

## BAV19 / 20 / 21



DO-35

### High Voltage General Purpose Diode

Sourced from Process 1J.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W <sub>IV</sub>	Working Inverse Voltage	<b>BAV19</b>	100
		<b>BAV20</b>	150
		<b>BAV21</b>	200
I <sub>O</sub>	Average Rectified Current	200	mA
I <sub>F</sub>	DC Forward Current	500	mA
i <sub>f</sub>	Recurrent Peak Forward Current	600	mA
i <sub>f(surge)</sub>	Peak Forward Surge Current Pulse width = 1.0 second Pulse width = 1.0 microsecond	1.0	A
		4.0	A
T <sub>stg</sub>	Storage Temperature Range	-65 to +200	°C
T <sub>J</sub>	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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		<b>BAV19 / 20 / 21</b>	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	500	mW
		3.33	mW/°C
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	300	°C/W

# High Voltage General Purpose Diode

(continued)

BAV19 / BAV20 / BAV21

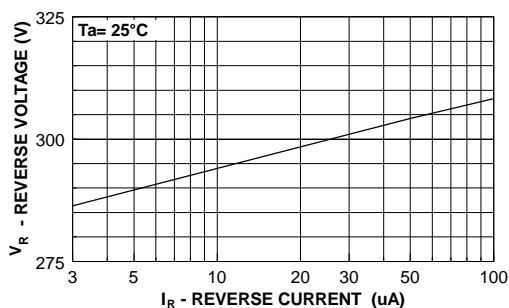
## Electrical Characteristics

TA = 25°C unless otherwise noted

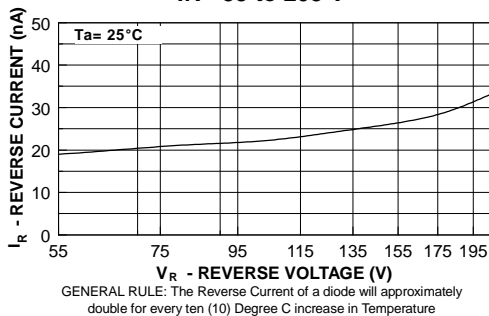
Symbol	Parameter	Test Conditions	Min	Max	Units
BV	Breakdown Voltage	BAV19 $I_R = 100 \mu A$	120		V
		BAV20 $I_R = 100 \mu A$	200		V
		BAV21 $I_R = 100 \mu A$	250		V
IR	Reverse Current	BAV19 $V_R = 100 V$		100	nA
		BAV20 $V_R = 100 V, T_A = 150^\circ C$		100	$\mu A$
		BAV20 $V_R = 150 V$		100	nA
		BAV21 $V_R = 150 V, T_A = 150^\circ C$		100	$\mu A$
		BAV21 $V_R = 200 V$		100	nA
		$V_R = 200 V, T_A = 150^\circ C$		100	$\mu A$
VF	Forward Voltage	$I_F = 100 mA$		1.0	V
		$I_F = 200 mA$		1.25	V
CO	Diode Capacitance	$V_R = 0, f = 1.0 MHz$		5.0	pF
T <sub>RR</sub>	Reverse Recovery Time	$I_F = I_R = 30 mA, I_{RR} = 3.0 mA,$ $R_L = 100\Omega$		50	nS

## Typical Characteristics

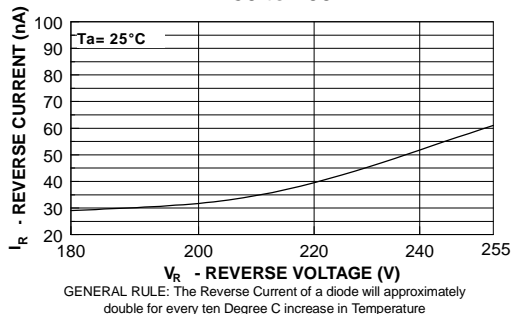
REVERSE VOLTAGE vs REVERSE CURRENT  
BV - 1.0 to 100  $\mu A$



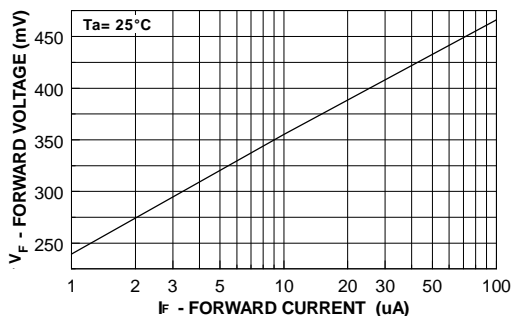
REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 55 to 205 V



REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 180 to 255 V



FORWARD VOLTAGE vs FORWARD CURRENT  
VF - 1.0 to 100  $\mu A$



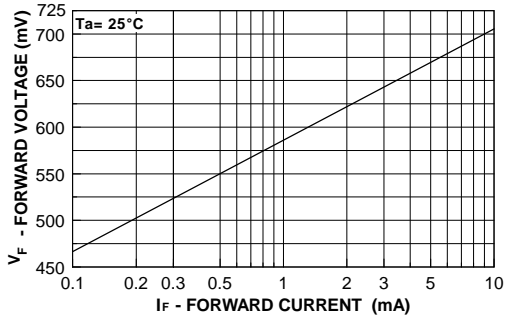
# High Voltage General Purpose Diode

(continued)

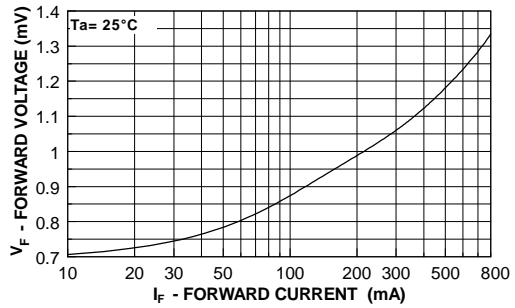
BAV19 / BAV20 / BAV21

## Typical Characteristics (continued)

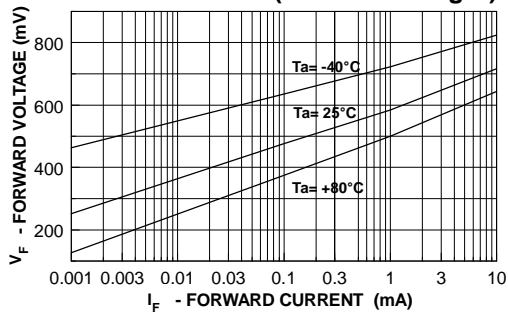
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 0.1 to 10 mA



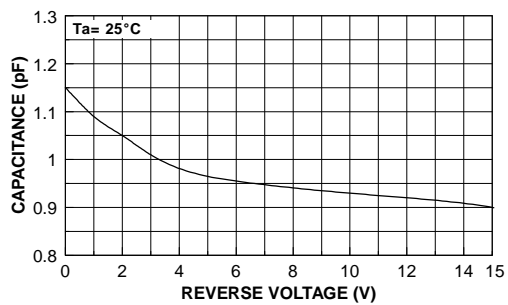
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 10 to 800 mA



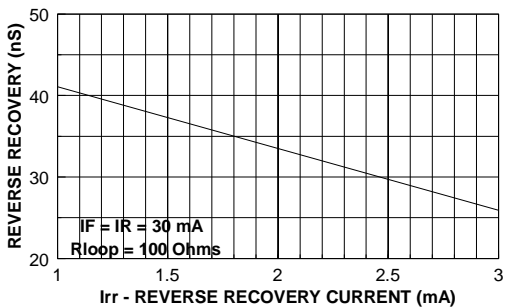
**Forward Voltage vs Ambient Temperature**  
VF - 1.0 uA - 10 mA (-40 to + 80 Deg C)



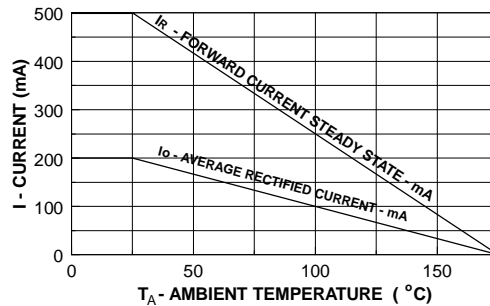
**CAPACITANCE vs REVERSE VOLTAGE**  
VR - 0 to 15 V



**REVERSE RECOVERY TIME vs REVERSE RECOVERY CURRENT (Irr)**



**Average Rectified Current (Io) & Forward Current (Ir) versus Ambient Temperature (TA)**

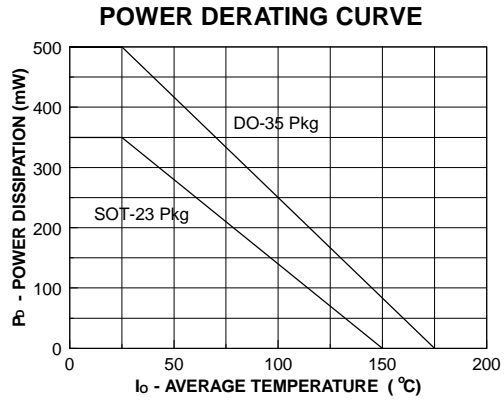


# High Voltage General Purpose Diode

(continued)

BAV19 / BAV20 / BAV21

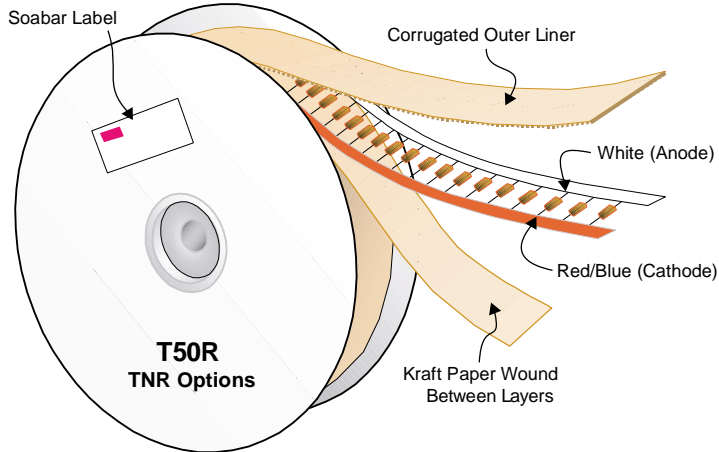
## Typical Characteristics (continued)



# DO-35 Tape and Reel Data and Package Dimensions



## DO-35 Packaging Configuration: Figure 1.0



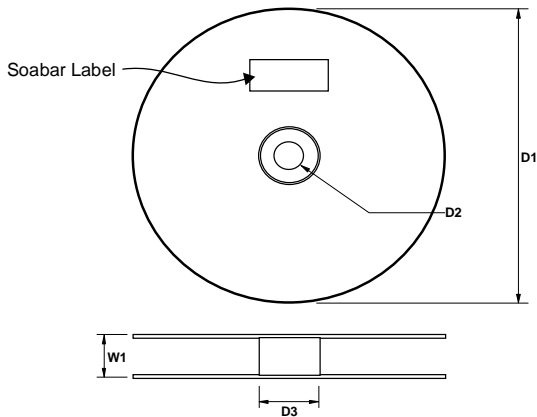
## DO-35 Packaging Information Table: Figure 2.0

DO-35 Packaging Information			
Packaging Option	T50R	T50A	Standard (no flow code)
Packaging type	TNR	Ammo	Bag
Qty per Reel/Tube/Bag	10,000	5,000	500
Reel Size (inch diameter)	13	-	-
Inside Tape Spacing (mm)	52	52	-
Int Box Dimension (mm)	254x79x794	406x267x184	279x133x108
Max qty per Box	30,000	50,000	5,000
Weight per unit (gm)	0.137	0.137	0.137
Weight per Reel/Ammo (kg)	2.23	0.800	-
Note/Comments			Bulk

### Soabar Label sample

<b>FAIRCHILD</b> SEMICONDUCTOR		P.O. No.	
TYPE	IN5225A	MARK	BLK-BRN
REV	A2	PART No.	
PKG		EC No.	
QTY	10,000	M.O. No.	OX5046F035
Q.C.		DATE	D9903
MFD. UNDER US PAT 3,025,589 & OTHER US PATS & APPLICATIONS			

## DO-35 Reel Dimensions: Figure 3.0



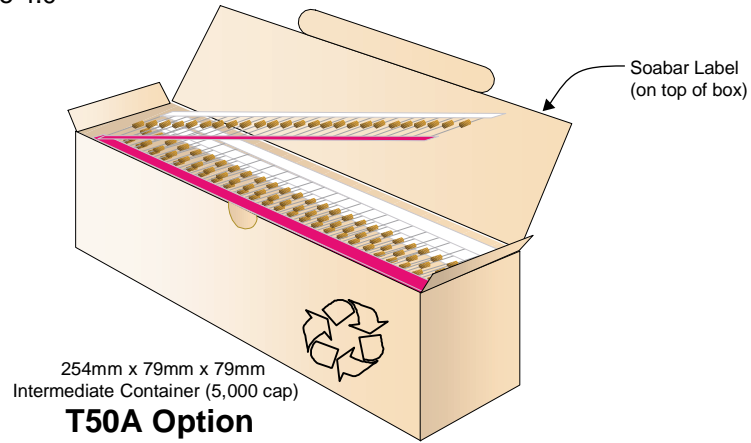
### REEL DIMENSIONS

ITEM DESCRIPTION	SYMBOL	MINIMUM	MAXIMUM
Reel Diameter	D1	10.375	10.625
Arbor Hole Diameter (Standard)	D2	1.245	1.255
Core Diameter	D3	3.190	3.310
Flange to Flange Inner Width	W1		3.400

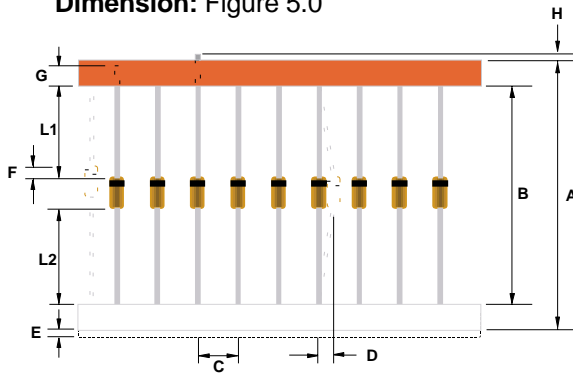
Note: All Dimensions are in inches

# DO-35 Tape and Ammo Data and Package Dimensions

## DO-35 Ammo Packing Configuration: Figure 4.0



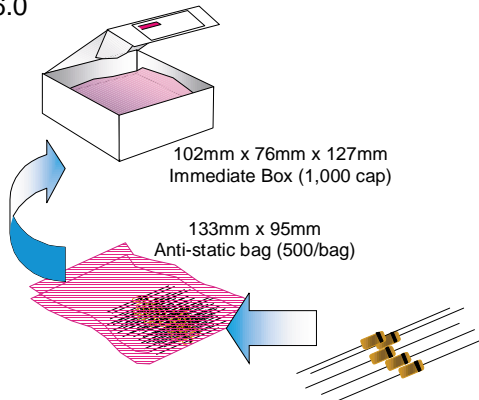
## DO-35 Taping Dimension: Figure 5.0



### TAPING DIMENSIONS

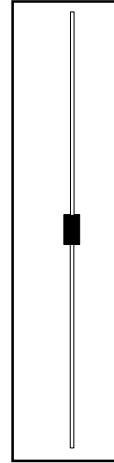
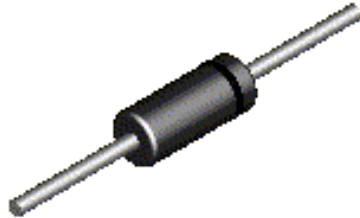
	INCH	MM	MILS	NOTES
A	2.520 +0.066/ -0.027	64.00 +1.69/ -0.69	2519 +66.5/ -27.0	Overall width
B	2.047±0.027	52 ±0.69	2047±27	Inside Tape Spacing
C	0.200 ±0.0157	5.08 ±0.40	200 ±15.7	Component Pitch
D	0.047(max)	1.2(max)	47(max)	Component Misalignment
E	0.022(max)	0.55(max)	22(max)	Tape Mismatch
F	0.027(max)	±0.69	±27	Units in line w/ one another
G	0.126(min)	3.2(min)	126(min)	Lead amount between tapes
H	0	0	0	Lead amount beyond tapes
L1-L2	±0.027	±0.69	±27	Delta between two leads

## DO-35 Bulk Packing Configuration: Figure 6.0



DO-35 Tape and Reel Data and Package Dimensions, continued

DO-35 (FS PKG Code D2)

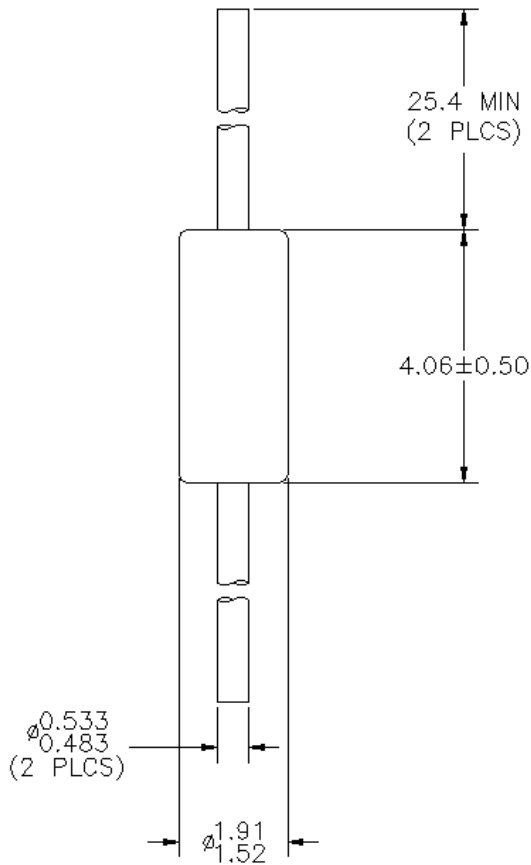


1:1

Scale 1:1 on letter size paper

Dimensions shown below are in millimeters

Part Weight per unit (gram): 0.137



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO JEDEC DO-204, VAR. AH, ISSUE B, DATED JANUARY 20, 1976.
- B) HERMITICALLY SEALED GLASS PACKAGE.
- C) PACKAGE WEIGHT IS 0.137 GRAM.
- D) ALL DIMENSIONS ARE IN MILLIMETERS.

## TRADEMARKS

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

ACEx™	FASTr™	QFET™	VCX™
Bottomless™	GlobalOptoisolator™	QS™	
CoolFET™	GTO™	QT Optoelectronics™	
CROSSVOLT™	HiSeC™	Quiet Series™	
DOME™	ISOPANAR™	SuperSOT™-3	
E <sup>2</sup> CMOS™	MICROWIRE™	SuperSOT™-6	
EnSigna™	OPTOLOGIC™	SuperSOT™-8	
FACT™	OPTOPLANAR™	SyncFET™	
FACT Quiet Series™	POP™	TinyLogic™	
FAST®	PowerTrench®	UHC™	

## 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.

## 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, or (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, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order 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 in order 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.