



April 2008

BAX16

High Voltage General Purpose Diode



DO-35 Glass case

COLOR BAND DENOTES CATHODE

Absolute Maximum Ratings

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

Symbol	Parameter	Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage	150	V
$I_{F(AV)}$	Average Rectified Forward Current	200	mA
I_F	Recurrent Peak Forward Current	600	mA
I_{FSM}	Non-repetitive Peak Forward Surge Current Pulse Width = 1.0 s Pulse Width = 1.0 μs	1	A
		4	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 the diode may be impaired.

Notes:

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

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min.	Max.	Units
V_R	Breakdown Voltage	$I_R = 100\mu\text{A}$	180		V
V_F	Forward Voltage	$I_F = 1.0\text{mA}$		0.65	V
V_{FP}	Forward Voltage Pulse Width = 300 μs	$I_F = 100\text{mA}$		1.3	
		$I_F = 200\text{mA}$		1.5	
I_R	Reverse Leakage	$V_R = 50\text{V}$		25	nA
		$V_R = 50\text{V}, T_A = 150^\circ\text{C}$		25	μA
		$V_R = 150\text{V}$		100	nA
		$V_R = 150\text{V}, T_A = 150^\circ\text{C}$		100	μA
t_{rr}	Reverse Recovery Time	$I_F = 30\text{mA}, I_R = 30\text{mA},$ $I_{rr} = 1.0\text{mA}, R_L = 100\Omega$		120	ns

Typical Performance Characteristics

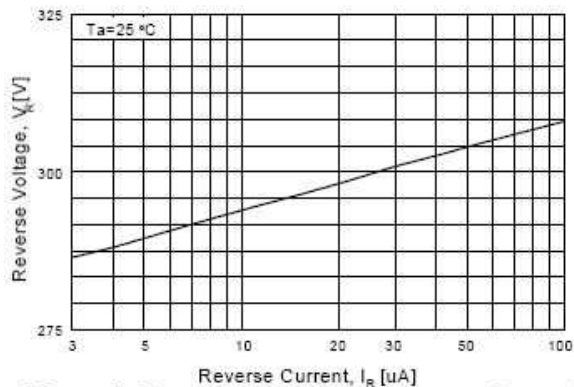


Figure 1. Reverse Voltage vs Reverse Current
BV - 1.0 to 100uA

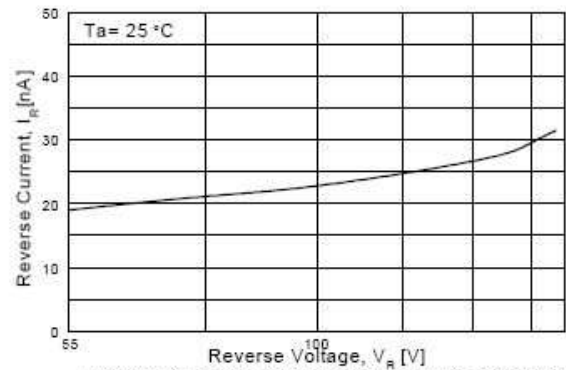


Figure 2. Reverse Current vs Reverse Voltage
IR - 55 to 205 V

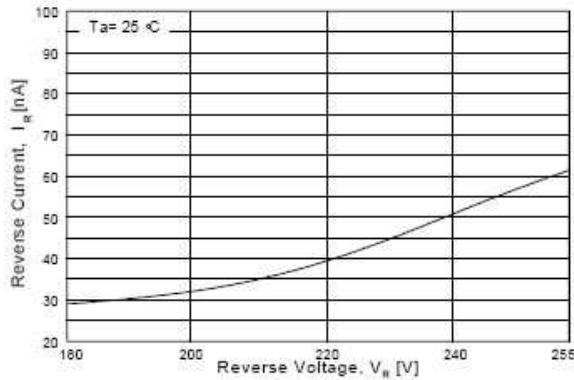


Figure 3. Reverse Current vs Reverse Voltage
IR - 180 to 225 V

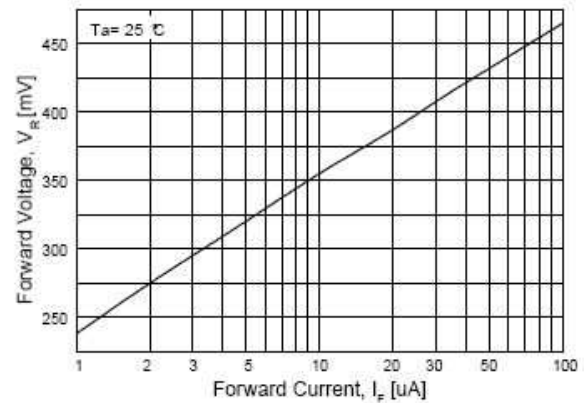


Figure 4. Forward Voltage vs Forward Current
VF - 1.0 to 100uA

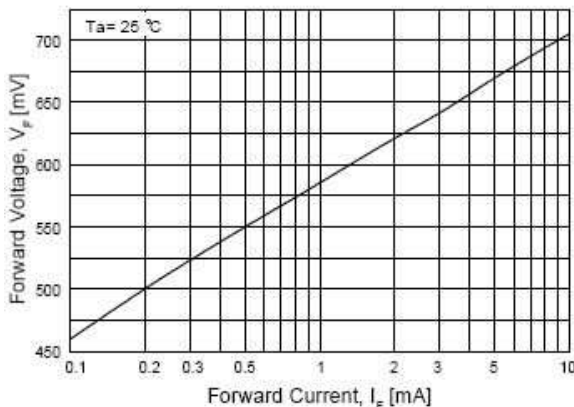


Figure 5. Forward Voltage vs Forward Current
VF - 0.1 to 10mA

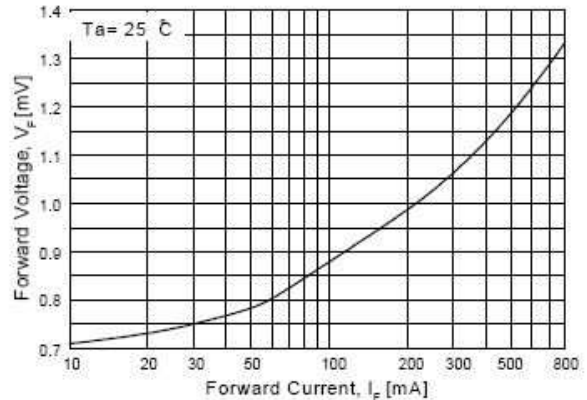


Figure 6. Forward Voltage vs Forward Current
VF - 10 to 800mA

Typical Performance Characteristics

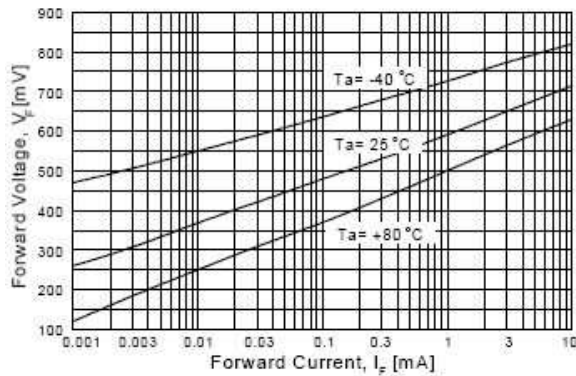


Figure 7. Forward Voltage vs Ambient Temperature
VF - 1.0 μ A - 10 mA (-40 to +80 Deg C)

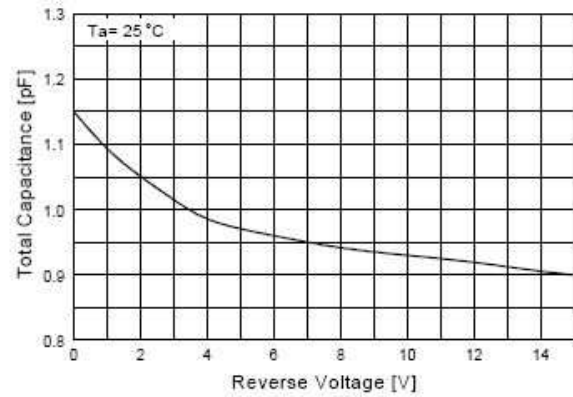


Figure 8. Total Capacitance

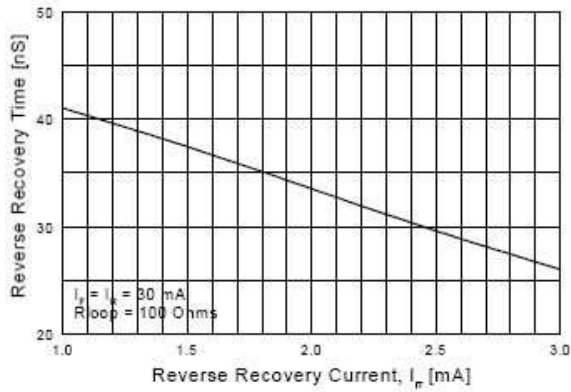


Figure 9. Reverse Recovery Time vs Reverse Recovery Current

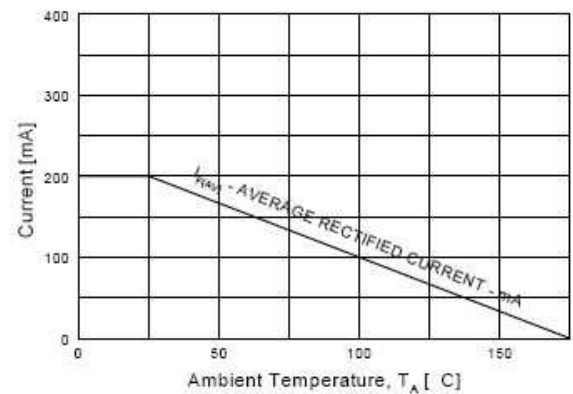


Figure 10. Average Rectified Current ($I_{F(AV)}$) versus Ambient Temperature (T_A)

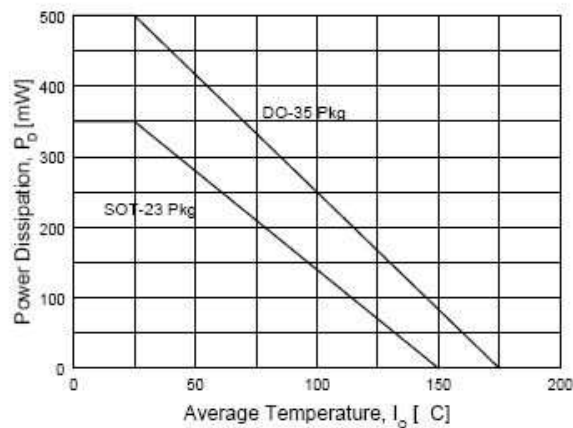


Figure 11. Power Derating Curve



TRADEMARKS

The following are registered and unregistered trademarks and service marks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx [®]	Green FPS [™]	Power247 [®]	SuperSOT [™] -8
Build it Now [™]	Green FPS [™] e-Series [™]	POWEREDGE [®]	SyncFET [™]
CorePLUS [™]	GTO [™]	Power-SPM [™]	The Power Franchise [®]
CROSSVOLT [™]	i-Lo [™]	PowerTrench [®]	the power franchise
CTL [™]	IntelliMAX [™]	Programmable Active Droop [™]	TinyBoost [™]
Current Transfer Logic [™]	ISOPLANAR [™]	QFET [®]	TinyBuck [™]
EcoSPARK [®]	MegaBuck [™]	QS [™]	TinyLogic [®]
F [®]	MICROCOUPLER [™]	QT Optoelectronics [™]	TINYOPTO [™]
Fairchild [®]	MicroFET [™]	Quiet Series [™]	TinyPower [™]
Fairchild Semiconductor [®]	MicroPak [™]	RapidConfigure [™]	TinyPWM [™]
FACT Quiet Series [™]	MillerDrive [™]	SMART START [™]	TinyWire [™]
FACT [®]	Motion-SPM [™]	SPM [®]	μSerDes [™]
FAST [®]	OPTOLOGIC [®]	STEALTH [™]	UHC [®]
FastvCore [™]	OPTOPLANAR [®]	SuperFET [™]	UniFET [™]
FPS [™]	 [®]	SuperSOT [™] -3	VCX [™]
FRFET [®]	PDP-SPM [™]	SuperSOT [™] -6	
Global Power Resource SM	Power220 [®]		

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

Rev. I31