

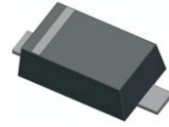
## CZRM5221B-HF Thru CZRM5263B-HF

Voltage: 2.4 to 56 Volts

Power: 500 mWatts

RoHS Device

Halogen Free

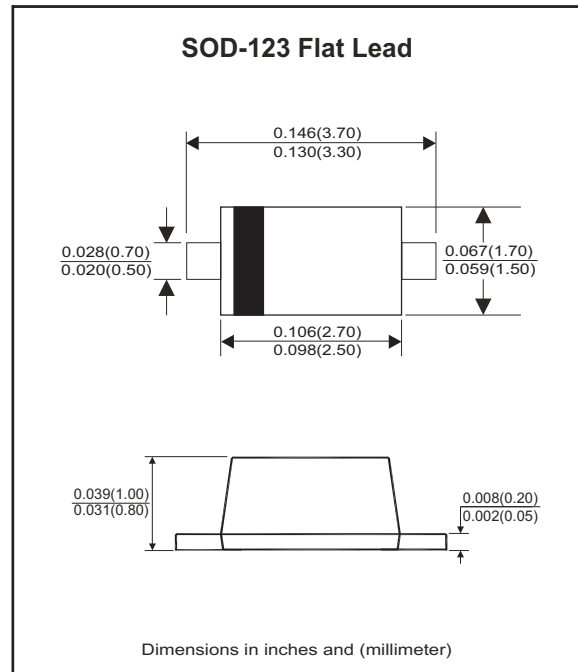


### Features

- Surface Device Type Mounting.
- Moisture Sensitivity Level 1.
- Clip bonding construction, good thermal capability.
- Ideally suited for automated assembly processes.

### Mechanical data

- Case: SOD-123 Flat Lead, Molded plastic.
- Terminals: Solder Plated, solderable per MIL-STD-750, method 2026.
- Polarity: Cathode band.



### Circuit Diagram



### Maximum Ratings (@Ta=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	500	mW
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C
Operating and Storage Temperature Range	T <sub>OPR</sub>	-65 to +150	°C

Notes: 1. These ratings are limiting values above which the serviceability of the diode may be impaired.  
 2. Company reserves the right to improve product design, functions and reliability without notice.

## Electrical Characteristics (Ta = 25°C)

Part Number	Vz @ IzT (Volts)			ZzT @ IzT (Ohm)		Zzk @ Izk (Ohm)		IR @ VR (µA)		Marking Code
	Min	Nom	Max	Max	IzT(mA)	Max	Izk(mA)	Max	VR(V)	
CZRM5221B-HF	2.28	2.4	2.52	30	20	1200	0.25	100	1.0	Z2V4
CZRM5222B-HF	2.38	2.5	2.63	30	20	1250	0.25	100	1.0	Z2V5
CZRM5223B-HF	2.57	2.7	2.84	30	20	1300	0.25	75	1.0	Z2V7
CZRM5224B-HF	2.66	2.8	2.94	30	20	1400	0.25	75	1.0	Z2V8
CZRM5225B-HF	2.85	3.0	3.15	29	20	1600	0.25	50	1.0	Z3V0
CZRM5226B-HF	3.14	3.3	3.47	28	20	1600	0.25	25	1.0	Z3V3
CZRM5227B-HF	3.42	3.6	3.78	24	20	1700	0.25	15	1.0	Z3V6
CZRM5228B-HF	3.71	3.9	4.10	23	20	1900	0.25	10	1.0	Z3V9
CZRM5229B-HF	4.09	4.3	4.52	22	20	2000	0.25	5	1.0	Z4V3
CZRM5230B-HF	4.47	4.7	4.94	19	20	1900	0.25	5	2.0	Z4V7
CZRM5231B-HF	4.85	5.1	5.36	17	20	1600	0.25	5	2.0	Z5V1
CZRM5232B-HF	5.32	5.6	5.88	11	20	1600	0.25	5	3.0	Z5V6
CZRM5233B-HF	5.70	6.0	6.30	7	20	1600	0.25	5	3.5	Z6V0
CZRM5234B-HF	5.89	6.2	6.51	7	20	1000	0.25	5	4.0	Z6V2
CZRM5235B-HF	6.46	6.8	7.14	5	20	750	0.25	3	5.0	Z6V8
CZRM5236B-HF	7.13	7.5	7.88	6	20	500	0.25	3	6.0	Z7V5
CZRM5237B-HF	7.79	8.2	8.61	8	20	500	0.25	3	6.5	Z8V2
CZRM5238B-HF	8.27	8.7	9.14	8	20	600	0.25	3	6.5	Z8V7
CZRM5239B-HF	8.65	9.1	9.56	10	20	600	0.25	3	7.0	Z9V1
CZRM5240B-HF	9.5	10	10.50	17	20	600	0.25	3	8.0	Z10V
CZRM5241B-HF	10.45	11	11.55	22	20	600	0.25	2	8.4	Z11V
CZRM5242B-HF	11.40	12	12.60	30	20	600	0.25	1	9.1	Z12V
CZRM5243B-HF	12.35	13	13.65	13	9.5	600	0.25	0.5	9.9	Z13V
CZRM5244B-HF	13.30	14	14.70	15	9.0	600	0.25	0.1	10	Z14V
CZRM5245B-HF	14.25	15	15.75	16	8.5	600	0.25	0.1	11	Z15V
CZRM5246B-HF	15.20	16	16.80	17	7.8	600	0.25	0.1	12	Z16V
CZRM5247B-HF	16.15	17	17.85	19	7.4	600	0.25	0.1	13	Z17V
CZRM5248B-HF	17.10	18	18.90	21	7.0	600	0.25	0.1	14	Z18V
CZRM5249B-HF	18.05	19	19.95	23	6.6	600	0.25	0.1	14	Z19V
CZRM5250B-HF	19.00	20	21.00	25	6.2	600	0.25	0.1	15	Z20V

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## Electrical Characteristics (Ta = 25°C)

Part Number	Vz @ IzT (Volts)			ZzT @ IzT (Ohm)		Zzk @ Izk (Ohm)		IR @ VR (µA)		Marking Code
	Min	Nom	Max	Max	IzT(mA)	Max	Izk(mA)	Max	VR(V)	
CZRM5251B-HF	20.90	22	23.10	29	5.6	600	0.25	0.1	17	Z22V
CZRM5252B-HF	22.80	24	25.20	33	5.2	600	0.25	0.1	18	Z24V
CZRM5253B-HF	23.75	25	26.25	35	5.0	600	0.25	0.1	19	Z25V
CZRM5254B-HF	25.65	27	28.35	41	4.6	600	0.25	0.1	21	Z27V
CZRM5255B-HF	26.60	28	29.40	44	4.5	600	0.25	0.1	21	Z28V
CZRM5256B-HF	28.50	30	31.50	49	4.2	600	0.25	0.1	23	Z30V
CZRM5257B-HF	31.35	33	34.65	58	3.8	700	0.25	0.1	25	Z33V
CZRM5258B-HF	34.20	36	37.80	70	3.4	700	0.25	0.1	27	Z36V
CZRM5259B-HF	37.05	39	40.95	80	3.2	800	0.25	0.1	30	Z39V
CZRM5260B-HF	40.85	43	45.15	93	3.0	900	0.25	0.1	33	Z43V
CZRM5261B-HF	44.65	47	49.35	105	2.7	1000	0.25	0.1	36	Z47V
CZRM5262B-HF	48.45	51	53.55	125	2.5	1100	0.25	0.1	39	Z51V
CZRM5263B-HF	53.20	56	58.80	150	2.2	1300	0.25	0.1	43	Z56V

Notes: 1. The zener voltage (Vz) is tested under pulse condition of 15mS.

The measured Vz is guaranteed to be within specification with device junction in thermal equilibrium.

2. The device numbers listed have a standard tolerance on the nominal zener voltage of ±5%.
3. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (IzT or Izk) is superimposed to IzT or Izk.
4. Company reserves the right to improve product design , functions and reliability without notice.

## RATING AND CHARACTERISTIC CURVES (CZRM5221B-HF Thru. CZRM5263B-HF)

Fig.1 - Typical Forward Voltage

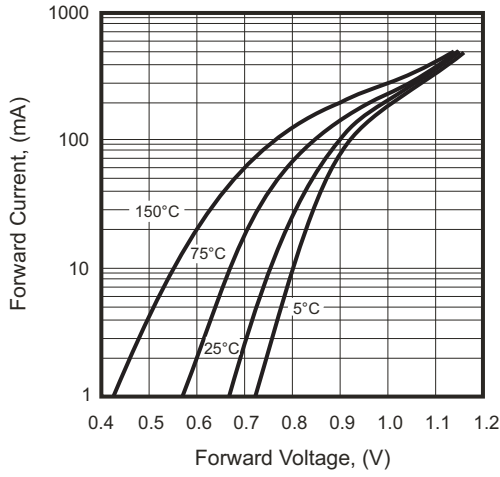


Fig.2 - Effect Of Zener Voltage On Zener Impedance

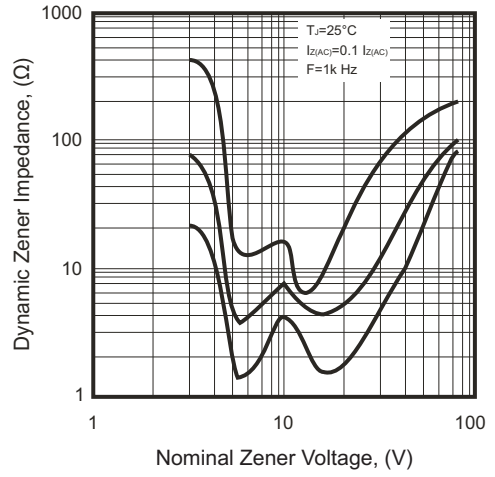


Fig.3 - Power Dissipation VS. Ambient Temp.

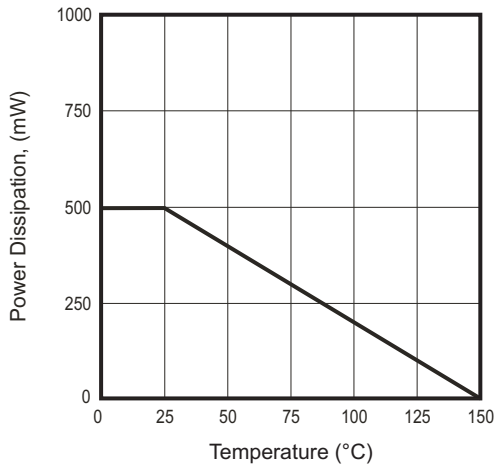
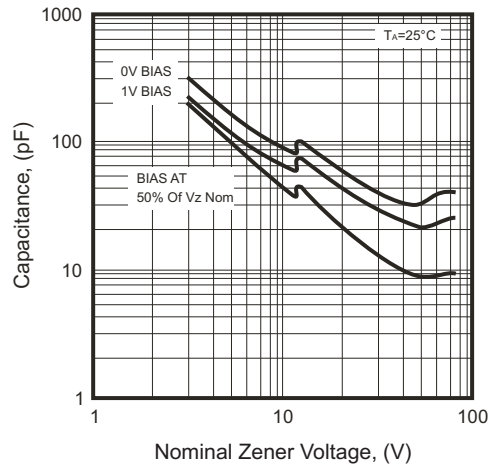


Fig.4 - Typical Capacitance



## RATING AND CHARACTERISTIC CURVES (CZRM5221B-HF Thru. CZRM5263B-HF)

Fig.5 - Zener Breakdown Characteristics

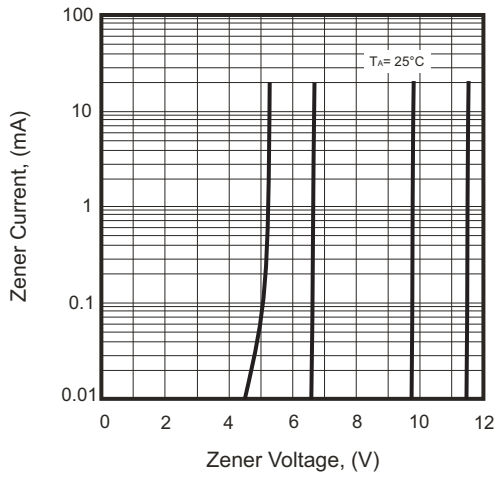


Fig.6 - Zener Breakdown Characteristics

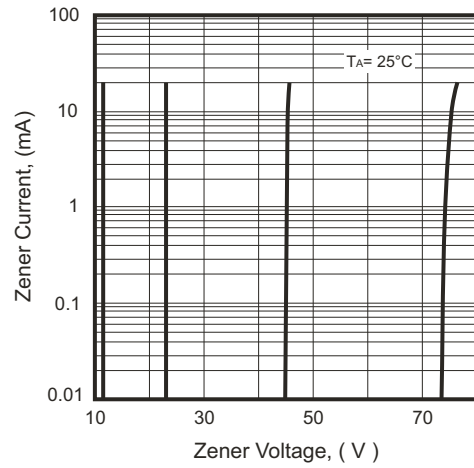
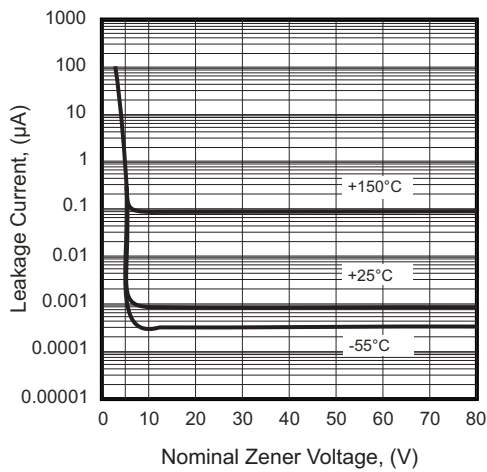
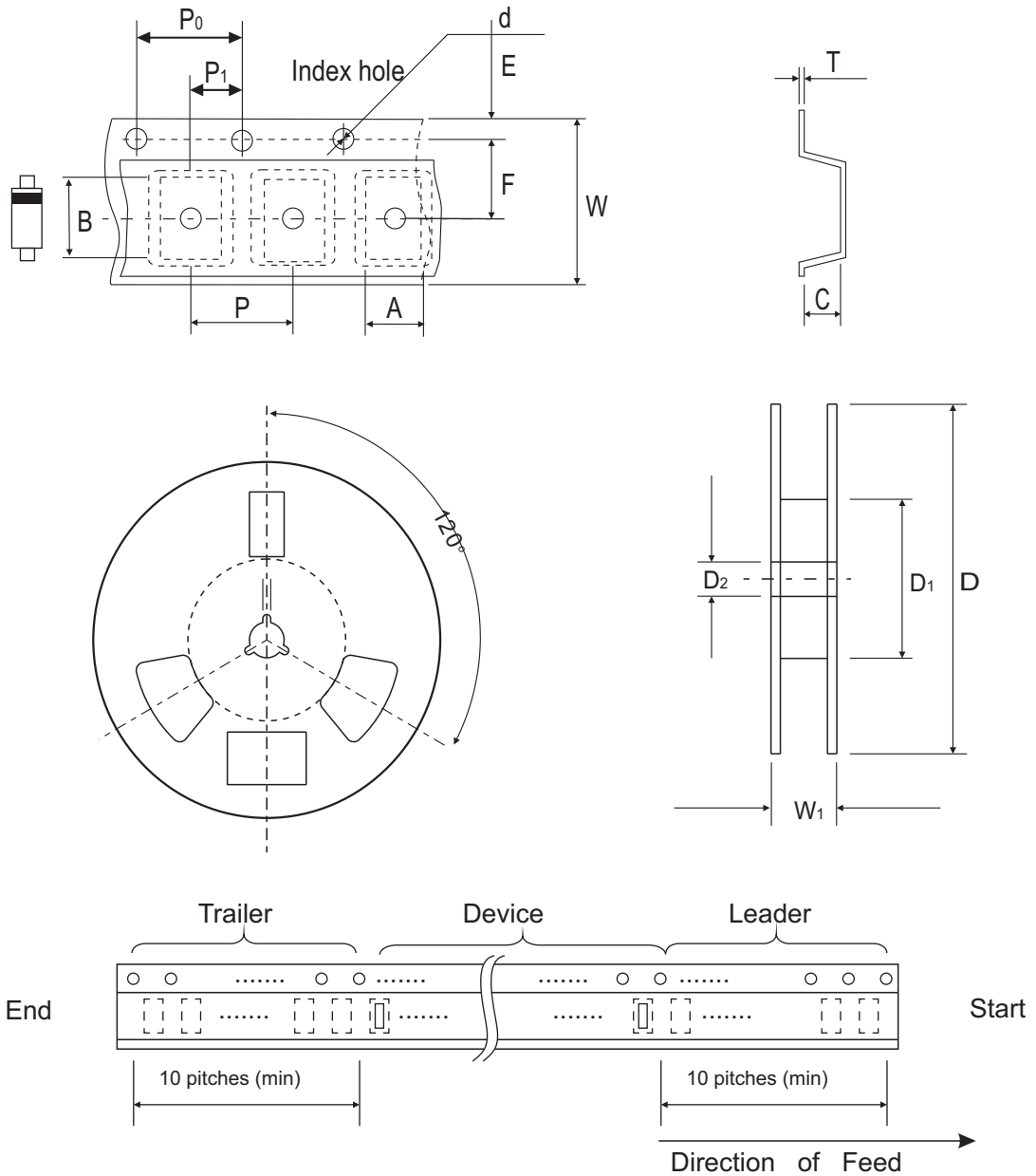


Fig.7 - Typical Leakage Current



## Reel Taping Specification



SOD-123FL	SYMBOL	A	B	C	d	D	D <sub>1</sub>	D <sub>2</sub>
	(mm)	1.85 ± 0.10	3.94 ± 0.10	1.58 ± 0.10	1.55 ± 0.10	178 MAX.	50.0 MIN.	13.0 ± 0.20
	(inch)	0.073 ± 0.004	0.155 ± 0.004	0.062 ± 0.004	0.061 ± 0.004	7.008 MAX.	1.969 MIN.	0.512 ± 0.008

SOD-123FL	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 ± 0.10	0.40 Max.	8.00 ± 0.30	14.4 MAX.
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.016 Max.	0.315 ± 0.012	0.567 MAX.

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REV: C

## Marking Code

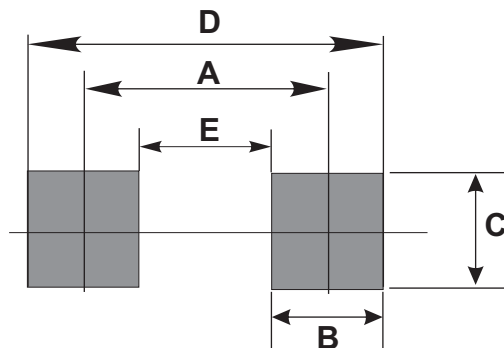
Part Number	Marking Code
CZRM5221B ~ 5263B-HF	XXXX



Product type marking code (see page.2~3)

## Suggested PAD Layout

SIZE	SOD-123FL	
	(mm)	(inch)
A	2.90	0.132
B	1.10	0.031
C	1.10	0.039
D	4.00	0.163
E	1.60	0.100



## Standard Packaging

Case Type	REEL PACK	
	REEL ( pcs )	Reel Size (inch)
SOD-123FL	3,000	7