

Zener Diode Chip Series

Rev. V1

Features

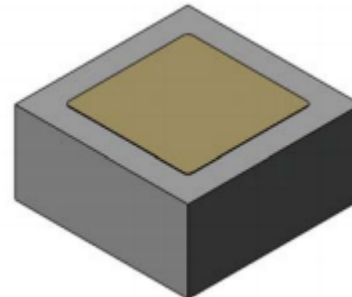
- 0.5 W Capability with Proper Heat Sinking
- Electrically Equivalent to 1N4099 - 1N4135

Description

These 0.5 W zener diodes are electrically equivalent to the 1N4099 - 1N4135 series diodes. They are compatible with all wire bonding and die attach techniques with the exception of solder reflow.

These diodes are available in JANHC and JANKC per MIL-PRF-19500/127.

Die



Electrical Specifications: Zener Test Current = 250 μ A, $T_A = +25^\circ\text{C}$

Part #	Zener Voltage ¹ $V_Z @ 250 \mu\text{A}$	Zener Impedance ² $Z_{ZT} @ 500 \mu\text{A}$	Reverse Voltage $I_R @ V_R$	
	Nominal	Maximum	Maximum	
	V	Ω	μA	V
CD4099	6.8	200	10	5.17
CD4100	7.5	200	10	5.70
CD4101	8.2	200	1	6.24
CD4102	8.7	200	1	6.61
CD4103	9.1	200	1	6.92
CD4104	10	200	1	7.60
CD4105	11	200	0.05	8.44
CD4106	12	200	0.05	9.12
CD4107	13	200	0.05	9.87
CD4108	14	200	0.05	10.65
CD4109	15	100	0.05	11.40
CD4110	16	100	0.05	12.15
CD4111	17	100	0.05	12.92
CD4112	18	100	0.05	13.67
CD4113	19	150	0.05	18.25
CD4114	20	150	0.01	15.20
CD4115	22	150	0.01	16.72
CD4116	24	150	0.01	18.25
CD4117	25	150	0.01	19.00
CD4118	27	150	0.01	20.45
CD4119	28	200	0.01	21.28

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* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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	Nominal	Maximum	Maximum	
	V	Ω	μA	V
CD4120 CD4121	30 33	200 200	0.01 0.01	22.80 25.08
CD4122 CD4123	36 39	200 200	0.01 0.01	27.38 29.65
CD4124 CD4125	43 47	250 250	0.01 0.01	32.56 35.75
CD4126 CD4127	51 56	300 300	0.01 0.01	38.76 42.60
CD4128 CD4129	60 20	400 500	0.01 0.01	45.60 47.10
CD4130 CD4131	68 75	700 700	0.01 0.01	51.68 57.00
CD4132 CD4133	82 87	800 1000	0.01 0.01	62.32 66.12
CD4134 CD4135	91 100	1200 1500	0.01 0.01	69.16 76.00

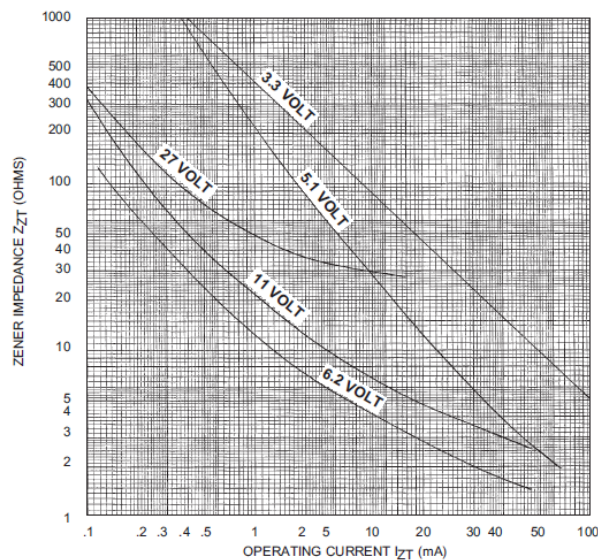
1. Zener voltage range equals nominal voltage $\pm 5\%$ for "A" suffix. No suffix denotes $\pm 10\%$, "C" suffix = $\pm 2\%$ and "D" suffix = $\pm 1\%$.
2. Zener impedance is derived by superimposing on I_{ZT} at 60 HZ RMS AC current equal to 10% of I_{ZT} .

Absolute Maximum Ratings^{3,4}

Parameter	Absolute Maximum
Forward Voltage	1.5 V @ 200 mA
Operating Temperature	-65°C to +175°C
Storage Temperature	-65°C to +175°C

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

Zener Impedance vs. Operating Current



Die

Die layout diagram showing dimensions in inches and millimeters. The top width is $.021 \pm .002$ [0.53 ± 0.05]. The left height is $.021 \pm .002$ [0.53 ± 0.05]. The right height is $.015 \pm .002$ [0.38 ± 0.05]. The bottom width is $.015 \pm .002$ [0.38 ± 0.05]. The bottom height is $.010 \pm .002$ [0.25 ± 0.05]. A central square is labeled "Anode".

Metallization: Top: (anode) AL
Back: (cathode) Au

AL Thickness: 25,000 Å Minimum

Gold Thickness: 4,000 Å Minimum

Chip Thickness: 10 mils

Circuit Layout Data: For Zener operation, cathode must be operated positive with respect to anode.

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