

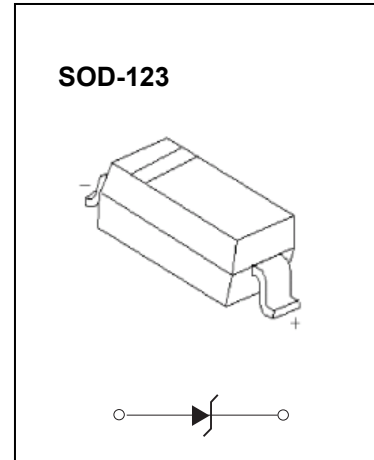


## SOD-123 Plastic-Encapsulate Diodes

### **BZT52C2V4-BZT52C43** ZENER DIODE

#### FEATURES:

- Planar Die Construction
- 350mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version



#### Maximum Ratings( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Characteristic                                 | Symbol          | Value    | Unit                 |
|--|-----------------|----------|----------------------|
| Forward Voltage (Note 2) @ $I_F = 10\text{mA}$ | $V_F$           | 0.9      | V                    |
| Power Dissipation(Note 1)                      | $P_D$           | 350      | mW                   |
| Thermal Resistance from Junction to Ambient    | $R_{\theta JA}$ | 357      | $^{\circ}\text{C/W}$ |
| Junction Temperature                           | $T_J$           | 150      | $^{\circ}\text{C}$   |
| Storage Temperature                            | $T_{STG}$       | -55~+150 | $^{\circ}\text{C}$   |

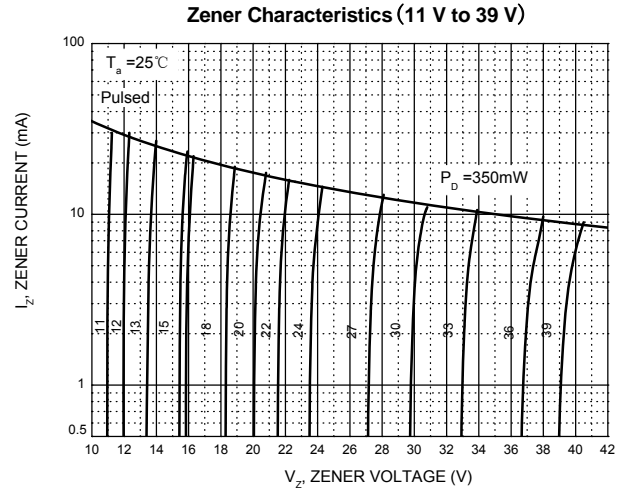
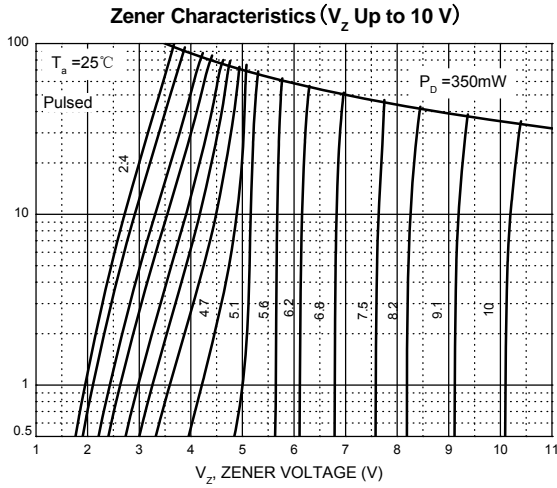
- Notes: 1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>
2. Short duration test pulse used to minimize self-heating effect
3. f=1kHz

**Electrical Characteristics (  $T_a = 25^\circ\text{C}$  unless otherwise specified )**

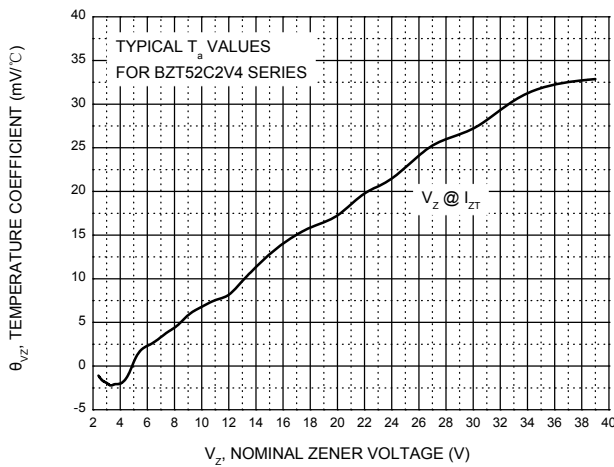
| Type Number | Type Code | Zener Voltage Range (Note 2) |        |        |          | Maximum Zener Impedance (Note 3) |                   |          | Maximum Reverse Current (Note 2) |       | Typical Temperature Coefficient @ $I_{ZTC}$ |      | Test Current $I_{ZTC}$ |
|-------------|-----------|------------------------------|--------|--------|----------|----------------------------------|-------------------|----------|----------------------------------|-------|---|------|------------------------|
|             |           | $V_Z @ I_{ZT}$               |        |        | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$                | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$                            | $V_R$ | mV/ $^\circ\text{C}$                        |      |                        |
|             |           | Nom(V)                       | Min(V) | Max(V) | mA       | $\Omega$                         |                   | mA       | $\mu\text{A}$                    | V     | Min   | Max  | mA                     |
| BZT52C2V4   | WX        | 2.4                          | 2.20   | 2.60   | 5        | 100                              | 600               | 1.0      | 50                               | 1.0   | -3.5  | 0    | 5                      |
| BZT52C2V7   | W1        | 2.7                          | 2.5    | 2.9    | 5        | 100                              | 600               | 1.0      | 20                               | 1.0   | -3.5  | 0    | 5                      |
| BZT52C3V0   | W2        | 3.0                          | 2.8    | 3.2    | 5        | 95                               | 600               | 1.0      | 10                               | 1.0   | -3.5  | 0    | 5                      |
| BZT52C3V3   | W3        | 3.3                          | 3.1    | 3.5    | 5        | 95                               | 600               | 1.0      | 5                                | 1.0   | -3.5  | 0    | 5                      |
| BZT52C3V6   | W4        | 3.6                          | 3.4    | 3.8    | 5        | 90                               | 600               | 1.0      | 5                                | 1.0   | -3.5  | 0    | 5                      |
| BZT52C3V9   | W5        | 3.9                          | 3.7    | 4.1    | 5        | 90                               | 600               | 1.0      | 3                                | 1.0   | -3.5  | 0    | 5                      |
| BZT52C4V3   | W6        | 4.3                          | 4.0    | 4.6    | 5        | 90                               | 600               | 1.0      | 3                                | 1.0   | -3.5  | 0    | 5                      |
| BZT52C4V7   | W7        | 4.7                          | 4.4    | 5.0    | 5        | 80                               | 500               | 1.0      | 3                                | 2.0   | -3.5  | 0.2  | 5                      |
| BZT52C5V1   | W8        | 5.1                          | 4.8    | 5.4    | 5        | 60                               | 480               | 1.0      | 2                                | 2.0   | -2.7  | 1.2  | 5                      |
| BZT52C5V6   | W9        | 5.6                          | 5.2    | 6.0    | 5        | 40                               | 400               | 1.0      | 1                                | 2.0   | -2.0  | 2.5  | 5                      |
| BZT52C6V2   | WA        | 6.2                          | 5.8    | 6.6    | 5        | 10                               | 150               | 1.0      | 3                                | 4.0   | 0.4   | 3.7  | 5                      |
| BZT52C6V8   | WB        | 6.8                          | 6.4    | 7.2    | 5        | 15                               | 80                | 1.0      | 2                                | 4.0   | 1.2   | 4.5  | 5                      |
| BZT52C7V5   | WC        | 7.5                          | 7.0    | 7.9    | 5        | 15                               | 80                | 1.0      | 1                                | 5.0   | 2.5   | 5.3  | 5                      |
| BZT52C8V2   | WD        | 8.2                          | 7.7    | 8.7    | 5        | 15                               | 80                | 1.0      | 0.7                              | 5.0   | 3.2   | 6.2  | 5                      |
| BZT52C9V1   | WE        | 9.1                          | 8.5    | 9.6    | 5        | 15                               | 100               | 1.0      | 0.5                              | 6.0   | 3.8   | 7.0  | 5                      |
| BZT52C10    | WF        | 10                           | 9.4    | 10.6   | 5        | 20                               | 150               | 1.0      | 0.2                              | 7.0   | 4.5   | 8.0  | 5                      |
| BZT52C11    | WG        | 11                           | 10.4   | 11.6   | 5        | 20                               | 150               | 1.0      | 0.1                              | 8.0   | 5.4   | 9.0  | 5                      |
| BZT52C12    | WH        | 12                           | 11.4   | 12.7   | 5        | 25                               | 150               | 1.0      | 0.1                              | 8.0   | 6.0   | 10.0 | 5                      |
| BZT52C13    | WI        | 13                           | 12.4   | 14.1   | 5        | 30                               | 170               | 1.0      | 0.1                              | 8.0   | 7.0   | 11.0 | 5                      |
| BZT52C15    | WJ        | 15                           | 13.8   | 15.6   | 5        | 30                               | 200               | 1.0      | 0.1                              | 10.5  | 9.2   | 13.0 | 5                      |
| BZT52C16    | WK        | 16                           | 15.3   | 17.1   | 5        | 40                               | 200               | 1.0      | 0.1                              | 11.2  | 10.4  | 14.0 | 5                      |
| BZT52C18    | WL        | 18                           | 16.8   | 19.1   | 5        | 45                               | 225               | 1.0      | 0.1                              | 12.6  | 12.4  | 16.0 | 5                      |
| BZT52C20    | WM        | 20                           | 18.8   | 21.2   | 5        | 55                               | 225               | 1.0      | 0.1                              | 14.0  | 14.4  | 18.0 | 5                      |
| BZT52C22    | WN        | 22                           | 20.8   | 23.3   | 5        | 55                               | 250               | 1.0      | 0.1                              | 15.4  | 16.4  | 20.0 | 5                      |
| BZT52C24    | WO        | 24                           | 22.8   | 25.6   | 5        | 70                               | 250               | 1.0      | 0.1                              | 16.8  | 18.4  | 22.0 | 5                      |
| BZT52C27    | WP        | 27                           | 25.1   | 28.9   | 2        | 80                               | 300               | 0.5      | 0.1                              | 18.9  | 21.4  | 25.3 | 2                      |
| BZT52C30    | WQ        | 30                           | 28.0   | 32.0   | 2        | 80                               | 300               | 0.5      | 0.1                              | 21.0  | 24.4  | 29.4 | 2                      |
| BZT52C33    | WR        | 33                           | 31.0   | 35.0   | 2        | 80                               | 325               | 0.5      | 0.1                              | 23.1  | 27.4  | 33.4 | 2                      |
| BZT52C36    | WS        | 36                           | 34.0   | 38.0   | 2        | 90                               | 350               | 0.5      | 0.1                              | 25.2  | 30.4  | 37.4 | 2                      |
| BZT52C39    | WT        | 39                           | 37.0   | 41.0   | 2        | 130                              | 350               | 0.5      | 0.1                              | 27.3  | 33.4  | 41.2 | 2                      |
| BZT52C43    | WU        | 43                           | 40.0   | 46.0   | 5        | 100                              | 700               | 1.0      | 0.1                              | 32    | 10.0  | 12.0 | 5                      |

# Typical Characteristics

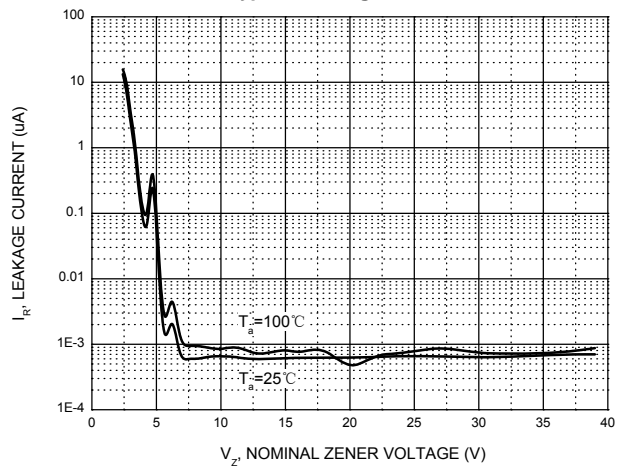
# BZT52C2V4-39



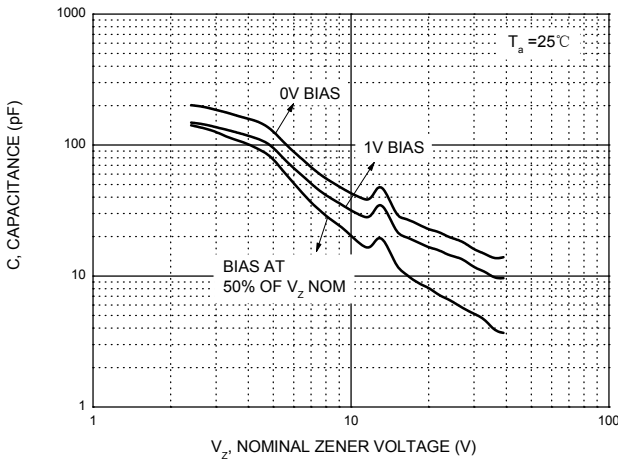
**Temperature Coefficients**



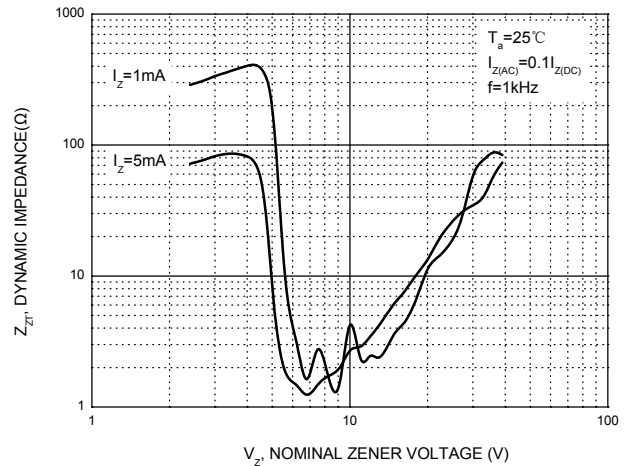
**Typical Leakage Current**



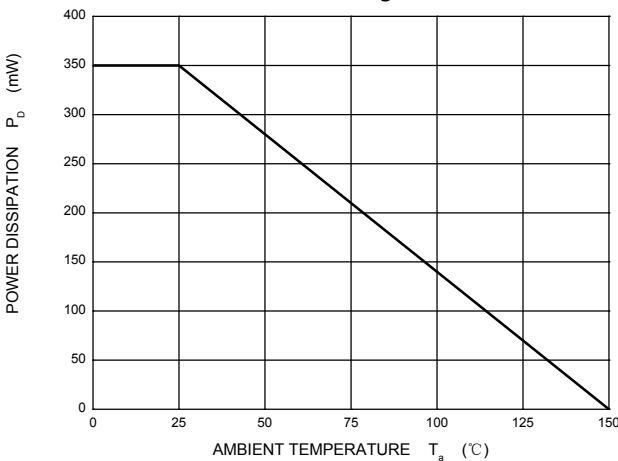
**Typical Capacitance**



**Effect of Zener Voltage on Zener Impedance**



**Power Derating Curve**



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