

# 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<br>@ T <sub>L</sub> ≤ 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                           |

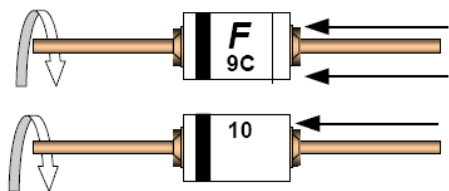
| Device   | Zener Voltage (Note 1) |      |            | $Z_Z @ I_Z (\Omega)$ | Leakage Current |           | $T_C (mV / ^\circ C)$ |      | C (pF)              |
|----------|------------------------|------|------------|----------------------|-----------------|-----------|-----------------------|------|---------------------|
|          | Min.                   | Max. | $I_Z (mA)$ | Max.                 | $I_R (\mu A)$   | $V_R (V)$ | Min.                  | Max. | $V_Z = 0, f = 1MHz$ |
| 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                  |

**$V_F$  Forward Voltage = 1.5V Max @  $I_F = 100mA$**

**Notes:**1. Zener Voltage ( $V_Z$ )The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature ( $T_L$ ) at  $30^\circ C \pm 1^\circ C$  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)



1<sup>st</sup> line: F - Fairchild Logo

2<sup>nd</sup> line: Device Name - 4<sup>th</sup> to 5<sup>th</sup> characters of the device name.  
or 5<sup>th</sup> to 6<sup>th</sup> characters for BZXyy series

3<sup>rd</sup> line: Device Name - 6<sup>th</sup> to 7<sup>th</sup> characters of the device name.  
or Voltage rating for BZXyy series

## 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.

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

## 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