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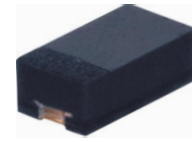


## CZRF2V4B Thru CZRF39VB

Voltage 2.4 to 39 Volts

Power 200 mWatts

RoHS Device

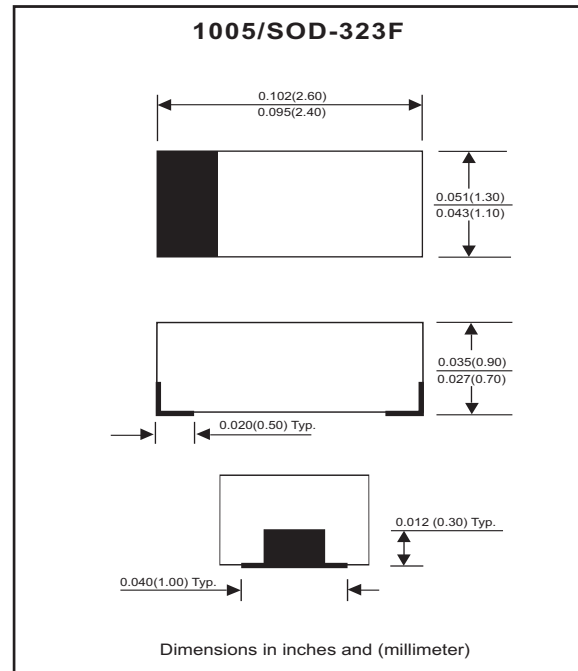


### Features

- 200mW Power Dissipation.
- High Voltages from 2.4 ~ 39 V.
- Designed for mounting on small surface.
- Extremely thin/leadless package.
- Constant voltage control.
- Pb free product.

### Mechanical data

- Case: 1005/SOD-323F Standard package  
Molded plastic.
- Terminals: Gold plated, solderable per  
MIL-STD-750,method 2026.
- Polarity: Indicated by cathode band.
- Weight: 0.006 gram(approx.).



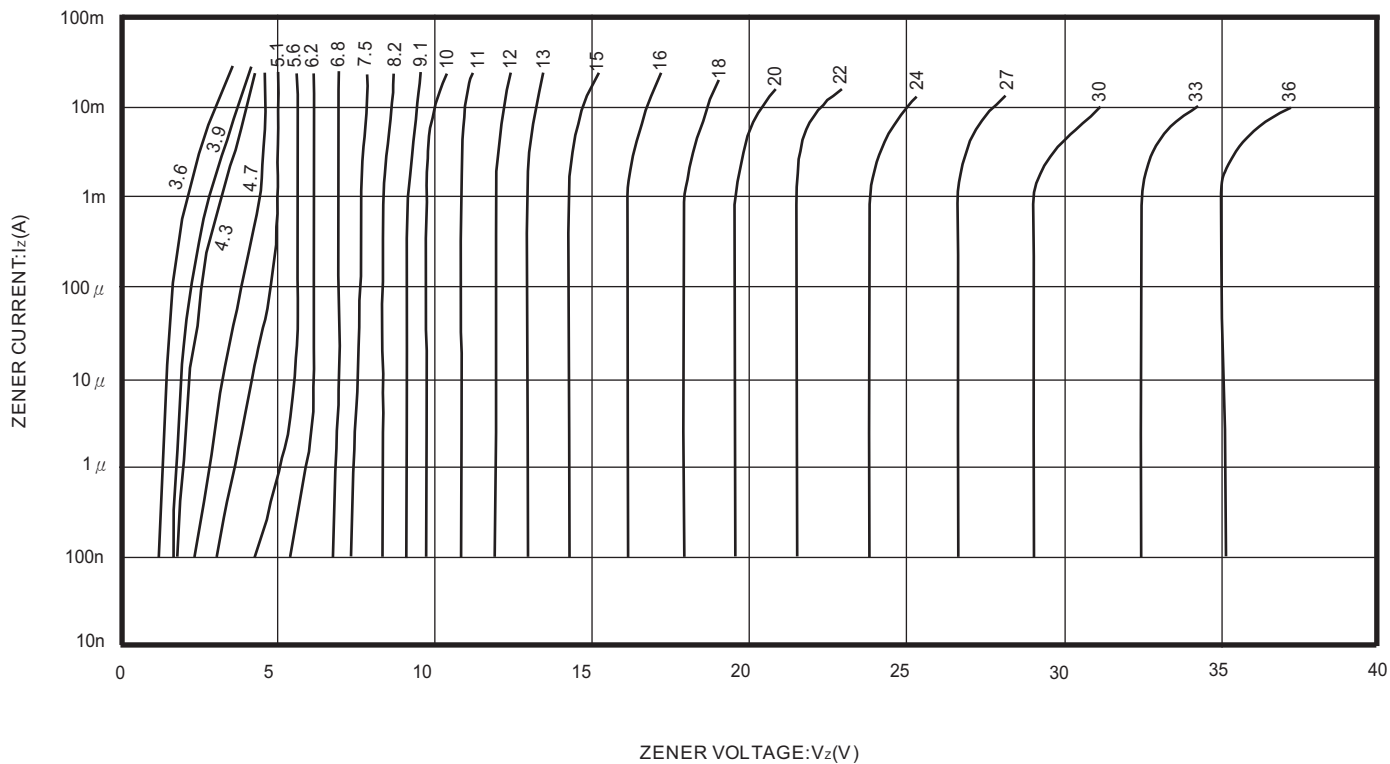
### Maximum Rating AND Electrical Characteristics

| Parameter   | Symbol    | Value       | Unit             |
|---|-----------|-------------|------------------|
| Maximum Forward Voltage Drop at $I_F = 10 \text{ mA}$   | $V_F$     | 0.9         | V                |
| Maximum Power Dissipation at $25 \text{ C}^\circ$   | $P_D$     | 200         | mW               |
| Forward current , surge peak<br>8.3 ms single half sine-wave superimposed<br>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 = 25C) °

| Part Number | Marking Code | Zener Voltage |       |        | Operating resistance |        | Rising operating Resistance |        | Reverse current |       |
|-------------|--------------|---------------|-------|--------|----------------------|--------|-----------------------------|--------|-----------------|-------|
|             |              | Vz(V)         |       |        | ZZT(Ohm)             |        | ZZK(Ohm)                    |        | IR(uA)          |       |
|             |              | Min           | Max   | Iz(mA) | Max                  | Iz(mA) | Max                         | Iz(mA) | Max             | VR(V) |
| CZRF2V4B    | U2           | 2.34          | 2.46  | 5      | 100                  | 5      | 1800                        | 0.25   | 100             | 1     |
| CZRF2V7B    | U3           | 2.63          | 2.77  | 5      | 100                  | 5      | 1900                        | 0.25   | 75              | 1     |
| CZRF3V0B    | U4           | 2.93          | 3.08  | 5      | 95                   | 5      | 2000                        | 0.25   | 50              | 1     |
| CZRF3V3B    | U5           | 3.22          | 3.38  | 5      | 95                   | 5      | 2200                        | 0.25   | 25              | 1     |
| CZRF3V6B    | U6           | 3.51          | 3.69  | 5      | 90                   | 5      | 2300                        | 0.25   | 15              | 1     |
| CZRF3V9B    | U7           | 3.80          | 4.00  | 5      | 90                   | 5      | 2400                        | 0.25   | 10              | 1     |
| CZRF4V3B    | U8           | 4.19          | 4.41  | 5      | 88                   | 5      | 2500                        | 0.25   | 5               | 1     |
| CZRF4V7B    | U9           | 4.58          | 4.82  | 5      | 70                   | 5      | 2200                        | 0.25   | 3               | 1.5   |
| CZRF5V1B    | UA           | 4.97          | 5.23  | 5      | 50                   | 5      | 2050                        | 0.25   | 2               | 2     |
| CZRF5V6B    | UB           | 5.46          | 5.74  | 5      | 25                   | 5      | 1800                        | 0.25   | 2               | 3     |
| CZRF6V2B    | UC           | 6.05          | 6.36  | 5      | 10                   | 5      | 1300                        | 0.25   | 1               | 4     |
| CZRF6V8B    | UE           | 6.63          | 6.97  | 5      | 8                    | 5      | 750                         | 0.25   | 1               | 5.2   |
| CZRF7V5B    | UF           | 7.31          | 7.69  | 5      | 7                    | 5      | 600                         | 0.25   | 0.5             | 6     |
| CZRF8V2B    | UG           | 8.00          | 8.41  | 5      | 7                    | 5      | 600                         | 0.25   | 0.5             | 6.5   |
| CZRF9V1B    | UH           | 8.87          | 9.33  | 5      | 10                   | 5      | 600                         | 0.25   | 0.1             | 7     |
| CZRF10VB    | UJ           | 9.75          | 10.25 | 5      | 15                   | 5      | 600                         | 0.25   | 0.1             | 8     |
| CZRF11VB    | UK           | 10.73         | 11.27 | 5      | 18                   | 5      | 600                         | 0.25   | 0.1             | 8.4   |
| CZRF12VB    | UM           | 11.70         | 12.30 | 5      | 22                   | 5      | 600                         | 0.25   | 0.1             | 9.1   |
| CZRF13VB    | UN           | 12.68         | 13.32 | 5      | 25                   | 5      | 600                         | 0.25   | 0.1             | 9.9   |
| CZRF15VB    | UP           | 14.63         | 15.37 | 5      | 32                   | 5      | 600                         | 0.25   | 0.1             | 11    |
| CZRF16VB    | UQ           | 15.60         | 16.40 | 5      | 36                   | 5      | 600                         | 0.25   | 0.1             | 12    |
| CZRF18VB    | UR           | 17.55         | 18.45 | 5      | 42                   | 5      | 600                         | 0.25   | 0.1             | 14    |
| CZRF20VB    | US           | 19.50         | 20.50 | 5      | 48                   | 5      | 600                         | 0.25   | 0.1             | 15    |
| CZRF22VB    | UT           | 21.45         | 22.55 | 5      | 55                   | 5      | 600                         | 0.25   | 0.1             | 17    |
| CZRF24VB    | UU           | 23.40         | 24.60 | 5      | 62                   | 5      | 600                         | 0.25   | 0.1             | 18    |
| CZRF27VB    | UV           | 26.33         | 27.67 | 5      | 70                   | 5      | 600                         | 0.25   | 0.1             | 21    |
| CZRF30VB    | UW           | 29.25         | 30.75 | 5      | 78                   | 5      | 600                         | 0.25   | 0.1             | 23    |
| CZRF33VB    | UX           | 32.18         | 33.82 | 5      | 88                   | 5      | 700                         | 0.25   | 0.1             | 25    |
| CZRF36VB    | UY           | 35.10         | 36.90 | 5      | 95                   | 5      | 700                         | 0.25   | 0.1             | 27    |
| CZRF39VB    | UZ           | 38.03         | 39.97 | 5      | 130                  | 5      | 800                         | 0.25   | 0.1             | 30    |

## RATING AND CHARACTERISTIC CURVES (CZRF2V4B Thru CZRF39VB)



ZENER VOLTAGE:  $V_z$  (V)  
Fig. 1 Zener voltage characteristics

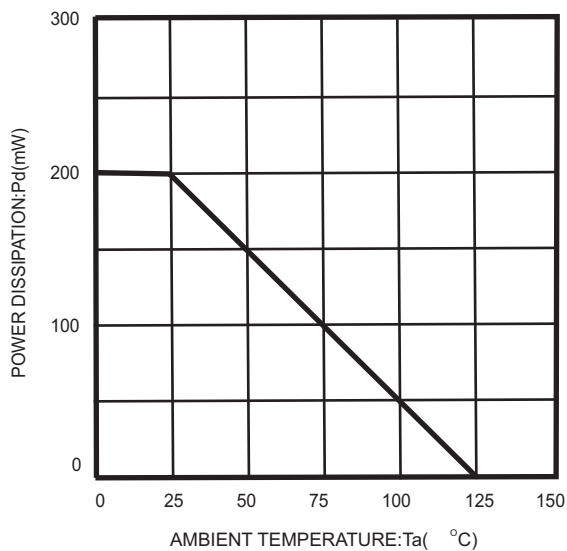


Fig. 2 Derating curve

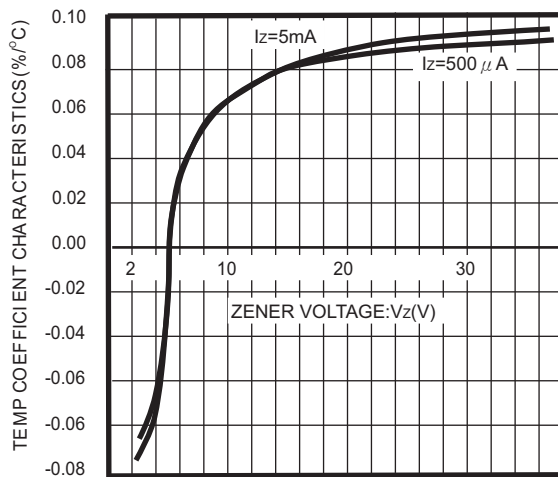
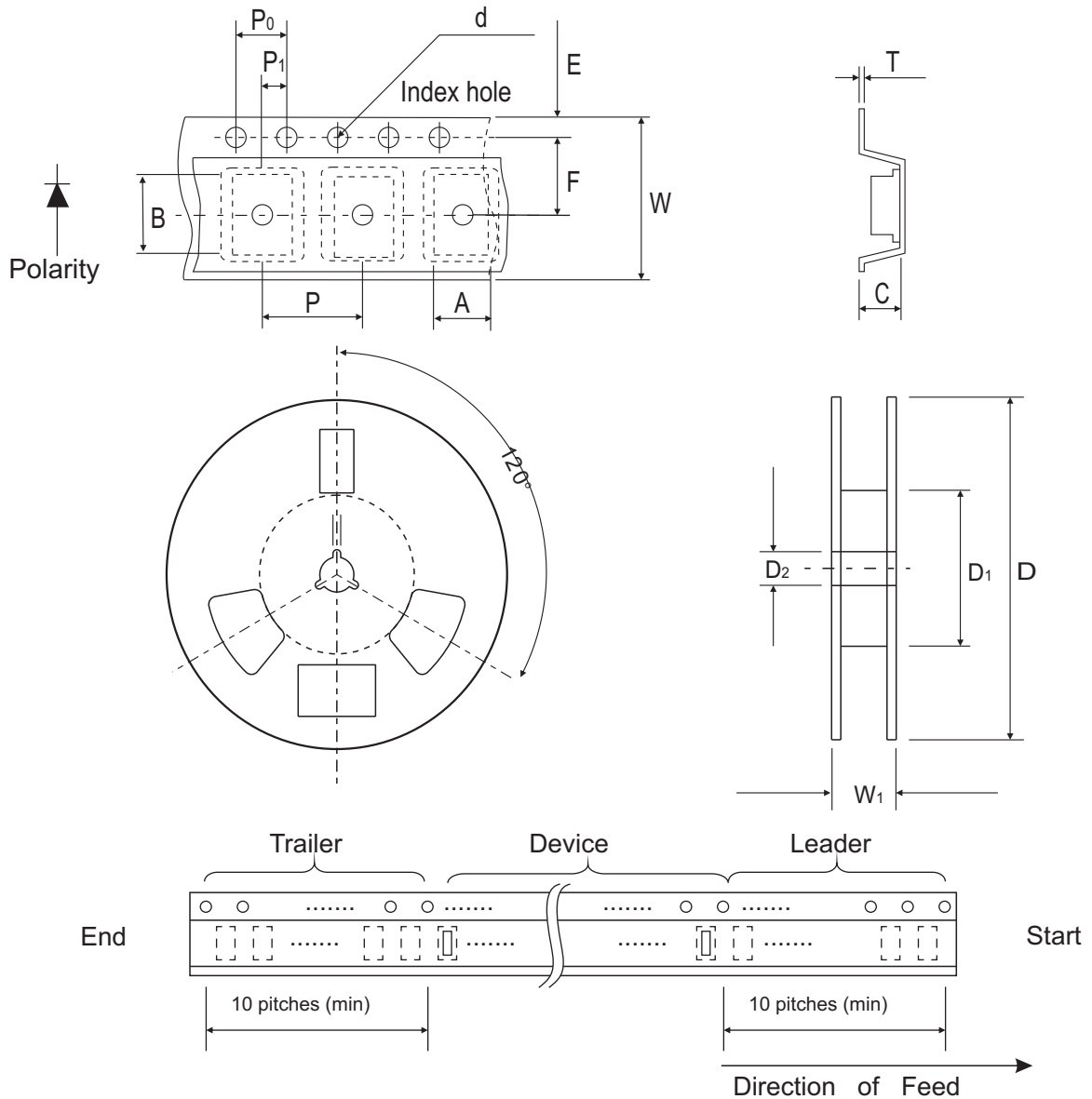


Fig. 3 Zener voltage-temp. Coefficient characteristics

## Reel Taping Specification

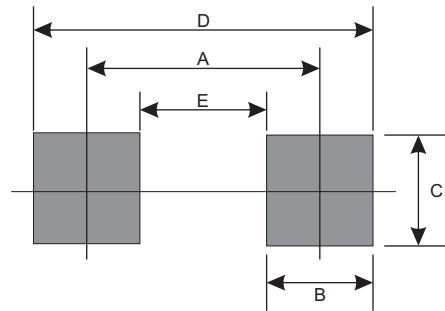


| 1005<br>(SOD-323F) | SYMBOL | A             | B             | C             | d             | D            | D <sub>1</sub> | D <sub>2</sub> |
|--------------------|--------|---------------|---------------|---------------|---------------|--------------|----------------|----------------|
|                    | (mm)   | 1.55 ± 0.10   | 2.65 ± 0.10   | 1.05 ± 0.10   | 1.55 ± 0.05   | 178 ± 1      | 60.0 MIN.      | 13.0 ± 0.20    |
|                    | (inch) | 0.061 ± 0.004 | 0.104 ± 0.004 | 0.041 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.04 | 2.362 MIN.     | 0.512 ± 0.008  |

| 1005<br>(SOD-323F) | SYMBOL | E             | F             | P             | P <sub>0</sub> | P <sub>1</sub> | T             | W             | W <sub>1</sub> |
|--------------------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
|                    | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10    | 2.00 ± 0.05    | 0.23 ± 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 | 1005/SOD-323F |        |
|------|---------------|--------|
|      | (mm)          | (inch) |
| A    | 2.10          | 0.083  |
| B    | 1.20          | 0.047  |
| C    | 1.20          | 0.047  |
| D    | 3.30          | 0.130  |
| E    | 0.90          | 0.035  |



## Standard Package

| Case Type     | Qty per Reel | Reel Size |
|---------------|--------------|-----------|
|               | (Pcs)        | (inch)    |
| 1005/SOD-323F | 4000         | 7         |