

Small Signal Product

5% Tolerance SMD Zener Diode

FEATURES

- Wide zener voltage range selection: 2.4V to 75V
- VZ Tolerance Selection of ±5%
- Hermetically sealed glass
- Moisture sensitivity level 1
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- Pb free and RoHS compliant
- High reliability glass passivation insuring parameter stability and protection against junction contamination



Mini-MELF (LL34)

Hermetically Sealed Glass

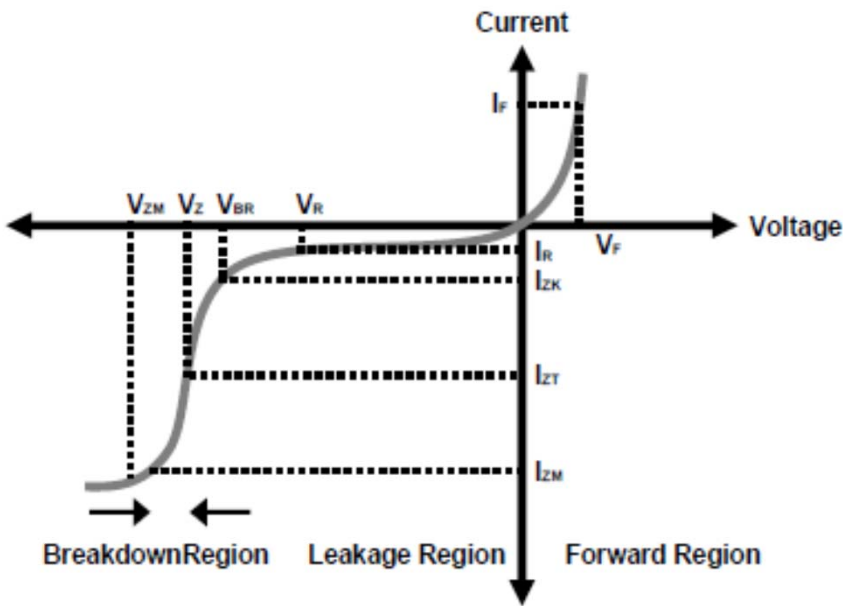
MECHANICAL DATA

- Case: Mini-MELF Package (JEDEC DO-213AC)
- High temperature soldering guaranteed: 270°C/10s
- Polarity: Indicated by cathode band
- Weight: 31 mg (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted) |                                   |              |      |
|----------------------------------------------------------------------------------------------|-----------------------------------|--------------|------|
| PARAMETER                                                                                    | SYMBOL                            | VALUE        | UNIT |
| Power Dissipation                                                                            | P <sub>D</sub>                    | 500          | mW   |
| Forward Voltage<br>I <sub>F</sub> = 10 mA                                                    | V <sub>F</sub>                    | 1            | V    |
| Thermal Resistance (Junction to Ambient) (Note 1)                                            | R <sub>θJA</sub>                  | 300          | °C/W |
| Junction and Storage Temperature Range                                                       | T <sub>J</sub> , T <sub>STG</sub> | - 65 to +175 | °C   |

Note1: Valid provided that electrodes are kept at ambient temperature

Zener I vs. V Characteristics



- V<sub>BR</sub> : Voltage at I<sub>ZK</sub>
- I<sub>ZK</sub> : Test current for voltage V<sub>BR</sub>
- Z<sub>ZK</sub> : Dynamic impedance at I<sub>ZK</sub>
- I<sub>ZT</sub> : Test current for voltage V<sub>Z</sub>
- V<sub>Z</sub> : Voltage at current I<sub>ZT</sub>
- Z<sub>ZT</sub> : Dynamic impedance at I<sub>ZT</sub>
- I<sub>ZM</sub> : Maximum steady state current
- V<sub>ZM</sub> : Voltage at I<sub>ZM</sub>

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

| Part Number | $V_Z$ @ $I_{ZT}$ (Volt) |     |      | $I_{ZT}$<br>(mA) | $Z_{ZT}$ @ $I_{ZT}$ ( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK}$ @ $I_{ZK}$ ( $\Omega$ )<br>Max | $I_R$ @ $V_R$ (uA)<br>Max | $V_R$<br>(V) |
|-------------|-------------------------|-----|------|------------------|-----------------------------------------|------------------|-----------------------------------------|---------------------------|--------------|
|             | Min                     | Nom | Max  |                  |                                         |                  |                                         |                           |              |
| BZV55C2V4   | 2.28                    | 2.4 | 2.56 | 5                | 85                                      | 1.0              | 600                                     | 50                        | 1.0          |
| BZV55C2V7   | 2.51                    | 2.7 | 2.89 | 5                | 85                                      | 1.0              | 600                                     | 10                        | 1.0          |
| BZV55C3V0   | 2.8                     | 3.0 | 3.2  | 5                | 85                                      | 1.0              | 600                                     | 4                         | 1.0          |
| BZV55C3V3   | 3.1                     | 3.3 | 3.5  | 5                | 85                                      | 1.0              | 600                                     | 2                         | 1.0          |
| BZV55C3V6   | 3.4                     | 3.6 | 3.8  | 5                | 85                                      | 1.0              | 600                                     | 2                         | 1.0          |
| BZV55C3V9   | 3.7                     | 3.9 | 4.1  | 5                | 85                                      | 1.0              | 600                                     | 2                         | 1.0          |
| BZV55C4V3   | 4.0                     | 4.3 | 4.6  | 5                | 75                                      | 1.0              | 600                                     | 1                         | 1.0          |
| BZV55C4V7   | 4.4                     | 4.7 | 5.0  | 5                | 60                                      | 1.0              | 600                                     | 0.5                       | 1.0          |
| BZV55C5V1   | 4.8                     | 5.1 | 5.4  | 5                | 35                                      | 1.0              | 550                                     | 0.1                       | 1.0          |
| BZV55C5V6   | 5.2                     | 5.6 | 6.0  | 5                | 25                                      | 1.0              | 450                                     | 0.1                       | 1.0          |
| BZV55C6V2   | 5.8                     | 6.2 | 6.6  | 5                | 10                                      | 1.0              | 200                                     | 0.1                       | 2.0          |
| BZV55C6V8   | 6.4                     | 6.8 | 7.2  | 5                | 8                                       | 1.0              | 150                                     | 0.1                       | 3.0          |
| BZV55C7V5   | 7.0                     | 7.5 | 7.9  | 5                | 7                                       | 1.0              | 50                                      | 0.1                       | 5.0          |
| BZV55C8V2   | 7.7                     | 8.2 | 8.7  | 5                | 7                                       | 1.0              | 50                                      | 0.1                       | 6.2          |
| BZV55C9V1   | 8.5                     | 9.1 | 9.6  | 5                | 10                                      | 1.0              | 50                                      | 0.1                       | 6.8          |
| BZV55C10    | 9.4                     | 10  | 10.6 | 5                | 15                                      | 1.0              | 70                                      | 0.1                       | 7.5          |
| BZV55C11    | 10.4                    | 11  | 11.6 | 5                | 20                                      | 1.0              | 70                                      | 0.1                       | 8.2          |
| BZV55C12    | 11.4                    | 12  | 12.7 | 5                | 20                                      | 1.0              | 90                                      | 0.1                       | 9.1          |
| BZV55C13    | 12.4                    | 13  | 14.1 | 5                | 26                                      | 1.0              | 110                                     | 0.1                       | 10           |
| BZV55C15    | 13.8                    | 15  | 15.6 | 5                | 30                                      | 1.0              | 110                                     | 0.1                       | 11           |
| BZV55C16    | 15.3                    | 16  | 17.1 | 5                | 40                                      | 1.0              | 170                                     | 0.1                       | 12           |
| BZV55C18    | 16.8                    | 18  | 19.1 | 5                | 50                                      | 1.0              | 170                                     | 0.1                       | 13           |
| BZV55C20    | 18.8                    | 20  | 21.1 | 5                | 55                                      | 1.0              | 220                                     | 0.1                       | 15           |
| BZV55C22    | 20.8                    | 22  | 23.3 | 5                | 55                                      | 1.0              | 220                                     | 0.1                       | 16           |
| BZV55C24    | 22.8                    | 24  | 25.6 | 5                | 80                                      | 1.0              | 220                                     | 0.1                       | 18           |
| BZV55C27    | 25.1                    | 27  | 28.9 | 5                | 80                                      | 1.0              | 220                                     | 0.1                       | 20           |
| BZV55C30    | 28                      | 30  | 32   | 5                | 80                                      | 1.0              | 220                                     | 0.1                       | 22           |
| BZV55C33    | 31                      | 33  | 35   | 5                | 80                                      | 1.0              | 220                                     | 0.1                       | 24           |
| BZV55C36    | 34                      | 36  | 38   | 5                | 80                                      | 1.0              | 220                                     | 0.1                       | 27           |
| BZV55C39    | 37                      | 39  | 41   | 2.5              | 90                                      | 0.5              | 500                                     | 0.1                       | 28           |
| BZV55C43    | 40                      | 43  | 46   | 2.5              | 90                                      | 0.5              | 600                                     | 0.1                       | 32           |
| BZV55C47    | 44                      | 47  | 50   | 2.5              | 110                                     | 0.5              | 700                                     | 0.1                       | 35           |
| BZV55C51    | 48                      | 51  | 54   | 2.5              | 125                                     | 0.5              | 700                                     | 0.1                       | 38           |
| BZV55C56    | 52                      | 56  | 60   | 2.5              | 135                                     | 0.5              | 1,000                                   | 0.1                       | 42           |
| BZV55C62    | 58                      | 62  | 66   | 2.5              | 150                                     | 0.5              | 1,000                                   | 0.1                       | 47           |
| BZV55C68    | 64                      | 68  | 72   | 2.5              | 160                                     | 0.5              | 1,000                                   | 0.1                       | 51           |
| BZV55C75    | 70                      | 75  | 80   | 2.5              | 170                                     | 0.5              | 1,000                                   | 0.1                       | 56           |

Notes : 1. The zener Voltage ( $V_Z$ ) is tested under pulse condition of 10ms.

2. The device numbers listed have a standard tolerance on the nomial zener voltage of  $\pm 5\%$ .

3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Taiwan Semiconductor representative.

4. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

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RATINGS AND CHARACTERISTICS CURVES

(TA=25°C unless otherwise noted)

Fig. 1 Power Dissipation VS. Ambient Temperature

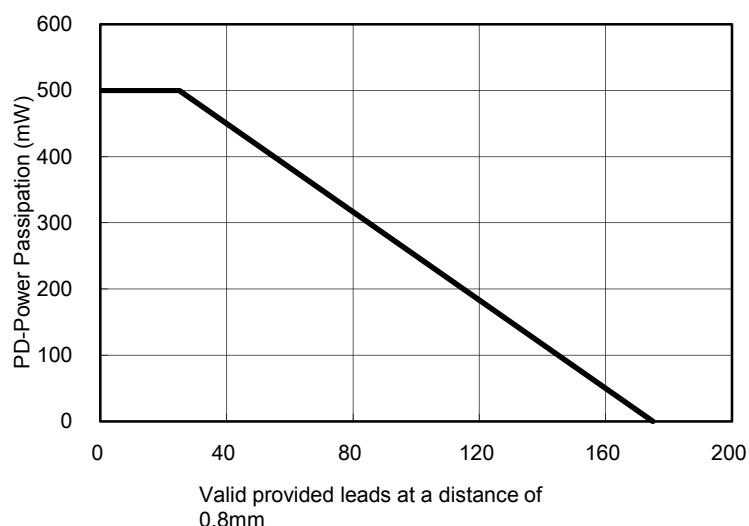


Fig. 2 Total Capacitance

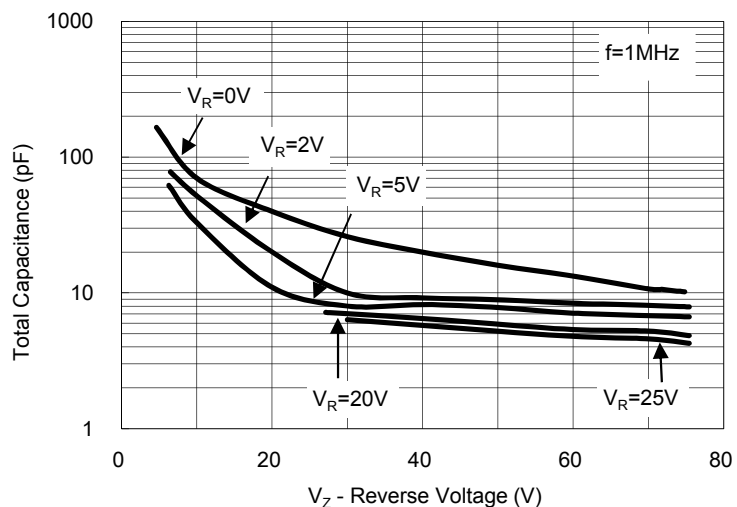


Fig. 3 Differential Impedance VS. Zener Voltage

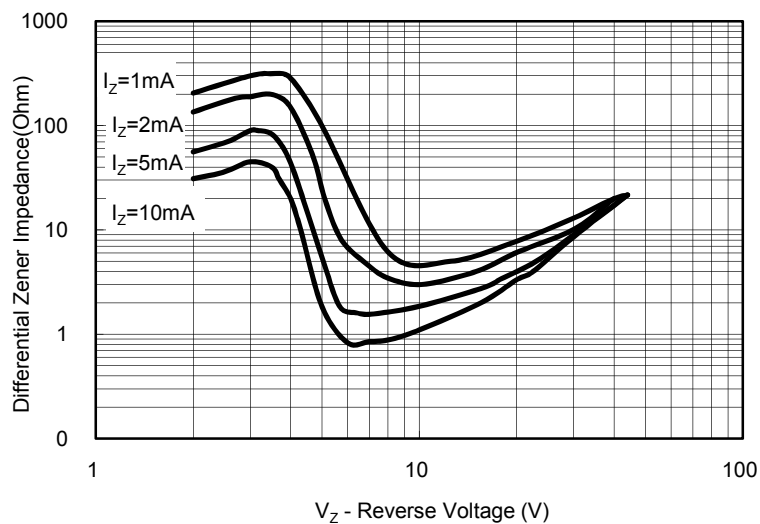


Fig. 4 Forward Current VS. Forward Voltage

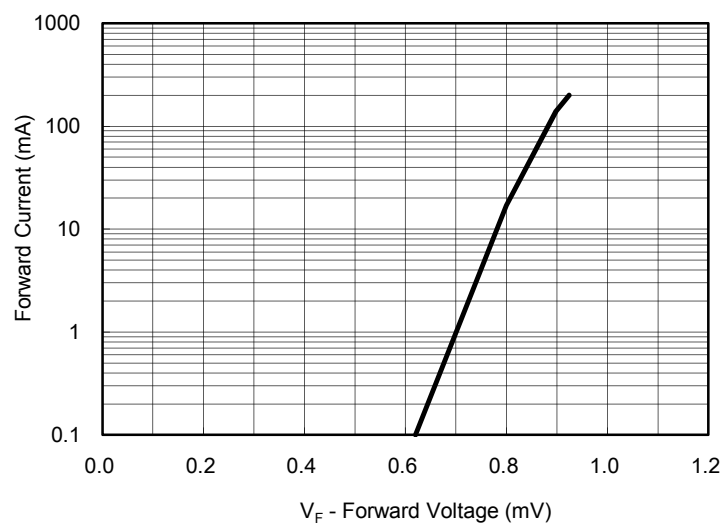


Fig. 5 Reverse Current VS. Reverse Voltage

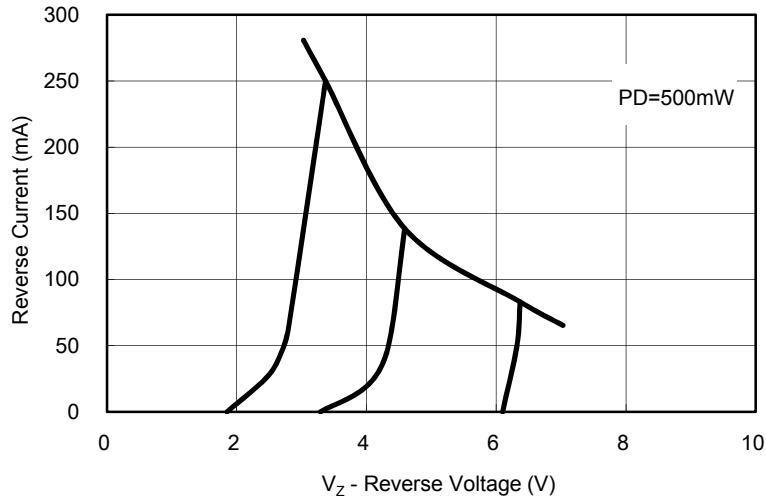
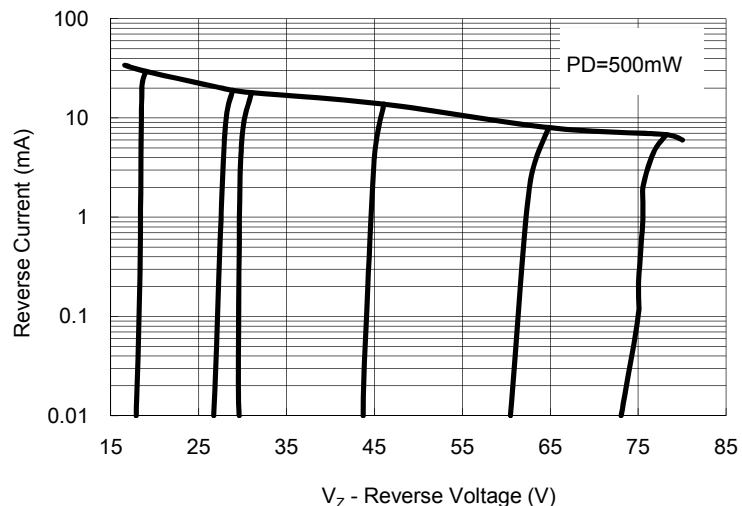


Fig. 6 Reverse Current VS. Reverse Voltage



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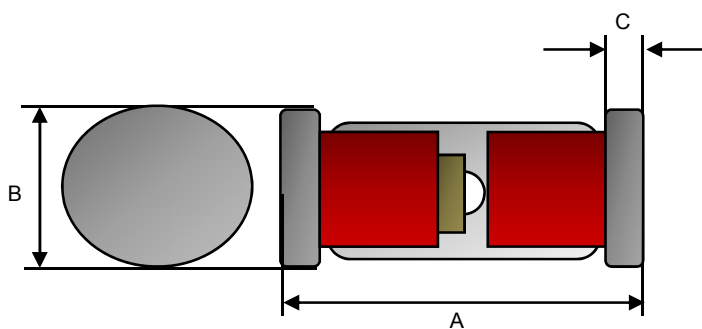
| ORDERING INFORMATION |                  |              |                     |         |                |
|----------------------|------------------|--------------|---------------------|---------|----------------|
| PART NO.             | MANUFACTURE CODE | PACKING CODE | GREEN COMPOUND CODE | PACKAGE | PACKING        |
| BZV55Cxxx<br>(Note1) | (Note 2)         | L0           | G                   | LL34    | 10K / 13" Reel |
|                      |                  | L1           |                     |         | 2.5K / 7" Reel |

Note 1: "xxx" defines voltage from 2.4V (BZV55C2V4) to 75V (BZV55C75)

Note 2: Manufacture special control, if empty means no special control requirement.

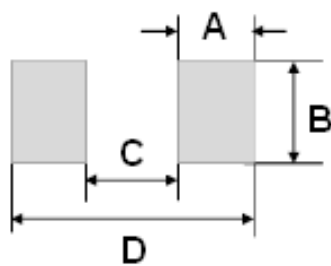
| EXAMPLE         |          |                  |              |                     |                |
|-----------------|----------|------------------|--------------|---------------------|----------------|
| PREFERRED P/N   | PART NO. | MANUFACTURE CODE | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION    |
| BZV55C75 L0G    | BZV55C75 |                  | L0           | G                   | Green compound |
| BZV55C75-L0 L0G | BZV55C75 | L0               | L0           | G                   | Green compound |
| BZV55C75-B0 L0G | BZV55C75 | B0               | L0           | G                   | Green compound |

PACKAGE OUTLINE DIMENSION



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 3.30      | 3.70 | 0.130       | 0.146 |
| B    | 1.40      | 1.60 | 0.055       | 0.063 |
| C    | 0.20      | 0.50 | 0.008       | 0.020 |

SUGGEST PAD LAYOUT



| DIM. | Unit (mm) | Unit (inch) |
|------|-----------|-------------|
|      | Typ.      | Typ.        |
| A    | 1.25      | 0.049       |
| B    | 2.00      | 0.079       |
| C    | 2.50      | 0.098       |
| D    | 5.00      | 0.197       |

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[BZV55C18](#) [BZV55C20](#) [BZV55C22](#) [BZV55C24](#) [BZV55C27](#) [BZV55C2V0](#) [BZV55C2V2](#) [BZV55C2V4](#) [BZV55C2V7](#)  
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[BZV55C4V3 L1G](#) [BZV55C3V3 L1G](#) [BZV55C4V7 L1G](#) [BZV55C5V6 L0](#) [BZV55C2V4 L0](#) [BZV55C5V1 L0G](#)  
[BZV55C3V9 L0](#) [BZV55C2V4 L0G](#) [BZV55C24 L1G](#) [BZV55C75 L0G](#) [BZV55C62 L1G](#) [BZV55C5V1 L1G](#) [BZV55C18](#)  
[L0G](#) [BZV55C47 L0G](#) [BZV55C43 L0](#) [BZV55C62 L0](#) [BZV55C10 L1G](#) [BZV55C30 L0](#) [BZV55C51 L0G](#) [BZV55C20 L1G](#)  
[BZV55C51 L0](#) [BZV55C10 L0](#) [BZV55C39 L0G](#) [BZV55C22 L1G](#) [BZV55C7V5 L0](#) [BZV55C27 L1G](#) [BZV55C3V9 L1G](#)  
[BZV55C39 L0](#) [BZV55C6V8 L1G](#) [BZV55C5V1 L0](#) [BZV55C75 L0](#) [BZV55C6V2 L1G](#) [BZV55C11 L0G](#) [BZV55C16 L0G](#)  
[BZV55C33 L0G](#) [BZV55C4V3 L0](#) [BZV55C33 L0](#) [BZV55C22 L0](#) [BZV55C62 L0G](#) [BZV55C36 L1G](#) [BZV55C13 L0](#)  
[BZV55C6V2 L0G](#) [BZV55C12 L1G](#) [BZV55C3V6 L0](#) [BZV55C16 L0](#) [BZV55C5V6 L0G](#) [BZV55C15 L0G](#) [BZV55C2V4](#)  
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[L1G](#) [BZV55C2V7 L0G](#) [BZV55C3V6 L0G](#)