

500mW 5% Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.0V to 75V
- VZ Tolerance Selection of $\pm 5\%$
- Hermetically sealed glass
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

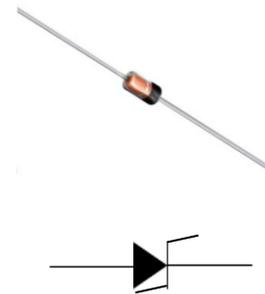
APPLICATIONS

- Low voltage stabilizers or voltage references
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Case: DO-35
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 109 ± 4 mg (approximately)

| KEY PARAMETERS | | |
|-----------------------|-------------|-------------|
| PARAMETER | VALUE | UNIT |
| V_Z | 2.0-75 | V |
| Test current I_{ZT} | 2.5-5 | mA |
| P_{tot} | 500 | mW |
| V_F at $I_F=100mA$ | 1 | V |
| T_J MAX | 175 | $^{\circ}C$ |
| Package | DO-35 | |
| Configuration | Single dice | |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise noted) | | | |
|--|-----------|-------------|-------------|
| PARAMETER | SYMBOL | PART NUMBER | UNIT |
| Forward voltage @ $I_F=100mA$ | V_F | 1 | V |
| Total power dissipation | P_{tot} | 500 | mW |
| Junction temperature range | T_J | -55 ~ 175 | $^{\circ}C$ |
| Storage temperature range | T_{STG} | -55 ~ 175 | $^{\circ}C$ |

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

| PART NUMBER | ZENER VOLTAGE | | | TEST CURRENT | REGULAR IMPEDANCE | | TEST CURRENT | LEAKAGE CURRENT | |
|-------------|----------------|-------|-------|--------------|-------------------|-------------------|--------------|-----------------|-----|
| | $V_Z @ I_{ZT}$ | | | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | $I_R @ V_R$ | |
| | V | | | mA | Ω | Ω | mA | μA | V |
| | Min. | Nom. | Max. | | Max. | Max. | | Max. | |
| BZX55C2V0 | 1.88 | 2.00 | 2.11 | 5.0 | 100 | 600 | 1.0 | 100 | 1.0 |
| BZX55C2V2 | 2.08 | 2.20 | 2.33 | 5.0 | 100 | 600 | 1.0 | 100 | 1.0 |
| BZX55C2V4 | 2.28 | 2.40 | 2.56 | 5.0 | 85 | 600 | 1.0 | 50 | 1.0 |
| BZX55C2V7 | 2.51 | 2.70 | 2.89 | 5.0 | 85 | 600 | 1.0 | 10 | 1.0 |
| BZX55C3V0 | 2.80 | 3.00 | 3.20 | 5.0 | 85 | 600 | 1.0 | 4.0 | 1.0 |
| BZX55C3V3 | 3.10 | 3.30 | 3.50 | 5.0 | 85 | 600 | 1.0 | 2.0 | 1.0 |
| BZX55C3V6 | 3.40 | 3.60 | 3.80 | 5.0 | 85 | 600 | 1.0 | 2.0 | 1.0 |
| BZX55C3V9 | 3.70 | 3.90 | 4.10 | 5.0 | 85 | 600 | 1.0 | 2.0 | 1.0 |
| BZX55C4V3 | 4.00 | 4.30 | 4.60 | 5.0 | 75 | 600 | 1.0 | 1.0 | 1.0 |
| BZX55C4V7 | 4.40 | 4.70 | 5.00 | 5.0 | 60 | 600 | 1.0 | 0.5 | 1.0 |
| BZX55C5V1 | 4.80 | 5.10 | 5.40 | 5.0 | 35 | 550 | 1.0 | 0.1 | 1.0 |
| BZX55C5V6 | 5.20 | 5.60 | 6.00 | 5.0 | 25 | 450 | 1.0 | 0.1 | 1.0 |
| BZX55C6V2 | 5.80 | 6.20 | 6.60 | 5.0 | 10 | 200 | 1.0 | 0.1 | 2.0 |
| BZX55C6V8 | 6.40 | 6.80 | 7.20 | 5.0 | 8 | 150 | 1.0 | 0.1 | 3.0 |
| BZX55C7V5 | 7.00 | 7.50 | 7.90 | 5.0 | 7 | 50 | 1.0 | 0.1 | 5.0 |
| BZX55C8V2 | 7.70 | 8.20 | 8.70 | 5.0 | 7 | 50 | 1.0 | 0.1 | 6.2 |
| BZX55C9V1 | 8.50 | 9.10 | 9.60 | 5.0 | 10 | 50 | 1.0 | 0.1 | 6.8 |
| BZX55C10 | 9.40 | 10.00 | 10.60 | 5.0 | 15 | 70 | 1.0 | 0.1 | 7.5 |
| BZX55C11 | 10.40 | 11.00 | 11.60 | 5.0 | 20 | 70 | 1.0 | 0.1 | 8.2 |
| BZX55C12 | 11.40 | 12.00 | 12.70 | 5.0 | 20 | 90 | 1.0 | 0.1 | 9.1 |
| BZX55C13 | 12.40 | 13.00 | 14.10 | 5.0 | 26 | 110 | 1.0 | 0.1 | 10 |
| BZX55C15 | 13.80 | 15.00 | 15.60 | 5.0 | 30 | 110 | 1.0 | 0.1 | 11 |
| BZX55C16 | 15.30 | 16.00 | 17.10 | 5.0 | 40 | 170 | 1.0 | 0.1 | 12 |
| BZX55C18 | 16.80 | 18.00 | 19.10 | 5.0 | 50 | 170 | 1.0 | 0.1 | 14 |
| BZX55C20 | 18.80 | 20.00 | 21.20 | 5.0 | 55 | 220 | 1.0 | 0.1 | 15 |
| BZX55C22 | 20.80 | 22.00 | 23.30 | 5.0 | 55 | 220 | 1.0 | 0.1 | 17 |
| BZX55C24 | 22.80 | 24.00 | 25.60 | 5.0 | 80 | 220 | 1.0 | 0.1 | 18 |
| BZX55C27 | 25.10 | 27.00 | 28.90 | 5.0 | 80 | 220 | 1.0 | 0.1 | 20 |
| BZX55C30 | 28.00 | 30.00 | 32.00 | 5.0 | 80 | 220 | 1.0 | 0.1 | 22 |
| BZX55C33 | 31.00 | 33.00 | 35.00 | 5.0 | 80 | 220 | 1.0 | 0.1 | 24 |
| BZX55C36 | 34.00 | 36.00 | 38.00 | 5.0 | 80 | 220 | 1.0 | 0.1 | 27 |
| BZX55C39 | 37.00 | 39.00 | 41.00 | 2.5 | 90 | 500 | 0.5 | 0.1 | 28 |
| BZX55C43 | 40.00 | 43.00 | 46.00 | 2.5 | 90 | 600 | 0.5 | 0.1 | 32 |
| BZX55C47 | 44.00 | 47.00 | 50.00 | 2.5 | 110 | 700 | 0.5 | 0.1 | 35 |
| BZX55C51 | 48.00 | 51.00 | 54.00 | 2.5 | 125 | 700 | 0.5 | 0.1 | 38 |
| BZX55C56 | 52.00 | 56.00 | 60.00 | 2.5 | 135 | 1000 | 0.5 | 0.1 | 42 |
| BZX55C62 | 58.00 | 62.00 | 66.00 | 2.5 | 150 | 1000 | 0.5 | 0.1 | 47 |
| BZX55C68 | 64.00 | 68.00 | 72.00 | 2.5 | 160 | 1000 | 0.5 | 0.1 | 51 |
| BZX55C75 | 70.00 | 75.00 | 80.00 | 2.5 | 170 | 1000 | 0.5 | 0.1 | 56 |

Notes:

1. Tolerance and voltage designation : the type numbers listed have Zener voltage as shown
2. The device numbers listed have a standard tolerance on the nominal Zener voltage of $\pm 5\%$
3. Specials available include : nominal Zener voltages between the voltages shown and tighter voltage, for detailed information on price, availability and delivery, contact your nearest Taiwan Semiconductor representative.
4. Zener impedance (ZZ) derivation : Zener impedance is derived from the 60-cycle ac voltage, which results when ac current having an RMS value equal to 10% of the dc Zener current (IZT) is superimposed to IZT

| ORDERING INFORMATION | | | | |
|-----------------------------|---------------------|----------------------------|----------------|------------------|
| PART NO. | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING |
| BZX55CXXX (Note 1&2) | R0 | G | DO-35 | 10K / 14" Reel |
| | A0 | | | 5K / Box (Ammo) |

Notes:

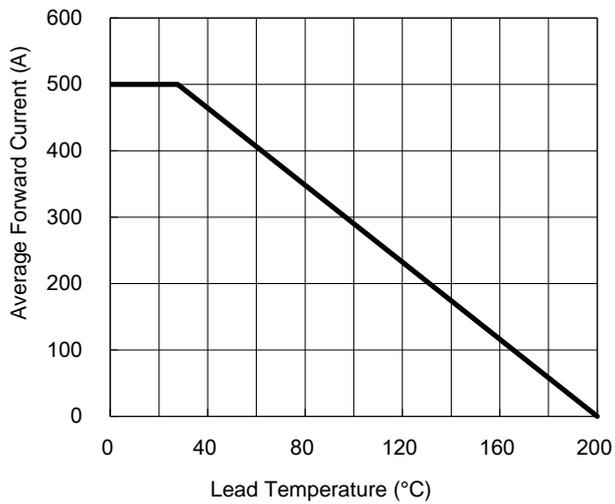
1. "xxx" defines voltage from 2.0V (BZX55C2V0) to 75V (BZX55C75)
2. Whole series with green compound

| EXAMPLE | | | | |
|--------------------|-----------------|---------------------|----------------------------|--------------------|
| EXAMPLE P/N | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
| BZX55C75 R0G | BZX55C75 | R0 | G | Green compound |

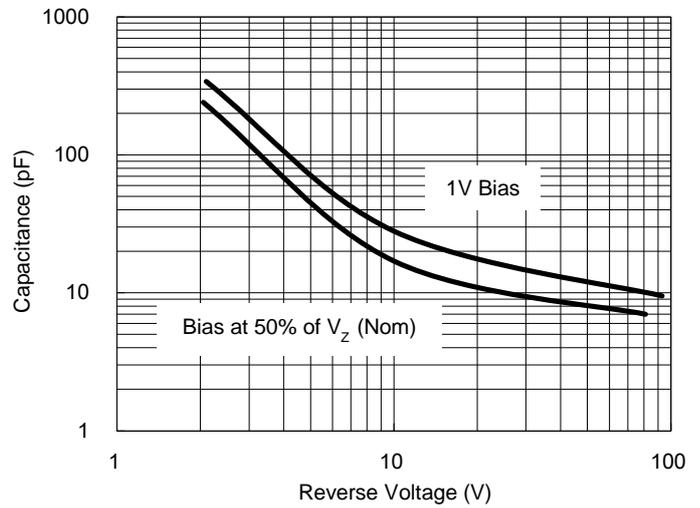
CHARACTERISTICS CURVES

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

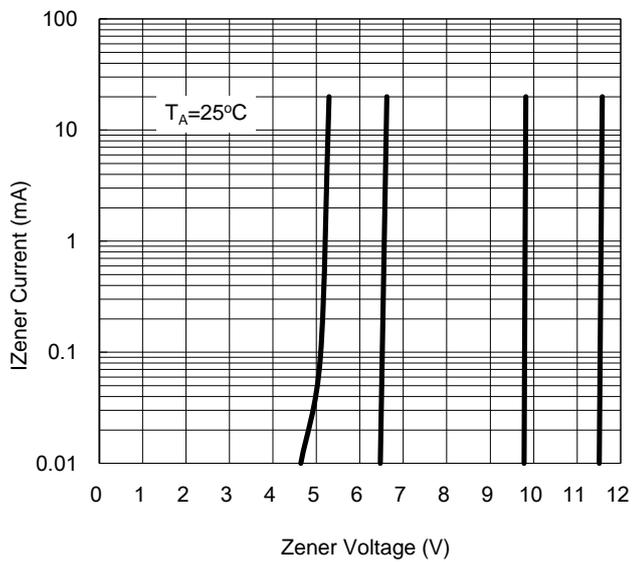
Forward Current Derating Curve



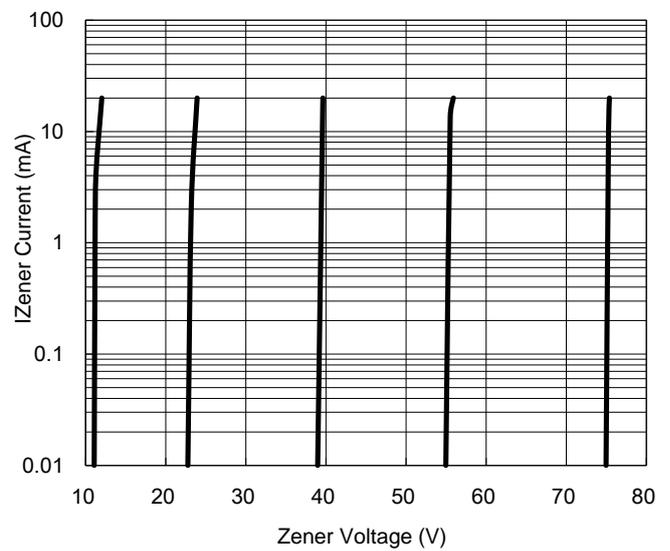
Typical Junction Capacitance



Zener Breakdown Characteristics



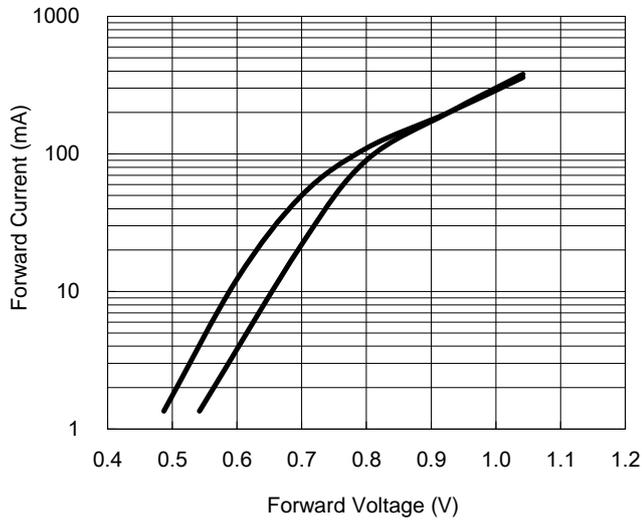
Zener Breakdown Characteristics



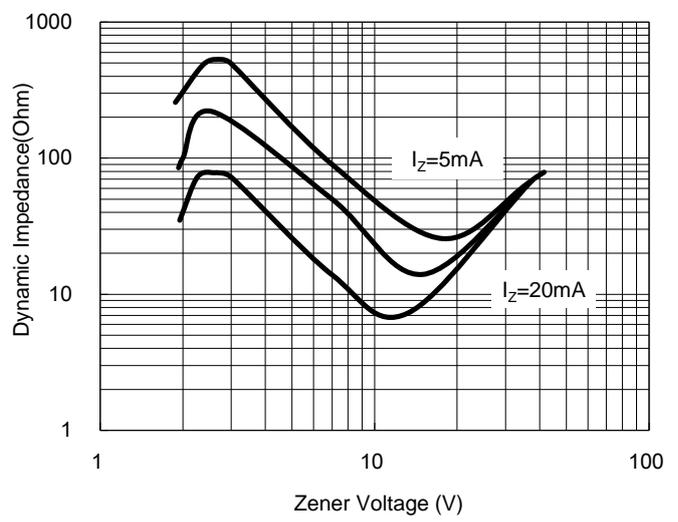
CHARACTERISTICS CURVES

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

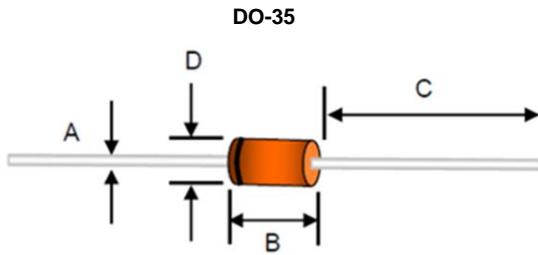
Typical Forward Characteristics



Effect of Zener Voltage on Impedance



PACKAGE OUTLINE DIMENSION



| DIM. | Unit(mm) | | Unit(inch) | |
|------|----------|-------|------------|-------|
| | Min | Max | Min | Max |
| A | 0.34 | 0.60 | 0.013 | 0.024 |
| B | 2.90 | 5.08 | 0.114 | 0.200 |
| C | 25.40 | 38.10 | 1.000 | 1.500 |
| D | 1.30 | 2.28 | 0.051 | 0.090 |

MARKING DIAGRAM



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