

## CZRFR52C2-HF Thru CZRFR52C39-HF

Voltage 2 to 39 Volts

Power 350 mWatts

RoHS Device

Halogen Free

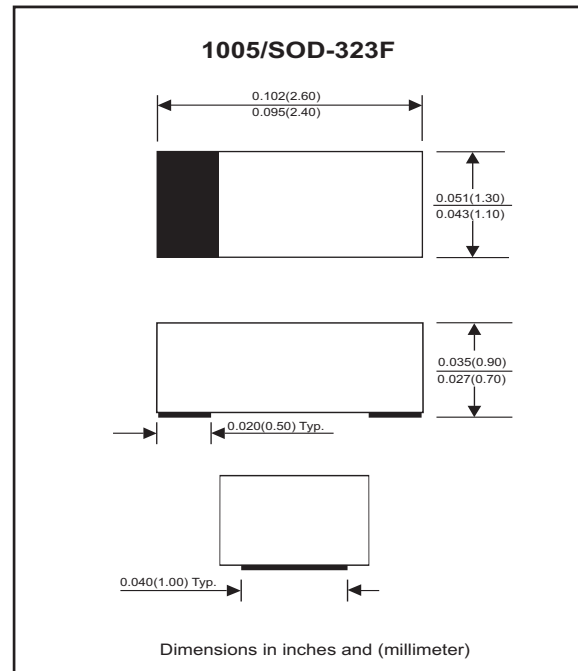


### Features

- 350mW Power Dissipation.
- High Voltages from 2 ~ 39 V.
- Designed for mounting on small surface.
- Extremely thin/leadless package.
- 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 °C	$P_D$	350	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

Company reserves the right to improve product design , functions and reliability without notice.

## Electrical Characteristics (TA=25°C)

Part Number	Marking Code	Zener Voltage			Operating resistance		Rising operating Resistance		Reverse current	
		V <sub>Z</sub> (V)			ZZT(Ohm)		ZZK(Ohm)		IR(uA)	
		Min	Max	I <sub>Z</sub> (mA)	Max	I <sub>Z</sub> (mA)	Max	I <sub>Z</sub> (mA)	Max	V <sub>R</sub> (V)
CZRFR52C2-HF	Z0	1.90	2.10	5	100	5	600	1	100	1
CZRFR52C2V2-HF	Z1	2.09	2.31	5	100	5	600	1	100	1
CZRFR52C2V4-HF	Z2	2.28	2.52	5	85	5	600	1	100	1
CZRFR52C2V7-HF	Z3	2.57	2.84	5	83	5	500	1	75	1
CZRFR52C3-HF	Z4	2.85	3.15	5	95	5	500	1	50	1
CZRFR52C3V3-HF	Z5	3.14	3.47	5	95	5	500	1	25	1
CZRFR52C3V6-HF	Z6	3.42	3.78	5	95	5	500	1	15	1
CZRFR52C3V9-HF	Z7	3.71	4.10	5	95	5	500	1	10	1
CZRFR52C4V3-HF	Z8	4.09	4.52	5	95	5	500	1	5	1
CZRFR52C4V7-HF	Z9	4.47	4.94	5	78	5	500	1	5	2
CZRFR52C5V1-HF	ZA	4.85	5.36	5	60	5	480	1	0.1	0.8
CZRFR52C5V6-HF	ZB	5.32	5.88	5	40	5	400	1	0.1	1
CZRFR52C6V2-HF	ZC	5.89	6.51	5	10	5	200	1	0.1	2
CZRFR52C6V8-HF	ZE	6.46	7.14	5	8	5	150	1	0.1	3
CZRFR52C7V5-HF	ZF	7.13	7.88	5	7	5	50	1	0.1	5
CZRFR52C8V2-HF	ZG	7.79	8.61	5	7	5	50	1	0.1	6
CZRFR52C9V1-HF	ZH	8.65	9.56	5	10	5	50	1	0.1	7
CZRFR52C10-HF	ZJ	9.50	10.50	5	15	5	70	1	0.1	7.5
CZRFR52C11-HF	ZK	10.45	11.55	5	20	5	70	1	0.1	8.5
CZRFR52C12-HF	ZM	11.40	12.60	5	20	5	90	1	0.1	9
CZRFR52C13-HF	ZN	12.35	13.65	5	25	5	110	1	0.1	10
CZRFR52C15-HF	ZP	14.25	15.75	5	30	5	110	1	0.1	11
CZRFR52C16-HF	ZQ	15.20	16.80	5	40	5	170	1	0.1	12
CZRFR52C18-HF	ZR	17.10	18.90	5	50	5	170	1	0.1	14
CZRFR52C20-HF	ZS	19.00	21.00	5	50	5	220	1	0.1	15
CZRFR52C22-HF	ZT	20.90	23.10	5	55	5	220	1	0.1	17
CZRFR52C24-HF	ZU	22.80	25.20	5	80	5	220	1	0.1	18
CZRFR52C27-HF	ZV	25.65	28.35	5	80	5	250	1	0.1	20
CZRFR52C30-HF	ZW	28.50	31.50	5	80	5	250	1	0.1	23
CZRFR52C33-HF	ZX	31.35	34.65	5	80	5	250	1	0.1	25
CZRFR52C36-HF	ZY	34.20	37.80	5	90	5	250	1	0.1	27
CZRFR52C39-HF	ZZ	37.05	40.95	5	90	5	300	1	0.1	29

## RATING AND CHARACTERISTIC CURVES (CZRFR52C2-HF Thru CZRFR52C39-HF)

Fig.1 TEMPERATURE COEFFICIENTS

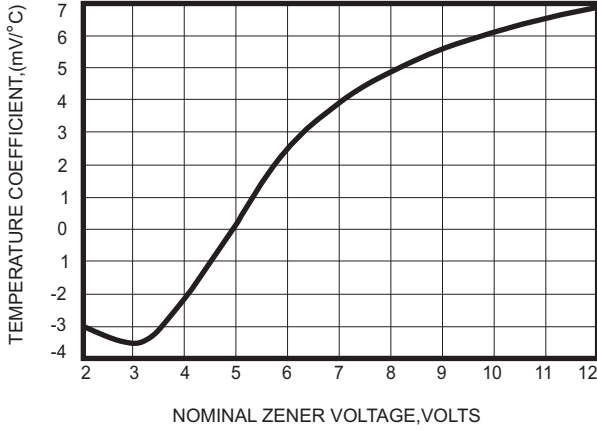


Fig.2 TEMPERATURE COEFFICIENTS

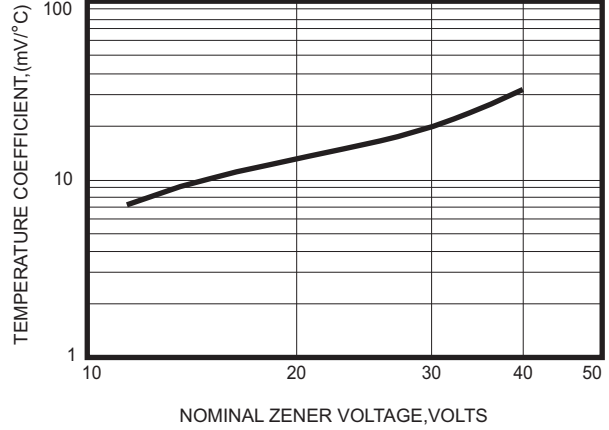


Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



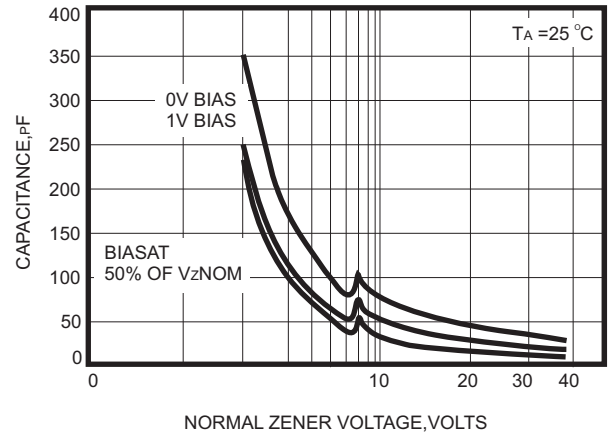
Fig.4 TYPICAL FORWARD VOLTAGE



Fig.5 TYPICAL LEAKAGE CURRENT



Fig.6 TYPICAL CAPACITANCE



## RATING AND CHARACTERISTIC CURVES (CZRFR52C2-HF Thru CZRFR52C39-HF)

Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT



Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

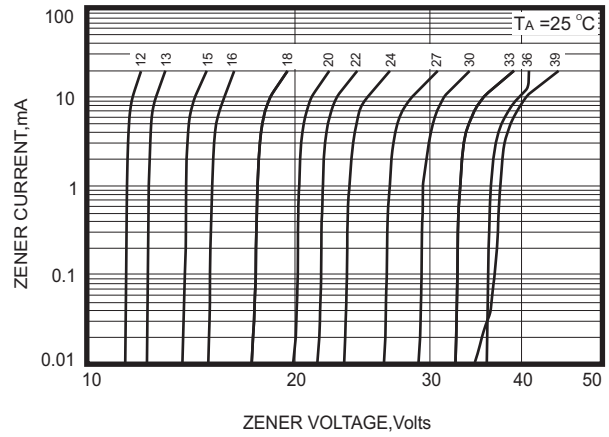
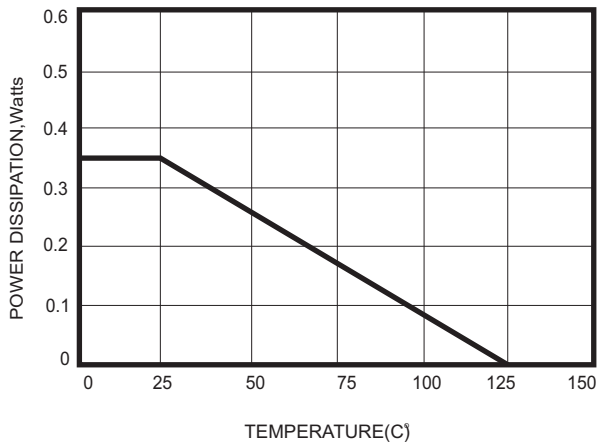
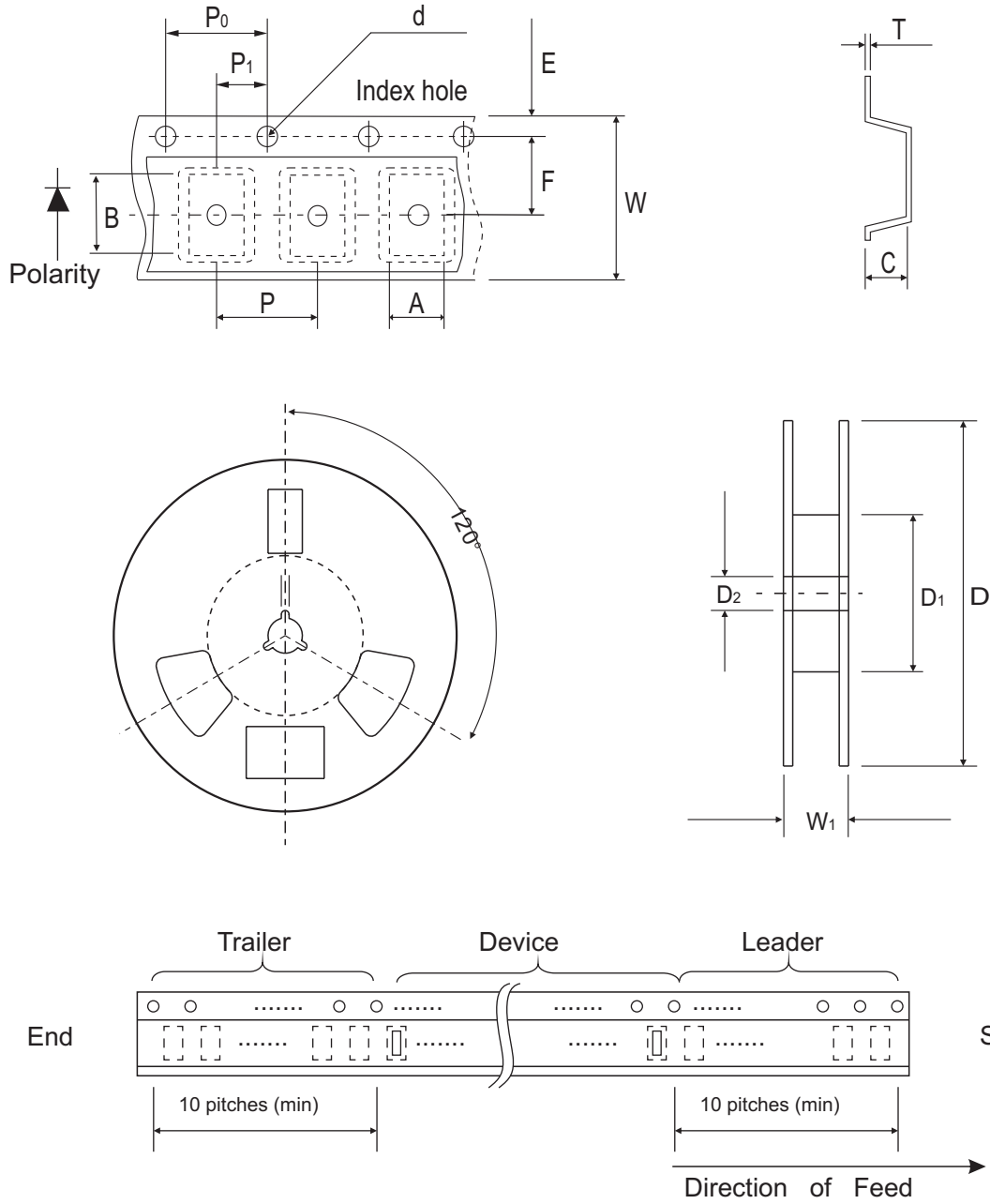


Fig.9 STEADY STATE POWER DERATING



## Reel Taping Specification

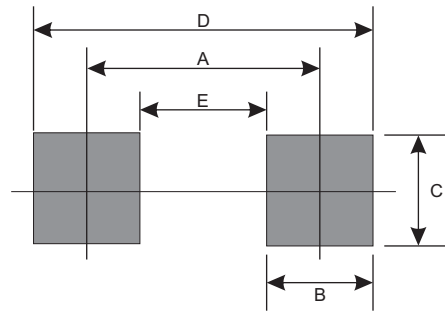


1005 (SOD-323F)	SYMBOL	A	B	C	d	D	D <sub>1</sub>	D <sub>2</sub>
	(mm)	1.55 ± 0.10	2.65 ± 0.10	1.05 ± 0.10	1.55 ± 0.05	178 ± 1	60.0 MIN.	13.0 ± 0.20
	(inch)	0.061 ± 0.004	0.104 ± 0.004	0.041 ± 0.004	0.061 ± 0.002	7.008 ± 0.04	2.362 MIN.	0.512 ± 0.008

1005 (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	2.00	0.079
B	0.70	0.028
C	1.30	0.051
D	2.70	0.106
E	1.30	0.051



## Standard Packaging

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

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Authorized Distributor

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[CZRFR52C3V3-HF](#) [CZRFR52C3V6-HF](#) [CZRFR52C3V9-HF](#) [CZRFR52C4V3-HF](#) [CZRFR52C4V7-HF](#)  
[CZRFR52C5V1-HF](#) [CZRFR52C5V6-HF](#) [CZRFR52C6V2-HF](#) [CZRFR52C6V8-HF](#) [CZRFR52C7V5-HF](#)  
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[CZRFR52C3V3](#) [CZRFR52C3V6](#) [CZRFR52C3V9](#) [CZRFR52C4V3](#) [CZRFR52C4V7](#) [CZRFR52C5V1](#) [CZRFR52C5V6](#)  
[CZRFR52C6V2](#) [CZRFR52C6V8](#) [CZRFR52C7V5](#) [CZRFR52C8V2](#) [CZRFR52C9V1](#) [CZRFR52C10-HF](#) [CZRFR52C11-](#)  
[HF](#) [CZRFR52C12-HF](#) [CZRFR52C13-HF](#) [CZRFR52C15-HF](#) [CZRFR52C16-HF](#) [CZRFR52C18-HF](#) [CZRFR52C20-HF](#)  
[CZRFR52C22-HF](#) [CZRFR52C24-HF](#) [CZRFR52C27-HF](#) [CZRFR52C2-HF](#) [CZRFR52C2V2-HF](#) [CZRFR52C2V4-HF](#)  
[CZRFR52C39](#) [CZRFR52C22](#) [CZRFR52C20](#) [CZRFR52C27](#) [CZRFR52C33](#) [CZRFR52C30](#) [CZRFR52C36](#)  
[CZRFR52C24](#)