

## FEATURES

Large selection of zener voltages: 2.0V ~ 47V  
 Tight voltage tolerance:  $\pm 5\%$  for C-series  
 Ultra low-profile package well suited for automated assembly  
 MSL Class 1 compatible

## APPLICATIONS

General voltage regulation  
 Mobile & handheld systems

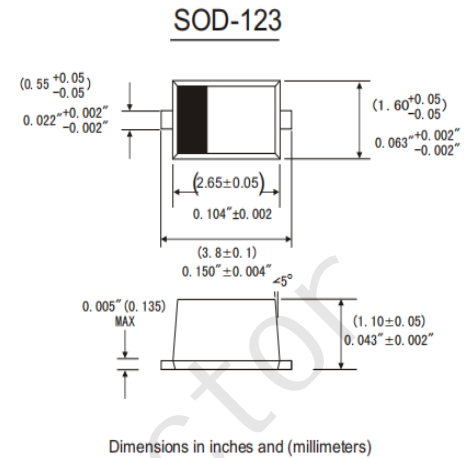
## ORDERING INFORMATION

| Part Number            | Marking    | Package |
|------------------------|------------|---------|
| BZT52C2V0Q - BZT52C47Q | See Page 2 | SOD-123 |

## MAXIMUM RATING (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                                | Symbol          | Value      | Unit               |
|------------------------------------------|-----------------|------------|--------------------|
| Forward Voltage @ $I_F=10\text{mA}$      | $V_F$           | 0.9        | V                  |
| Power Dissipation (Collector)            | $P_C$           | 500        | mW                 |
| Thermal Resistance (Junction-to-Ambient) | $R_{\theta JA}$ | 250        | $^\circ\text{C/W}$ |
| Thermal Resistance (Junction-to-Case)    | $R_{\theta JC}$ | 140        | $^\circ\text{C/W}$ |
| Junction Temperature Range               | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                | $T_{STG}$       | -65 ~ +150 | $^\circ\text{C}$   |

Note: These ratings are limiting values above which the serviceability of the diodes may be impaired.



**ELECTRICAL CHARACTERISTICS** (@ T<sub>A</sub> = 25°C unless otherwise specified)

| Part Number | Marking Code | Zener Voltage V <sub>Z</sub> (V) |       |       | @ I <sub>ZT</sub> (mA) | Maximum Zener Impedance               |                     |                        | Temperature Coefficient @ I <sub>ZT</sub> T <sub>C</sub> (mV/°C) |      | Maximum Reverse Current I <sub>R</sub> (μA) | @ V <sub>R</sub> (V) |
|-------------|--------------|----------------------------------|-------|-------|------------------------|---------------------------------------|---------------------|------------------------|------------------------------------------------------------------|------|---------------------------------------------|----------------------|
|             |              | Min.                             | Typ.  | Max.  |                        | Z <sub>ZT</sub> (Ω) @ I <sub>ZT</sub> | Z <sub>ZK</sub> (Ω) | @ I <sub>ZK</sub> (mA) | Min.                                                             | Max. |                                             |                      |
| BZT52C2V0Q  | WY           | 1.90                             | 2.00  | 2.10  | 5                      | 100                                   | 600                 | 1.0                    | -3.5                                                             | 0.0  | 150.000                                     | 1.0                  |
| BZT52C2V2Q  | 22•          | 2.09                             | 2.20  | 2.31  | 5                      | 100                                   | 600                 | 1.0                    | -3.5                                                             | 0.0  | 150.000                                     | 1.0                  |
| BZT52C2V4Q  | WX           | 2.28                             | 2.40  | 2.52  | 5                      | 100                                   | 600                 | 1.0                    | -3.5                                                             | 0.0  | 50.000                                      | 1.0                  |
| BZT52C2V7Q  | W1           | 2.57                             | 2.70  | 2.84  | 5                      | 100                                   | 600                 | 1.0                    | -3.5                                                             | 0.0  | 20.000                                      | 1.0                  |
| BZT52C3V0Q  | W2           | 2.85                             | 3.00  | 3.15  | 5                      | 95                                    | 600                 | 1.0                    | -3.5                                                             | 0.0  | 10.000                                      | 1.0                  |
| BZT52C3V3Q  | W3           | 3.14                             | 3.30  | 3.47  | 5                      | 95                                    | 600                 | 1.0                    | -3.5                                                             | 0.0  | 5.000                                       | 1.0                  |
| BZT52C3V6Q  | W4           | 3.42                             | 3.60  | 3.78  | 5                      | 90                                    | 600                 | 1.0                    | -3.5                                                             | 0.0  | 5.000                                       | 1.0                  |
| BZT52C3V9Q  | W5           | 3.71                             | 3.90  | 4.10  | 5                      | 90                                    | 600                 | 1.0                    | -3.5                                                             | 0.0  | 3.000                                       | 1.0                  |
| BZT52C4V3Q  | W6           | 4.09                             | 4.30  | 4.52  | 5                      | 90                                    | 600                 | 1.0                    | -3.5                                                             | 0.0  | 3.000                                       | 1.0                  |
| BZT52C4V7Q  | W7           | 4.47                             | 4.70  | 4.94  | 5                      | 80                                    | 500                 | 1.0                    | -3.5                                                             | 0.0  | 3.000                                       | 2.0                  |
| BZT52C5V1Q  | W8           | 4.85                             | 5.10  | 5.36  | 5                      | 60                                    | 480                 | 1.0                    | -2.7                                                             | 1.2  | 2.000                                       | 2.0                  |
| BZT52C5V6Q  | W9           | 5.32                             | 5.60  | 5.88  | 5                      | 40                                    | 400                 | 1.0                    | -2.0                                                             | 2.5  | 1.000                                       | 2.0                  |
| BZT52C6V2Q  | WA           | 5.89                             | 6.20  | 6.51  | 5                      | 10                                    | 150                 | 1.0                    | 0.4                                                              | 3.7  | 3.000                                       | 4.0                  |
| BZT52C6V8Q  | WB           | 6.46                             | 6.80  | 7.14  | 5                      | 15                                    | 80                  | 1.0                    | 1.2                                                              | 4.5  | 2.000                                       | 4.0                  |
| BZT52C7V5Q  | WC           | 7.13                             | 7.50  | 7.88  | 5                      | 15                                    | 80                  | 1.0                    | 2.5                                                              | 5.3  | 1.000                                       | 5.0                  |
| BZT52C8V2Q  | WD           | 7.79                             | 8.20  | 8.61  | 5                      | 15                                    | 80                  | 1.0                    | 3.2                                                              | 6.2  | 0.700                                       | 5.0                  |
| BZT52C9V1Q  | WE           | 8.65                             | 9.10  | 9.56  | 5                      | 15                                    | 100                 | 1.0                    | 3.8                                                              | 7.0  | 0.500                                       | 6.0                  |
| BZT52C10Q   | WF           | 9.50                             | 10.00 | 10.50 | 5                      | 20                                    | 150                 | 1.0                    | 4.5                                                              | 8.0  | 0.200                                       | 7.0                  |
| BZT52C11Q   | WG           | 10.45                            | 11.00 | 11.55 | 5                      | 20                                    | 150                 | 1.0                    | 5.4                                                              | 9.0  | 0.100                                       | 8.0                  |
| BZT52C12Q   | WH           | 11.40                            | 12.00 | 12.60 | 5                      | 25                                    | 150                 | 1.0                    | 6.0                                                              | 10.0 | 0.100                                       | 8.0                  |
| BZT52C13Q   | WI           | 12.35                            | 13.00 | 13.65 | 5                      | 30                                    | 170                 | 1.0                    | 7.0                                                              | 11.0 | 0.100                                       | 8.0                  |
| BZT52C15Q   | WJ           | 14.25                            | 15.00 | 15.75 | 5                      | 30                                    | 200                 | 1.0                    | 9.2                                                              | 13.0 | 0.100                                       | 10.5                 |
| BZT52C16Q   | WK           | 15.20                            | 16.00 | 16.80 | 5                      | 40                                    | 200                 | 1.0                    | 10.4                                                             | 14.0 | 0.100                                       | 11.2                 |
| BZT52C18Q   | WL           | 17.10                            | 18.00 | 18.90 | 5                      | 45                                    | 225                 | 1.0                    | 12.4                                                             | 16.0 | 0.100                                       | 12.6                 |
| BZT52C20Q   | WM           | 19.00                            | 20.00 | 21.00 | 5                      | 55                                    | 225                 | 1.0                    | 14.4                                                             | 18.0 | 0.100                                       | 14.0                 |
| BZT52C22Q   | WN           | 20.90                            | 22.00 | 23.10 | 5                      | 55                                    | 250                 | 1.0                    | 16.4                                                             | 20.0 | 0.100                                       | 15.4                 |
| BZT52C24Q   | WO           | 22.80                            | 24.00 | 25.20 | 5                      | 70                                    | 250                 | 1.0                    | 18.4                                                             | 22.0 | 0.100                                       | 16.8                 |
| BZT52C27Q   | WP           | 25.65                            | 27.00 | 28.35 | 2                      | 80                                    | 300                 | 0.5                    | 21.4                                                             | 25.3 | 0.100                                       | 18.9                 |
| BZT52C30Q   | WQ           | 28.50                            | 30.00 | 31.50 | 2                      | 80                                    | 300                 | 0.5                    | 24.4                                                             | 29.4 | 0.100                                       | 21.0                 |
| BZT52C33Q   | WR           | 31.35                            | 33.00 | 34.65 | 2                      | 80                                    | 325                 | 0.5                    | 27.4                                                             | 33.4 | 0.100                                       | 23.1                 |
| BZT52C36Q   | WS           | 34.20                            | 36.00 | 37.80 | 2                      | 90                                    | 350                 | 0.5                    | 30.4                                                             | 37.4 | 0.100                                       | 25.2                 |
| BZT52C39Q   | WT           | 37.05                            | 39.00 | 40.95 | 2                      | 130                                   | 350                 | 0.5                    | 33.4                                                             | 41.2 | 0.100                                       | 27.3                 |
| BZT52C43Q   | WU           | 40.85                            | 43.00 | 45.15 | 2                      | 100                                   | 700                 | 1.0                    | 10.0                                                             | 12.0 | 0.100                                       | 32.0                 |
| BZT52C47Q   | WV           | 44.65                            | 47.00 | 49.35 | 2                      | 100                                   | 750                 | 1.0                    | 10.0                                                             | 12.0 | 0.100                                       | 35.0                 |

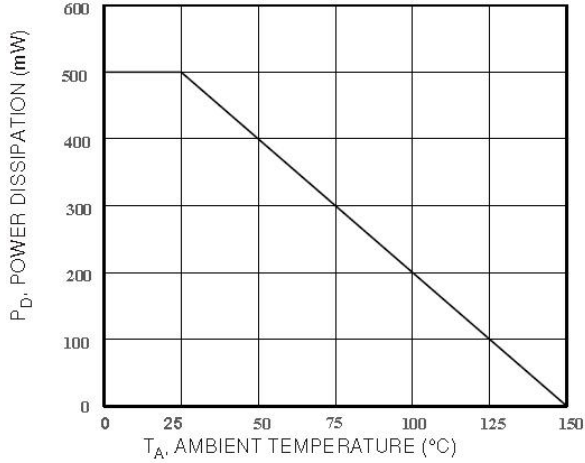
**TYPICAL CHARACTERISTICS** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)


Fig. 1 Power Derating Curve

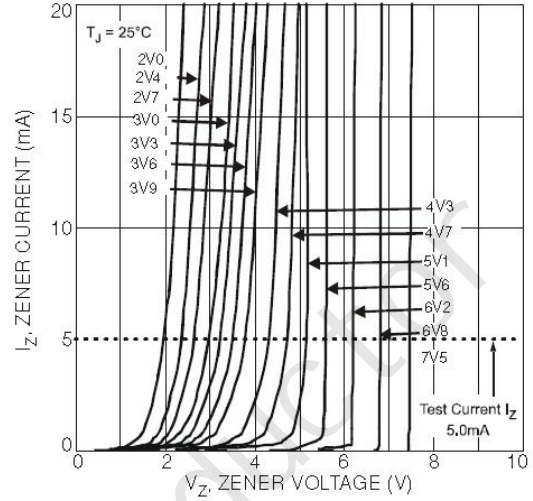


Fig. 2 Typical Zener Breakdown Characteristics

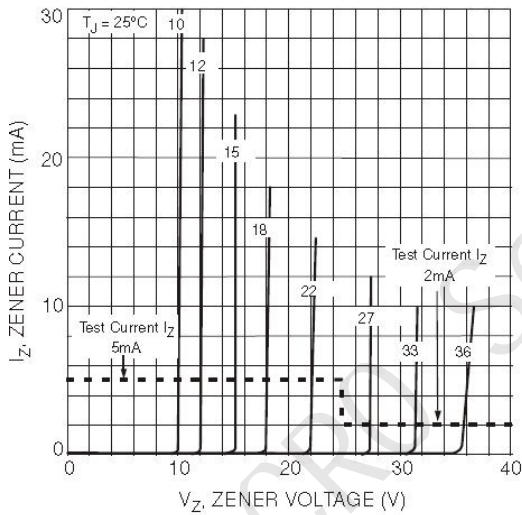


Fig. 3 Typical Zener Breakdown Characteristics

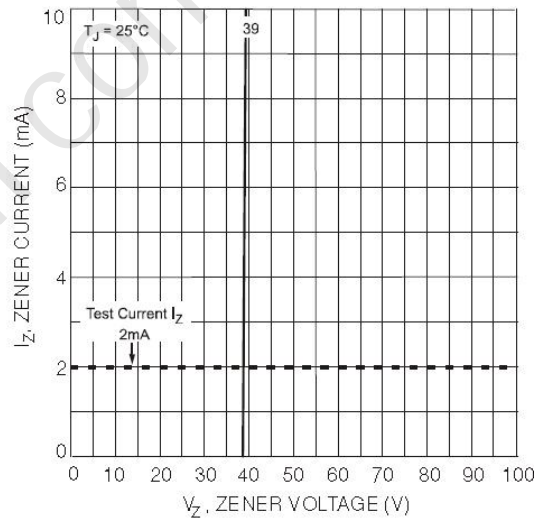


Fig. 4 Typical Zener Breakdown Characteristics

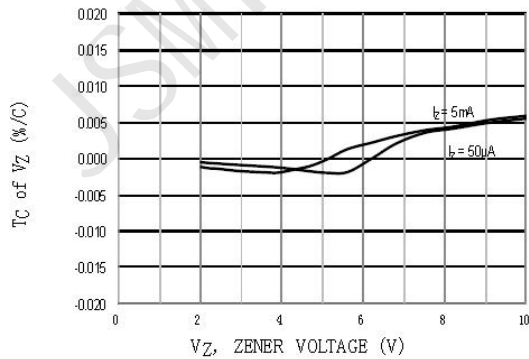


Fig. 5 Typical Temperature Coefficient of Zener Voltage



Fig. 6 Typical Temperature Coefficient of Zener Voltage

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