

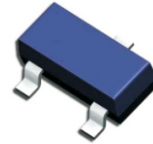
CZRT55C2V4-HF Thru. CZRT55C39-HF

Voltage: 2.4 to 39 V

Power: 300 mW

RoHS Device

Halogen Free

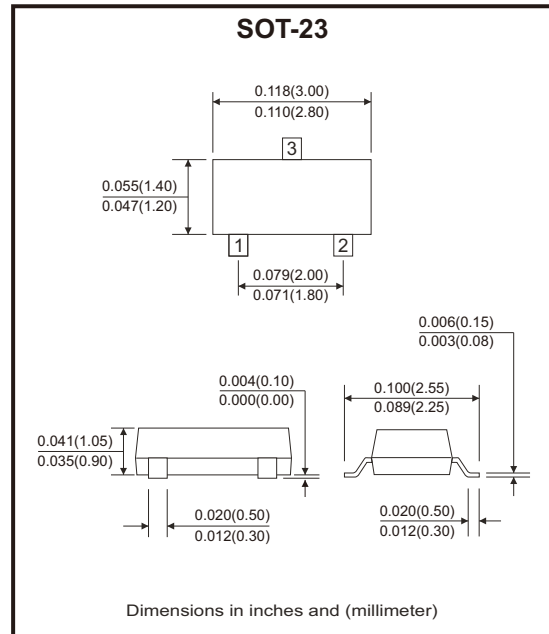


Features

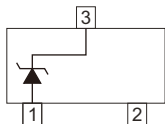
- Planar die construction.
- 300mW power dissipation.
- Zener voltages from 2.4V to 39V.
- Ultra-small surface mount package power dissipation.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.



Circuit Diagram



Maximum Rating (at TA=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Forward voltage (Note 1) @ I _F = 10mA | V _F | 0.9 | V |
| Power dissipation (Note 2) | P _D | 300 | mW |
| Thermal resistance from junction to ambient | R _{θJA} | 417 | °C/W |
| Operation junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

Notes: 1. Tested with pulses, period = 5ms, pulse width = 300µs.
 2. Valid provided that device terminals are kept at ambient temperature.

Electrical Characteristics (at TA=25°C unless otherwise noted)

| Part Number | Zener Voltage Range (Note 1) | | | | Max. Zener Impedance @ f = 1kHz | | | Max. Reverse Current | | Temperature Coefficient of Zener voltage @ I _{ZT} = 5mA mV/°C | | Marking Code |
|---------------|----------------------------------|--------|--------|-----------------|---------------------------------------|-----------------------------------|-----------------|----------------------------|----------------|---|------|-----------------|
| | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | I _{ZK} | I _R | V _R | Min. | Max. | |
| | Min(V) | Nom(V) | Max(V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | | | |
| CZRT55C2V4-HF | 2.2 | 2.4 | 2.6 | 5.0 | 100 | 600 | 1.0 | 50 | 1 | -3.5 | 0 | Z11 |
| CZRT55C2V7-HF | 2.5 | 2.7 | 2.9 | 5.0 | 100 | 600 | 1.0 | 20 | 1 | -3.5 | 0 | Z12 |
| CZRT55C3V0-HF | 2.8 | 3.0 | 3.2 | 5.0 | 95 | 600 | 1.0 | 10 | 1 | -3.5 | 0 | Z13 |
| CZRT55C3V3-HF | 3.1 | 3.3 | 3.5 | 5.0 | 95 | 600 | 1.0 | 5.0 | 1 | -3.5 | 0 | Z14 |
| CZRT55C3V6-HF | 3.4 | 3.6 | 3.8 | 5.0 | 90 | 600 | 1.0 | 5.0 | 1 | -3.5 | 0 | Z15 |
| CZRT55C3V9-HF | 3.7 | 3.9 | 4.1 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1 | -3.5 | 0 | Z16 |
| CZRT55C4V3-HF | 4.0 | 4.3 | 4.6 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1 | -3.5 | 0 | Z17 |
| CZRT55C4V7-HF | 4.4 | 4.7 | 5.0 | 5.0 | 80 | 500 | 1.0 | 3.0 | 2 | -3.5 | 0.2 | Z1 |
| CZRT55C5V1-HF | 4.8 | 5.1 | 5.4 | 5.0 | 60 | 480 | 1.0 | 2.0 | 2 | -2.7 | 1.2 | Z2 |
| CZRT55C5V6-HF | 5.2 | 5.6 | 6.0 | 5.0 | 40 | 400 | 1.0 | 1.0 | 2 | -2.0 | 2.5 | Z3 |
| CZRT55C6V2-HF | 5.8 | 6.2 | 6.6 | 5.0 | 10 | 150 | 1.0 | 3.0 | 4 | 0.4 | 3.7 | Z4 |
| CZRT55C6V8-HF | 6.4 | 6.8 | 7.2 | 5.0 | 15 | 80 | 1.0 | 2.0 | 4 | 1.2 | 4.5 | Z5 |
| CZRT55C7V5-HF | 7.0 | 7.5 | 7.9 | 5.0 | 15 | 80 | 1.0 | 1.0 | 5 | 2.5 | 5.3 | Z6 |
| CZRT55C8V2-HF | 7.7 | 8.2 | 8.7 | 5.0 | 15 | 80 | 1.0 | 0.7 | 5 | 3.2 | 6.2 | Z7 |
| CZRT55C9V1-HF | 8.5 | 9.1 | 9.6 | 5.0 | 15 | 100 | 1.0 | 0.5 | 6 | 3.8 | 7.0 | Z8 |
| CZRT55C10-HF | 9.4 | 10 | 10.6 | 5.0 | 20 | 150 | 1.0 | 0.2 | 7 | 4.5 | 8.0 | Z9 |
| CZRT55C11-HF | 10.4 | 11 | 11.6 | 5.0 | 20 | 150 | 1.0 | 0.1 | 8 | 5.4 | 9.0 | Y1• |
| CZRT55C12-HF | 11.4 | 12 | 12.7 | 5.0 | 25 | 150 | 1.0 | 0.1 | 8 | 6.0 | 10.0 | Y2• |
| CZRT55C13-HF | 12.4 | 13 | 14.1 | 5.0 | 30 | 170 | 1.0 | 0.1 | 8 | 7.0 | 11.0 | Y3 |
| CZRT55C15-HF | 13.8 | 15 | 15.6 | 5.0 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 | Y4 |
| CZRT55C16-HF | 15.3 | 16 | 17.1 | 5.0 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 | Y5 |
| CZRT55C18-HF | 16.8 | 18 | 19.1 | 5.0 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 | Y6• |
| CZRT55C20-HF | 18.8 | 20 | 21.2 | 5.0 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | Y7 |
| CZRT55C22-HF | 20.8 | 22 | 23.3 | 5.0 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 | Y8 |
| CZRT55C24-HF | 22.8 | 24 | 25.6 | 5.0 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 | Y9 |
| CZRT55C27-HF | 25.1 | 27 | 28.9 | 2.0 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | Y10 |
| CZRT55C30-HF | 28.0 | 30 | 32.0 | 2.0 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | Y11• |
| CZRT55C33-HF | 31.0 | 33 | 35.0 | 2.0 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | Y12 |
| CZRT55C36-HF | 34.0 | 36 | 38.0 | 2.0 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | Y13 |
| CZRT55C39-HF | 37.0 | 39 | 41.0 | 2.0 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | Y14 |

Notes: 1. Tested with pulses, period = 5ms, pulse width = 300μs.

Rating and Characteristic Curves (CZRT55C2V4-HF Thru. CZRT55C39-HF)

Fig.1 - Zener Characteristics
(Vz up to 10V)

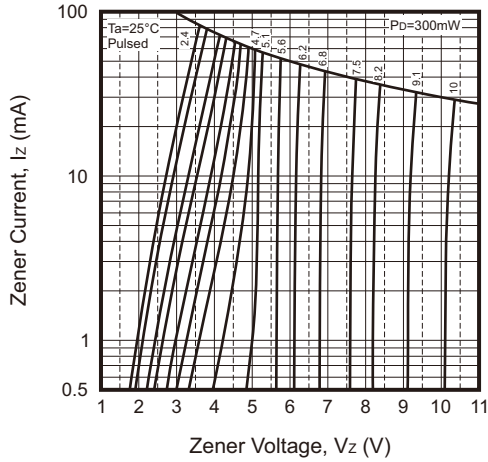


Fig.2 - Zener Characteristics
(11V to 39V)

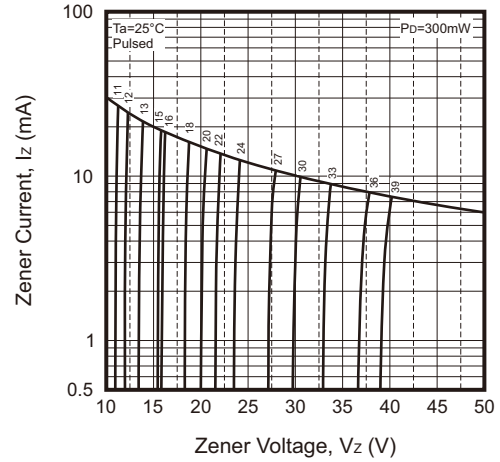


Fig.3 - Temperature Coefficients

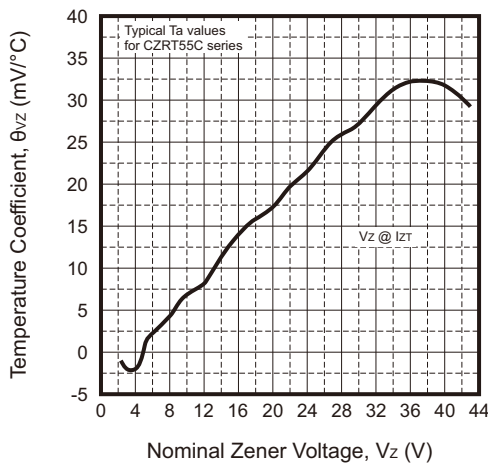


Fig.4 - Typical Leakage Current

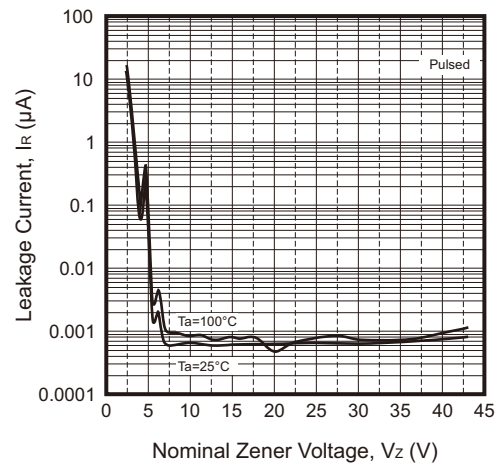


Fig.5 - Typical Capacitance

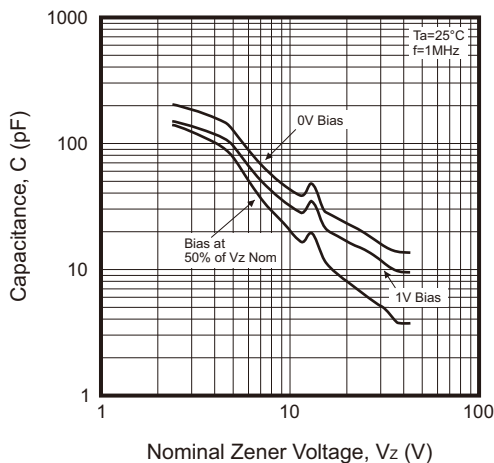
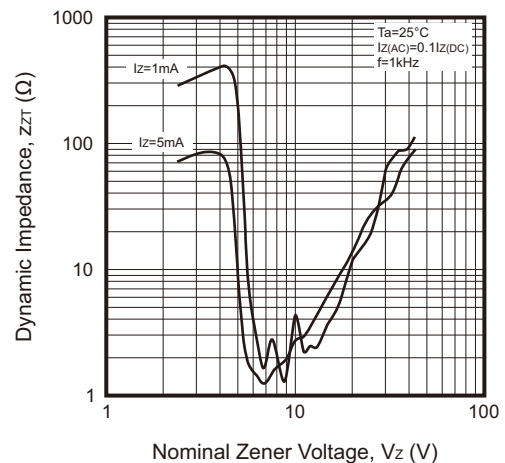
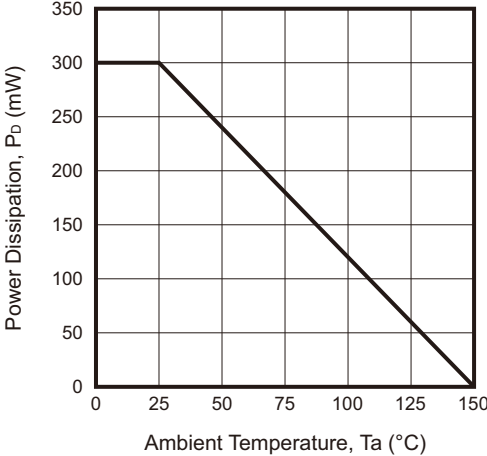


Fig.6 - Effect of Zener Voltage on Zener Impedance

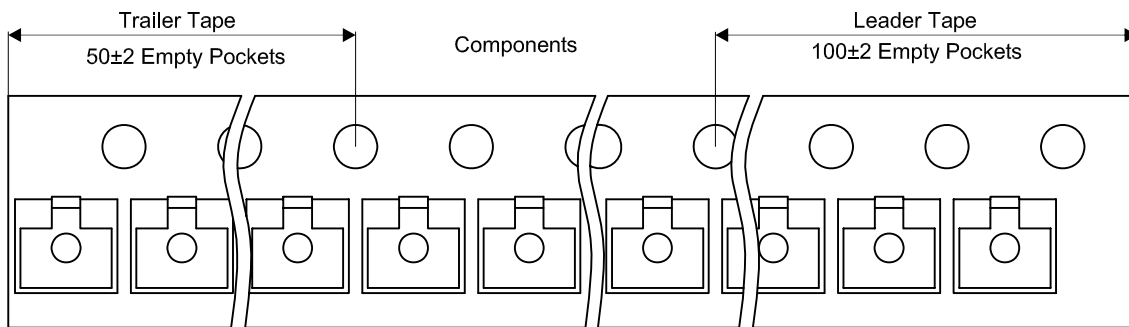
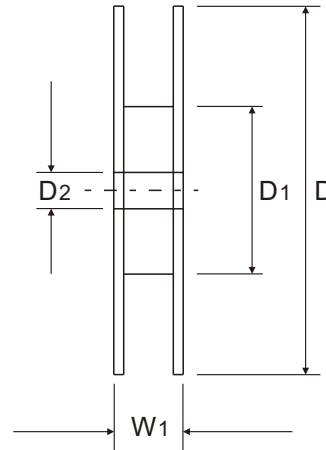
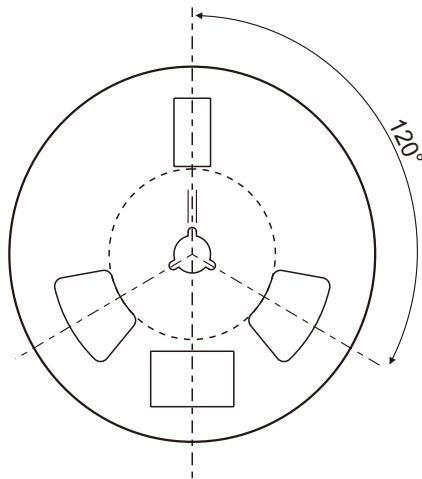
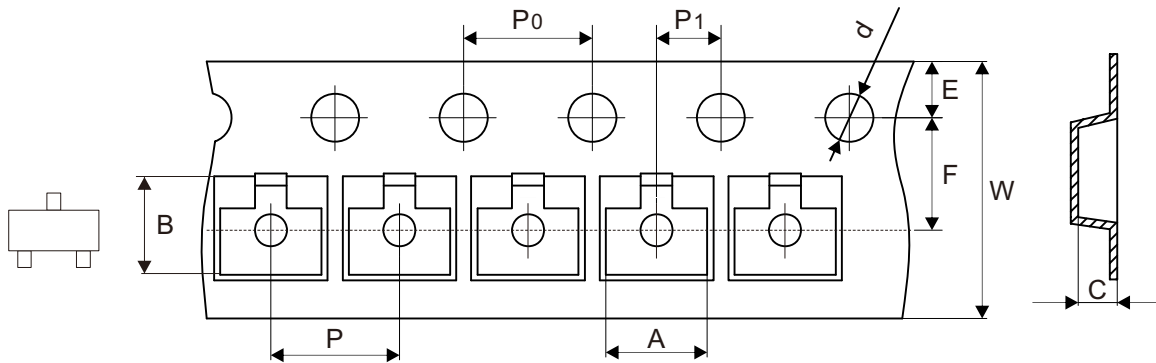


Rating and Characteristic Curves (CZRT55C2V4-HF Thru. CZRT55C39-HF)

Fig.7 - Power Derating Curve



Reel Taping Specification



| SOT-23 | SYMBOL | A | B | C | d | D | D1 | D2 |
|--------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | (mm) | 3.15 ± 0.10 | 2.77 ± 0.10 | 1.22 ± 0.10 | 1.50 ± 0.10 | 178.00 ± 2.00 | 54.40 ± 1.00 | 13.00 ± 1.00 |
| | (inch) | 0.124 ± 0.004 | 0.109 ± 0.004 | 0.048 ± 0.004 | 0.059 ± 0.004 | 7.008 ± 0.079 | 2.142 ± 0.039 | 0.512 ± 0.039 |

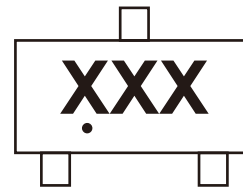
| SOT-23 | SYMBOL | E | F | P | P0 | P1 | W | W1 |
|--------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
| | (mm) | 1.75 ± 0.10 | 3.50 ± 0.10 | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.10 | 8.00 + 0.30 - 0.10 | 12.30 ± 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 - 0.004 | 0.484 ± 0.039 |

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

REV:A

Marking Code

| Part Number | Marking Code |
|-------------------|--------------|
| CZRT55C-HF Series | See page 2 |

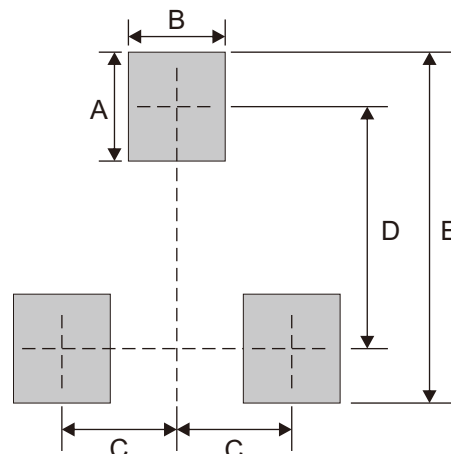


Solid dot = Control code

xx/xxx = Product type marking code

Suggested P.C.B. PAD Layout

| SIZE | SOT-23 | |
|------|--------|--------|
| | (mm) | (inch) |
| A | 0.90 | 0.035 |
| B | 0.80 | 0.031 |
| C | 0.95 | 0.037 |
| D | 2.00 | 0.079 |
| E | 2.90 | 0.114 |



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

| Case Type | REEL PACK | |
|-----------|------------|------------------|
| | REEL (pcs) | Reel Size (inch) |
| SOT-23 | 3,000 | 7 |