

**500mW DO-35 Hermetically sealed Glass Zener Voltage Regulators**

CBZX55CXXLC

Descriptions

This is a complete series of 500mW zener diodes with limits and excellent operating characteristics that reflect the superior capabilities of silicon-oxide passivated junctions. All this in an axial-lead hermetically sealed glass package that offers protection in all common environmental conditions.

Features

- Zener voltage range : 2.4 V to 47 V
- ESD rating of class 3 (>16kV) per Human Body Model
- Double slug type construction
- Metallurgical bonded construction

Mechanical Characteristics:

- Case: double slug type, hermetically sealed glass
- Finish: all external surfaces are corrosion resistant and leads are readily solderable
- Maximum lead temperature for soldering purposes: 230°C, 1/16" from the case for 10 seconds
- Polarity: cathode indicated by the polarity band
- Mounting position: any

Maximum Ratings

| Characteristics | Symbol | Max | Unit |
|--|------------------|-------------|------|
| Total Device Dissipation | P _{tot} | 500* | mW |
| Thermal Resistance Junction to Ambient | R _{θJA} | 300* | °C/W |
| Storage Temperature | T _{stg} | -65 to +175 | °C |
| Junction Temperature | T _j | 175 | °C |

*Valid provided that leads are kept at ambient temperature at a distance of 8mm from case.

**Electrical Characteristics** ($T_L=30^\circ\text{C}$, unless otherwise noted, $V_F=1.0\text{V Max}$ @ $I_F=100\text{mA}$ for all types.)

| Device | Nominal Zener Voltage V_Z at I_{ZT} (V)(Note1) | Test Current I_{ZT} (mA) | Maximum Zener Impedance(Note 2) | | Typical Temperature Coefficient ($\%/^\circ\text{C}$) | Maximum Reverse Leakage Current | | Maximum Regulation Current I_{ZM} (mA) (Note 3) |
|------------|--|----------------------------|-----------------------------------|--|---|---------------------------------|------------------|---|
| | | | Z_{ZT} at I_{ZT} (Ω) | Z_{ZK} at $I_{ZK}=1\text{mA}$ (Ω) | | I_R (μA) | Test Voltage (V) | |
| CBZX55C2V4 | 2.28-2.56 | 5 | 85 | 600 | -0.070 | 50 | 1.0 | 150 |
| CBZX55C2V7 | 2.5-2.9 | 5 | 85 | 600 | -0.070 | 10 | 1.0 | 135 |
| CBZX55C3V0 | 2.8-3.2 | 5 | 85 | 600 | -0.070 | 4 | 1.0 | 125 |
| CBZX55C3V3 | 3.1-3.5 | 5 | 85 | 600 | -0.065 | 2 | 1.0 | 115 |
| CBZX55C3V6 | 3.4-3.8 | 5 | 85 | 600 | -0.060 | 2 | 1.0 | 105 |
| CBZX55C3V9 | 3.7-4.1 | 5 | 85 | 600 | -0.050 | 2 | 1.0 | 95 |
| CBZX55C4V3 | 4.0-4.6 | 5 | 75 | 600 | -0.025 | 1 | 1.0 | 90 |
| CBZX55C4V7 | 4.4-5.0 | 5 | 60 | 600 | -0.010 | 0.5 | 1.0 | 85 |
| CBZX55C5V1 | 4.8-5.4 | 5 | 35 | 550 | +0.015 | 0.1 | 1.0 | 80 |
| CBZX55C5V6 | 5.2-6.0 | 5 | 25 | 450 | +0.025 | 0.1 | 1.0 | 70 |
| CBZX55C6V2 | 5.8-6.6 | 5 | 10 | 200 | +0.035 | 0.1 | 2.0 | 64 |
| CBZX55C6V8 | 6.4-7.2 | 5 | 8 | 150 | +0.045 | 0.1 | 3.0 | 58 |
| CBZX55C7V5 | 7.0-7.9 | 5 | 7 | 50 | +0.050 | 0.1 | 5.0 | 53 |
| CBZX55C8V2 | 7.7-8.7 | 5 | 7 | 50 | +0.050 | 0.1 | 6.0 | 47 |
| CBZX55C9V1 | 8.5-9.6 | 5 | 10 | 50 | +0.060 | 0.1 | 7.0 | 43 |
| CBZX55C10 | 9.4-10.6 | 5 | 15 | 70 | +0.070 | 0.1 | 7.5 | 40 |
| CBZX55C11 | 10.4-11.6 | 5 | 20 | 70 | +0.070 | 0.1 | 8.5 | 36 |
| CBZX55C12 | 11.4-12.7 | 5 | 20 | 90 | +0.070 | 0.1 | 9.0 | 32 |
| CBZX55C13 | 12.4-14.1 | 5 | 26 | 110 | +0.070 | 0.1 | 10 | 29 |
| CBZX55C15 | 13.8-15.6 | 5 | 30 | 110 | +0.070 | 0.1 | 11 | 27 |
| CBZX55C16 | 15.3-17.1 | 5 | 40 | 170 | +0.070 | 0.1 | 12 | 24 |
| CBZX55C18 | 16.8-19.1 | 5 | 50 | 170 | +0.070 | 0.1 | 14 | 21 |
| CBZX55C20 | 18.8-21.2 | 5 | 55 | 220 | +0.070 | 0.1 | 15 | 20 |
| CBZX55C22 | 20.8-23.3 | 5 | 55 | 220 | +0.070 | 0.1 | 17 | 18 |
| CBZX55C24 | 22.8-25.6 | 5 | 80 | 220 | +0.080 | 0.1 | 18 | 16 |
| CBZX55C27 | 25.1-28.9 | 5 | 80 | 220 | +0.080 | 0.1 | 20 | 14 |
| CBZX55C30 | 28-32 | 5 | 80 | 220 | +0.080 | 0.1 | 22 | 13 |
| CBZX55C33 | 31-35 | 5 | 80 | 220 | +0.080 | 0.1 | 24 | 12 |
| CBZX55C36 | 34-38 | 5 | 80 | 220 | +0.080 | 0.1 | 27 | 11 |
| CBZX55C39 | 37-41 | 2.5 | 90 | 500 | +0.080 | 0.1 | 30 | 10 |
| CBZX55C43 | 40-46 | 2.5 | 90 | 600 | +0.080 | 0.1 | 33 | 9.2 |
| CBZX55C47 | 44-50 | 2.5 | 110 | 700 | +0.080 | 0.1 | 36 | 8.5 |

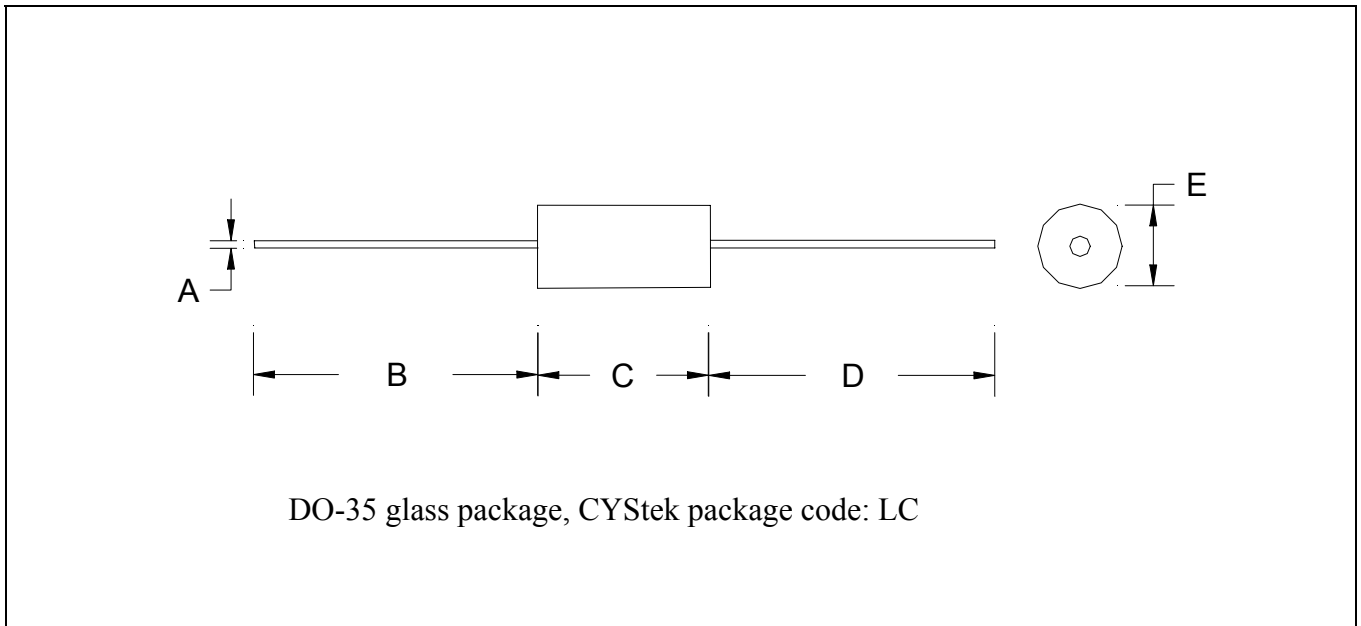
Note: 1. The type numbers listed have zener voltage min/max as shown. Device tolerance of $\pm 2\%$ are indicated by a "B" instead of a "C". Zener voltage is measured with the device junction in thermal equilibrium at the lead temperature of $30^\circ\text{C} \pm 1^\circ\text{C}$ and 3/8" lead length.

2. Z_{ZT} and Z_{ZK} are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for $I_{Z(ac)}=0.1I_{Z(dc)}$ with the ac frequency = 1k Hz.

3. This data was calculated using nominal voltages. The maximum current handling capability on a worse case basis is limited by the actual zener voltage at the operating point and the powered derating curve.



DO-35(Glass) Dimension



*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|---------|---------|-------------|-------|-----|---------|---------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | φ0.0181 | φ0.0220 | φ0.46 | φ0.56 | D | 0.9646 | 1.2811 | 24.50 | 32.54 |
| B | 0.9646 | 1.2811 | 24.50 | 32.54 | E | φ0.0602 | φ0.0787 | φ1.53 | φ2.00 |
| C | 0.1200 | 0.1700 | 3.05 | 4.20 | | | | | |

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.