CD4099 thru CD4135

Zener Diode Chip Series

Rev. V1

Features

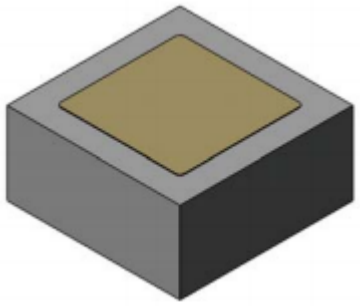
- 0.5 W Capability with Proper Heat Sinking
- Electrically Equivalent to 1N4099 - 1N4135

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 µA, T_A = +25°C

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

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

Electrical Specifications: Zener Test Current = 250 µA, T_A = +25°C

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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

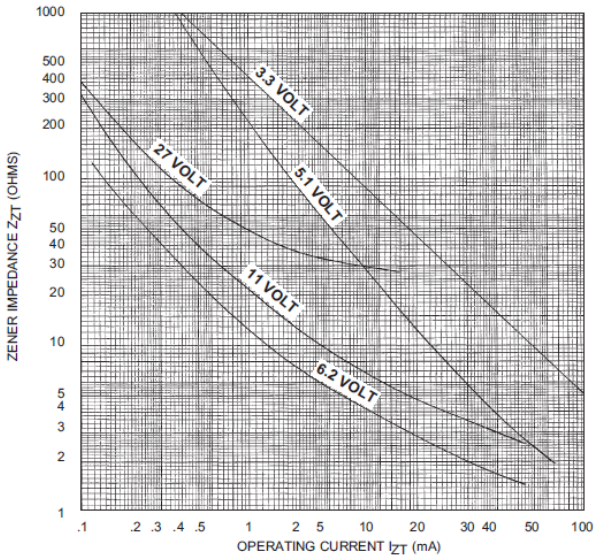
1. Zener voltage range equals nominal voltage ±5% for “A” suffix. No suffix denotes ±10%, “C” suffix = ±2% and “D” suffix = ±1%.
2. Zener impedance is derived by superimposing on I_{ZT} at 60 HZ RMS AC current equal to 10% of I_{ZT}.

Absolute Maximum Ratings[3,4]

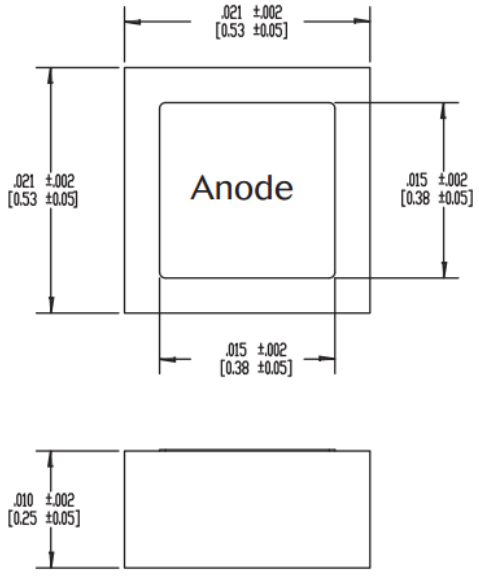
Parameter	Absolute Maximum
Forward Voltage	1.5 V @ 200 mA
Operating Temperature	-65°C to +175°C
Storage Temperature	-65°C to +175°C

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

Zener Impedance vs. Operating Current



Die



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.