

# BZX84C2V4 THRU BZX84C75

SURFACE MOUNT ZENER DIODES

## SOT-23 SURFACE MOUNT SILICON ZENER DIODES

### ● Features

- Low Zener Impedance
- Power Dissipation of 300mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

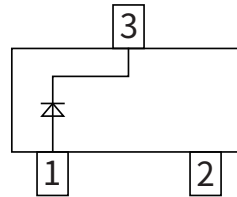
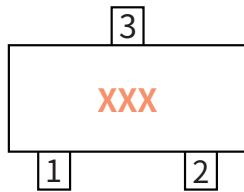
### ● Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

### ● Mechanical Data

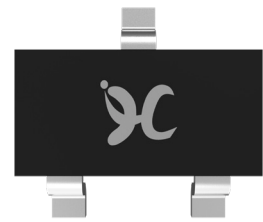
- Case: SOT-23  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

### ● Function Diagram



**Zener Diode**  
2.4 to 75 Volts  
**Power Dissipation**  
300 Milliwatts

SOT-23

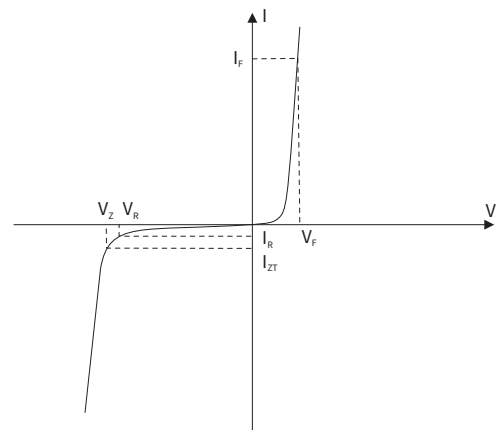


### ● Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                           | SYMBOL          | UNIT  | VALUE      |
|-------------------------------------|-----------------|-------|------------|
| Power Dissipation                   | $P_D$           | mW    | 300        |
| Forward Voltage @ $I_F=10\text{mA}$ | $V_F$           | V     | 0.9        |
| Storage Temperature                 | $T_{stg}$       | °C    | -55 ~ +150 |
| Junction Temperature                | $T_J$           | °C    | -55 ~ +150 |
| Typical Thermal Resistance          | $R_{\theta JA}$ | °C /W | 417        |

### ● Electrical Parameter

| SYMBOL   | PARAMETER                          |
|----------|------------------------------------|
| $V_Z$    | Reverse zener voltage @ $I_{ZT}$   |
| $I_{ZT}$ | Reverse current                    |
| $Z_{ZT}$ | Maximum Zener Impedance @ $I_{ZT}$ |
| $I_{ZK}$ | Reverse Current                    |
| $Z_{ZK}$ | Maximum Zener Impedance @ $I_{ZK}$ |
| $I_R$    | Reverse leakage current @ $V_R$    |
| $V_R$    | Reverse voltage                    |
| $I_F$    | Forward current                    |
| $V_F$    | Forward voltage @ $I_F$            |



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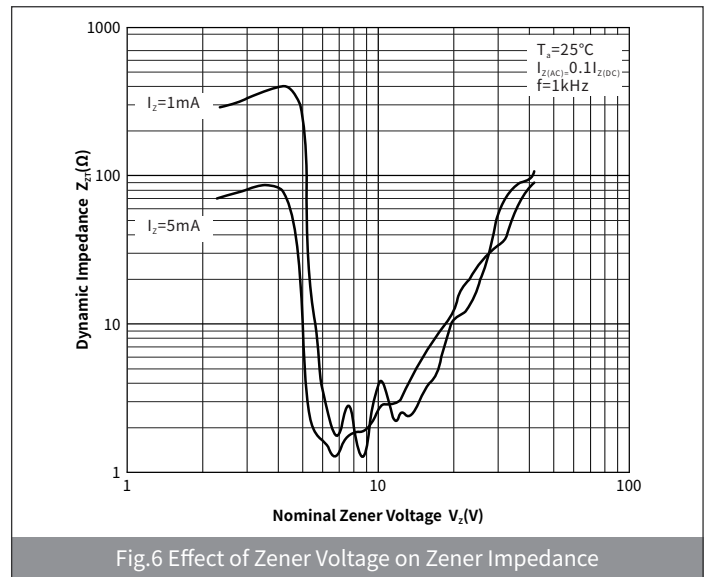
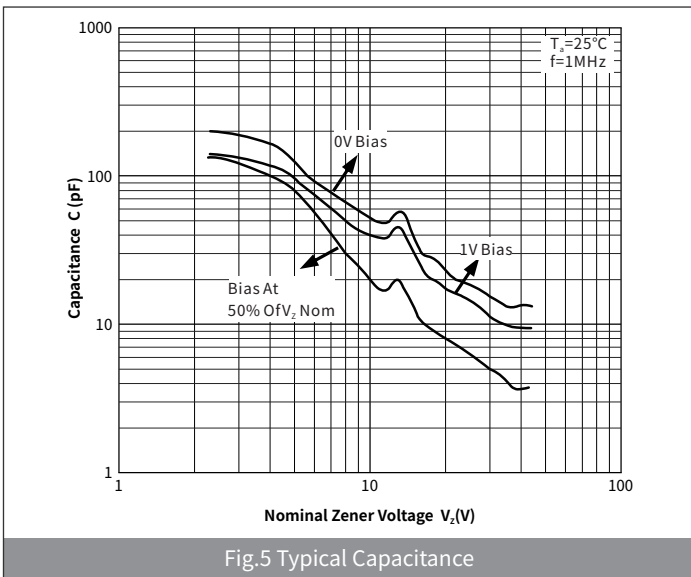
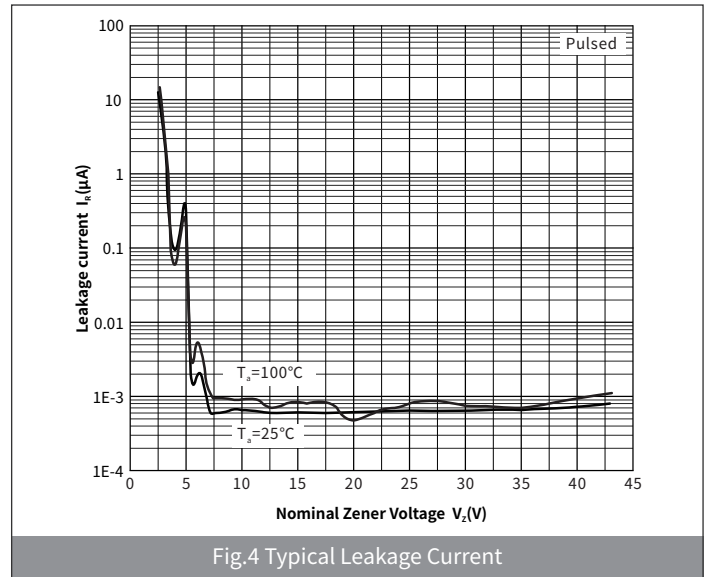
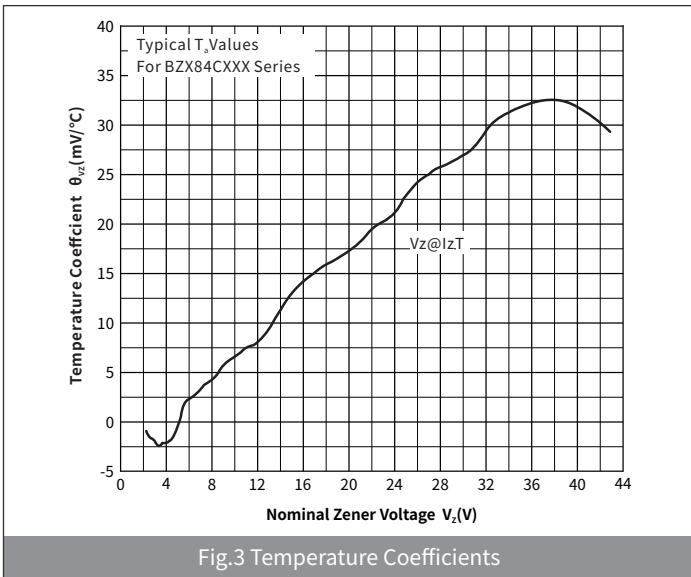
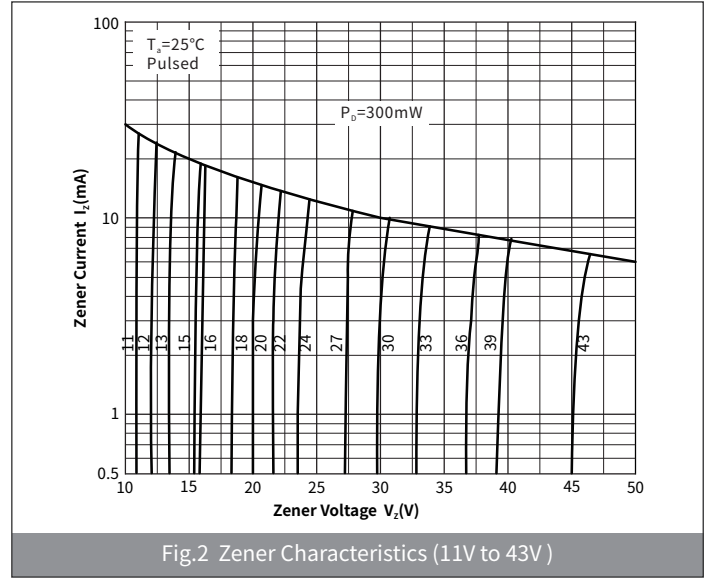
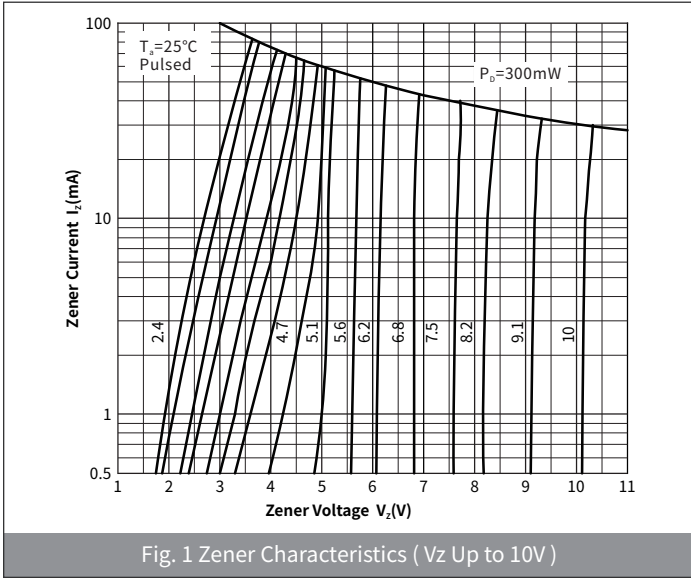
## ● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Marking | Nominal Zener Voltage |      |      | Zener Impedance |                                  |                                  | Leakage Current |                                | Typical Temperature coefficient @ I <sub>ZTC</sub> (mV/°C) |      | Admissible Zener Current |      |
|-------------|---------|-----------------------|------|------|-----------------|----------------------------------|----------------------------------|-----------------|--------------------------------|--|------|--------------------------|------|
|             |         | V <sub>Z</sub> (V)    |      |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @V <sub>R</sub> |  | Min. |                          | Max. |
|             |         | Min.                  | Nom. | Max. | (mA)            | (Ω)                              |                                  | (mA)            | I <sub>R</sub> (μA)            | V <sub>R</sub> (V)   |      | I <sub>ZM</sub> (mA)     |      |
| BZX84C 2V4  | Z11     | 2.2                   | 2.4  | 2.6  | 5               | 100                              | 600                              | 1.0             | 50.0                           | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 2V7  | Z12     | 2.5                   | 2.7  | 2.9  | 5               | 100                              | 600                              | 1.0             | 20.0                           | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 3V0  | Z13     | 2.8                   | 3.0  | 3.2  | 5               | 95                               | 600                              | 1.0             | 10.0                           | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 3V3  | Z14     | 3.1                   | 3.3  | 3.5  | 5               | 95                               | 600                              | 1.0             | 5.0                            | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 3V6  | Z15     | 3.4                   | 3.6  | 3.8  | 5               | 90                               | 600                              | 1.0             | 5.0                            | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 3V9  | Z16     | 3.7                   | 3.9  | 4.1  | 5               | 90                               | 600                              | 1.0             | 3.0                            | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 4V3  | Z17     | 4.0                   | 4.3  | 4.6  | 5               | 90                               | 600                              | 1.0             | 3.0                            | 1.0  | -3.5 | 0.0                      | 5    |
| BZX84C 4V7  | Z1      | 4.4                   | 4.7  | 5.0  | 5               | 80                               | 500                              | 1.0             | 3.0                            | 2.0  | -3.5 | 0.2                      | 5    |
| BZX84C 5V1  | Z2      | 4.8                   | 5.1  | 5.4  | 5               | 60                               | 480                              | 1.0             | 2.0                            | 2.0  | -2.7 | 1.2                      | 5    |
| BZX84C 5V6  | Z3      | 5.2                   | 5.6  | 6.0  | 5               | 40                               | 400                              | 1.0             | 1.0                            | 2.0  | -2.0 | 2.5                      | 5    |
| BZX84C 6V2  | Z4      | 5.8                   | 6.2  | 6.6  | 5               | 10                               | 150                              | 1.0             | 3.0                            | 4.0  | 0.4  | 3.7                      | 5    |
| BZX84C 6V8  | Z5      | 6.4                   | 6.8  | 7.2  | 5               | 15                               | 80                               | 1.0             | 2.0                            | 4.0  | 1.2  | 4.5                      | 5    |
| BZX84C 7V5  | Z6      | 7.0                   | 7.5  | 7.9  | 5               | 15                               | 80                               | 1.0             | 1.0                            | 5.0  | 2.5  | 5.3                      | 5    |
| BZX84C 8V2  | Z7      | 7.7                   | 8.2  | 8.7  | 5               | 15                               | 80                               | 1.0             | 0.7                            | 5.0  | 3.2  | 6.2                      | 5    |
| BZX84C 9V1  | Z8      | 8.5                   | 9.1  | 9.6  | 5               | 15                               | 100                              | 1.0             | 0.5                            | 6.0  | 3.8  | 7.0                      | 5    |
| BZX84C 10   | Z9      | 9.4                   | 10   | 10.6 | 5               | 20                               | 150                              | 1.0             | 0.2                            | 7.0  | 4.5  | 8.0                      | 5    |
| BZX84C 11   | Y1 ·    | 10.4                  | 11   | 11.6 | 5               | 20                               | 150                              | 1.0             | 0.1                            | 8.0  | 5.4  | 9.0                      | 5    |
| BZX84C 12   | Y2 ·    | 11.4                  | 12   | 12.7 | 5               | 25                               | 150                              | 1.0             | 0.1                            | 8.0  | 6.0  | 10                       | 5    |
| BZX84C 13   | Y3      | 12.4                  | 13   | 14.1 | 5               | 30                               | 170                              | 1.0             | 0.1                            | 8.0  | 7.0  | 11                       | 5    |
| BZX84C 15   | Y4      | 13.8                  | 15   | 15.6 | 5               | 30                               | 200                              | 1.0             | 0.1                            | 10.5   | 9.2  | 13                       | 5    |
| BZX84C 16   | Y5      | 15.3                  | 16   | 17.1 | 5               | 40                               | 200                              | 1.0             | 0.1                            | 11.2   | 10.4 | 14                       | 5    |
| BZX84C 18   | Y6 ·    | 16.8                  | 18   | 19.1 | 5               | 45                               | 225                              | 1.0             | 0.1                            | 12.6   | 12.4 | 16                       | 5    |
| BZX84C 20   | Y7      | 18.8                  | 20   | 21.2 | 5               | 55                               | 225                              | 1.0             | 0.1                            | 14   | 14.4 | 18                       | 5    |
| BZX84C 22   | Y8      | 20.8                  | 22   | 23.3 | 5               | 55                               | 250                              | 1.0             | 0.1                            | 15.4   | 16.4 | 20                       | 5    |
| BZX84C 24   | Y9      | 22.8                  | 24   | 25.6 | 5               | 70                               | 250                              | 1.0             | 0.1                            | 16.8   | 18.4 | 22                       | 5    |
| BZX84C 27   | Y10     | 25.1                  | 27   | 28.9 | 2               | 80                               | 300                              | 0.5             | 0.1                            | 18.9   | 21.4 | 25.3                     | 2    |
| BZX84C 30   | Y11 ·   | 28                    | 30   | 32   | 2               | 80                               | 300                              | 0.5             | 0.1                            | 21   | 24.4 | 29.4                     | 2    |
| BZX84C 33   | Y12     | 31                    | 33   | 35   | 2               | 80                               | 325                              | 0.5             | 0.1                            | 23.1   | 27.1 | 33.4                     | 2    |
| BZX84C 36   | Y13     | 34                    | 36   | 38   | 2               | 90                               | 350                              | 0.5             | 0.1                            | 25.2   | 30.4 | 37.4                     | 2    |
| BZX84C 39   | Y14     | 37                    | 39   | 41   | 2               | 130                              | 350                              | 0.5             | 0.1                            | 27.3   | 33.4 | 41.2                     | 2    |
| BZX84C 43   | Y15     | 40                    | 43   | 46   | 2               | 100                              | 700                              | 1.0             | 0.1                            | 32   | 10   | 12                       | 2    |
| BZX84C 47   | Y16     | 44                    | 47   | 50   | 2               | 100                              | 750                              | 1.0             | 0.1                            | 35   | 10   | 12                       | 2    |
| BZX84C 51   | Y17     | 48                    | 51   | 54   | 2               | 125                              | 750                              | 1.0             | 0.1                            | 38   | 10   | 12                       | 2    |
| BZX84C 56   | Y18     | 52                    | 56   | 60   | 2               | 135                              | 700                              | 1.0             | 0.1                            | 39   | 10   | 12                       | 2    |
| BZX84C 62   | Y19     | 58                    | 62   | 66   | 2               | 200                              | 1000                             | 1.0             | 0.2                            | 47   | 10   | 12                       | 2    |
| BZX84C 68   | Y20     | 64                    | 68   | 72   | 2               | 250                              | 1000                             | 1.0             | 0.2                            | 52   | 10   | 12                       | 2    |
| BZX84C 75   | Y21 ·   | 70                    | 74.5 | 79   | 2               | 300                              | 1000                             | 1.0             | 0.2                            | 57   | 10   | 12                       | 2    |

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## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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## Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23  | R1           | 0.008          | 3000      | 45000    | 180000      | 7"            |

## Package Outline Dimensions (SOT-23)

| Symbol   | Dimensions  |      |          |       |
|----------|-------------|------|----------|-------|
|          | Millimeters |      | Inches   |       |
|          | Min.        | Max. | Min.     | Max.  |
| A        | 0.90        | 1.15 | 0.035    | 0.045 |
| A1       | -           | 0.10 | -        | 0.004 |
| A2       | 0.90        | 1.05 | 0.035    | 0.041 |
| b        | 0.30        | 0.50 | 0.012    | 0.020 |
| c        | 0.10        | 0.20 | 0.004    | 0.008 |
| D        | 2.80        | 3.00 | 0.110    | 0.118 |
| E        | 1.20        | 1.40 | 0.047    | 0.055 |
| E1       | 2.25        | 2.55 | 0.089    | 0.100 |
| e        | 0.950TYP    |      | 0.037TYP |       |
| e1       | 1.80        | 2.00 | 0.071    | 0.079 |
| L        | 0.550REF    |      | 0.022REF |       |
| L1       | 0.30        | 0.50 | 0.012    | 0.020 |
| $\theta$ | -           | 8°   | -        | 8°    |

## Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| J      | 0.75        | 0.85 | 0.030  | 0.033 |
| K      | 0.85        | 0.95 | 0.033  | 0.037 |
| M      | 1.95        | 2.05 | 0.077  | 0.081 |
| N      | 1.85        | 1.95 | 0.073  | 0.077 |

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