

# 1N5221B - 1N5263B

## Zener Diodes

Tolerance = 5%



**DO-35 Glass case**  
COLOR BAND DENOTES CATHODE

### Absolute Maximum Ratings \* T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P <sub>D</sub>	Power Dissipation	500	mW
	Derate above 50°C	4.0	mW/°C
T <sub>STG</sub>	Storage Temperature Range	-65 to +200	°C
T <sub>J</sub>	Maximum Junction Operating Temperature	+200	°C
	Lead Temperature (1/16" from case for 10 seconds)	+230	°C

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

\*\* Non-recurrent square wave PW = 8.3ms, T<sub>A</sub> = 50 degrees C.

### Electrical Characteristics T<sub>A</sub> = 25°C unless otherwise noted

Device	V <sub>Z</sub> (V) @ I <sub>Z</sub> (Note 1)			Z <sub>Z</sub> (Ω) @ I <sub>Z</sub> (mA)		Z <sub>ZK</sub> (Ω) @ I <sub>ZK</sub> (mA)		I <sub>R</sub> (μA) @ V <sub>R</sub> (V)		T <sub>C</sub> (%/°C)
	Min.	Typ.	Max.							
1N5221B	2.28	2.4	2.52	30	20	1,200	0.25	100	1.0	-0.085
1N5222B	2.375	2.5	2.625	30	20	1,250	0.25	100	1.0	-0.085
1N5223B	2.565	2.7	2.835	30	20	1,300	0.25	75	1.0	-0.080
1N5224B	2.66	2.8	2.94	30	20	1,400	0.25	75	1.0	-0.080
1N5225B	2.85	3	3.15	29	20	1,600	0.25	50	1.0	-0.075
1N5226B	3.135	3.3	3.465	28	20	1,600	0.25	25	1.0	-0.07
1N5227B	3.42	3.6	3.78	24	20	1,700	0.25	15	1.0	-0.065
1N5228B	3.705	3.9	4.095	23	20	1,900	0.25	10	1.0	-0.06
1N5229B	4.085	4.3	4.515	22	20	2,000	0.25	5.0	1.0	+/-0.055
1N5230B	4.465	4.7	4.935	19	20	1,900	0.25	2.0	1.0	+/-0.03
1N5231B	4.845	5.1	5.355	17	20	1,600	0.25	5.0	2.0	+/-0.03
1N5232B	5.32	5.6	5.88	11	20	1,600	0.25	5.0	3.0	0.038
1N5233B	5.7	6	6.3	7.0	20	1,600	0.25	5.0	3.5	0.038
1N5234B	5.89	6.2	6.51	7.0	20	1,000	0.25	5.0	4.0	0.045
1N5235B	6.46	6.8	7.14	5.0	20	750	0.25	3.0	5.0	0.05
1N5236B	7.125	7.5	7.875	6.0	20	500	0.25	3.0	6.0	0.058
1N5237B	7.79	8.2	8.61	8.0	20	500	0.25	3.0	6.5	0.062
1N5238B	8.265	8.7	9.135	8.0	20	600	0.25	3.0	6.5	0.065
1N5239B	8.645	9.1	9.555	10	20	600	0.25	3.0	7.0	0.068
1N5240B	9.5	10	10.5	17	20	600	0.25	3.0	8.0	0.075

Device	V <sub>Z</sub> (V) @ I <sub>Z</sub> (Note 1)			Z <sub>Z</sub> (Ω) @ I <sub>Z</sub> (mA)		Z <sub>ZK</sub> (Ω) @ I <sub>ZK</sub> (mA)		I <sub>R</sub> (μA) @ V <sub>R</sub> (V)		T <sub>C</sub> (%/°C)
	Min.	Typ.	Max.							
1N5241B	10.45	11	11.55	22	20	600	0.25	2.0	8.4	0.076
1N5242B	11.4	12	12.6	30	20	600	0.25	0.1	9.1	0.077
1N5243B	12.35	13	13.65	13	9.5	600	0.25	0.1	9.9	0.079
1N5244B	13.3	14	14.7	15	9.0	600	0.25	0.1	10	0.080
1N5245B	14.25	15	15.75	16	8.5	600	0.25	0.1	11	0.082
1N5246B	15.2	16	16.8	17	7.8	600	0.25	0.1	12	0.083
1N5247B	16.15	17	17.85	19	7.4	600	0.25	0.1	13	0.084
1N5248B	17.1	18	18.9	21	7.0	600	0.25	0.1	14	0.085
1N5247B	18.05	19	19.95	23	6.6	600	0.25	0.1	14	0.085
1N5250B	19	20	21	25	6.2	600	0.25	0.1	15	0.086
1N5251B	20.9	22	23.1	29	5.6	600	0.25	0.1	17	0.087
1N5252B	22.8	24	25.2	33	5.2	600	0.25	0.1	18	0.088
1N5253B	23.75	25	26.25	35	5.0	600	0.25	0.1	19	0.088
1N5254B	25.65	27	28.35	41	4.6	600	0.25	0.1	21	0.089
1N5255B	26.6	28	29.4	44	4.5	600	0.25	0.1	21	0.090
1N5256B	28.5	30	31.5	49	4.2	600	0.25	0.1	23	0.09
1N5257B	31.35	33	34.65	58	3.8	700	0.25	0.1	25	0.092
1N5258B	34.2	36	37.8	70	3.4	700	0.25	0.1	27	0.093
1N5259B	37.05	39	40.95	80	3.2	800	0.25	0.1	30	0.094
1N5260B	40.85	43	45.15	93	3.0	900	0.25	0.1	33	0.095
1N5261B	44.65	47	49.35	105	2.7	1000	0.25	0.1	36	0.095
1N5262B	48.45	51	53.55	125	2.5	1100	0.25	0.1	39	0.096
1N5263B	53.2	56	58.8	150	2.2	1300	0.25	0.1	43	0.096

V<sub>F</sub> Forward Voltage = 1.2V Max. @ I<sub>F</sub> = 200mA

**Notes:**

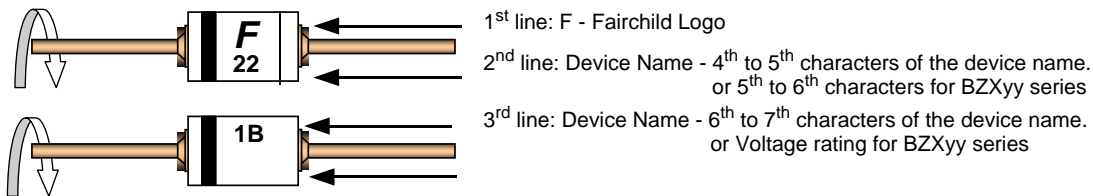
1.Zener Voltage (V<sub>Z</sub>)  
The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature (T<sub>L</sub>) at 30°C ± 1°C and 3/8" lead length

**Top Mark Information**

Device	Line 1	Line 2	Line 3
1N5221B	LOGO	22	1B
1N5222B	LOGO	22	2B
1N5223B	LOGO	22	3B
1N5224B	LOGO	22	4B
1N5225B	LOGO	22	5B
1N5226B	LOGO	22	6B
1N5227B	LOGO	22	7B
1N5228B	LOGO	22	8B
1N5229B	LOGO	22	9B
1N5230B	LOGO	23	0B
1N5231B	LOGO	23	1B
1N5232B	LOGO	23	2B
1N5233B	LOGO	23	3B
1N5234B	LOGO	23	4B
1N5235B	LOGO	23	5B
1N5236B	LOGO	23	6B
1N5237B	LOGO	23	7B
1N5238B	LOGO	23	8B
1N5239B	LOGO	23	9B
1N5240B	LOGO	24	0B
1N5241B	LOGO	24	1B
1N5242B	LOGO	24	2B
1N5243B	LOGO	24	3B
1N5244B	LOGO	24	4B
1N5245B	LOGO	24	5B

1N5246B	LOGO	24	6B
1N5247B	LOGO	24	7B
1N5248B	LOGO	24	8B
1N5247B	LOGO	24	9B
1N5250B	LOGO	25	0B
1N5251B	LOGO	25	1B
1N5252B	LOGO	25	2B
1N5253B	LOGO	25	3B
1N5254B	LOGO	25	4B
1N5255B	LOGO	25	5B
1N5256B	LOGO	25	6B
1N5257B	LOGO	25	7B
1N5258B	LOGO	25	8B
1N5259B	LOGO	25	9B
1N5260B	LOGO	26	0B
1N5261B	LOGO	26	1B
1N5262B	LOGO	26	2B
1N5263B	LOGO	26	3B

### Top Mark Information (Continued)



### General Requirements:

- 1.0 Cathode Band
- 2.0 First Line: F - Fairchild Logo
- 3.0 Second Line: Device name - For 1Nxx series: 4<sup>th</sup> to 5<sup>th</sup> characters of the device name.  
For BZxx series: 5<sup>th</sup> to 6<sup>th</sup> characters of the device name.
- 4.0 Third Line: Device name - For 1Nxx series: 6<sup>th</sup> to 7<sup>th</sup> characters of the device name.  
For BZXyy series: Voltage rating
- 5.0 Devices shall be marked as required in the device specification (PID or FSC Test Spec).
- 6.0 Maximum no. of marking lines: 3
- 7.0 Maximum no. of digits per line: 2
- 8.0 FSC logo must be 20 % taller than the alphanumeric marking and should occupy the 2 characters of the specified line.
- 9.0 Marking Font: Arial (Except FSC Logo)
- 10.0 First character of each marking line must be aligned vertically.
- 11.0 All device markings must be based on Fairchild device specification.



## 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™	GTO™	PowerSaver™	TinyBuck™
Across the board. Around the world.™	HiSeC™	PowerTrench®	TinyLogic®
ActiveArray™	i-Lo™	Programmable Active Droop™	TINYOPTO™
Bottomless™	ImpliedDisconnect™	QFET®	TinyPower™
Build it Now™	IntelliMAX™	QST™	TinyWire™
CoolFET™	ISOPLANAR™	QT Optoelectronics™	TruTranslation™
CROSSVOLT™	MICROCOUPLER™	Quiet Series™	µSerDes™
CTL™	MicroPak™	RapidConfigure™	UHC®
Current Transfer Logic™	MICROWIRE™	RapidConnect™	UniFET™
DOME™	MSX™	ScalarPump™	VCX™
E <sup>2</sup> CMOS™	MSXPro™	SMART START™	Wire™
EcoSPARK®	OCX™	SPM™	
EnSigna™	OCXPro™	SuperFET™	
FACT Quiet Series™	OPTOLOGIC®	SuperSOT™-3	
FACT®	OPTOPLANAR™®	SuperSOT™-6	
FAST®	PACMAN™	SuperSOT™-8	
FASTr™	POP™	TCM™	
FPST™	Power220®	The Power Franchise®	
FRFET™	Power247®	TinyBoost™	
GlobalOptoisolator™	PowerEdge™		

## 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, 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.

Rev. I23