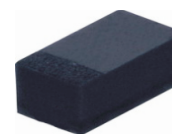


SMD Zener Diode

CZRERT52C2 Thru CZRERT52C39 (RoHS Device)

Voltage 2 to 39 Volts
Power 150 mWatts

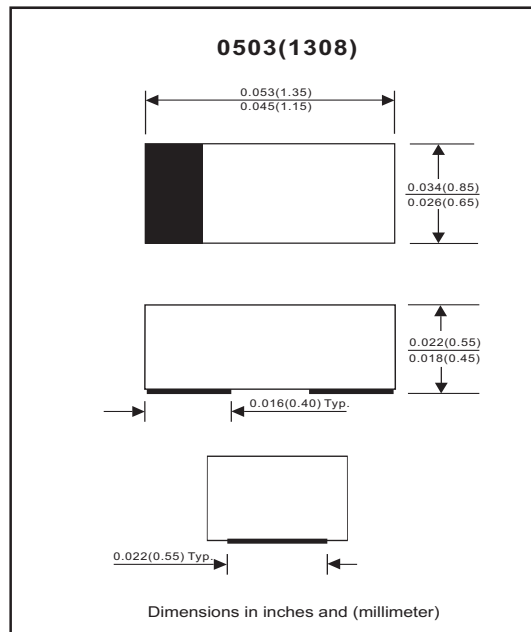


Features

- 150mW Power Dissipation.
- High Voltages from 2 ~ 39 V.
- Designed for mounting on small surface.
- Extremely thin/leadless package.
- Pb free product.

Mechanical data

- Case: 0503(1308)Standard package
Molded plastic.
- Terminals: Gold plated, solderable per
MIL-STD-750,method 2026.
- Polarity: Indicated by cathode band.
- Weight: 0.0011 gram(approx.).



Maximum Rating AND Electrical Characteristics

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------------------|
| Maximum Forward Voltage Drop at $I_F = 10 \text{ mA}$ | V_F | 0.9 | V |
| Maximum Power Dissipation at 25°C | P_D | 150 | mW |
| Forward current , surge peak 8.3 ms single half sine-wave superimposed on rate load(JEDEC method) | I_{FSM} | 2.0 | A |
| Peak ESD voltage capability (IEC 61000-4-2) | V_{PV} | 8 | kV |
| Operating Junction and Storage Temperature Range | T_J | -55 to +125 | $^\circ\text{C}$ |

Electrical Characteristics (TA=25°C)

| Part Number | Marking Code | Zener Voltage | | | Operating resistance | | Rising operating Resistance | | Reverse current | |
|--------------|--------------|---------------|-------|--------|----------------------|--------|-----------------------------|--------|-----------------|-------|
| | | Vz(V) | | | ZZT(Ohm) | | ZZK(Ohm) | | IR(μA) | |
| | | Min | Max | Iz(mA) | Max | Iz(mA) | Max | Iz(mA) | Max | VR(V) |
| CZRERT52C2 | Z0 | 1.90 | 2.10 | 5 | 100 | 5 | 600 | 1 | 100 | 1 |
| CZRERT52C2V2 | Z1 | 2.09 | 2.31 | 5 | 100 | 5 | 600 | 1 | 100 | 1 |
| CZRERT52C2V4 | Z2 | 2.28 | 2.52 | 5 | 85 | 5 | 600 | 1 | 100 | 1 |
| CZRERT52C2V7 | Z3 | 2.57 | 2.84 | 5 | 83 | 5 | 500 | 1 | 75 | 1 |
| CZRERT52C3 | Z4 | 2.85 | 3.15 | 5 | 95 | 5 | 500 | 1 | 50 | 1 |
| CZRERT52C3V3 | Z5 | 3.14 | 3.47 | 5 | 95 | 5 | 500 | 1 | 25 | 1 |
| CZRERT52C3V6 | Z6 | 3.42 | 3.78 | 5 | 95 | 5 | 500 | 1 | 15 | 1 |
| CZRERT52C3V9 | Z7 | 3.71 | 4.10 | 5 | 95 | 5 | 500 | 1 | 10 | 1 |
| CZRERT52C4V3 | Z8 | 4.09 | 4.52 | 5 | 95 | 5 | 500 | 1 | 5 | 1 |
| CZRERT52C4V7 | Z9 | 4.47 | 4.94 | 5 | 78 | 5 | 500 | 1 | 5 | 2 |
| CZRERT52C5V1 | ZA | 4.85 | 5.36 | 5 | 60 | 5 | 480 | 1 | 0.1 | 0.8 |
| CZRERT52C5V6 | ZB | 5.32 | 5.88 | 5 | 40 | 5 | 400 | 1 | 0.1 | 1 |
| CZRERT52C6V2 | ZC | 5.89 | 6.51 | 5 | 10 | 5 | 200 | 1 | 0.1 | 2 |
| CZRERT52C6V8 | ZE | 6.46 | 7.14 | 5 | 8 | 5 | 150 | 1 | 0.1 | 3 |
| CZRERT52C7V5 | ZF | 7.13 | 7.88 | 5 | 7 | 5 | 50 | 1 | 0.1 | 5 |
| CZRERT52C8V2 | ZG | 7.79 | 8.61 | 5 | 7 | 5 | 50 | 1 | 0.1 | 6 |
| CZRERT52C9V1 | ZH | 8.65 | 9.56 | 5 | 10 | 5 | 50 | 1 | 0.1 | 7 |
| CZRERT52C10 | ZJ | 9.50 | 10.50 | 5 | 15 | 5 | 70 | 1 | 0.1 | 7.5 |
| CZRERT52C11 | ZK | 10.45 | 11.55 | 5 | 20 | 5 | 70 | 1 | 0.1 | 8.5 |
| CZRERT52C12 | ZM | 11.40 | 12.60 | 5 | 20 | 5 | 90 | 1 | 0.1 | 9 |
| CZRERT52C13 | ZN | 12.35 | 13.65 | 5 | 25 | 5 | 110 | 1 | 0.1 | 10 |
| CZRERT52C15 | ZP | 14.25 | 15.75 | 5 | 30 | 5 | 110 | 1 | 0.1 | 11 |
| CZRERT52C16 | ZQ | 15.20 | 16.80 | 5 | 40 | 5 | 170 | 1 | 0.1 | 12 |
| CZRERT52C18 | ZR | 17.10 | 18.90 | 5 | 50 | 5 | 170 | 1 | 0.1 | 14 |
| CZRERT52C20 | ZS | 19.00 | 21.00 | 5 | 50 | 5 | 220 | 1 | 0.1 | 15 |
| CZRERT52C22 | ZT | 20.90 | 23.10 | 5 | 55 | 5 | 220 | 1 | 0.1 | 17 |
| CZRERT52C24 | ZU | 22.80 | 25.20 | 5 | 80 | 5 | 220 | 1 | 0.1 | 18 |
| CZRERT52C27 | ZV | 25.65 | 28.35 | 5 | 80 | 5 | 250 | 1 | 0.1 | 20 |
| CZRERT52C30 | ZW | 28.50 | 31.50 | 5 | 80 | 5 | 250 | 1 | 0.1 | 23 |
| CZRERT52C33 | ZX | 31.35 | 34.65 | 5 | 80 | 5 | 250 | 1 | 0.1 | 25 |
| CZRERT52C36 | ZY | 34.20 | 37.80 | 5 | 90 | 5 | 250 | 1 | 0.1 | 27 |
| CZRERT52C39 | ZZ | 37.05 | 40.95 | 5 | 90 | 5 | 300 | 1 | 0.1 | 29 |

RATING AND CHARACTERISTIC CURVES (CZRERT52C2 Thru CZRERT52C39)

Fig.1 TEMPERATURE COEFFICIENTS

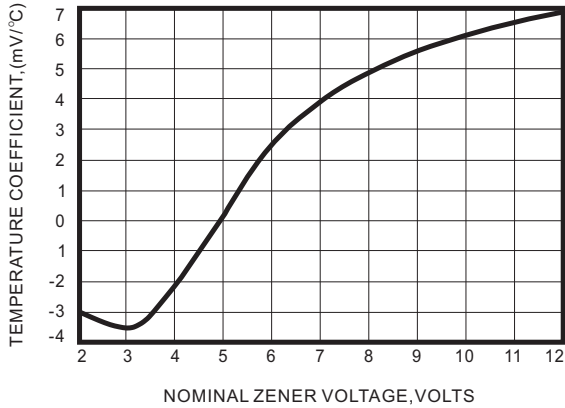


Fig.2 TEMPERATURE COEFFICIENTS

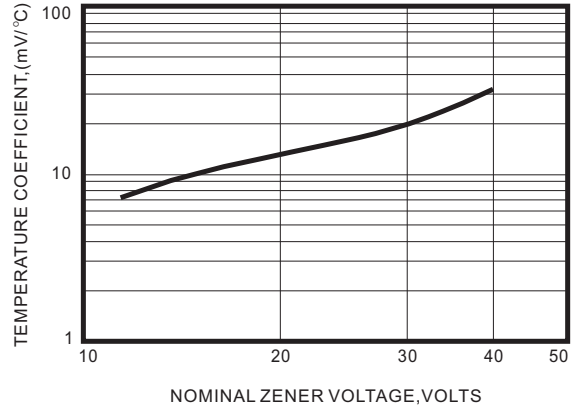


Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

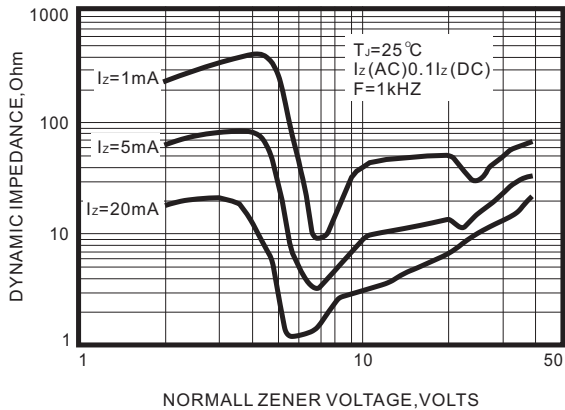


Fig.4 TYPICAL FORWARD VOLTAGE

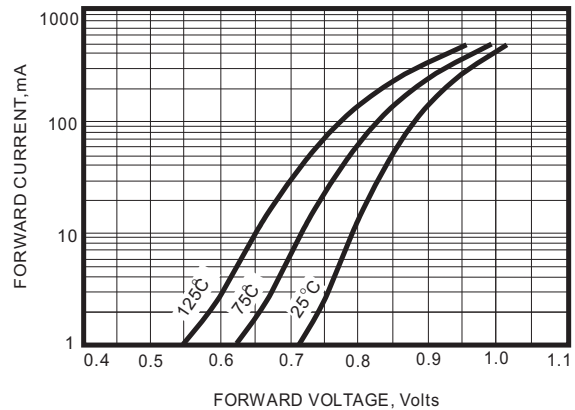


Fig.5 TYPICAL LEAKAGE CURRENT

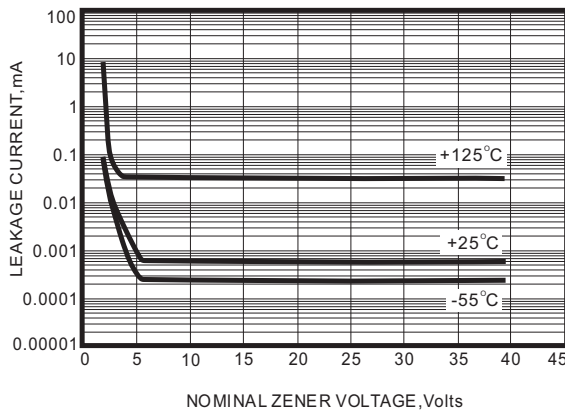
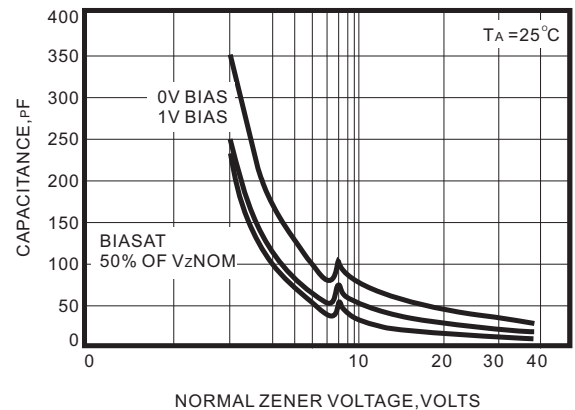


Fig.6 TYPICAL CAPACITANCE



RATING AND CHARACTERISTIC CURVES (CZRERT52C2 Thru CZRERT52C39)

Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

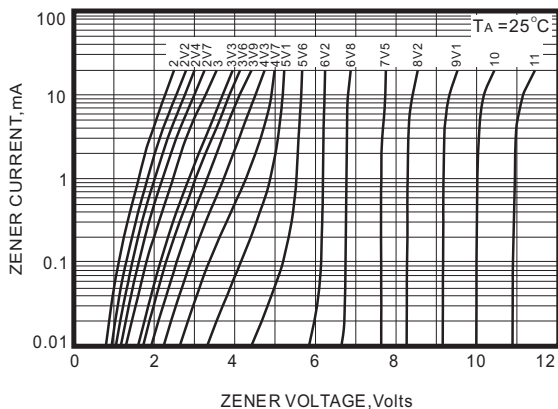


Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

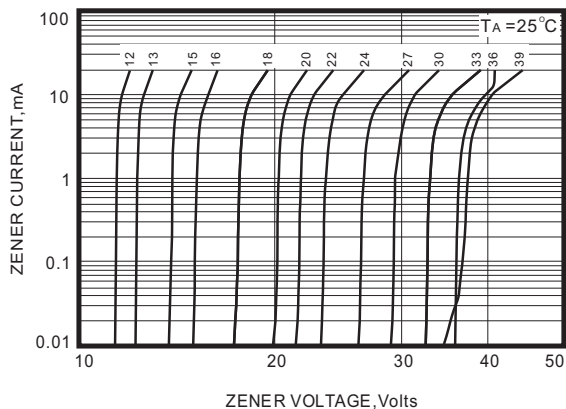
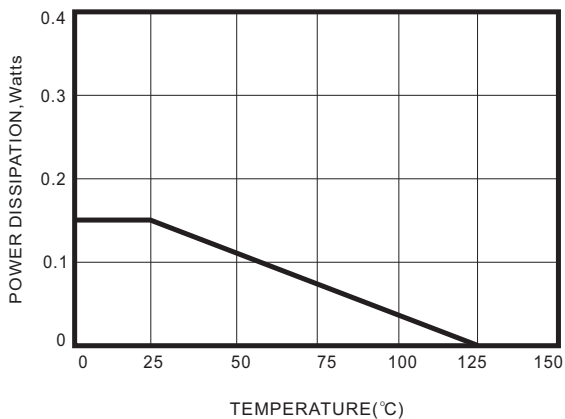
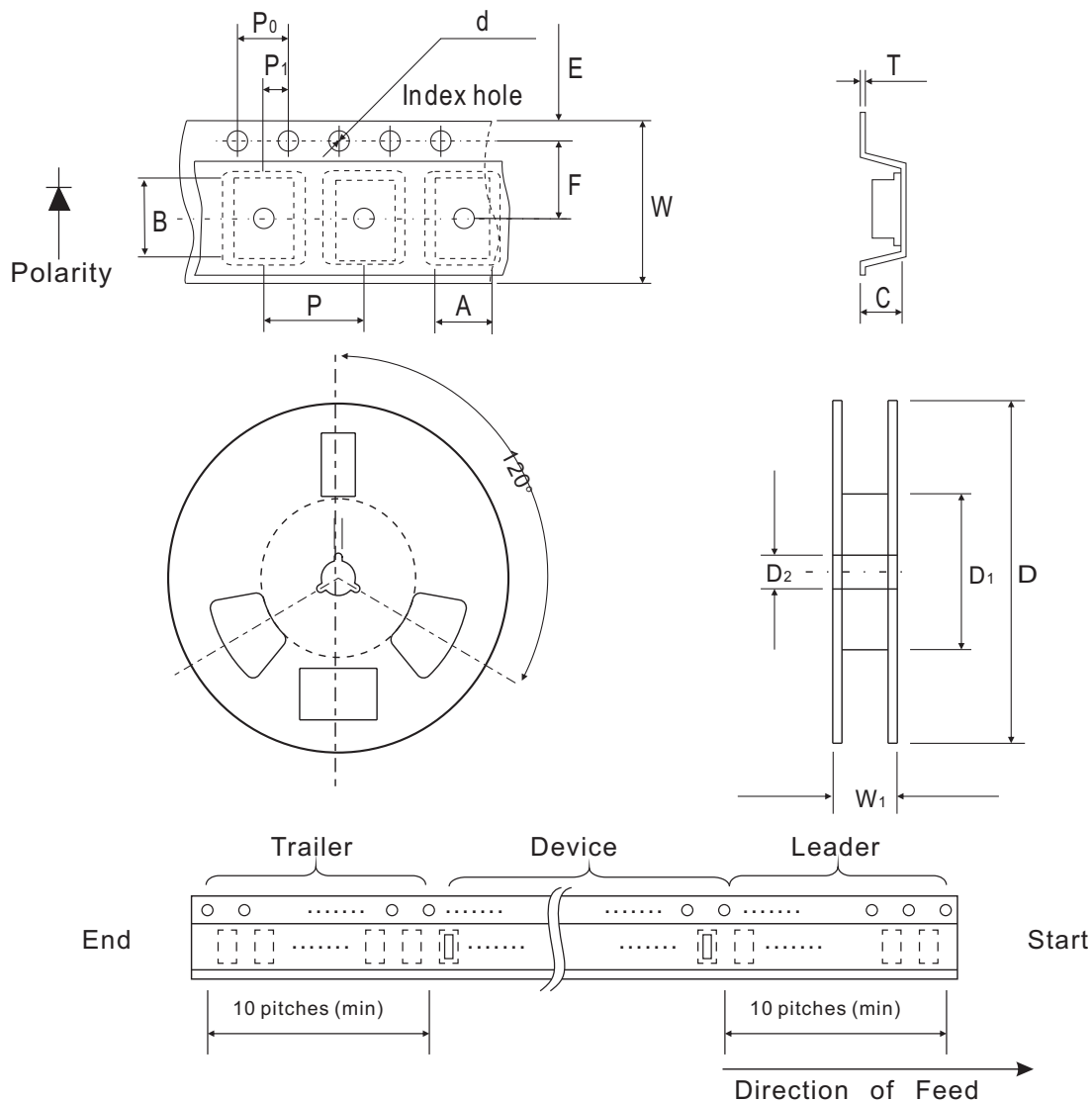


Fig.9 STEADY STATE POWER DERATING



Reel Taping Specification

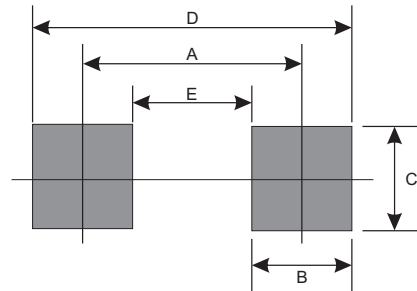


| ERT/0503 | SYMBOL | A | B | C | d | D | D ₁ | D ₂ |
|----------|--------|---------------|---------------|---------------|---------------|--------------|----------------|----------------|
| | (mm) | 0.90 ± 0.10 | 1.46 ± 0.10 | 0.60 ± 0.10 | 1.55 ± 0.10 | 178 ± 1 | 60.0 MIN. | 13.0 ± 0.20 |
| | (inch) | 0.035 ± 0.004 | 0.057 ± 0.004 | 0.024 ± 0.004 | 0.061 ± 0.004 | 7.008 ± 0.04 | 2.362 MIN. | 0.512 ± 0.008 |

| ERT/0503 | SYMBOL | E | F | P | P ₀ | P ₁ | T | W | W ₁ |
|----------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| | (mm) | 1.75 ± 0.10 | 3.50 ± 0.05 | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.10 | 0.22 ± 0.05 | 8.00 ± 0.20 | 13.5 MAX. |
| | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.004 | 0.009 ± 0.002 | 0.315 ± 0.008 | 0.531 MAX. |

Suggested PAD Layout

| SIZE | ERT/0503 | |
|------|----------|--------|
| | (mm) | (inch) |
| A | 0.85 | 0.033 |
| B | 0.55 | 0.022 |
| C | 0.85 | 0.033 |
| D | 1.40 | 0.055 |
| E | 0.30 | 0.118 |



Standard Package

| Case Type | Qty per Reel | Reel Size |
|-----------|--------------|-----------|
| | (Pcs) | (inch) |
| ERT/0503 | 5000 | 7 |