

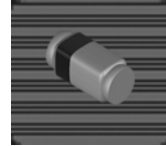


BZT55 Series

Zener Diodes
Zener Voltage Range: 2.4 to 75 Volts Power Dissipation: 500mW

Features

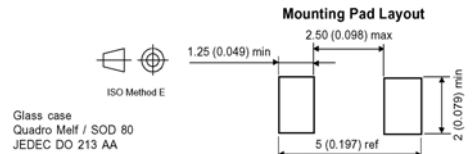
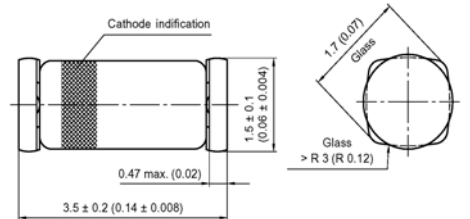
- ◆ Very sharp reverse characteristic
- ◆ Low reverse current level
- ◆ Available with tighter tolerances
- ◆ Very high stability
- ◆ Low noise
- ◆ For voltage stabilization



Mechanical Data

- ◆ Case: QuadroMELF (SOD-80)
- ◆ Weight: approx. 0.034g

Package Dimensions in mm (inches)



Maximum Ratings and Thermal Characteristics

($T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|------------|---------------|--------------------|
| Zener current (see Table "Characteristics") | I_Z | P_{tot}/V_Z | mA |
| Power dissipation at $R_{thJA} \leq 300\text{K/W}$ | P_{tot} | 500 | mW |
| Junction temperature | T_j | 175 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{stg} | -65 to +175 | $^{\circ}\text{C}$ |
| Forward voltage at $I_F=200\text{mA}$ | V_F | 1.5 | V |
| Junction ambient on PC board 50mm X 50mm X 1.6mm | R_{thJA} | 500 | K/W |

Electrical Characteristics

(T_A=25°C unless otherwise noted)

| Part number C for ±5% V _Z | Zener voltage ¹⁾ V _Z @ I _{ZT} (V) | | Dynamic resistance | | Test current | Temperature coefficient TK _{VZ} (% / K) | | Test current | Reverse leakage current | | |
|---|--|-------|---|---|-------------------------|--|--------|-------------------------|---|--|------------------------------|
| | Min. | Max. | at I _{ZT} f=1kHz r _{zj} (Ω) | at I _{ZK} f=1kHz r _{zj} (Ω) | I _{ZT} (mA) | Min. | Max. | I _{ZK} (mA) | at T _{app} =25°C I _R (uA) | at T _{app} =150°C I _R (uA) | at V _R (Volts) |
| | | | | | | | | | | | |
| BZT55-C2V4 | 2.28 | 2.56 | < 85 | < 600 | 5 | - 0.09 | - 0.06 | 1 | <50 | <100 | 1 |
| BZT55-C2V7 | 2.50 | 2.90 | < 85 | < 600 | 5 | - 0.09 | - 0.06 | 1 | <10 | <50 | 1 |
| BZT55-C3V0 | 2.80 | 3.20 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <4 | <40 | 1 |
| BZT55-C3V3 | 3.10 | 3.50 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <2 | <40 | 1 |
| BZT55-C3V6 | 3.40 | 3.80 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <2 | <40 | 1 |
| BZT55-C3V9 | 3.70 | 4.10 | < 90 | < 600 | 5 | - 0.06 | - 0.03 | 1 | <2 | <40 | 1 |
| BZT55-C4V3 | 4.00 | 4.60 | < 90 | < 600 | 5 | - 0.05 | + 0.02 | 1 | <1 | <20 | 1 |
| BZT55-C4V7 | 4.40 | 5.00 | < 80 | < 600 | 5 | - 0.02 | + 0.02 | 1 | <0.5 | <10 | 1 |
| BZT55-C5V1 | 4.80 | 5.40 | < 60 | < 550 | 5 | - 0.05 | + 0.05 | 1 | <0.1 | <2 | 1 |
| BZT55-C5V6 | 5.20 | 6.00 | < 40 | < 450 | 5 | + 0.03 | + 0.06 | 1 | <0.1 | <2 | 1 |
| BZT55-C6V2 | 5.80 | 6.60 | < 10 | < 200 | 5 | + 0.03 | + 0.07 | 1 | <0.1 | <2 | 2 |
| BZT55-C6V8 | 6.40 | 7.20 | < 8 | < 150 | 5 | + 0.03 | + 0.07 | 1 | <0.1 | <2 | 3 |
| BZT55-C7V5 | 7.00 | 7.90 | < 7 | < 50 | 5 | + 0.03 | + 0.08 | 1 | <0.1 | <2 | 5 |
| BZT55-C8V2 | 7.70 | 8.70 | < 7 | < 50 | 5 | + 0.03 | + 0.09 | 1 | <0.1 | <2 | 6.2 |
| BZT55-C9V1 | 8.50 | 9.60 | < 10 | < 50 | 5 | + 0.03 | + 0.1 | 1 | <0.1 | <2 | 6.8 |
| BZT55-C10 | 9.40 | 10.60 | < 15 | < 70 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 7.5 |
| BZT55-C11 | 10.40 | 11.60 | < 20 | < 70 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 8.2 |
| BZT55-C12 | 11.40 | 12.70 | < 20 | < 90 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 9.1 |
| BZT55-C13 | 12.40 | 14.10 | < 26 | < 110 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 10 |
| BZT55-C15 | 13.80 | 15.60 | < 30 | < 110 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 11 |
| BZT55-C16 | 15.30 | 17.10 | < 40 | < 170 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 12 |
| BZT55-C18 | 16.80 | 19.10 | < 50 | < 170 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 13 |
| BZT55-C20 | 18.80 | 21.20 | < 55 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 15 |
| BZT55-C22 | 20.80 | 23.30 | < 55 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 16 |
| BZT55-C24 | 22.80 | 25.60 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 18 |
| BZT55-C27 | 25.10 | 28.90 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 20 |
| BZT55-C30 | 28.00 | 32.00 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 22 |
| BZT55-C33 | 31.00 | 35.00 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 24 |
| BZT55-C36 | 34.00 | 38.00 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 27 |
| BZT55-C39 | 37.00 | 41.00 | < 90 | < 500 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <5 | 30 |
| BZT55-C43 | 40.00 | 46.00 | < 90 | < 600 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <5 | 33 |
| BZT55-C47 | 44.00 | 50.00 | < 110 | < 700 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <5 | 36 |
| BZT55-C51 | 48.00 | 54.00 | < 125 | < 700 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 39 |
| BZT55-C56 | 52.00 | 60.00 | < 135 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 43 |
| BZT55-C62 | 58.00 | 66.00 | < 150 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 47 |
| BZT55-C68 | 64.00 | 72.00 | < 200 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 51 |
| BZT55-C75 | 70.00 | 79.00 | < 250 | < 1500 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 56 |

Notes: 1. t_p < 10 ms, T/t_p > 1000.

*) Additional measurement of Voltage group 9V1 to 75 at 95 % V_{Zmin} < 35 nA at T_j 25 °C

Electrical Characteristics

(T_A=25°C unless otherwise noted)

| Part number B for ±2% V _Z | Zener voltage ¹⁾ V _Z @ I _{ZT} (V) | | Dynamic resistance | | Test current | Temperature coefficient TK _{VZ} (% / K) | | Test current | Reverse leakage current | | |
|---|--|-------|---|---|-------------------------|--|--------|-------------------------|---|--|------------------------------|
| | Min. | Max. | at I _{ZT} f=1kHz r _{Zj} (Ω) | at I _{ZK} f=1kHz r _{Zj} (Ω) | I _{ZT} (mA) | Min. | Max. | I _{ZK} (mA) | at T _{amb} =25°C I _R (µA) | at T _{amb} =150°C I _R (µA) | at V _R (Volts) |
| | | | | | | | | | | | |
| BZT55-B2V4 | 2.35 | 2.45 | < 85 | < 600 | 5 | - 0.09 | - 0.06 | 1 | <50 | <100 | 1 |
| BZT55-B2V7 | 2.65 | 2.76 | < 85 | < 600 | 5 | - 0.09 | - 0.06 | 1 | <10 | <50 | 1 |
| BZT55-B3V0 | 2.94 | 3.06 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <4 | <40 | 1 |
| BZT55-B3V3 | 3.24 | 3.36 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <2 | <40 | 1 |
| BZT55-B3V6 | 3.52 | 3.68 | < 90 | < 600 | 5 | - 0.08 | - 0.05 | 1 | <2 | <40 | 1 |
| BZT55-B3V9 | 3.82 | 3.98 | < 90 | < 600 | 5 | - 0.06 | - 0.03 | 1 | <2 | <40 | 1 |
| BZT55-B4V3 | 4.22 | 4.38 | < 90 | < 600 | 5 | - 0.05 | + 0.02 | 1 | <1 | <20 | 1 |
| BZT55-B4V7 | 4.6 | 4.8 | < 80 | < 600 | 5 | - 0.02 | + 0.02 | 1 | <0.5 | <10 | 1 |
| BZT55-B5V1 | 5.00 | 5.20 | < 60 | < 550 | 5 | - 0.05 | + 0.05 | 1 | <0.1 | <2 | 1 |
| BZT55-B5V6 | 5.48 | 5.72 | < 40 | < 450 | 5 | + 0.03 | + 0.06 | 1 | <0.1 | <2 | 1 |
| BZT55-B6V2 | 6.08 | 6.32 | < 10 | < 200 | 5 | + 0.03 | + 0.07 | 1 | <0.1 | <2 | 2 |
| BZT55-B6V8 | 6.66 | 6.94 | < 8 | < 150 | 5 | + 0.03 | + 0.07 | 1 | <0.1 | <2 | 3 |
| BZT55-B7V5 | 7.35 | 7.65 | < 7 | < 50 | 5 | + 0.03 | + 0.08 | 1 | <0.1 | <2 | 5 |
| BZT55-B8V2 | 8.04 | 8.36 | < 7 | < 50 | 5 | + 0.03 | + 0.09 | 1 | <0.1 | <2 | 6.2 |
| BZT55-B9V1 | 8.92 | 9.28 | < 10 | < 50 | 5 | + 0.03 | + 0.1 | 1 | <0.1 | <2 | 6.8 |
| BZT55-B10 | 9.80 | 10.20 | < 15 | < 70 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 7.5 |
| BZT55-B11 | 10.78 | 11.22 | < 20 | < 70 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 8.2 |
| BZT55-B12 | 11.76 | 12.24 | < 20 | < 90 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 9.1 |
| BZT55-B13 | 12.74 | 13.26 | < 26 | < 110 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 10 |
| BZT55-B15 | 14.70 | 15.30 | < 30 | < 110 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 11 |
| BZT55-B16 | 15.70 | 16.30 | < 40 | < 170 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 12 |
| BZT55-B18 | 17.64 | 18.36 | < 50 | < 170 | 5 | + 0.03 | + 0.11 | 1 | <0.1 | <2 | 13 |
| BZT55-B20 | 19.60 | 20.40 | < 55 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 15 |
| BZT55-B22 | 21.55 | 22.45 | < 55 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 16 |
| BZT55-B24 | 23.50 | 24.50 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 18 |
| BZT55-B27 | 26.40 | 27.60 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 20 |
| BZT55-B30 | 29.40 | 30.60 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 22 |
| BZT55-B33 | 32.40 | 33.60 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 24 |
| BZT55-B36 | 35.30 | 36.70 | < 80 | < 220 | 5 | + 0.04 | + 0.12 | 1 | <0.1 | <2 | 27 |
| BZT55-B39 | 38.20 | 39.80 | < 90 | < 500 | 2.5 | + 0.04 | + 0.12 | 1 | <0.1 | <5 | 30 |
| BZT55-B43 | 42.10 | 43.90 | < 90 | < 600 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <5 | 33 |
| BZT55-B47 | 46.10 | 47.90 | < 110 | < 700 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <5 | 36 |
| BZT55-B51 | 50.00 | 52.00 | < 125 | < 700 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 39 |
| BZT55-B56 | 54.90 | 57.10 | < 135 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 43 |
| BZT55-B62 | 60.80 | 63.20 | < 150 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 47 |
| BZT55-B68 | 66.60 | 69.40 | < 200 | < 1000 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 51 |
| BZT55-B75 | 73.50 | 76.50 | < 250 | < 1500 | 2.5 | + 0.04 | + 0.12 | 0.5 | <0.1 | <10 | 56 |

Notes: 1. t_p < 10 ms, T/t_p > 1000.

*) Additional measurement of Voltage group 9V1 to 75 at 95 % V_{Zmin} < 35 nA at T_J 25 °C

RATINGS AND CHARACTERISTIC CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

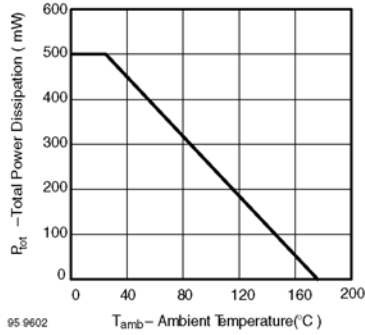


Fig. 1 Total Power Dissipation vs. Ambient Temperature

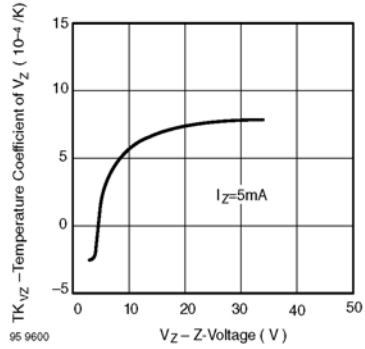


Fig. 4 Temperature Coefficient of V_Z vs. Z-Voltage

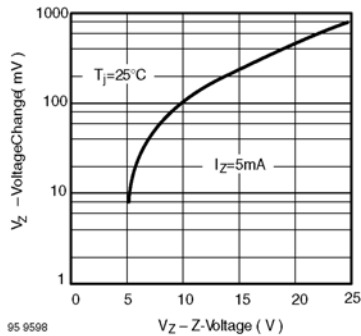


Fig. 2 Typical Change of Working Voltage under Operating Conditions at $T_{amb}=25^\circ\text{C}$

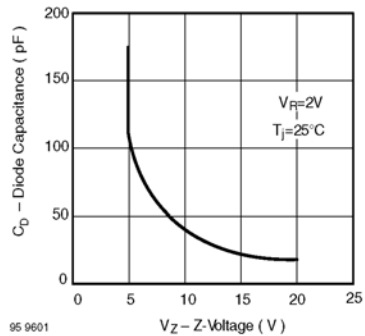


Fig. 5 Diode Capacitance vs. Z-Voltage

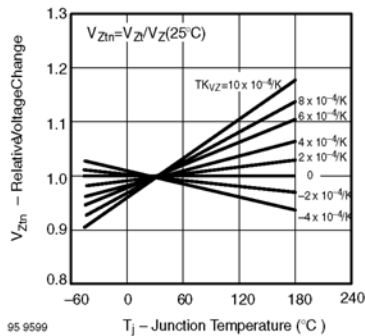


Fig. 3 Typical Change of Working Voltage vs. Junction Temperature

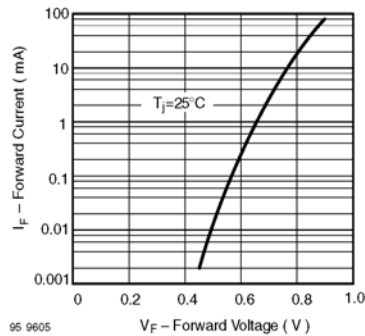


Fig. 6 Forward Current vs. Forward Voltage

RATINGS AND CHARACTERISTIC CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

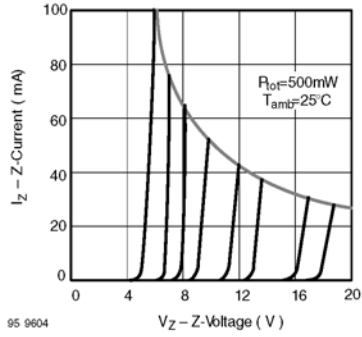


Fig. 7 Z-Current vs. Z-Voltage

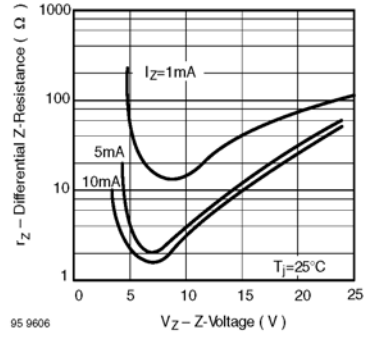


Fig. 9 Differential Z-Resistance vs. Z-Voltage

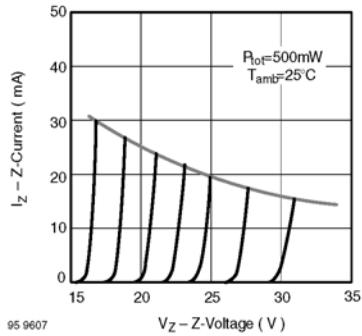


Fig. 8 Z-Current vs. Z-Voltage

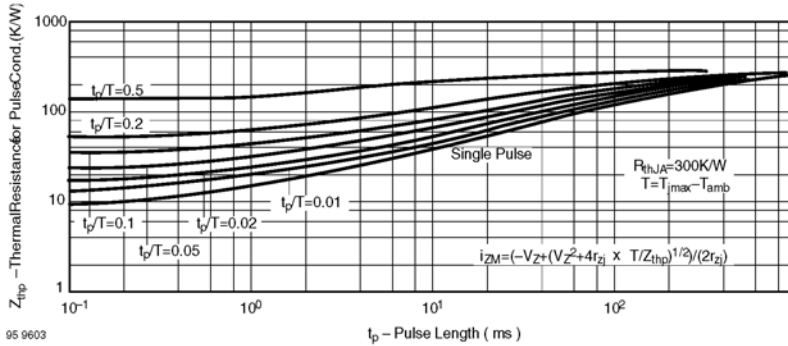


Fig. 10 Thermal Response