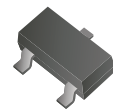


# CZRT5221B-HF Thru CZRT5267B-HF

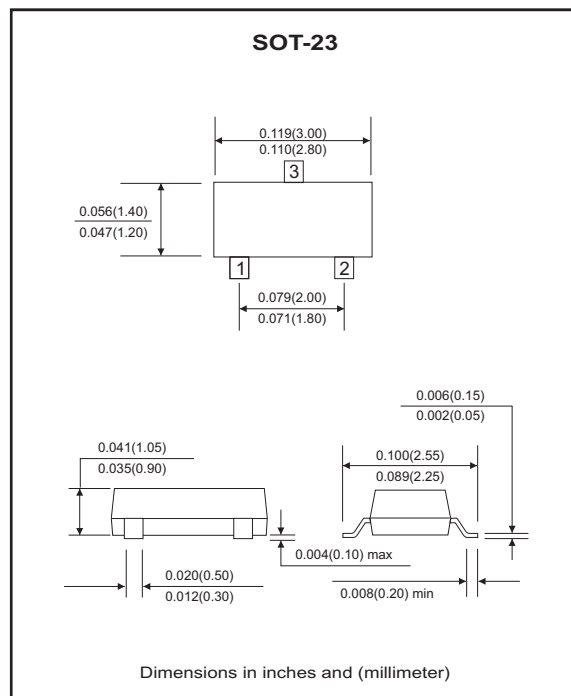
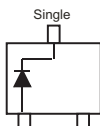
**Voltage: 2.4 to 39 Volts**
**Power: 350 mWatts**
**RoHS Device**
**Halogen Free**


## Features

- Planar die construction
- 350mW 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.).



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

| Parameter                                             | Symbol           | Value       | Unit |
|-------------------------------------------------------|------------------|-------------|------|
| Forward voltage drop at IF=10mA                       | V <sub>F</sub>   | 0.9         | V    |
| Power dissipation (Notes A), T <sub>A</sub> = 25°C    | P <sub>D</sub>   | 350         | mW   |
| Thermal resistance, junction to ambient air (Notes A) | R <sub>θJA</sub> | 357         | °C/W |
| Operating junction and storage temperature range      | T <sub>J</sub>   | -65 to +150 | °C   |

Notes:

A. Valid provided that device terminals are kept at ambient temperature.

 B. Tested with pulses, T<sub>p</sub> ≤ 1.0mS.

## Electrical Characteristics(Ta = 25°C)

| 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) |              |
| CZRT5221B-HF | 2.28          | 2.4  | 2.52  | 30                   | 20.0    | 1200                        | 0.25    | 100             | 1.0   | KC1          |
| 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          |
| 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          |
| 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          |
| 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          |
| CZRT5248B-HF | 17.10         | 18   | 18.90 | 21                   | 7.0     | 600                         | 0.25    | 0.1             | 14    | KJ3          |
| 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          |
| 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          |
| CZRT5257B-HF | 31.35         | 33   | 34.65 | 58                   | 3.8     | 700                         | 0.25    | 0.1             | 25    | KM2          |
| CZRT5258B-HF | 34.20         | 36   | 37.80 | 70                   | 3.4     | 700                         | 0.25    | 0.1             | 27    | KM3          |
| CZRT5259B-HF | 37.05         | 39   | 40.95 | 80                   | 3.2     | 800                         | 0.25    | 0.1             | 30    | KM4          |
| CZRT5260B-HF | 40.85         | 43   | 45.15 | 93                   | 3.0     | 900                         | 0.25    | 0.1             | 33    | KM5          |
| CZRT5261B-HF | 44.65         | 47   | 49.35 | 105                  | 2.7     | 1000                        | 0.25    | 0.1             | 36    | KN1          |
| CZRT5262B-HF | 48.45         | 51   | 53.55 | 125                  | 2.5     | 1100                        | 0.25    | 0.1             | 39    | KN2          |
| CZRT5263B-HF | 53.20         | 56   | 58.80 | 150                  | 2.2     | 1300                        | 0.25    | 0.1             | 43    | KN3          |
| CZRT5264B-HF | 57.00         | 60   | 63.00 | 170                  | 2.1     | 1400                        | 0.25    | 0.1             | 46    | KN4          |
| CZRT5265B-HF | 58.90         | 62   | 65.10 | 185                  | 2.0     | 1500                        | 0.25    | 0.1             | 47    | KN5          |
| CZRT5266B-HF | 64.60         | 68   | 71.40 | 230                  | 1.8     | 1600                        | 0.25    | 0.1             | 52    | KP1          |
| CZRT5267B-HF | 71.25         | 75   | 78.75 | 270                  | 1.7     | 1400                        | 0.25    | 0.1             | 56    | KP2          |

Note: 5% Standard Vz Tolerance

## RATING AND CHARACTERISTIC CURVES (CZRT5221B-HF Thru CZRT5267B-HF)

Fig.1 Typical forward voltage

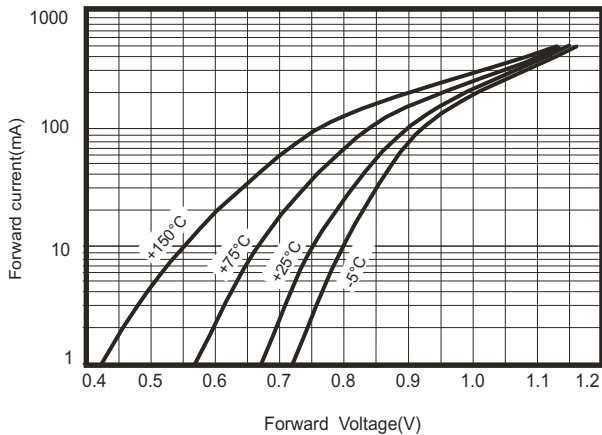


Fig.2 Typical leakage current

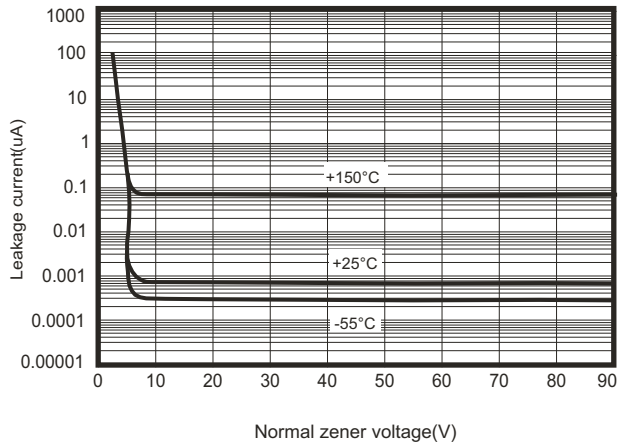


Fig.3 Temperature coefficients

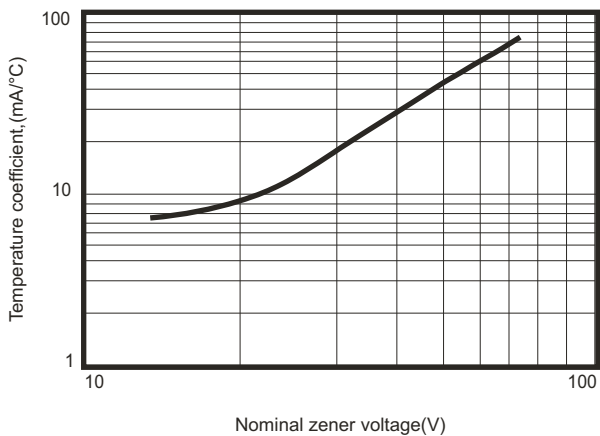
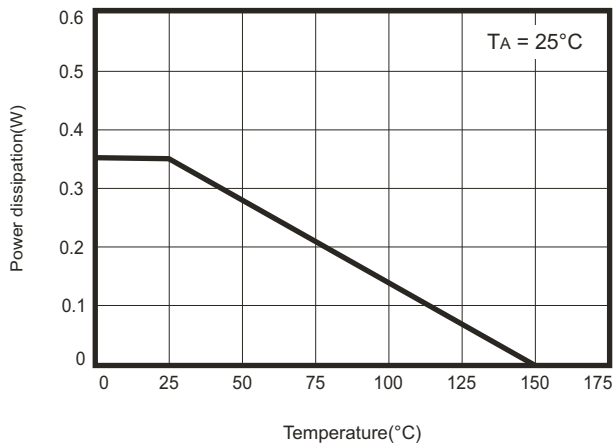
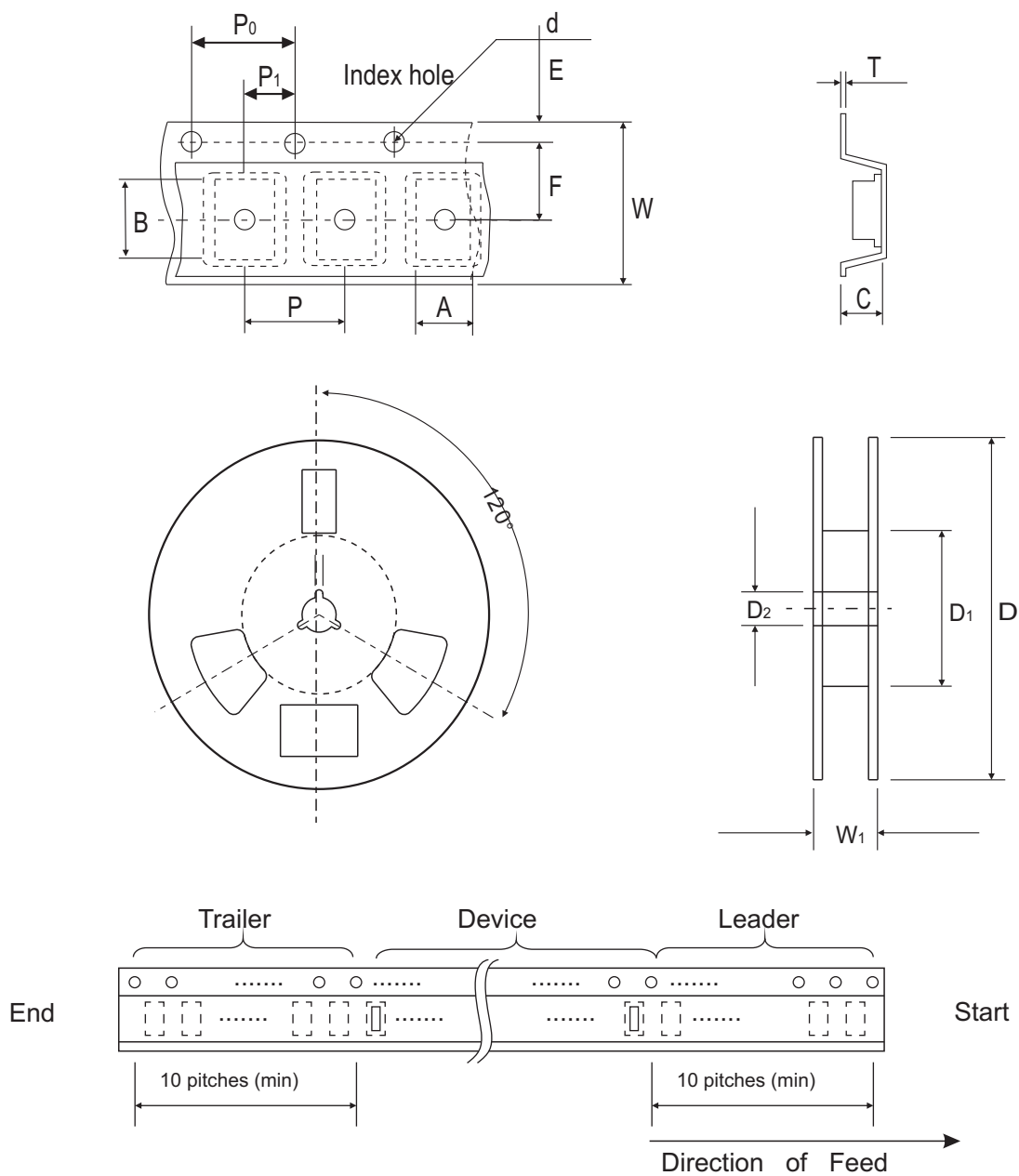


Fig.4 Steady state power derating



## Reel Taping Specification

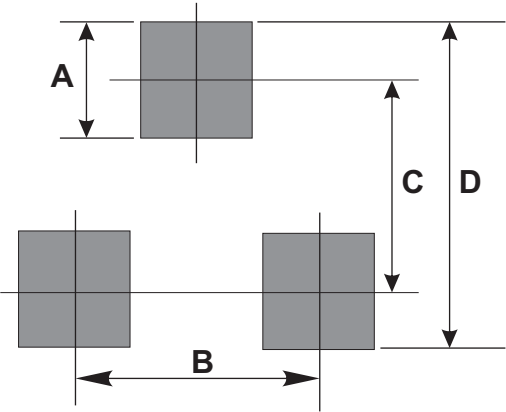


| SOT-23 | SYMBOL | A                 | B                 | C                 | d                 | D                | D <sub>1</sub> | D <sub>2</sub>    |
|--------|--------|-------------------|-------------------|-------------------|-------------------|------------------|----------------|-------------------|
|        | (mm)   | $3.10 \pm 0.10$   | $2.85 \pm 0.10$   | $1.40 \pm 0.10$   | $1.55 \pm 0.10$   | $178 \pm 1$      | 50.0 MIN.      | $13.0 \pm 0.20$   |
|        | (inch) | $0.122 \pm 0.004$ | $0.112 \pm 0.004$ | $0.055 \pm 0.004$ | $0.061 \pm 0.004$ | $7.008 \pm 0.04$ | 1.969 MIN.     | $0.512 \pm 0.008$ |

| SOT-23 | SYMBOL | E                 | F                 | P                 | P <sub>0</sub>    | P <sub>1</sub>    | W                 | W <sub>1</sub> |
|--------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|
|        | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.05$   | $4.00 \pm 0.10$   | $4.00 \pm 0.10$   | $2.00 \pm 0.05$   | $8.00 \pm 0.30$   | 14.4 MAX.      |
|        | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.002$ | $0.157 \pm 0.004$ | $0.157 \pm 0.004$ | $0.079 \pm 0.002$ | $0.315 \pm 0.012$ | 0.567 MAX.     |

## 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 | Qty per Reel | Reel Size |
|-----------|--------------|-----------|
|           | (Pcs)        | (inch)    |
| SOT-23    | 3000         | 7         |

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