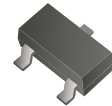


## CZRH3-55C2V4-G Thru. CZRH3-55C39-G

Voltage: 2.4 to 39 Volts

Power: 150 mWatts

RoHS Device



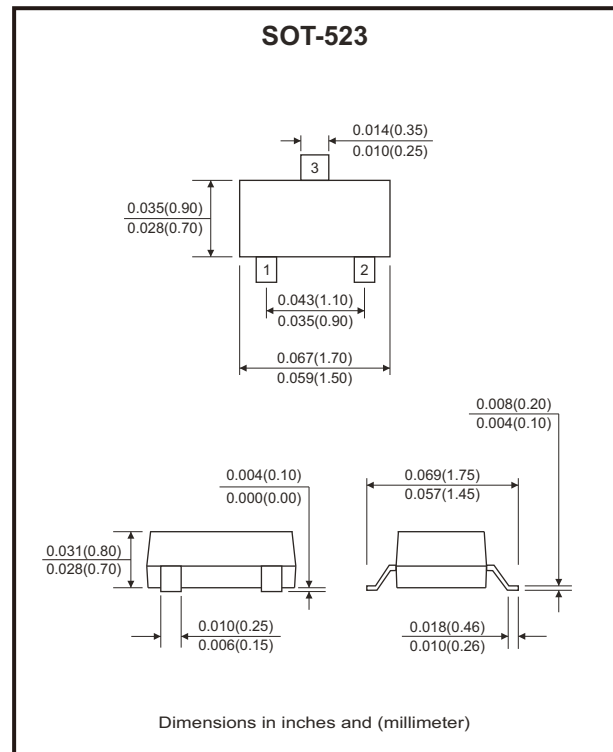
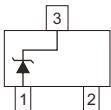
### Features

- Planar die construction.
- 150mW power dissipation.
- Ultra small surface mount package.
- Lead free/RoHS compliant.

### Mechanical data

- Case: SOT-523, Molded plastic
- Terminals: Solderable per MIL-STD-202G, method 208
- Polarity: See diagram below
- Mounting position: Any

### Circuit Diagram



### Maximum Ratings (at TA=25°C, unless otherwise specified)

| Parameter                                            | Symbol           | Value       | Unit |
|------------------------------------------------------|------------------|-------------|------|
| Forward voltage at If=10mA                           | V <sub>F</sub>   | 0.9         | V    |
| Power dissipation (Note 1)                           | P <sub>D</sub>   | 150         | mW   |
| Thermal resistance from junction to ambient (Note 1) | R <sub>θJA</sub> | 833         | °C/W |
| Junction temperature                                 | T <sub>J</sub>   | 150         | °C   |
| Storage temperature range                            | T <sub>STG</sub> | -55 to +150 | °C   |

Notes: 1. Device mounted on FR-4 PC board with recommended pad layout.

## Electrical Characteristics (at TA=25°C, unless otherwise specified)

| Part No.       | Nominal Zener Voltage |        |        | Max. Zener Impedance<br>f=1kHz |     |           |      | Max.<br>Reverse Current         |      | Temperature Coefficient<br>of Zener Voltage<br>@IzT=5mA<br>(mV/°C) |      | Marking<br>Code |
|----------------|-----------------------|--------|--------|--------------------------------|-----|-----------|------|---------------------------------|------|--------------------------------------------------------------------|------|-----------------|
|                | Vz @ IzT              |        |        | ZzT @ IzT                      |     | Zzk @ Izk |      | I <sub>R</sub> @ V <sub>R</sub> |      |                                                                    |      |                 |
|                | Nom(V)                | Min(V) | Max(V) | ohm                            | mA  | ohm       | mA   | µA                              | V    | Min                                                                | Max  |                 |
| CZRH3-55C2V4-G | 2.4                   | 2.20   | 2.60   | 100                            | 5.0 | 600       | 1.00 | 50.0                            | 1.0  | -3.5                                                               | 0.0  | RB              |
| CZRH3-55C2V7-G | 2.7                   | 2.50   | 2.90   | 100                            | 5.0 | 600       | 1.00 | 20.0                            | 1.0  | -3.5                                                               | 0.0  | RC              |
| CZRH3-55C3V0-G | 3.0                   | 2.80   | 3.20   | 95                             | 5.0 | 600       | 1.00 | 20.0                            | 1.0  | -3.5                                                               | 0.0  | RD              |
| CZRH3-55C3V3-G | 3.3                   | 3.10   | 3.50   | 95                             | 5.0 | 600       | 1.00 | 5.0                             | 1.0  | -3.5                                                               | 0.0  | RE              |
| CZRH3-55C3V6-G | 3.6                   | 3.40   | 3.80   | 90                             | 5.0 | 600       | 1.00 | 5.0                             | 1.0  | -3.5                                                               | 0.0  | RF              |
| CZRH3-55C3V9-G | 3.9                   | 3.70   | 4.10   | 90                             | 5.0 | 600       | 1.00 | 3.0                             | 1.0  | -3.5                                                               | 0.0  | RG              |
| CZRH3-55C4V3-G | 4.3                   | 4.00   | 4.60   | 90                             | 5.0 | 600       | 1.00 | 3.0                             | 1.0  | -3.5                                                               | 0.0  | RH              |
| CZRH3-55C4V7-G | 4.7                   | 4.40   | 5.00   | 80                             | 5.0 | 600       | 1.00 | 3.0                             | 2.0  | -3.5                                                               | 0.2  | R1              |
| CZRH3-55C5V1-G | 5.1                   | 4.80   | 5.40   | 60                             | 5.0 | 500       | 1.00 | 2.0                             | 2.0  | -2.7                                                               | 1.2  | R2              |
| CZRH3-55C5V6-G | 5.6                   | 5.20   | 6.00   | 40                             | 5.0 | 480       | 1.00 | 1.0                             | 2.0  | -2.0                                                               | 2.5  | R3              |
| CZRH3-55C6V2-G | 6.2                   | 5.80   | 6.60   | 10                             | 5.0 | 400       | 1.00 | 3.0                             | 4.0  | 0.4                                                                | 3.7  | R4              |
| CZRH3-55C6V8-G | 6.8                   | 6.40   | 7.20   | 15                             | 5.0 | 150       | 1.00 | 2.0                             | 4.0  | 1.2                                                                | 4.5  | R5              |
| CZRH3-55C7V5-G | 7.5                   | 7.00   | 7.90   | 15                             | 5.0 | 80        | 1.00 | 1.0                             | 5.0  | 2.5                                                                | 5.3  | R6              |
| CZRH3-55C8V2-G | 8.2                   | 7.70   | 8.70   | 15                             | 5.0 | 80        | 1.00 | 0.7                             | 5.0  | 3.2                                                                | 6.2  | R7              |
| CZRH3-55C9V1-G | 9.1                   | 8.50   | 9.60   | 15                             | 5.0 | 80        | 1.00 | 0.5                             | 6.0  | 3.8                                                                | 7.0  | R8              |
| CZRH3-55C10-G  | 10.0                  | 9.40   | 10.60  | 20                             | 5.0 | 100       | 1.00 | 0.2                             | 7.0  | 4.5                                                                | 8.0  | R9              |
| CZRH3-55C11-G  | 11.0                  | 10.40  | 11.60  | 20                             | 5.0 | 150       | 1.00 | 0.1                             | 8.0  | 5.4                                                                | 9.0  | P1              |
| CZRH3-55C12-G  | 12.0                  | 11.40  | 12.70  | 25                             | 5.0 | 150       | 1.00 | 0.1                             | 8.0  | 6.0                                                                | 10.0 | P2              |
| CZRH3-55C13-G  | 13.0                  | 12.40  | 14.10  | 30                             | 5.0 | 150       | 1.00 | 0.1                             | 8.0  | 7.0                                                                | 11.0 | P3              |
| CZRH3-55C15-G  | 15.0                  | 13.80  | 15.60  | 30                             | 5.0 | 170       | 1.00 | 0.1                             | 10.5 | 9.2                                                                | 13.0 | P4              |
| CZRH3-55C16-G  | 16.0                  | 15.30  | 17.10  | 40                             | 5.0 | 200       | 1.00 | 0.1                             | 11.2 | 10.4                                                               | 14.0 | P5              |
| CZRH3-55C18-G  | 18.0                  | 16.80  | 19.10  | 45                             | 5.0 | 200       | 1.00 | 0.1                             | 12.6 | 12.4                                                               | 16.0 | P6              |
| CZRH3-55C20-G  | 20.0                  | 18.80  | 21.20  | 55                             | 5.0 | 225       | 1.00 | 0.1                             | 14.0 | 14.4                                                               | 18.0 | P7              |
| CZRH3-55C22-G  | 22.0                  | 20.80  | 23.30  | 55                             | 5.0 | 225       | 1.00 | 0.1                             | 15.4 | 16.4                                                               | 20.0 | P8              |
| CZRH3-55C24-G  | 24.0                  | 22.80  | 25.60  | 70                             | 5.0 | 250       | 1.00 | 0.1                             | 16.8 | 18.4                                                               | 22.0 | P9              |
| CZRH3-55C27-G  | 27.0                  | 25.10  | 28.90  | 80                             | 2.0 | 250       | 0.50 | 0.1                             | 18.9 | 21.4                                                               | 25.3 | PA              |
| CZRH3-55C30-G  | 30.0                  | 28.00  | 32.00  | 80                             | 2.0 | 300       | 0.50 | 0.1                             | 21.0 | 24.4                                                               | 29.4 | PB              |
| CZRH3-55C33-G  | 33.0                  | 31.00  | 35.00  | 80                             | 2.0 | 300       | 0.50 | 0.1                             | 23.1 | 27.4                                                               | 33.4 | PC              |
| CZRH3-55C36-G  | 36.0                  | 34.00  | 38.00  | 90                             | 2.0 | 325       | 0.50 | 0.1                             | 25.2 | 30.4                                                               | 37.4 | PD              |
| CZRH3-55C39-G  | 39.0                  | 37.00  | 41.00  | 130                            | 2.0 | 350       | 0.50 | 0.1                             | 27.3 | 33.4                                                               | 41.2 | PE              |

## Ratings and Characteristic Curves (CZRH3-55C2V4-G Thru. CZRH3-55C39-G)

Fig.1 - Zener Characteristics( $V_z$  Up to 10V)

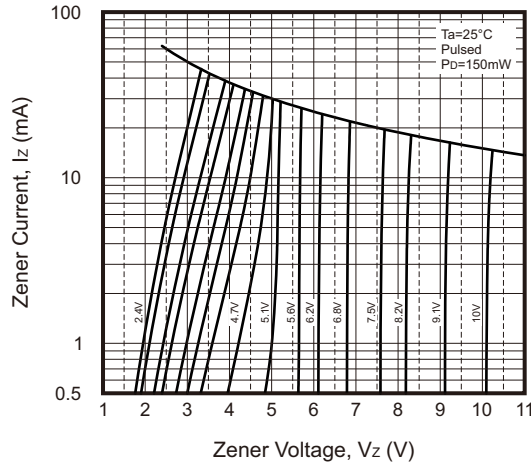


Fig.2 - Zener Characteristics(11V to 39V)

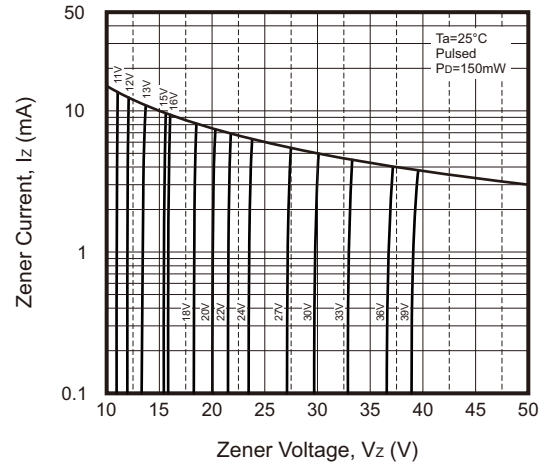


Fig.3 - Typical Capacitance

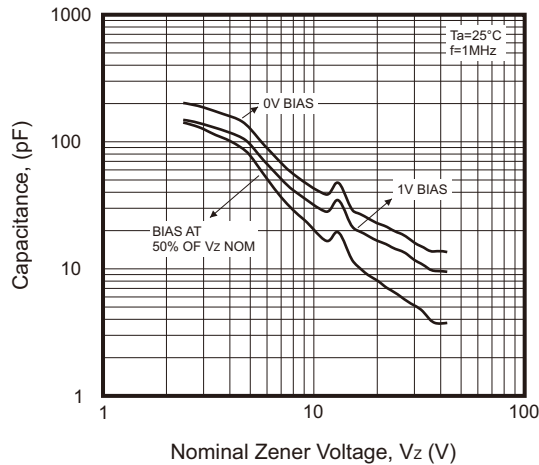


Fig.4 - Effect of Zener Voltage on Zener Impedance

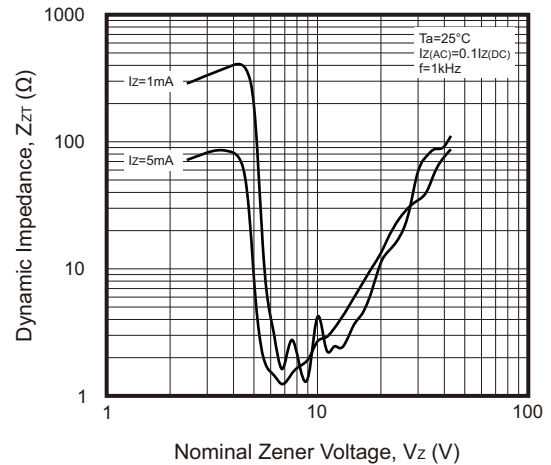
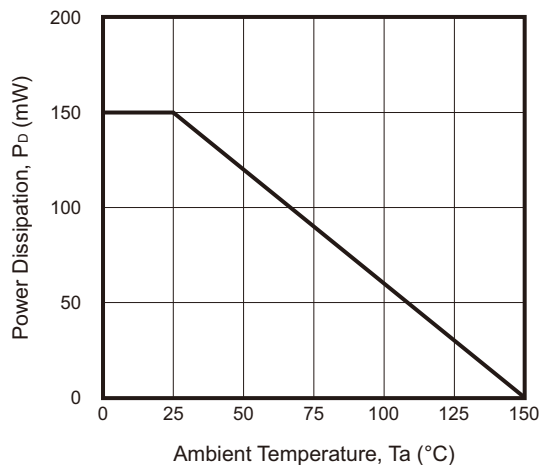
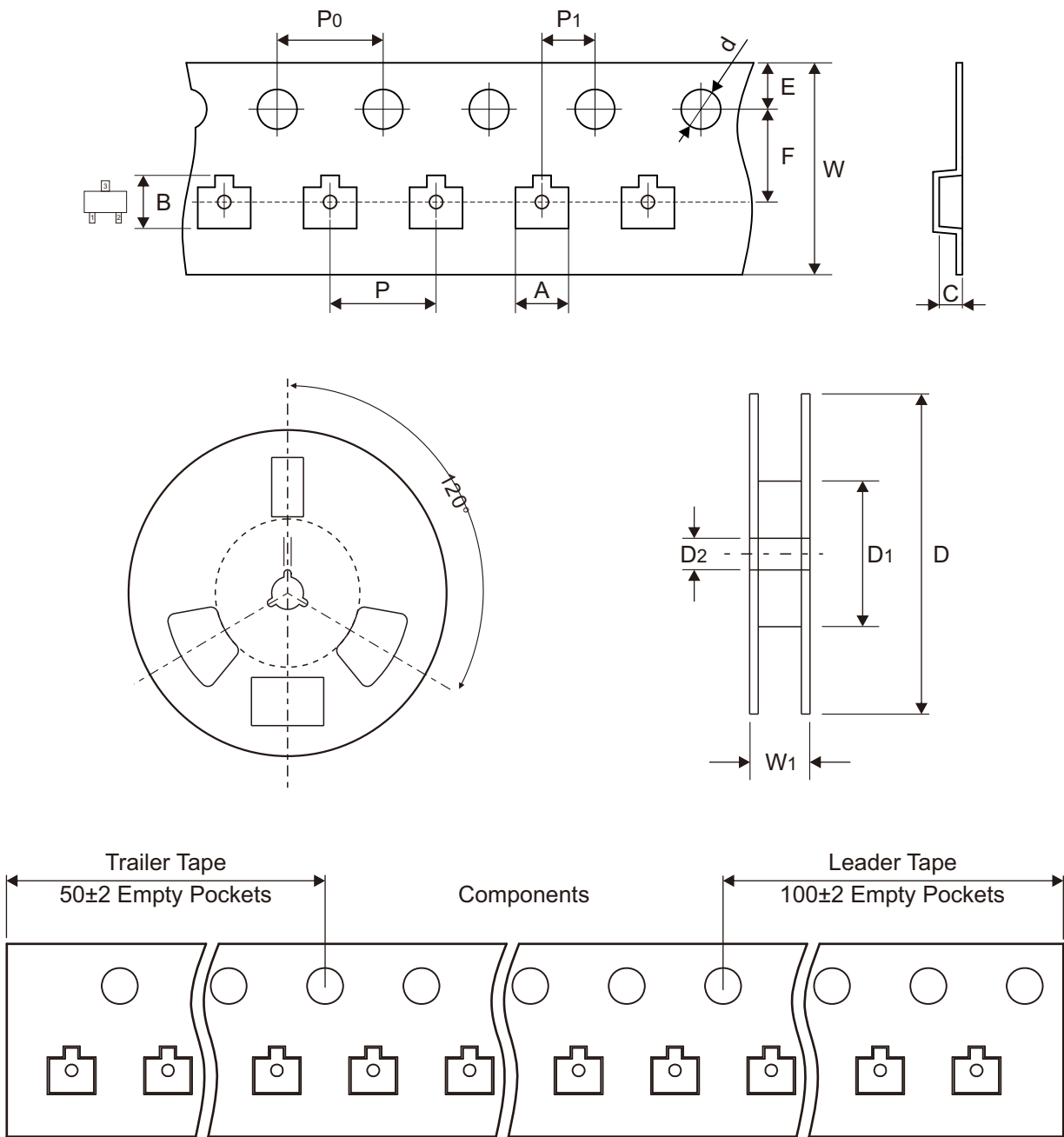


Fig.5 - Power Derating Curve



Company reserves the right to improve product design, functions and reliability without notice.

Reel Taping Specification

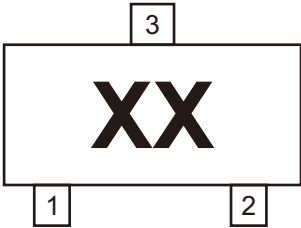


| SOT-523 | SYMBOL | A             | B             | C             | d             | D             | D1            | D2            |
|---------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|         | (mm)   | 1.85 ± 0.05   | 1.85 ± 0.05   | 0.875 ± 0.05  | 1.50 ± 0.10   | 178.00 ± 2.00 | 54.40 ± 1.00  | 13.00 ± 1.00  |
|         | (inch) | 0.073 ± 0.002 | 0.073 ± 0.002 | 0.034 ± 0.002 | 0.059 ± 0.004 | 7.008 ± 0.079 | 2.142 ± 0.039 | 0.512 ± 0.039 |

| SOT-523 | SYMBOL | E             | F             | P             | P0            | P1            | W                        | W1            |
|---------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
|         | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.10   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.10   | 8.00 + 0.30<br>- 0.10    | 12.30 ± 1.00  |
|         | (inch) | 0.069 ± 0.004 | 0.138 ± 0.004 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.004 | 0.315 + 0.012<br>- 0.004 | 0.484 ± 0.039 |

Marking Code

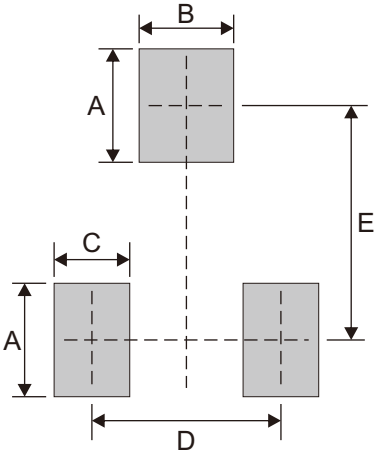
| Part Number                    | Marking Code |
|--------------------------------|--------------|
| CZRH3-55C2V4-G ~ CZRH3-55C39-G | See Page.2   |



XX = Product type marking code

Suggested PAD Layout

| SIZE | SOT-523 |        |
|------|---------|--------|
|      | (mm)    | (inch) |
| A    | 0.60    | 0.024  |
| B    | 0.50    | 0.020  |
| C    | 0.40    | 0.016  |
| D    | 1.00    | 0.039  |
| E    | 1.24    | 0.049  |



Standard Packaging

| Case Type | REEL PACK    |                  |
|-----------|--------------|------------------|
|           | REEL ( pcs ) | Reel Size (inch) |
| SOT-523   | 3,000        | 7                |