

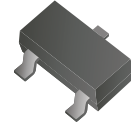
## CZRT5222B-HF Thru. CZRT5256B-HF

Voltage: 2.5 to 30 Volts

Power: 300 mWatts

RoHS Device

Halogen Free

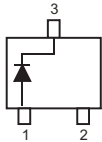
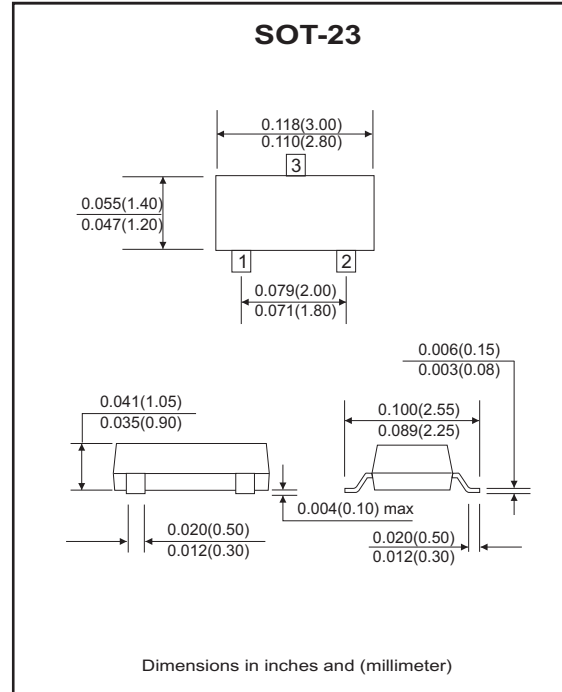


### Features

- Planar die construction.
- 300mW power dissipation on FR-4 PCB.
- Ideally suited for automated assembly process.
- General purpose, medium current.

### Mechanical data

- Case: SOT-23, Molded plastic.
- Terminals: Solderable per MIL-STD-202G, method 208.
- Polarity: See diagram below.
- Mounting position: Any
- Marking: see table on page2.
- Weight: 0.0078 gram(approx.).



### Maximum Ratings (at Ta=25°C unless otherwise noted)

| Parameter                                   | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Forward voltage @I <sub>F</sub> =10mA       | V <sub>F</sub>                    | 0.9         | V    |
| Power dissipation                           | P <sub>D</sub>                    | 300         | mW   |
| Thermal resistance, junction to ambient air | R <sub>θJA</sub>                  | 417         | °C/W |
| Operating and storage temperature range     | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

## Electrical Characteristics (@Ta = 25°C unless otherwise specified)

| Part Number  | Zener Voltage |      |       | Operating Resistance |         | Rising Operating Resistance |         | Reverse Current |       | Marking Code |
|--------------|---------------|------|-------|----------------------|---------|-----------------------------|---------|-----------------|-------|--------------|
|              | VZ(V)@IZT     |      |       | ZZT(Ohm)             |         | ZZK(Ohm)                    |         | IR(uA)          |       |              |
|              | Min.          | Nom. | Max.  | Max.                 | IZT(mA) | Max.                        | IZK(mA) | Max.            | VR(V) |              |
| CZRT5222B-HF | 2.38          | 2.5  | 2.63  | 30                   | 20.0    | 1250                        | 0.25    | 100             | 1.0   | KC2          |
| CZRT5223B-HF | 2.57          | 2.7  | 2.84  | 30                   | 20.0    | 1300                        | 0.25    | 75              | 1.0   | KC3          |
| CZRT5225B-HF | 2.85          | 3.0  | 3.15  | 30                   | 20.0    | 1600                        | 0.25    | 50              | 1.0   | KC5          |
| CZRT5226B-HF | 3.14          | 3.3  | 3.47  | 28                   | 20.0    | 1600                        | 0.25    | 25              | 1.0   | KG1          |
| CZRT5227B-HF | 3.42          | 3.6  | 3.78  | 24                   | 20.0    | 1700                        | 0.25    | 15              | 1.0   | KG2          |
| CZRT5228B-HF | 3.71          | 3.9  | 4.10  | 23                   | 20.0    | 1900                        | 0.25    | 10              | 1.0   | KG3          |
| CZRT5229B-HF | 4.09          | 4.3  | 4.52  | 22                   | 20.0    | 2000                        | 0.25    | 5.0             | 1.0   | KG4          |
| CZRT5230B-HF | 4.47          | 4.7  | 4.94  | 19                   | 20.0    | 1900                        | 0.25    | 5.0             | 2.0   | KG5          |
| CZRT5231B-HF | 4.85          | 5.1  | 5.36  | 17                   | 20.0    | 1600                        | 0.25    | 5.0             | 2.0   | KE1          |
| CZRT5232B-HF | 5.32          | 5.6  | 5.88  | 11                   | 20.0    | 1600                        | 0.25    | 5.0             | 3.0   | KE2          |
| CZRT5233B-HF | 5.70          | 6.0  | 6.30  | 7                    | 20.0    | 1600                        | 0.25    | 5.0             | 3.5   | KE3          |
| CZRT5234B-HF | 5.89          | 6.2  | 6.51  | 7                    | 20.0    | 1000                        | 0.25    | 5.0             | 4.0   | KE4          |
| CZRT5235B-HF | 6.46          | 6.8  | 7.14  | 5                    | 20.0    | 750                         | 0.25    | 3.0             | 5.0   | KE5          |
| CZRT5236B-HF | 7.13          | 7.5  | 7.88  | 6                    | 20.0    | 500                         | 0.25    | 3.0             | 6.0   | KF1          |
| CZRT5237B-HF | 7.79          | 8.2  | 8.61  | 8                    | 20.0    | 500                         | 0.25    | 3.0             | 6.5   | KF2          |
| CZRT5238B-HF | 8.27          | 8.7  | 9.14  | 8                    | 20.0    | 600                         | 0.25    | 3.0             | 6.5   | KF3          |
| CZRT5239B-HF | 8.65          | 9.1  | 9.56  | 10                   | 20.0    | 600                         | 0.25    | 3.0             | 7.0   | KF4          |
| CZRT5240B-HF | 9.50          | 10   | 10.50 | 17                   | 20.0    | 600                         | 0.25    | 3.0             | 8.0   | KF5          |
| CZRT5241B-HF | 10.45         | 11   | 11.55 | 22                   | 20.0    | 600                         | 0.25    | 2.0             | 8.4   | KH1          |
| CZRT5242B-HF | 11.40         | 12   | 12.60 | 30                   | 20.0    | 600                         | 0.25    | 1.0             | 9.1   | KH2          |
| CZRT5243B-HF | 12.35         | 13   | 13.65 | 13                   | 9.5     | 600                         | 0.25    | 0.5             | 9.9   | KH3          |
| CZRT5244B-HF | 13.30         | 14   | 14.70 | 15                   | 9.0     | 600                         | 0.25    | 0.1             | 10    | KH4          |
| CZRT5245B-HF | 14.25         | 15   | 15.75 | 16                   | 8.5     | 600                         | 0.25    | 0.1             | 11    | KH5          |
| CZRT5246B-HF | 15.20         | 16   | 16.80 | 17                   | 7.8     | 600                         | 0.25    | 0.1             | 12    | KJ1          |
| CZRT5247B-HF | 16.15         | 17   | 17.85 | 19                   | 7.4     | 600                         | 0.25    | 0.1             | 13    | KJ2          |
| CZRT5248B-HF | 17.10         | 18   | 18.90 | 21                   | 7.0     | 600                         | 0.25    | 0.1             | 14    | KJ3          |
| CZRT5249B-HF | 18.05         | 19   | 19.95 | 23                   | 6.6     | 600                         | 0.25    | 0.1             | 14    | KJ2          |
| CZRT5250B-HF | 19.00         | 20   | 21.00 | 25                   | 6.2     | 600                         | 0.25    | 0.1             | 15    | KJ5          |
| CZRT5251B-HF | 20.90         | 22   | 23.10 | 29                   | 5.6     | 600                         | 0.25    | 0.1             | 17    | KK1          |
| CZRT5252B-HF | 22.80         | 24   | 25.20 | 33                   | 5.2     | 600                         | 0.25    | 0.1             | 18    | KK2          |
| CZRT5253B-HF | 23.75         | 25   | 26.25 | 35                   | 5.0     | 600                         | 0.25    | 0.1             | 19    | KK3          |
| CZRT5254B-HF | 25.65         | 27   | 28.35 | 41                   | 5.0     | 600                         | 0.25    | 0.1             | 21    | KK4          |
| CZRT5255B-HF | 26.60         | 28   | 29.40 | 44                   | 4.5     | 600                         | 0.25    | 0.1             | 21    | KK5          |
| CZRT5256B-HF | 28.50         | 30   | 31.50 | 49                   | 4.2     | 600                         | 0.25    | 0.1             | 23    | KM1          |

Notes:

1. Short duration test pulse used to minimize self-heating effect.
2. f=1KHz.

## RATING AND CHARACTERISTIC CURVES (CZRT5222B-HF Thru CZRT5256B-HF)

Fig.1- Power Derating Curve

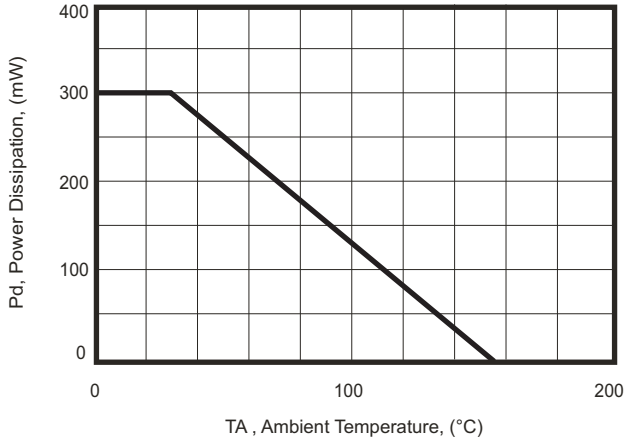


Fig.2- Maximum Non-repetitive Surge Power

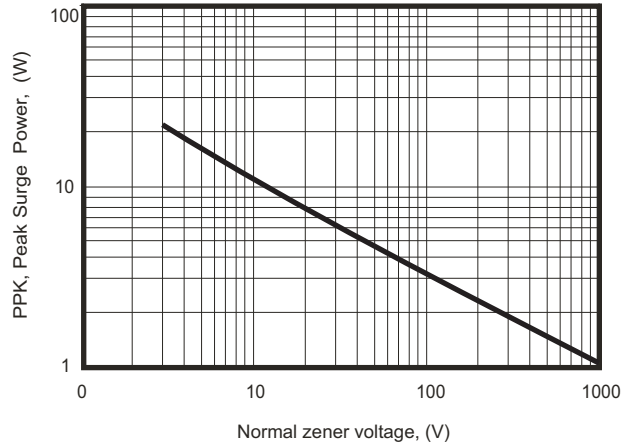


Fig.3- Zener Voltage vs Zener Impedance

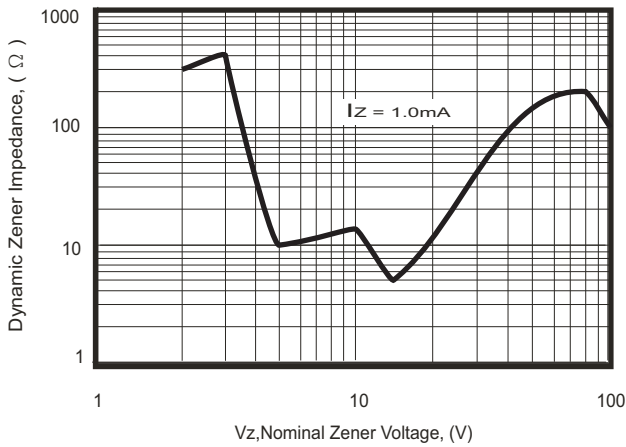


Fig.4- Total Capacitance vs Nominal Zener Voltage

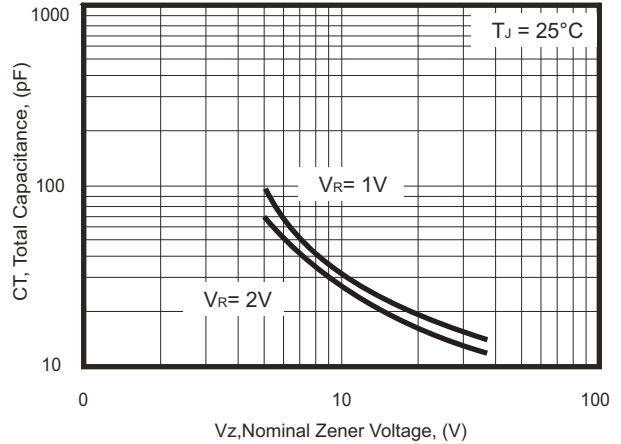


Fig.5- Zener Breakdown Characteristics

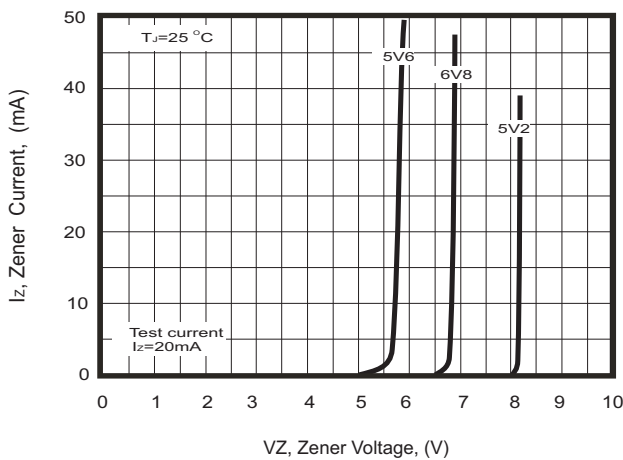
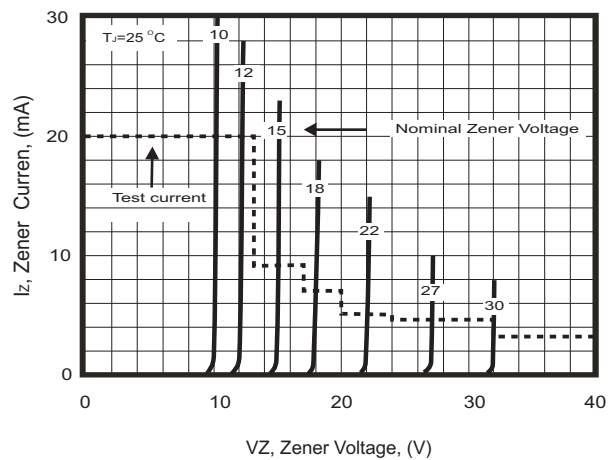
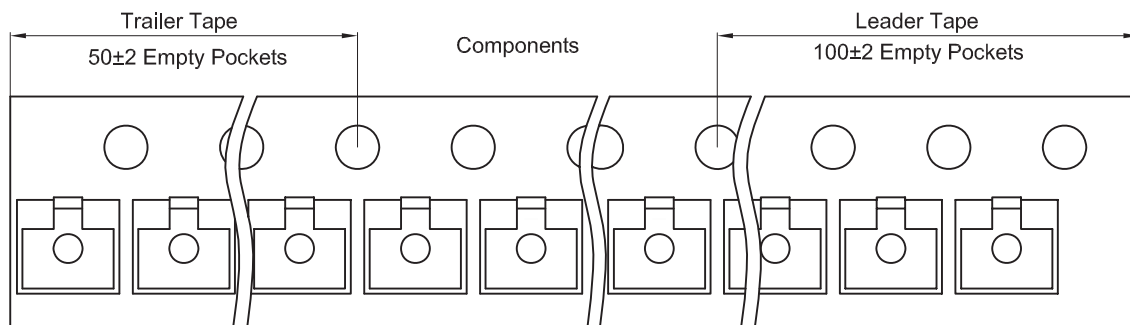
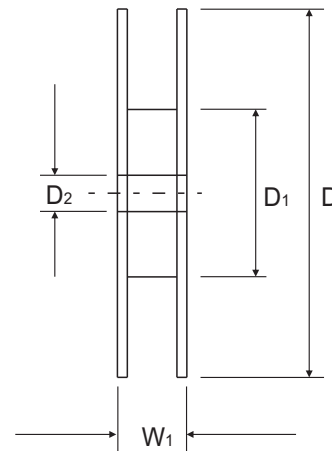
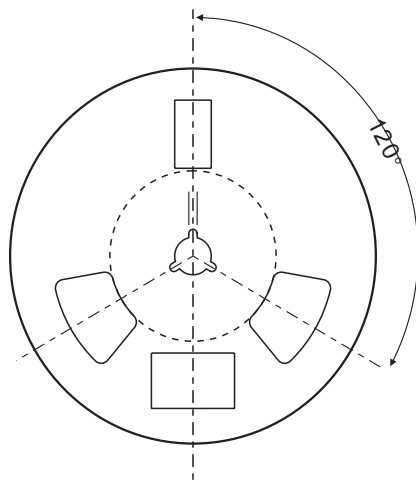
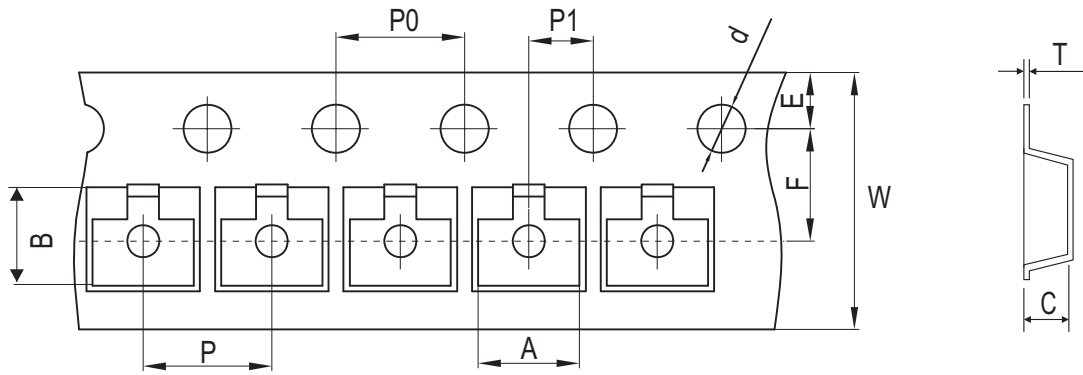


Fig.6- Zener Breakdown Characteristics



## Reel Taping Specification

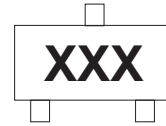


| SOT-23 | SYMBOL | A             | B             | C             | d              | D             | D1            | D2            |
|--------|--------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|
|        | (mm)   | 3.15 ± 0.10   | 2.77 ± 0.10   | 1.22 ± 0.10   | Φ1.50 ± 0.10   | 178 ± 2.00    | 54.40 ± 1.00  | 13.00 ± 1.00  |
|        | (inch) | 0.124 ± 0.004 | 0.109 ± 0.004 | 0.048 ± 0.004 | Φ0.059 ± 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 |

## Marking Code

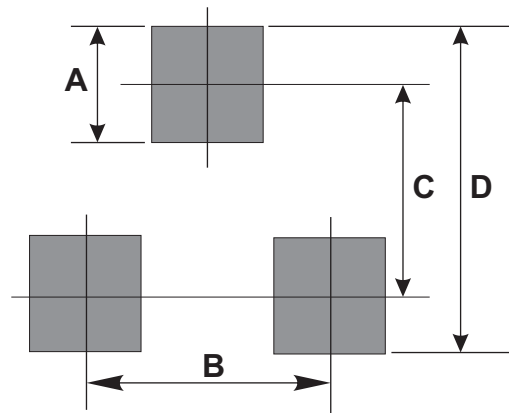
| Part Number                 | Marking Code |
|-----------------------------|--------------|
| CZRT5222B-HF ~ CZRT5256B-HF | XXX          |



Product type marking code (see page.2)

## Suggested PAD Layout

| SIZE | SOT-23 |        |
|------|--------|--------|
|      | (mm)   | (inch) |
| A    | 0.80   | 0.031  |
| B    | 1.90   | 0.075  |
| C    | 2.02   | 0.080  |
| D    | 2.82   | 0.111  |



## Standard Packaging

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