

# CZRL55C2V4-G Thru CZRL55C75-G

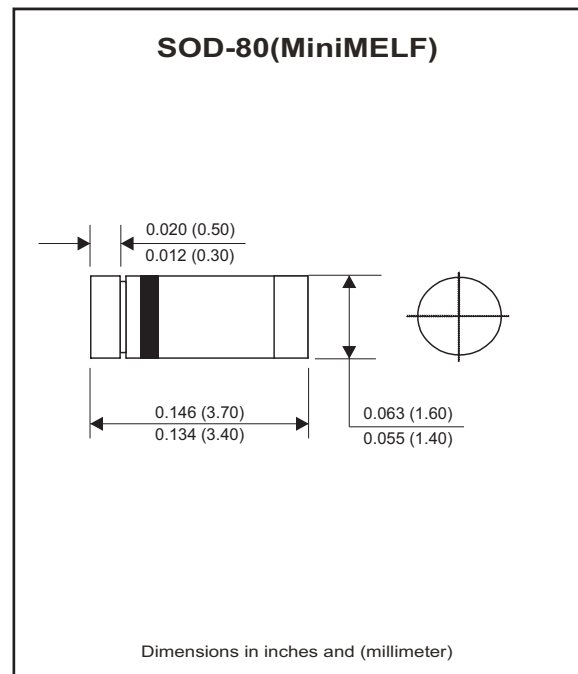
**Voltage: 2.4 to 75 Volts****Power: 500 mWatts****RoHS Device**

## Features

- Silicon epitaxial power Zener diodes.
- For use as low voltage stabilizer or voltage reference.
- The Zener voltages are graded according to the international E24 standard. Higher Zener voltages and 1% tolerance available on request.
- Pb free product.

## Mechanical data

- Case: MiniMELF glass case (SOD-80).
- Polarity: Color band denotes cathode end.
- Mounting position: Any.
- Approx. Weight: 0.05g.



## Circuit diagram



## Maximum Rating And Electrical Characteristics

(TA=25°C, unless otherwise noted)

| Parameter                  | Test Conditions           | Symbol           | Value                          | Unit |
|----------------------------|---------------------------|------------------|--------------------------------|------|
| Maximum power dissipation  | R <sub>θJA</sub> ≤ 300K/W | P <sub>V</sub>   | 500                            | mW   |
| Z-current                  |                           | I <sub>Z</sub>   | P <sub>V</sub> /V <sub>Z</sub> | mA   |
| Junction temperature       |                           | T <sub>J</sub>   | 175                            | °C   |
| Storage temperature range  |                           | T <sub>STG</sub> | -65 ~ +175                     | °C   |
| Maximum thermal resistance | On PC board 50×50×1.6mm   | R <sub>θJA</sub> | 500                            | °C/W |
| Forward voltage            | I <sub>F</sub> =200mA     | V <sub>F</sub>   | 1.5                            | V    |

## ELECTRICAL CHARACTERISTICS(T<sub>A</sub> = 25°C)

| Part No.     | Nominal Zener Voltage            |       |       | Max. Zener Impedance              |     |                                   |     | Max. Reverse Leakage Current    |     | Typ. Temp. Coefficient |
|--------------|----------------------------------|-------|-------|-----------------------------------|-----|-----------------------------------|-----|---------------------------------|-----|------------------------|
|              | V <sub>Z</sub> @ I <sub>ZT</sub> |       |       | Z <sub>zT</sub> @ I <sub>ZT</sub> |     | Z <sub>zK</sub> @ I <sub>ZK</sub> |     | I <sub>R</sub> @ V <sub>R</sub> |     | V <sub>Z</sub> %/K     |
|              | Nom.                             | Min.  | Max.  | ohm                               | mA  | ohm                               | mA  | uA                              | V   |                        |
| CZRL55C2V4-G | 2.4                              | 2.28  | 2.56  | 85                                | 5.0 | 600                               | 1.0 | 50.0                            | 1.0 | -0.09~-0.06            |
| CZRL55C2V7-G | 2.7                              | 2.50  | 2.90  | 85                                | 5.0 | 600                               | 1.0 | 10.0                            | 1.0 | -0.09~-0.06            |
| CZRL55C3V0-G | 3.0                              | 2.80  | 3.20  | 90                                | 5.0 | 600                               | 1.0 | 4.0                             | 1.0 | -0.08~-0.05            |
| CZRL55C3V3-G | 3.3                              | 3.10  | 3.50  | 90                                | 5.0 | 600                               | 1.0 | 2.0                             | 1.0 | -0.08~-0.05            |
| CZRL55C3V6-G | 3.6                              | 3.40  | 3.80  | 90                                | 5.0 | 600                               | 1.0 | 2.0                             | 1.0 | -0.08~-0.05            |
| CZRL55C3V9-G | 3.9                              | 3.70  | 4.10  | 90                                | 5.0 | 600                               | 1.0 | 2.0                             | 1.0 | -0.08~-0.05            |
| CZRL55C4V3-G | 4.3                              | 4.00  | 4.60  | 90                                | 5.0 | 600                               | 1.0 | 1.0                             | 1.0 | -0.06~-0.03            |
| CZRL55C4V7-G | 4.7                              | 4.40  | 5.00  | 80                                | 5.0 | 600                               | 1.0 | 0.5                             | 1.0 | -0.05~+0.02            |
| CZRL55C5V1-G | 5.1                              | 4.80  | 5.40  | 60                                | 5.0 | 550                               | 1.0 | 0.1                             | 1.0 | -0.02~+0.02            |
| CZRL55C5V6-G | 5.6                              | 5.20  | 6.00  | 40                                | 5.0 | 450                               | 1.0 | 0.1                             | 1.0 | -0.05~+0.05            |
| CZRL55C6V2-G | 6.2                              | 5.80  | 6.60  | 10                                | 5.0 | 200                               | 1.0 | 0.1                             | 2.0 | 0.03~0.06              |
| CZRL55C6V8-G | 6.8                              | 6.40  | 7.20  | 8                                 | 5.0 | 150                               | 1.0 | 0.1                             | 3.0 | 0.03~0.07              |
| CZRL55C7V5-G | 7.5                              | 7.00  | 7.90  | 7                                 | 5.0 | 50                                | 1.0 | 0.1                             | 5.0 | 0.03~0.07              |
| CZRL55C8V2-G | 8.2                              | 7.70  | 8.70  | 7                                 | 5.0 | 50                                | 1.0 | 0.1                             | 6.2 | 0.03~0.08              |
| CZRL55C9V1-G | 9.1                              | 8.50  | 9.60  | 10                                | 5.0 | 50                                | 1.0 | 0.1                             | 6.8 | 0.03~0.09              |
| CZRL55C10-G  | 10.0                             | 9.40  | 10.60 | 15                                | 5.0 | 70                                | 1.0 | 0.1                             | 7.5 | 0.03~0.1               |
| CZRL55C11-G  | 11.0                             | 10.40 | 11.60 | 20                                | 5.0 | 70                                | 1.0 | 0.1                             | 8.2 | 0.03~0.11              |
| CZRL55C12-G  | 12.0                             | 11.40 | 12.70 | 20                                | 5.0 | 90                                | 1.0 | 0.1                             | 9.1 | 0.03~0.11              |
| CZRL55C13-G  | 13.0                             | 12.40 | 14.10 | 26                                | 5.0 | 110                               | 1.0 | 0.1                             | 10  | 0.03~0.11              |
| CZRL55C15-G  | 15.0                             | 13.80 | 15.60 | 30                                | 5.0 | 110                               | 1.0 | 0.1                             | 11  | 0.03~0.11              |
| CZRL55C16-G  | 16.0                             | 15.30 | 17.10 | 40                                | 5.0 | 170                               | 1.0 | 0.1                             | 12  | 0.03~0.11              |
| CZRL55C18-G  | 18.0                             | 16.80 | 19.10 | 50                                | 5.0 | 170                               | 1.0 | 0.1                             | 13  | 0.03~0.11              |
| CZRL55C20-G  | 20.0                             | 18.80 | 21.20 | 55                                | 5.0 | 220                               | 1.0 | 0.1                             | 15  | 0.03~0.11              |
| CZRL55C22-G  | 22.0                             | 20.80 | 23.30 | 55                                | 5.0 | 220                               | 1.0 | 0.1                             | 16  | 0.04~0.12              |
| CZRL55C24-G  | 24.0                             | 22.80 | 25.60 | 80                                | 5.0 | 220                               | 1.0 | 0.1                             | 18  | 0.04~0.12              |
| CZRL55C27-G  | 27.0                             | 25.10 | 28.90 | 80                                | 5.0 | 220                               | 1.0 | 0.1                             | 20  | 0.04~0.12              |
| CZRL55C30-G  | 30.0                             | 28.00 | 32.00 | 80                                | 5.0 | 220                               | 1.0 | 0.1                             | 22  | 0.04~0.12              |
| CZRL55C33-G  | 33.0                             | 31.00 | 35.00 | 80                                | 5.0 | 220                               | 1.0 | 0.1                             | 24  | 0.04~0.12              |
| CZRL55C36-G  | 36.0                             | 34.00 | 38.00 | 80                                | 5.0 | 220                               | 1.0 | 0.1                             | 27  | 0.04~0.12              |
| CZRL55C39-G  | 39.0                             | 37.00 | 41.00 | 90                                | 2.5 | 500                               | 0.5 | 0.1                             | 30  | 0.04~0.12              |
| CZRL55C43-G  | 43.0                             | 40.00 | 46.00 | 90                                | 2.5 | 600                               | 0.5 | 0.1                             | 33  | 0.04~0.12              |
| CZRL55C47-G  | 47.0                             | 44.00 | 50.00 | 110                               | 2.5 | 700                               | 0.5 | 0.1                             | 36  | 0.04~0.12              |
| CZRL55C51-G  | 51.0                             | 48.00 | 54.00 | 125.0                             | 2.5 | 1000                              | 0.5 | 0.1                             | 39  | 0.04~0.12              |
| CZRL55C56-G  | 56.0                             | 52.00 | 60.00 | 135.0                             | 2.5 | 1000                              | 0.5 | 0.1                             | 43  | 0.04~0.12              |
| CZRL55C62-G  | 62.0                             | 58.00 | 66.00 | 150.0                             | 2.5 | 1000                              | 0.5 | 0.1                             | 47  | 0.04~0.12              |
| CZRL55C68-G  | 68.0                             | 64.00 | 72.00 | 200.0                             | 2.5 | 1000                              | 0.5 | 0.1                             | 51  | 0.04~0.12              |
| CZRL55C75-G  | 75.0                             | 70.00 | 79.00 | 200.0                             | 2.5 | 1500                              | 0.5 | 0.1                             | 56  | 0.04~0.12              |

## RATING AND CHARACTERISTIC CURVES (CZRL55C2V4-G Thru CZRL55C75-G)

Fig.1-Total Power Dissipation vs. Ambient Temperature

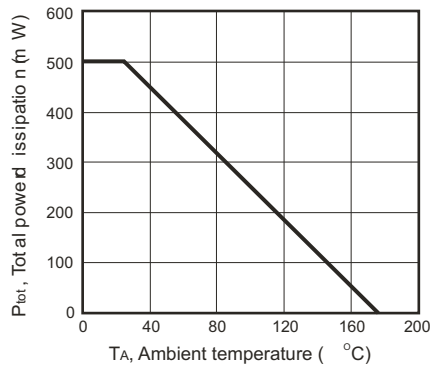


Fig.2-Typical Change of Working Voltage Under Operating Condition at  $T_A=25^{\circ}C$

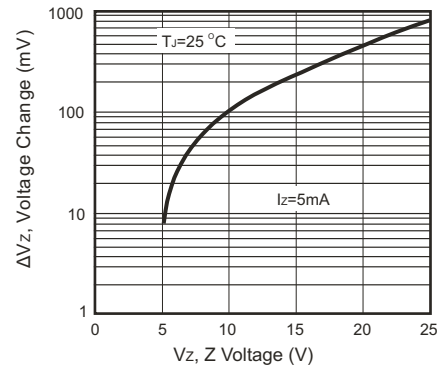


Fig.3-Typical Change of Working Voltage vs. Junction Temperature

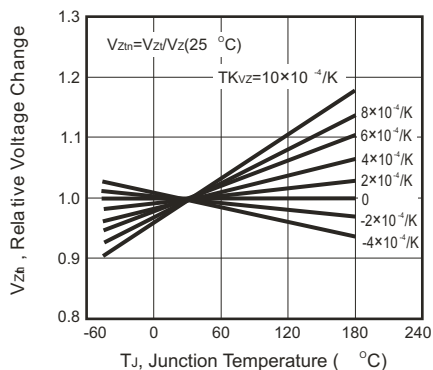


Fig.4-Temperature Coefficient of  $V_z$  vs. Z-Voltage

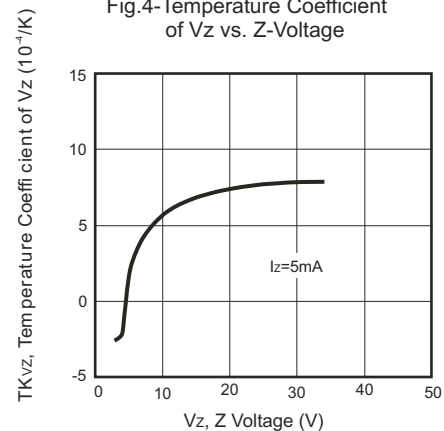
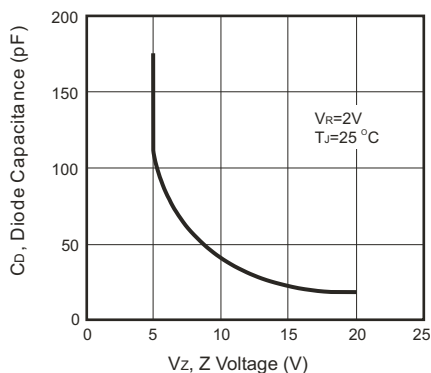


Fig.5-Diode Capacitance vs. Z-Voltage



## RATING AND CHARACTERISTIC CURVES (CZRL55C2V4-G Thru CZRL55C75-G)

Fig.6-Forward Current vs. Forward Voltage

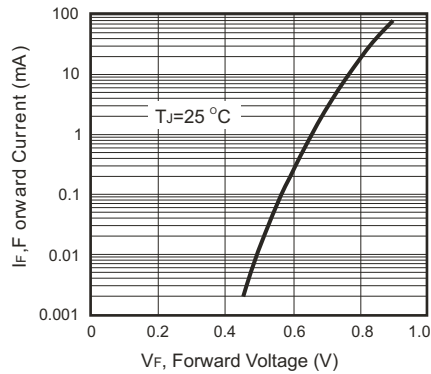


Fig.7-Z Current vs. Z Voltage

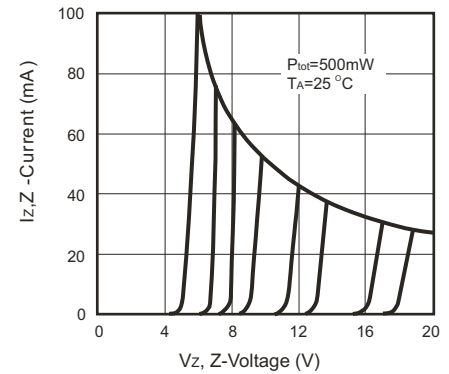


Fig.8-Z Current vs. Z Voltage

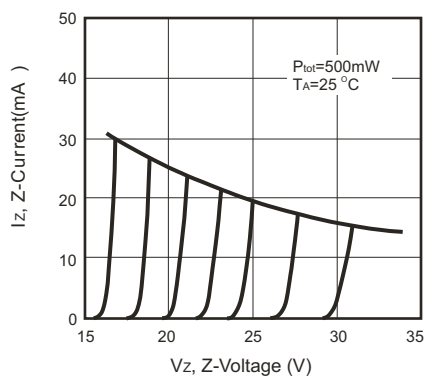
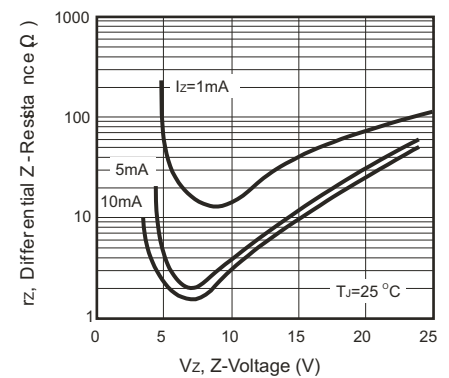
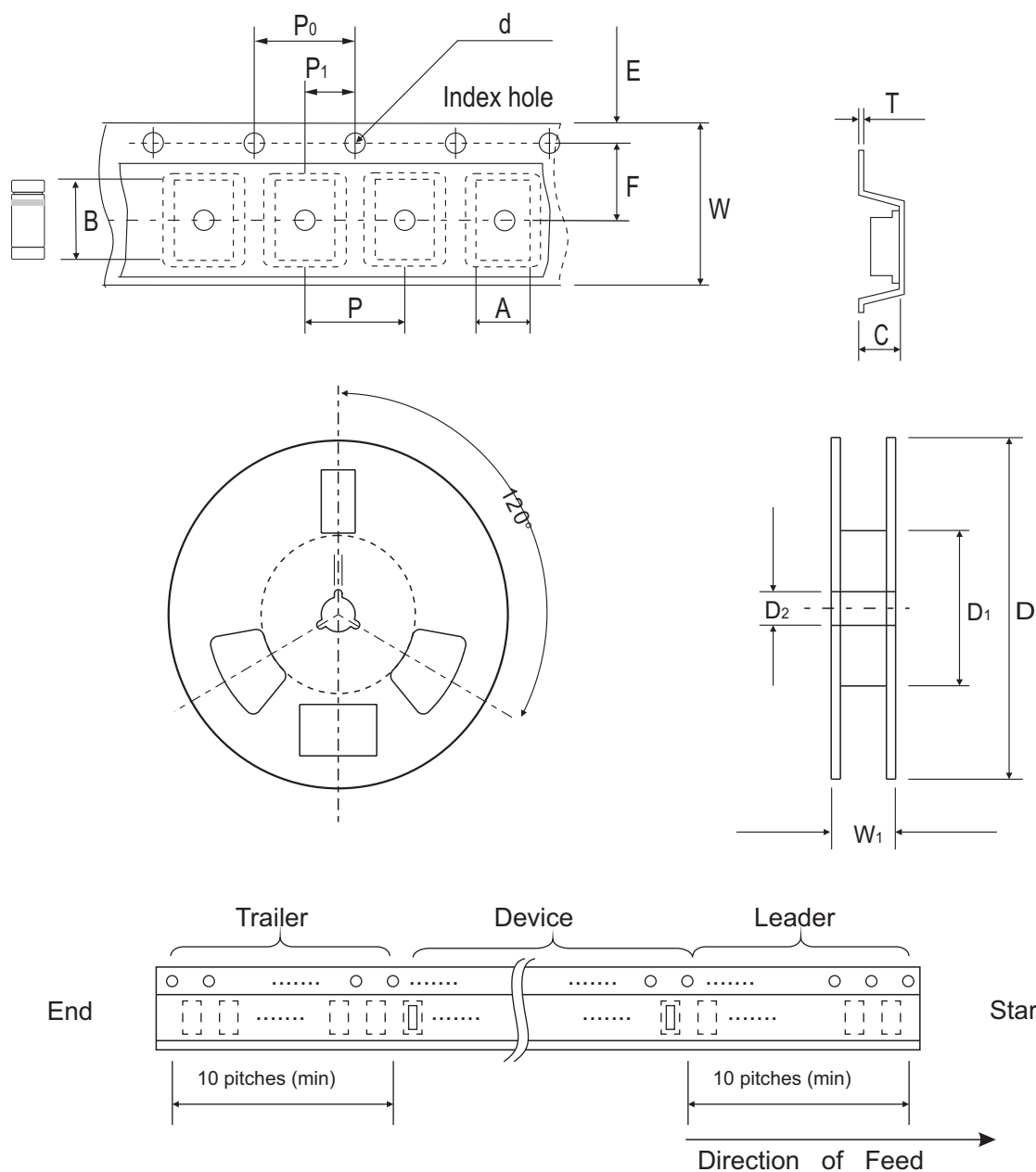


Fig.9-Differential Z-Resistance vs. Z-Voltage



## Reel Taping Specification

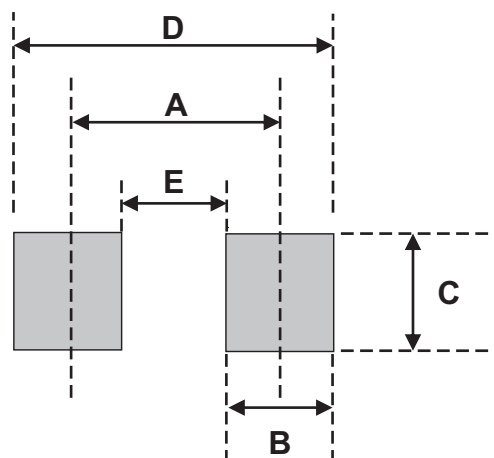


| Mini-MELF<br>(SOD-80) | SYMBOL | A          | B           | C           | d             | D            | D1         | D2            |
|-----------------------|--------|------------|-------------|-------------|---------------|--------------|------------|---------------|
|                       | (mm)   | 2.0 (max)  | 3.9 (max)   | 2.0 (max)   | 1.55 ± 0.10   | 178 ± 1.00   | 50.0 MIN.  | 13.0 ± 0.20   |
|                       | (inch) | 0.078(max) | 0.153 (max) | 0.078 (max) | 0.061 ± 0.004 | 7.00 ± 0.039 | 1.969 MIN. | 0.512 ± 0.008 |

| Mini-MELF<br>(SOD-80) | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1        |
|-----------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|-----------|
|                       | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 8.00 ± 0.30   | 14.4 MAX. |
|                       | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.314 ± 0.012 | 0.567 MAX |

## Suggested PAD Layout

| SIZE | Mini-MELF (SOD-80) |        |
|------|--------------------|--------|
|      | (mm)               | (inch) |
| A    | 3.40               | 0.134  |
| B    | 1.30               | 0.051  |
| C    | 1.70               | 0.067  |
| D    | 5.10               | 0.201  |
| E    | 1.70               | 0.067  |



## Standard Packaging

| Case Type             | REEL PACK       |                     |
|-----------------------|-----------------|---------------------|
|                       | REEL<br>( pcs ) | Reel Size<br>(inch) |
| Mini MELF<br>(SOD-80) | 2,500           | 7                   |