

BZT55 Series

SILICON EPITAXIAL PLANAR ZENER DIODES

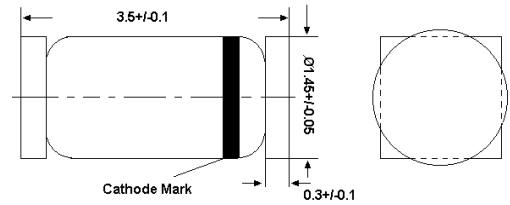
Features

- Very sharp reverse characteristic
- Low reverse current level
- Available with tighter tolerances
- Very high stability
- Low noise

Applications

- Voltage stabilization

LS-34



QuadromELF
Dimensions in mm

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|------------------|
| Power Dissipation | P_{tot} | 500 | mW |
| Junction Temperature | T_j | 175 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 65 to + 175 | $^\circ\text{C}$ |

Characteristics at $T_a = 25\text{ }^\circ\text{C}$

| Parameter | Symbol | Max. | Unit |
|--|------------|------|------|
| Thermal Resistance Junction to Ambient Air On PC board 50 mm X 50 mm X 1.6 mm | R_{thJA} | 500 | K/W |
| Forward Voltage at $I_F = 200\text{ mA}$ | V_F | 1.5 | V |

BZT55 Series

| Type | Zener Voltage Range ¹⁾ | | Dynamic Resistance | | | Reverse Leakage Current | | | Temp Coefficient of Zener Voltage |
|-------------------------|-----------------------------------|-----------------|--------------------|-----------------|--------------------|-------------------------|-------------------------|----------------------------------|-----------------------------------|
| | V _{ZT} | I _{ZT} | Z _{ZT} | Z _{ZK} | at I _{ZK} | T _a = 25 °C | T _a = 150 °C | I _R at V _R | TKvz |
| | V | mA | Max. (Ω) | Max. (Ω) | mA | Max. (μA) | Max. (μA) | V | %/K |
| BZT55C2V4 | 2.28...2.56 | 5 | 85 | 600 | 1 | 50 | 100 | 1 | -0.09...-0.06 |
| BZT55C2V7 | 2.5...2.9 | 5 | 85 | 600 | 1 | 10 | 50 | 1 | -0.09...-0.06 |
| BZT55C3V0 | 2.8...3.2 | 5 | 90 | 600 | 1 | 4 | 40 | 1 | -0.08...-0.05 |
| BZT55C3V3 | 3.1...3.5 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55C3V6 | 3.4...3.8 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55C3V9 | 3.7...4.1 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55C4V3 | 4.0...4.6 | 5 | 90 | 600 | 1 | 1 | 20 | 1 | -0.06...-0.03 |
| BZT55C4V7 | 4.4...5.0 | 5 | 80 | 600 | 1 | 0.5 | 10 | 1 | -0.05...0.02 |
| BZT55C5V1 | 4.8...5.4 | 5 | 60 | 550 | 1 | 0.1 | 2 | 1 | -0.02...0.02 |
| BZT55C5V6 | 5.2...6.0 | 5 | 40 | 450 | 1 | 0.1 | 2 | 1 | -0.05...+0.05 |
| BZT55C6V2 | 5.8...6.6 | 5 | 10 | 200 | 1 | 0.1 | 2 | 2 | 0.03...0.06 |
| BZT55C6V8 | 6.4...7.2 | 5 | 8 | 150 | 1 | 0.1 | 2 | 3 | 0.03...0.07 |
| BZT55C7V5 | 7.0...7.9 | 5 | 7 | 50 | 1 | 0.1 | 2 | 5 | 0.03...0.07 |
| BZT55C8V2 | 7.7...8.7 | 5 | 7 | 50 | 1 | 0.1 | 2 | 6.2 | 0.03...0.08 |
| BZT55C9V1 ²⁾ | 8.5...9.6 | 5 | 10 | 50 | 1 | 0.1 | 2 | 6.8 | 0.03...0.09 |
| BZT55C10 ²⁾ | 9.4...10.6 | 5 | 15 | 70 | 1 | 0.1 | 2 | 7.5 | 0.03...0.10 |
| BZT55C11 ²⁾ | 10.4...11.6 | 5 | 20 | 70 | 1 | 0.1 | 2 | 8.2 | 0.03...0.11 |
| BZT55C12 ²⁾ | 11.4...12.7 | 5 | 20 | 90 | 1 | 0.1 | 2 | 9.1 | 0.03...0.11 |
| BZT55C13 ²⁾ | 12.4...14.1 | 5 | 26 | 110 | 1 | 0.1 | 2 | 10 | 0.03...0.11 |
| BZT55C15 ²⁾ | 13.8...15.6 | 5 | 30 | 110 | 1 | 0.1 | 2 | 11 | 0.03...0.11 |
| BZT55C16 ²⁾ | 15.3...17.1 | 5 | 40 | 170 | 1 | 0.1 | 2 | 12 | 0.03...0.11 |
| BZT55C18 ²⁾ | 16.8...19.1 | 5 | 50 | 170 | 1 | 0.1 | 2 | 13 | 0.03...0.11 |
| BZT55C20 ²⁾ | 18.8...21.2 | 5 | 55 | 220 | 1 | 0.1 | 2 | 15 | 0.03...0.11 |
| BZT55C22 ²⁾ | 20.8...23.3 | 5 | 55 | 220 | 1 | 0.1 | 2 | 16 | 0.04...0.12 |
| BZT55C24 ²⁾ | 22.8...25.6 | 5 | 80 | 220 | 1 | 0.1 | 2 | 18 | 0.04...0.12 |
| BZT55C27 ²⁾ | 25.1...28.9 | 5 | 80 | 220 | 1 | 0.1 | 2 | 20 | 0.04...0.12 |
| BZT55C30 ²⁾ | 28...32 | 5 | 80 | 220 | 1 | 0.1 | 2 | 22 | 0.04...0.12 |
| BZT55C33 ²⁾ | 31...35 | 5 | 80 | 220 | 1 | 0.1 | 2 | 24 | 0.04...0.12 |
| BZT55C36 ²⁾ | 34...38 | 5 | 80 | 220 | 1 | 0.1 | 2 | 27 | 0.04...0.12 |
| BZT55C39 ²⁾ | 37...41 | 2.5 | 90 | 500 | 0.5 | 0.1 | 5 | 30 | 0.04...0.12 |
| BZT55C43 ²⁾ | 40...46 | 2.5 | 90 | 600 | 0.5 | 0.1 | 5 | 33 | 0.04...0.12 |
| BZT55C47 ²⁾ | 44...50 | 2.5 | 110 | 700 | 0.5 | 0.1 | 5 | 36 | 0.04...0.12 |
| BZT55C51 ²⁾ | 48...54 | 2.5 | 125 | 700 | 0.5 | 0.1 | 10 | 39 | 0.04...0.12 |
| BZT55C56 ²⁾ | 52...60 | 2.5 | 135 | 1000 | 0.5 | 0.1 | 10 | 43 | 0.04...0.12 |
| BZT55C62 ²⁾ | 58...66 | 2.5 | 150 | 1000 | 0.5 | 0.1 | 10 | 47 | 0.04...0.12 |
| BZT55C68 ²⁾ | 64...72 | 2.5 | 200 | 1000 | 0.5 | 0.1 | 10 | 51 | 0.04...0.12 |
| BZT55C75 ²⁾ | 70...79 | 2.5 | 250 | 1500 | 0.5 | 0.1 | 10 | 56 | 0.04...0.12 |

¹⁾ Tested with pulses t_p = 20 ms.

²⁾ Additional measurement of Voltage group 9V1 to 75 at 95% V_{zmin} ≤ 35 nA

BZT55 Series

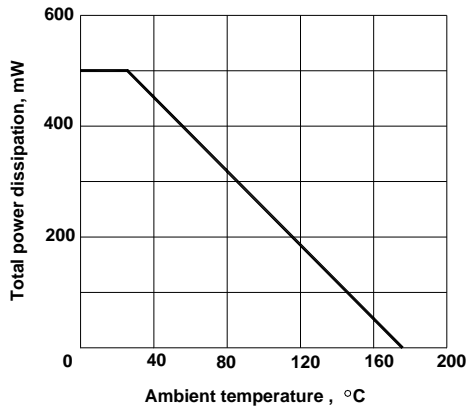
| Type | Zener Voltage Range ¹⁾ | | Dynamic Resistance | | | Reverse Leakage Current | | | Temp Coefficient of Zener Voltage |
|-------------------------|-----------------------------------|-----------------|--------------------|-----------------|--------------------|-------------------------|-------------------------|----------------------------------|-----------------------------------|
| | V _{ZT} | I _{ZT} | Z _{ZT} | Z _{ZK} | at I _{ZK} | T _a = 25 °C | T _a = 150 °C | I _R at V _R | TKvz |
| | V | mA | Max. (Ω) | Max. (Ω) | mA | Max. (μA) | Max. (μA) | V | %/K |
| BZT55B2V4 | 2.35...2.45 | 5 | 85 | 600 | 1 | 50 | 100 | 1 | -0.09...-0.06 |
| BZT55B2V7 | 2.64...2.76 | 5 | 85 | 600 | 1 | 10 | 50 | 1 | -0.09...-0.06 |
| BZT55B3V0 | 2.94...3.06 | 5 | 90 | 600 | 1 | 4 | 40 | 1 | -0.08...-0.05 |
| BZT55B3V3 | 3.24...3.36 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55B3V6 | 3.52...3.68 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55B3V9 | 3.82...3.98 | 5 | 90 | 600 | 1 | 2 | 40 | 1 | -0.08...-0.05 |
| BZT55B4V3 | 4.22...4.38 | 5 | 90 | 600 | 1 | 1 | 20 | 1 | -0.06...-0.03 |
| BZT55B4V7 | 4.6...4.8 | 5 | 80 | 600 | 1 | 0.5 | 10 | 1 | -0.05...0.02 |
| BZT55B5V1 | 5.0...5.2 | 5 | 60 | 550 | 1 | 0.1 | 2 | 1 | -0.02...0.02 |
| BZT55B5V6 | 5.48...5.72 | 5 | 40 | 450 | 1 | 0.1 | 2 | 1 | -0.05...+0.05 |
| BZT55B6V2 | 6.08...6.32 | 5 | 10 | 200 | 1 | 0.1 | 2 | 2 | 0.03...0.06 |
| BZT55B6V8 | 6.66...6.94 | 5 | 8 | 150 | 1 | 0.1 | 2 | 3 | 0.03...0.07 |
| BZT55B7V5 | 7.35...7.65 | 5 | 7 | 50 | 1 | 0.1 | 2 | 5 | 0.03...0.07 |
| BZT55B8V2 | 8.04...8.36 | 5 | 7 | 50 | 1 | 0.1 | 2 | 6.2 | 0.03...0.08 |
| BZT55B9V1 ²⁾ | 8.92...9.28 | 5 | 10 | 50 | 1 | 0.1 | 2 | 6.8 | 0.03...0.09 |
| BZT55B10 ²⁾ | 9.8...10.2 | 5 | 15 | 70 | 1 | 0.1 | 2 | 7.5 | 0.03...0.10 |
| BZT55B11 ²⁾ | 10.78...11.22 | 5 | 20 | 70 | 1 | 0.1 | 2 | 8.2 | 0.03...0.11 |
| BZT55B12 ²⁾ | 11.76...12.24 | 5 | 20 | 90 | 1 | 0.1 | 2 | 9.1 | 0.03...0.11 |
| BZT55B13 ²⁾ | 12.74...13.26 | 5 | 26 | 110 | 1 | 0.1 | 2 | 10 | 0.03...0.11 |
| BZT55B15 ²⁾ | 14.7...15.3 | 5 | 30 | 110 | 1 | 0.1 | 2 | 11 | 0.03...0.11 |
| BZT55B16 ²⁾ | 15.7...16.3 | 5 | 40 | 170 | 1 | 0.1 | 2 | 12 | 0.03...0.11 |
| BZT55B18 ²⁾ | 17.64...18.36 | 5 | 50 | 170 | 1 | 0.1 | 2 | 13 | 0.03...0.11 |
| BZT55B20 ²⁾ | 19.6...20.4 | 5 | 55 | 220 | 1 | 0.1 | 2 | 15 | 0.03...0.11 |
| BZT55B22 ²⁾ | 21.55...22.45 | 5 | 55 | 220 | 1 | 0.1 | 2 | 16 | 0.04...0.12 |
| BZT55B24 ²⁾ | 23.5...24.5 | 5 | 80 | 220 | 1 | 0.1 | 2 | 18 | 0.04...0.12 |
| BZT55B27 ²⁾ | 26.4...27.6 | 5 | 80 | 220 | 1 | 0.1 | 2 | 20 | 0.04...0.12 |
| BZT55B30 ²⁾ | 29.4...30.6 | 5 | 80 | 220 | 1 | 0.1 | 2 | 22 | 0.04...0.12 |
| BZT55B33 ²⁾ | 32.4...33.6 | 5 | 80 | 220 | 1 | 0.1 | 2 | 24 | 0.04...0.12 |
| BZT55B36 ²⁾ | 35.3...36.7 | 5 | 80 | 220 | 1 | 0.1 | 2 | 27 | 0.04...0.12 |
| BZT55B39 ²⁾ | 38.2...39.8 | 2.5 | 90 | 500 | 0.5 | 0.1 | 5 | 30 | 0.04...0.12 |
| BZT55B43 ²⁾ | 42.1...43.9 | 2.5 | 90 | 600 | 0.5 | 0.1 | 5 | 33 | 0.04...0.12 |
| BZT55B47 ²⁾ | 46.1...47.9 | 2.5 | 110 | 700 | 0.5 | 0.1 | 5 | 36 | 0.04...0.12 |
| BZT55B51 ²⁾ | 50...52 | 2.5 | 125 | 700 | 0.5 | 0.1 | 10 | 39 | 0.04...0.12 |
| BZT55B56 ²⁾ | 54.9...57.1 | 2.5 | 135 | 1000 | 0.5 | 0.1 | 10 | 43 | 0.04...0.12 |
| BZT55B62 ²⁾ | 60.8...63.2 | 2.5 | 150 | 1000 | 0.5 | 0.1 | 10 | 47 | 0.04...0.12 |
| BZT55B68 ²⁾ | 66.6...69.4 | 2.5 | 200 | 1000 | 0.5 | 0.1 | 10 | 51 | 0.04...0.12 |
| BZT55B75 ²⁾ | 73.5...76.5 | 2.5 | 250 | 1500 | 0.5 | 0.1 | 10 | 56 | 0.04...0.12 |

¹⁾ Tested with pulses tp = 20 ms.

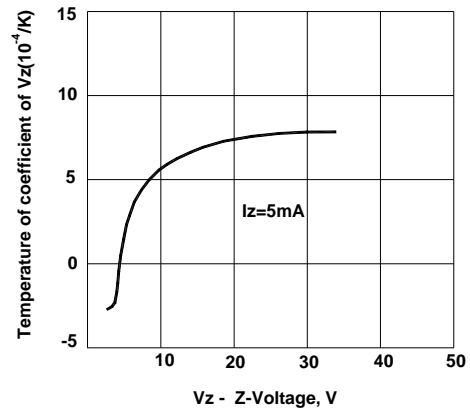
²⁾ Additional measurement of Voltage group 9V1 to 75 at 95% Vzmin ≤ 35 nA

BZT55 Series

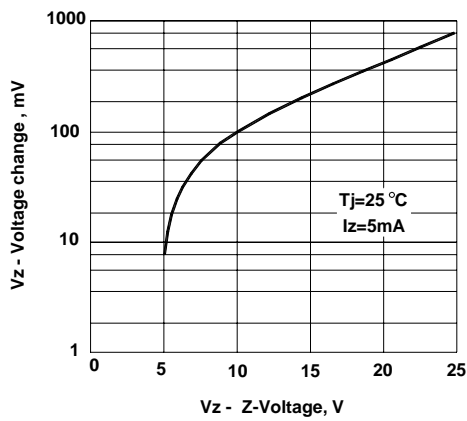
Total power dissipation vs. Ambient temperature



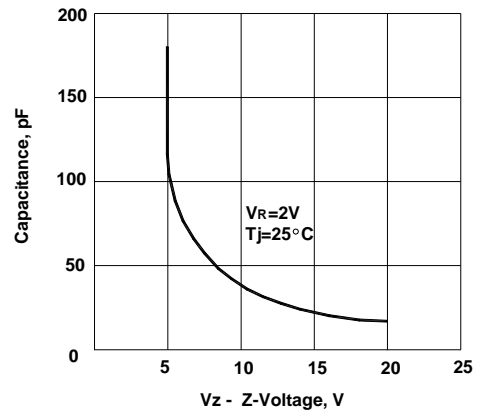
Temperature coefficient of Vz vs. Z-Voltage



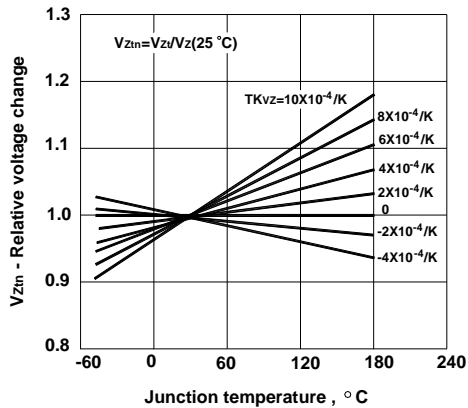
Typical change of working voltage under operating conditions at Ta=25°C



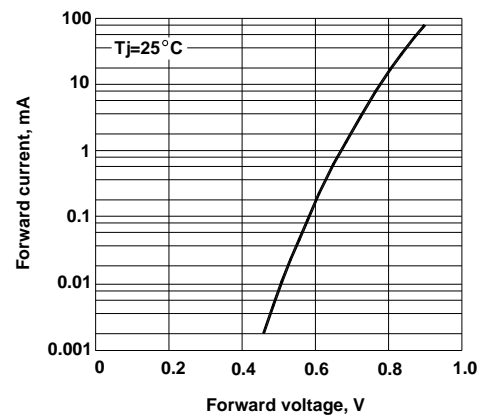
Capacitance vs. Z-Voltage



Typical change of working voltage vs. Junction temperature



Forward current vs. Forward voltage



BZT55 Series

