# THE DATASHEET OF

# CZRU52C6V8

# CZRU52C2 Thru CZRU52C39

## 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.

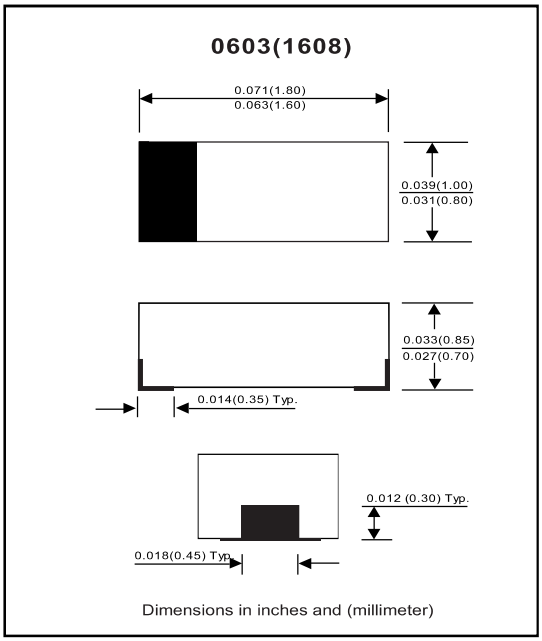
### Mechanical data

Case: 0603(1608)Standard package
Molded plastic.

Terminals: Gold plated, solderable per MIL-STD-750,method 2026.

Polarity: Indicated by cathode band.

Weight: 0.003 gram(approx.).




## Maximum Rating AND Electrical Characteristics

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| **Maximum Forward Voltage Drop at $I_F$ = 10 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 |
| **Operating Junction and Storage Temperature Range** | $T_J$ | -55 to +125 | °C |

## Electrical Characteristics(Ta = 25°C)

| Part Number | Marking Code | Zener Voltage | | | Operating resistance | | Rising operating Resistance | | Reverse current | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_Z$(V) | | | ZZT(Ohm) | | ZZK(Ohm) | | IR(uA) | |
| | | Min | Max | $I_Z$(mA) | Max | $I_Z$(mA) | Max | $I_Z$(mA) | Max | $V_R$(V) |
| CZRU52C2 | Z0 | 1.90 | 2.10 | 5 | 100 | 5 | 600 | 1 | 100 | 1 |
| CZRU52C2V2 | Z1 | 2.09 | 2.31 | 5 | 100 | 5 | 600 | 1 | 100 | 1 |
| CZRU52C2V4 | Z2 | 2.28 | 2.52 | 5 | 85 | 5 | 600 | 1 | 100 | 1 |
| CZRU52C2V7 | Z3 | 2.57 | 2.84 | 5 | 83 | 5 | 500 | 1 | 75 | 1 |
| CZRU52C3 | Z4 | 2.85 | 3.15 | 5 | 95 | 5 | 500 | 1 | 50 | 1 |
| CZRU52C3V3 | Z5 | 3.14 | 3.47 | 5 | 95 | 5 | 500 | 1 | 25 | 1 |
| CZRU52C3V6 | Z6 | 3.42 | 3.78 | 5 | 95 | 5 | 500 | 1 | 15 | 1 |
| CZRU52C3V9 | Z7 | 3.71 | 4.10 | 5 | 95 | 5 | 500 | 1 | 10 | 1 |
| CZRU52C4V3 | Z8 | 4.09 | 4.52 | 5 | 95 | 5 | 500 | 1 | 5 | 1 |
| CZRU52C4V7 | Z9 | 4.47 | 4.94 | 5 | 78 | 5 | 500 | 1 | 5 | 2 |
| CZRU52C5V1 | ZA | 4.85 | 5.36 | 5 | 60 | 5 | 480 | 1 | 0.1 | 0.8 |
| CZRU52C5V6 | ZB | 5.32 | 5.88 | 5 | 40 | 5 | 400 | 1 | 0.1 | 1 |
| CZRU52C6V2 | ZC | 5.89 | 6.51 | 5 | 10 | 5 | 200 | 1 | 0.1 | 2 |
| CZRU52C6V8 | ZE | 6.46 | 7.14 | 5 | 8 | 5 | 150 | 1 | 0.1 | 3 |
| CZRU52C7V5 | ZF | 7.13 | 7.88 | 5 | 7 | 5 | 50 | 1 | 0.1 | 5 |
| CZRU52C8V2 | ZG | 7.79 | 8.61 | 5 | 7 | 5 | 50 | 1 | 0.1 | 6 |
| CZRU52C9V1 | ZH | 8.65 | 9.56 | 5 | 10 | 5 | 50 | 1 | 0.1 | 7 |
| CZRU52C10 | ZJ | 9.50 | 10.50 | 5 | 15 | 5 | 70 | 1 | 0.1 | 7.5 |
| CZRU52C11 | ZK | 10.45 | 11.55 | 5 | 20 | 5 | 70 | 1 | 0.1 | 8.5 |
| CZRU52C12 | ZM | 11.40 | 12.60 | 5 | 20 | 5 | 90 | 1 | 0.1 | 9 |
| CZRU52C13 | ZN | 12.35 | 13.65 | 5 | 25 | 5 | 110 | 1 | 0.1 | 10 |
| CZRU52C15 | ZP | 14.25 | 15.75 | 5 | 30 | 5 | 110 | 1 | 0.1 | 11 |
| CZRU52C16 | ZQ | 15.20 | 16.80 | 5 | 40 | 5 | 170 | 1 | 0.1 | 12 |
| CZRU52C18 | ZR | 17.10 | 18.90 | 5 | 50 | 5 | 170 | 1 | 0.1 | 14 |
| CZRU52C20 | ZS | 19.00 | 21.00 | 5 | 50 | 5 | 220 | 1 | 0.1 | 15 |
| CZRU52C22 | ZT | 20.90 | 23.10 | 5 | 55 | 5 | 220 | 1 | 0.1 | 17 |
| CZRU52C24 | ZU | 22.80 | 25.20 | 5 | 80 | 5 | 220 | 1 | 0.1 | 18 |
| CZRU52C27 | ZV | 25.65 | 28.35 | 5 | 80 | 5 | 250 | 1 | 0.1 | 20 |
| CZRU52C30 | ZW | 28.50 | 31.50 | 5 | 80 | 5 | 250 | 1 | 0.1 | 23 |
| CZRU52C33 | ZX | 31.35 | 34.65 | 5 | 80 | 5 | 250 | 1 | 0.1 | 25 |
| CZRU52C36 | ZY | 34.20 | 37.80 | 5 | 90 | 5 | 250 | 1 | 0.1 | 27 |
| CZRU52C39 | ZZ | 37.05 | 40.95 | 5 | 90 | 5 | 300 | 1 | 0.1 | 29 |

## RATING AND CHARACTERISTIC CURVES (CZRU52C2 Thru CZRU52C39)

Fig.1 TEMPERATURE COEFFICENTS

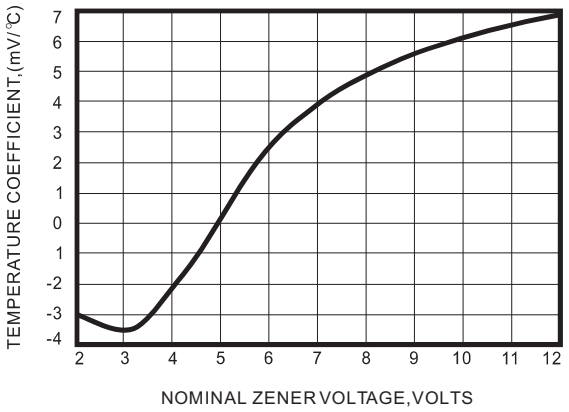



Fig.2 TEMPERATURE COEFFICENTS

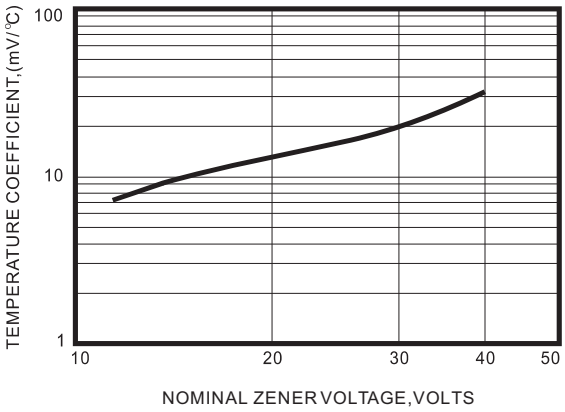



Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

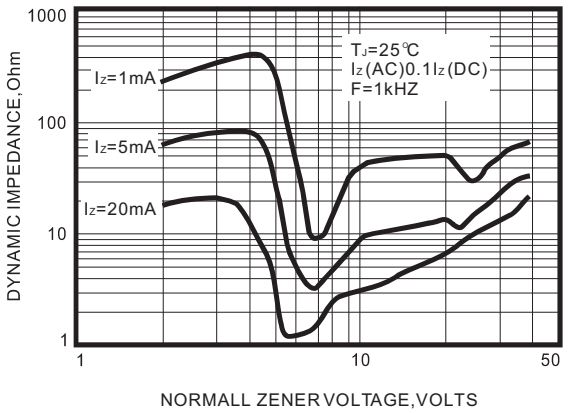



Fig.4 TYPICAL FORWARD VOLTAGE

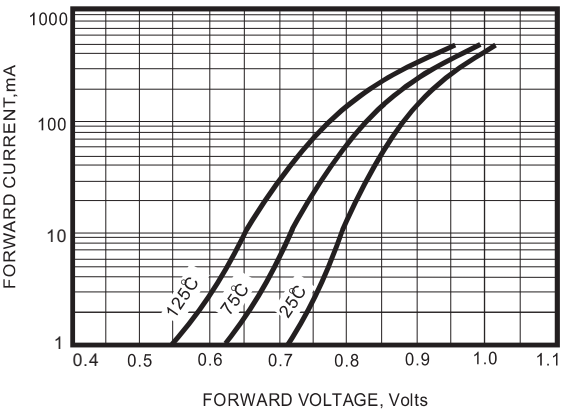



Fig.5 TYPICAL LEAKAGE CURRENT

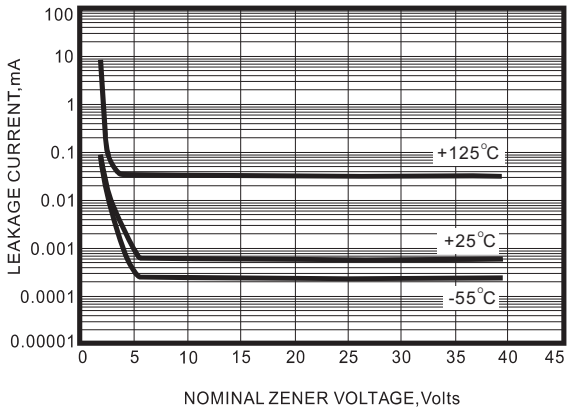
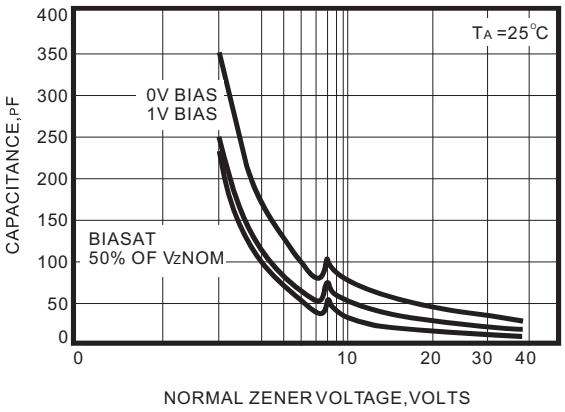



Fig.6 TYPICAL CAPACITANCE



## RATING AND CHARACTERISTIC CURVES (CZRU52C2 Thru CZRU52C39)

Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

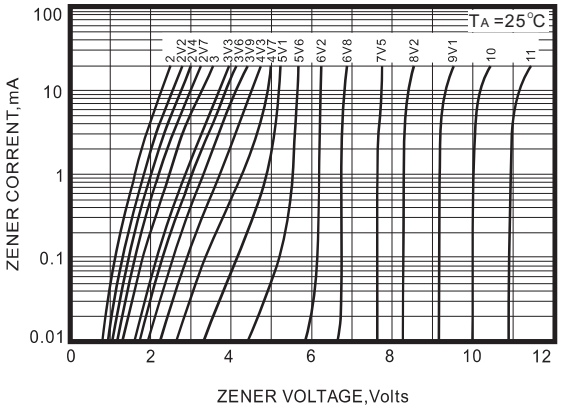



Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

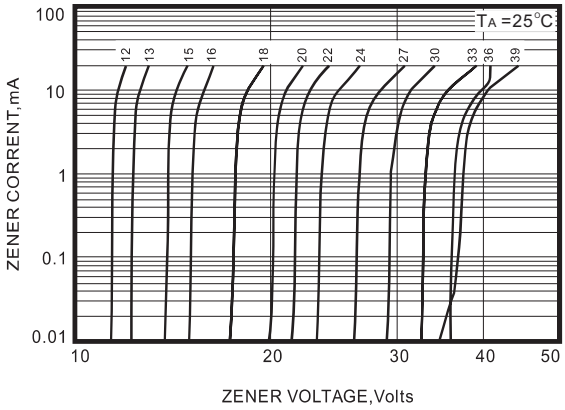
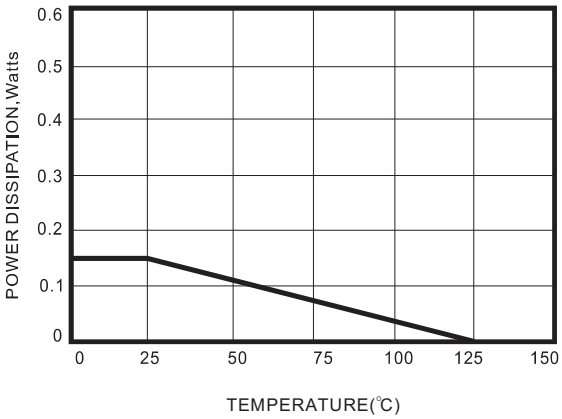



Fig.9 STEADY STATE POWER DERATING



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