



Is Now Part of



**ON Semiconductor®**

To learn more about ON Semiconductor, please visit our website at  
[www.onsemi.com](http://www.onsemi.com)

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

# BZX79C2V4 - BZX79C56

## 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 @ TL ≤ 75°C, Lead Length = 3/8"	500	mW
	Derate above 75°C	4.0	mW/°C
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-65 to +200	°C

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

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

Device	Zener Voltage (Note 1)			Z <sub>Z</sub> @ I <sub>Z</sub> (Ω)	Leakage Current		T <sub>C</sub> (mV / °C)		C (pF)
	Min.	Max.	I <sub>Z</sub> (mA)	Max.	I <sub>R</sub> (μA)	V <sub>R</sub> (V)	Min.	Max.	V <sub>Z</sub> = 0, f = 1MHz
BZX79C2V4	2.2	2.6	5	100	100	1	-3.5	0	255
BZX79C2V7	2.5	2.9	5	100	75	1	-3.5	0	230
BZX79C3V0	2.8	3.2	5	95	50	1	-3.5	0	215
BZX79C3V3	3.1	3.5	5	95	25	1	-3.5	0	200
BZX79C3V6	3.4	3.8	5	90	15	1	-3.5	0	185
BZX79C3V9	3.7	4.1	5	90	10	1	-3.5	+0.3	175
BZX79C4V3	4	4.6	5	90	5	1	-3.5	+1	160
BZX79C4V7	4.4	5	5	80	3	2	-3.5	+0.2	130
BZX79C5V1	4.8	5.4	5	60	2	2	-2.7	+1.2	110
BZX79C5V6	5.2	6	5	40	1	2	-2	+2.5	95
BZX79C6V2	5.8	6.6	5	10	3	4	0.4	3.7	90
BZX79C6V8	6.4	7.2	5	15	2	4	1.2	4.5	85
BZX79C7V5	7	7.9	5	15	1	5	2.5	5.3	80
BZX79C8V2	7.7	8.7	5	15	0.7	5	3.2	6.2	75
BZX79C9V1	8.5	9.6	5	15	0.5	6	3.8	7	70
BZX79C10	9.4	10.6	5	20	0.2	7	4.5	8	70
BZX79C11	10.4	11.6	5	20	0.1	8	5.4	9	65
BZX79C12	11.4	12.7	5	25	0.1	8	6	10	65
BZX79C13	12.4	14.1	5	30	0.1	8	7	11	60
BZX79C15	13.8	15.6	5	30	0.05	10.5	9.2	13	55
BZX79C16	15.3	17.1	5	40	0.05	11.2	10.4	14	52
BZX79C18	16.8	19.1	5	45	0.05	12.6	12.9	16	47
BZX79C20	18.8	21.2	5	55	0.05	14	14.4	18	36
BZX79C22	20.8	23.3	5	55	0.05	15.4	16.4	20	34
BZX79C24	22.8	25.6	5	70	0.05	16.8	18.4	22	33

Device	Zener Voltage (Note 1)			Z <sub>Z</sub> @ I <sub>Z</sub> (Ω)	Leakage Current		T <sub>C</sub> (mV / °C)		C (pF)
	Min.	Max.	I <sub>Z</sub> (mA)	Max.	I <sub>R</sub> (μA)	V <sub>R</sub> (V)	Min.	Max.	V <sub>Z</sub> = 0, f = 1MHz
BZX79C27	25.1	28.9	2	80	0.05	18.9	-	23.5	30
BZX79C30	28	32	2	80	0.05	21	-	26	27
BZX79C33	31	35	2	80	0.05	23.1	-	29	25
BZX79C36	34	38	2	90	0.05	25.2	-	31	23
BZX79C39	37	41	2	130	0.05	27.3	-	34	21
BZX79C43	40	46	2	150	0.05	30.1	-	37	21
BZX79C47	44	50	2	170	0.05	32.9	-	40	19
BZX79C51	48	54	2	180	0.5	35.7	-	44	19
BZX79C56	52	60	2	200	0.05	39.2	-	47	18

V<sub>F</sub> Forward Voltage = 1.5V Max @ I<sub>F</sub> = 100mA

**Notes:**

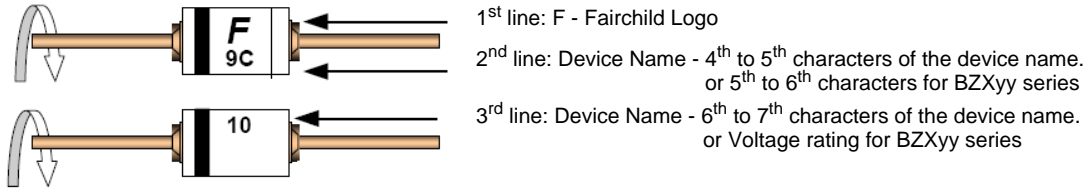
1. Zener Voltage (V<sub>Z</sub>)

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
BZX79C2V4	LOGO	9C	2V4
BZX79C2V7	LOGO	9C	2V7
BZX79C3V0	LOGO	9C	3V0
BZX79C3V3	LOGO	9C	3V3
BZX79C3V6	LOGO	9C	3V6
BZX79C3V9	LOGO	9C	3V9
BZX79C4V3	LOGO	9C	4V3
BZX79C4V7	LOGO	9C	4V7
BZX79C5V1	LOGO	9C	5V1
BZX79C5V6	LOGO	9C	5V6
BZX79C6V2	LOGO	9C	6V2
BZX79C6V8	LOGO	9C	6V8
BZX79C7V5	LOGO	9C	7V5
BZX79C8V2	LOGO	9C	8V2
BZX79C9V1	LOGO	9C	9V1
BZX79C10	LOGO	9C	10
BZX79C11	LOGO	9C	11
BZX79C12	LOGO	9C	12
BZX79C13	LOGO	9C	13
BZX79C15	LOGO	9C	15
BZX79C16	LOGO	9C	16
BZX79C18	LOGO	9C	18
BZX79C20	LOGO	9C	20
BZX79C22	LOGO	9C	22
BZX79C24	LOGO	9C	24
BZX79C27	LOGO	9C	27
BZX79C30	LOGO	9C	30
BZX79C33	LOGO	9C	33
BZX79C36	LOGO	9C	36
BZX79C39	LOGO	9C	39
BZX79C43	LOGO	9C	43
BZX79C47	LOGO	9C	47
BZX79C51	LOGO	9C	51
BZX79C56	LOGO	9C	56

**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™
DOMET™	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™	
FPS™	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.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor  
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910  
**Japan Customer Focus Center**  
Phone: 81-3-5817-1050

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>  
For additional information, please contact your local  
Sales Representative