Denotes Cathode

## Small Signal Diode

### Absolute Maximum Ratings\*

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

Symbol	Parameter	Value	Units
$V_{RRM}$	Maximum Repetitive Reverse Voltage	BAV19 BAV20 BAV21	V V V
		120 200 250	
$I_{F(AV)}$	Average Rectified Forward Current	200	mA
$I_{FSM}$	Non-repetitive Peak Forward Surge Current Pulse Width = 1.0 second	1.0	A
	Pulse Width = 1.0 microsecond	4.0	A
$T_{stg}$	Storage Temperature Range	-65 to +200	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	175	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 200 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	300	$^\circ\text{C}/\text{W}$

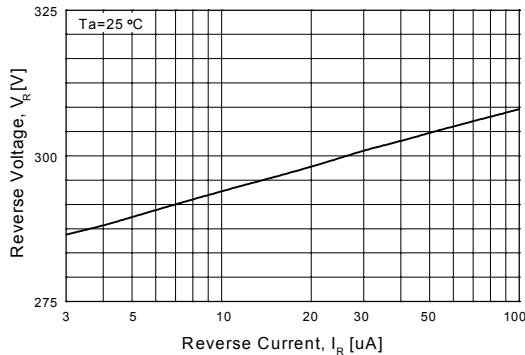
### Electrical Characteristics

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

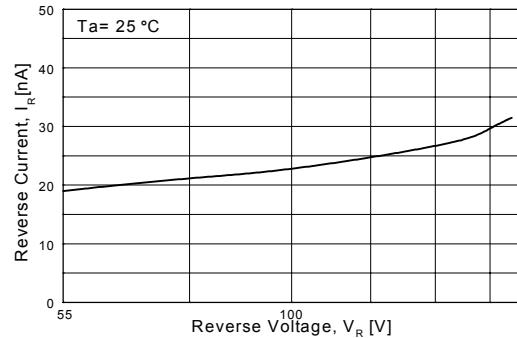
Symbol	Parameter	Test Conditions	Min	Max	Units	
$V_R$	Breakdown Voltage	$I_R = 100 \mu\text{A}$ $\text{BAV19}$ $\text{BAV20}$ $\text{BAV21}$	120		V	
			200		V	
			250		V	
$V_F$	Forward Voltage	$I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$		1.0	V	
				1.25	V	
$I_R$	Reverse Current	$V_R = 100 \text{ V}$ $V_R = 100 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 150 \text{ V}$		100	nA	
				100	$\mu\text{A}$	
				100	nA	
	$\text{BAV20}$			100	$\mu\text{A}$	
				100	nA	
				100	$\mu\text{A}$	
$C_T$	Total Capacitance	$V_R = 0, f = 1.0 \text{ MHz}$		5.0	pF	
$t_{rr}$	Reverse Recovery Time	$I_F = I_R = 30 \text{ mA}, I_{RR} = 3.0 \text{ mA}, R_L = 100\Omega$		50	ns	

## Small Signal Diode (continued)

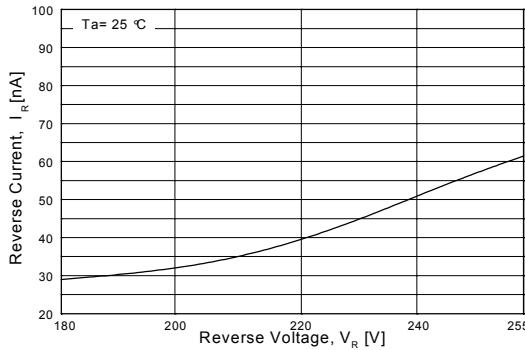
### Typical Characteristics



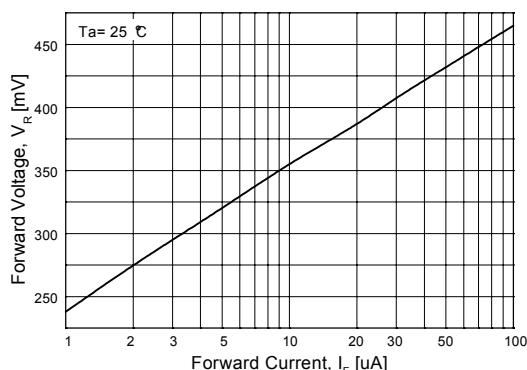
**Figure 1. Reverse Voltage vs Reverse Current**  
**BV - 1.0 to 100uA**



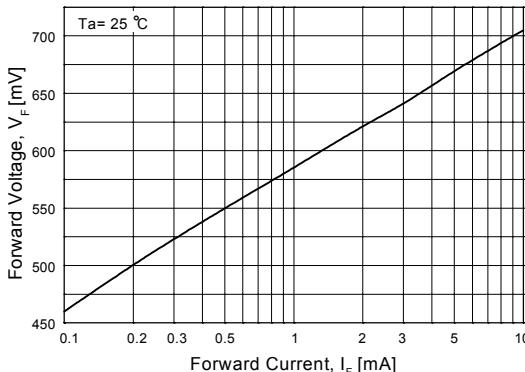
**GENERAL RULE:** The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature  
**Figure 2. Reverse Current vs Reverse Voltage**  
**IR - 55 to 205 V**



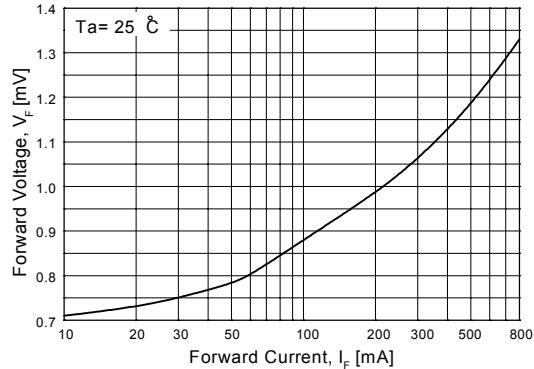
**GENERAL RULE:** The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature  
**Figure 3. Reverse Current vs Reverse Roltage**  
**IR - 180 to 225 V**



**Figure 4. Forward Voltage vs Forward Current**  
**VF - 1.0 to 100uA**



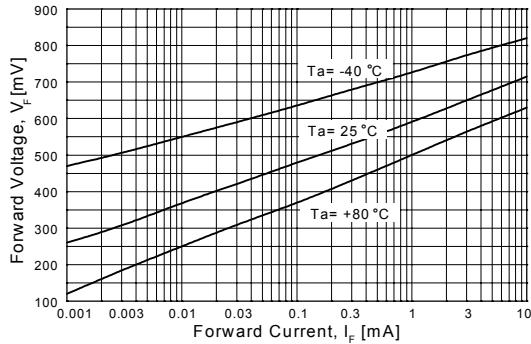
**Figure 5. Forward Voltage vs Forward Current**  
**VF - 0.1 to 10mA**



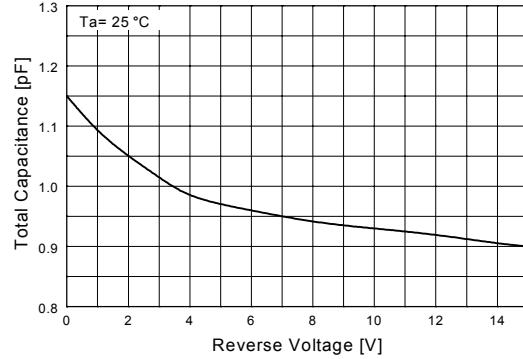
**Figure 6. Forward Voltage vs Forward Current**  
**VF - 10 to 800mA**

## Small Signal Diode (continued)

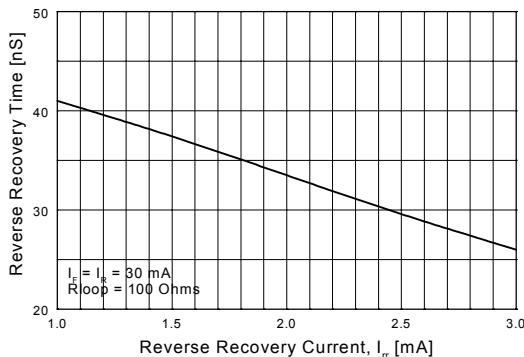
### Typical Characteristics (continued)



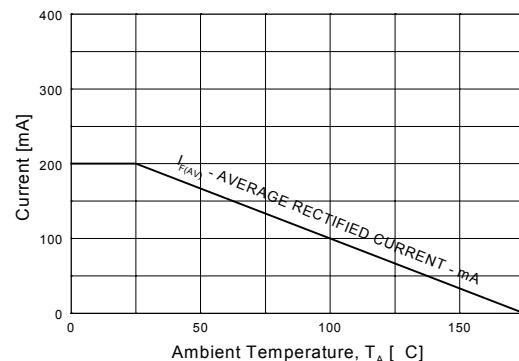
**Figure 7. Forward Voltage vs Ambient Temperature**  
VF - 1.0 uA - 10 mA (-40 to +80 Deg C)



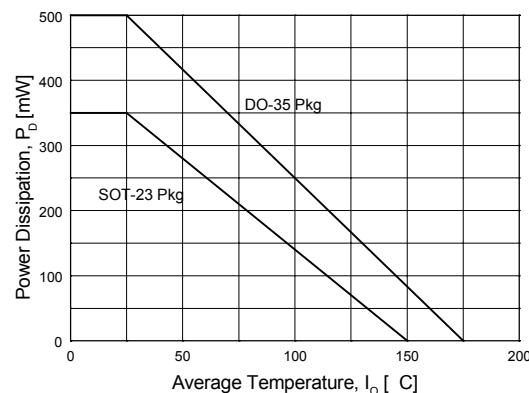
**Figure 8. Total Capacitance**



**Figure 9. Reverse Recovery Time vs Reverse Recovery Current**



**Figure 10. Average Rectified Current ( $I_{F(AV)}$ ) versus Ambient Temperature ( $T_A$ )**



**Figure 11. Power Derating Curve**

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