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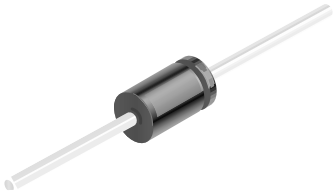
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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

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FAIRCHILD
SEMICONDUCTOR®

BAV19 / 20 / 21



DO-35
Color Band Denotes Cathode

Small Signal Diode

Absolute Maximum Ratings*

T_A = 25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_{RRM}	Maximum Repetitive Reverse Voltage	**BAV19**	120	V
		BAV20	200	V
		BAV21	250	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	A
	Pulse Width = 1.0 microsecond		4.0	A
T_{stg}	Storage Temperature Range		-65 to +200	°C
T_J	Operating Junction Temperature		175	°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	°C/W

Electrical Characteristics

T_A = 25°C unless otherwise noted

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

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Typical Characteristics

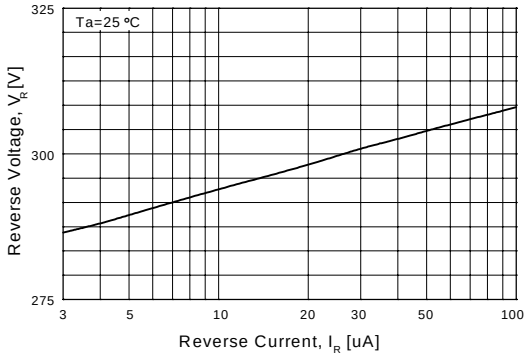
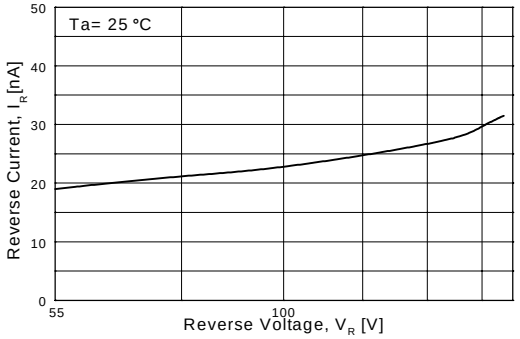
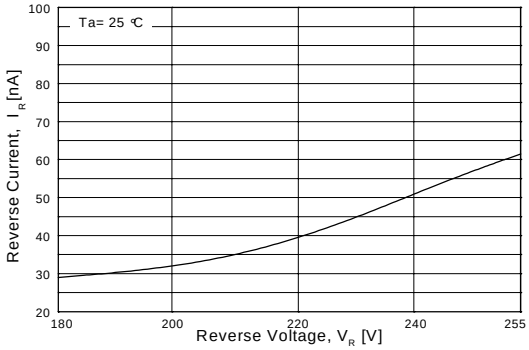


Figure 1. Reverse Voltage vs Reverse Current
BV - 1.0 to 100uA



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

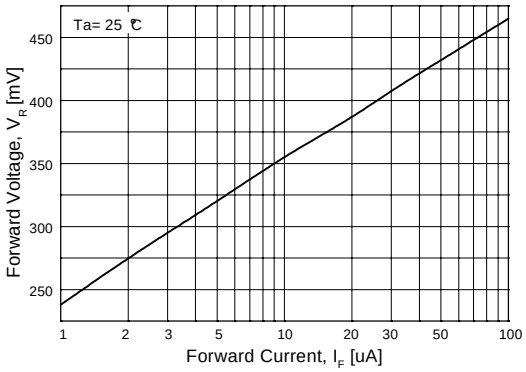


Figure 4. Forward Voltage vs Forward Current
VF - 1.0 to 100uA

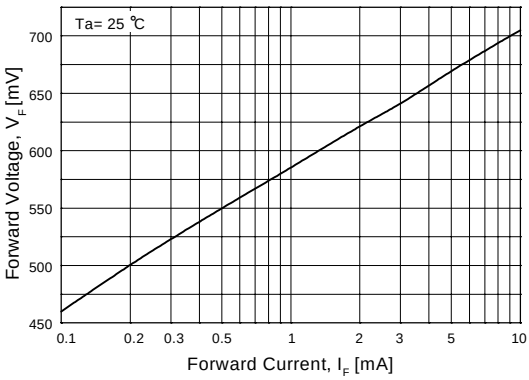


Figure 5. Forward Voltage vs Forward Current
VF - 0.1 to 10mA

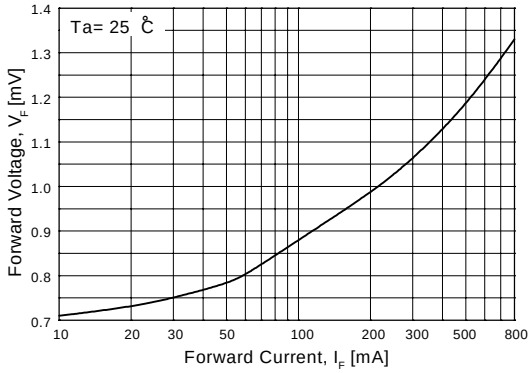


Figure 6. Forward Voltage vs Forward Current
VF - 10 to 800mA

Typical Characteristics (continued)

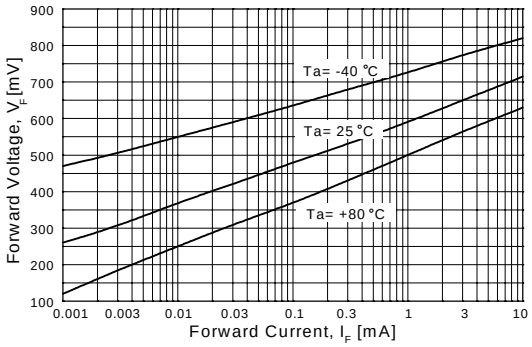


Figure 7. Forward Voltage vs Ambient Temperature VF - 1.0 uA - 10 mA (-40 to +80 Deg C)

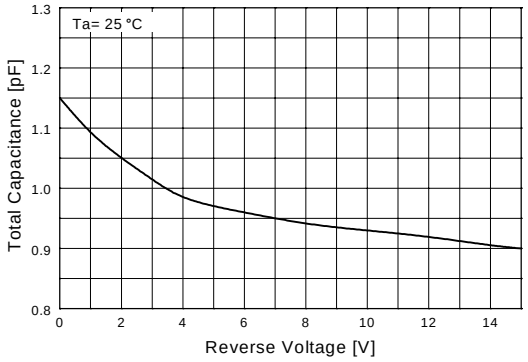


Figure 8. Total Capacitance

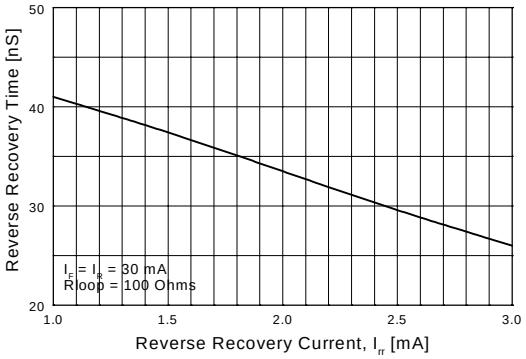


Figure 9. Reverse Recovery Time vs Reverse Recovery Current

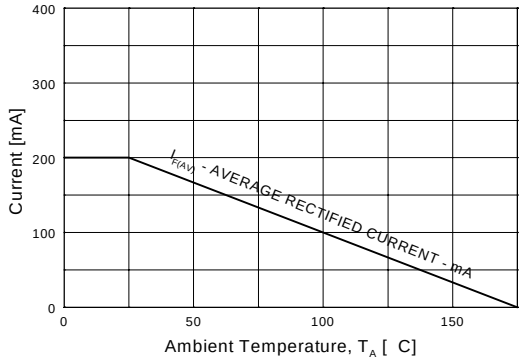


Figure 10. Average Rectified Current ($I_{F(AV)}$) versus Ambient Temperature (T_A)

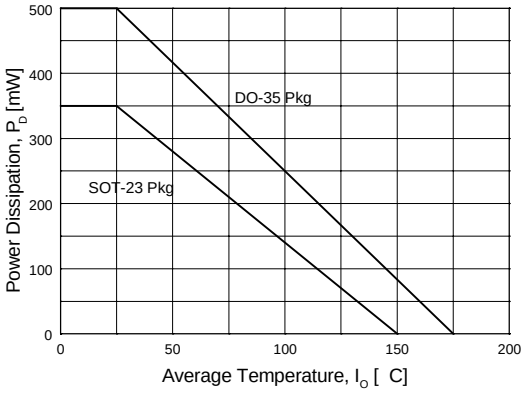


Figure 11. Power Derating Curve

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