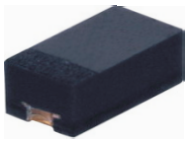
# CZRF2V4B-HF Thru CZRF39VB-HF



## Voltage 2.4 to 39 Volts
## Power 200 mWatts
## RoHS Device
## Halogen Free

### 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.

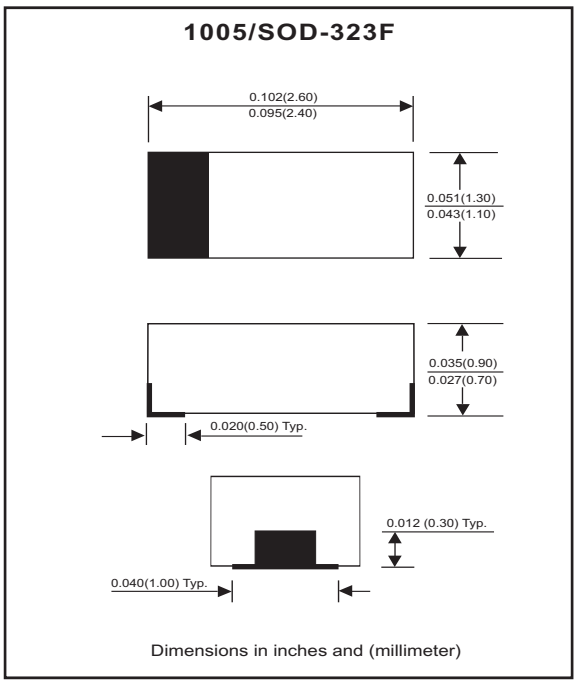
### Mechanical data

-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 mA** | $V_F$ | 0.9 | V |
| **Maximum Power Dissipation at 25 C °** | $P_D$ | 200 | 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 | °C |

## Electrical Characteristics(Ta = 25C) °

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

## RATING AND CHARACTERISTIC CURVES (CZRF2V4B-HF Thru CZRF39VB-HF)

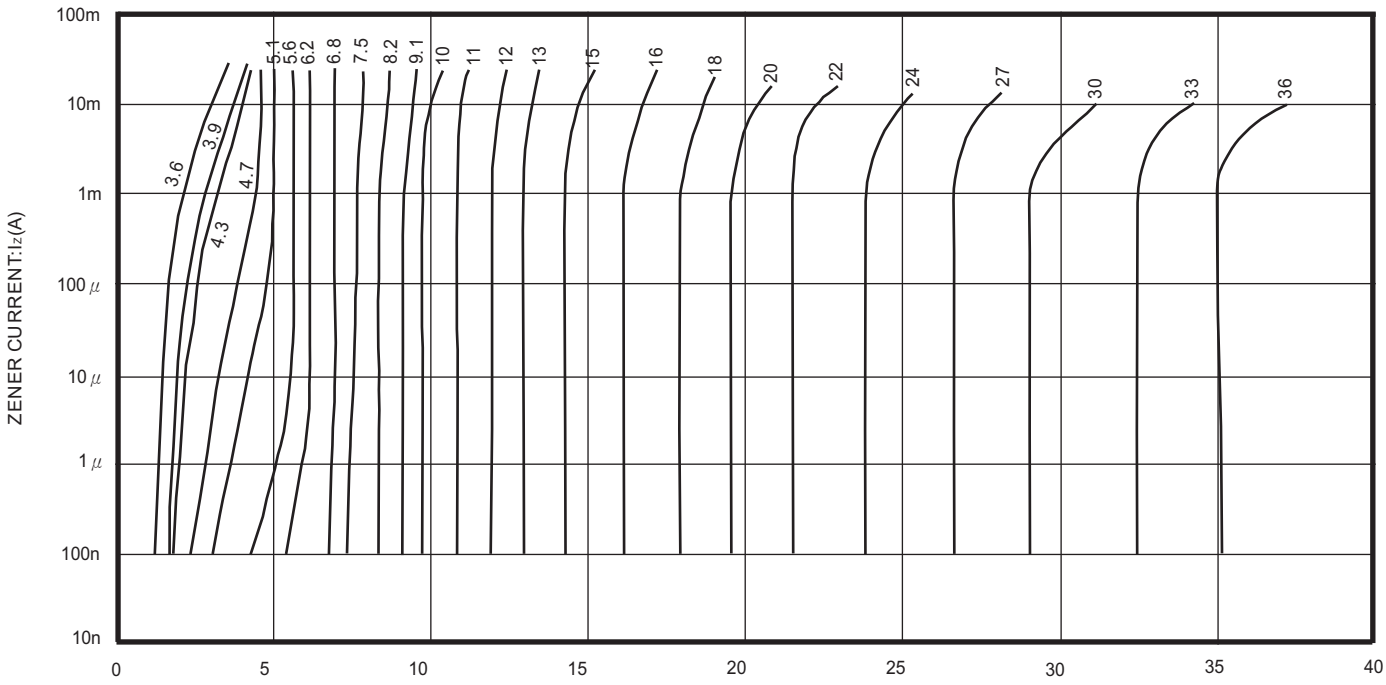



Fig.1 Zener voltage characteristics

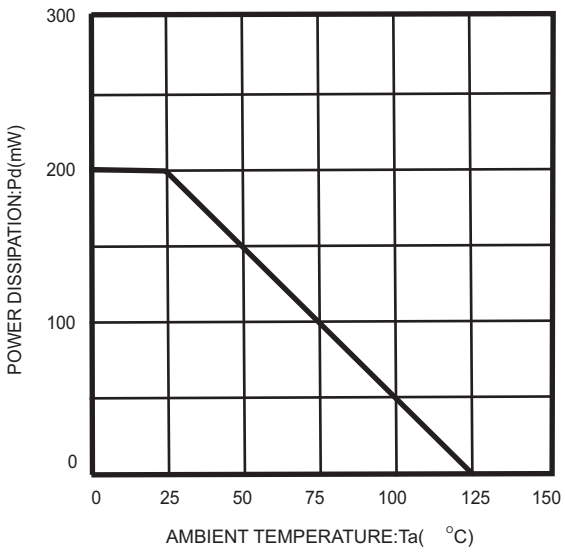



Fig.2 Derating curve

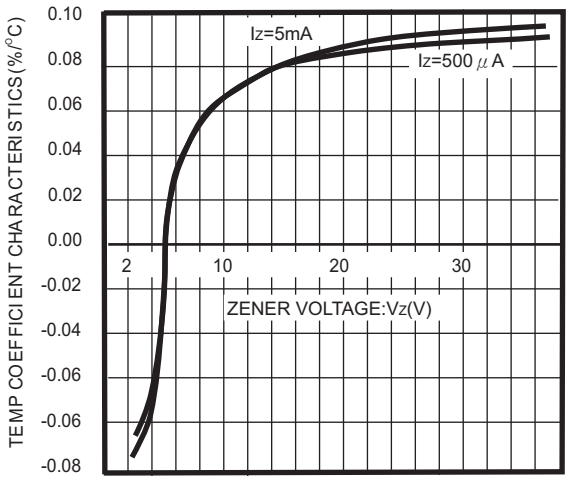
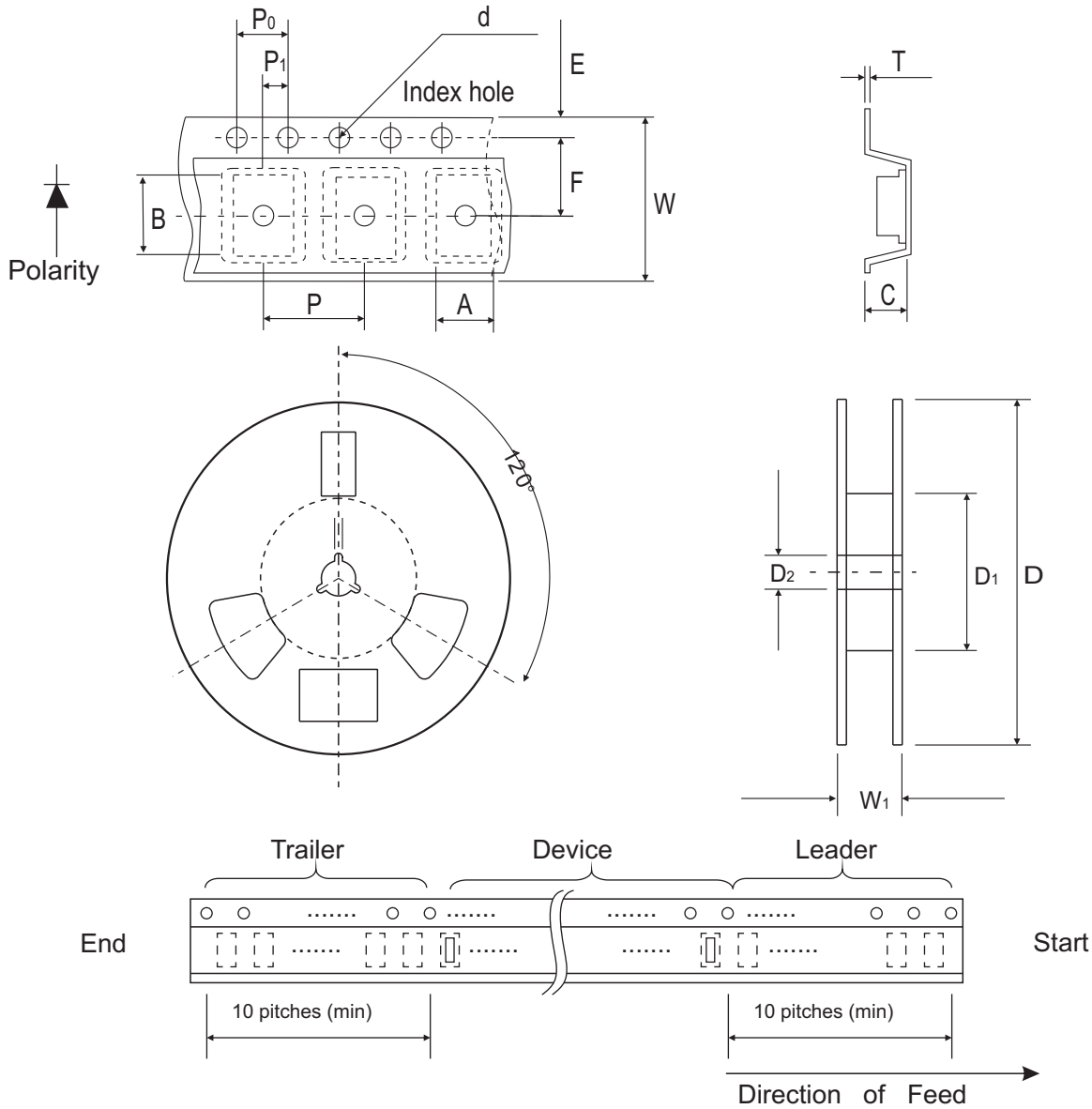



Fig.3 Zener voltage-temp.
Coefficient characteristics

# Reel Taping Specification

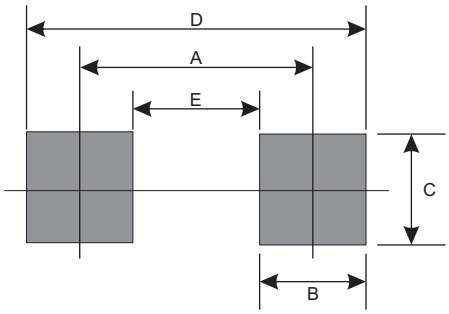



| | SYMBOL | A | B | C | d | D | $D_1$ | $D_2$ |
|---|---|---|---|---|---|---|---|---|
| 1005 (SOD-323F) | (mm) | 1.55 ± 0.10 | 2.65 ± 0.10 | 1.05 ± 0.10 | 1.55 ± 0.05 | 178 ± 1 | 60.0 MIN. | 13.0 ± 0.20 |
| | (inch) | 0.061 ± 0.004 | 0.104 ± 0.004 | 0.041 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.04 | 2.362 MIN. | 0.512 ± 0.008 |

| | SYMBOL | E | F | P | $P_0$ | $P_1$ | T | W | $W_1$ |
|---|---|---|---|---|---|---|---|---|---|
| 1005 (SOD-323F) | (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 |