

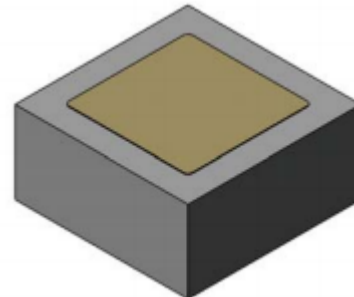
Zener Diode Chip Series

Rev. V1

Features

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

Die



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.

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 |

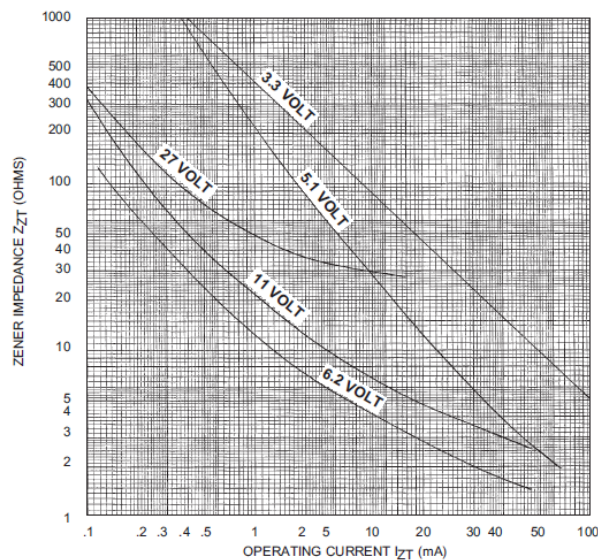
1. Zener voltage range equals nominal voltage $\pm 5\%$ for "A" suffix. No suffix denotes $\pm 10\%$, "C" suffix = $\pm 2\%$ and "D" suffix = $\pm 1\%$.
2. Zener impedance is derived by superimposing on I_{ZT} at 60 HZ RMS AC current equal to 10% of I_{ZT} .

Absolute Maximum Ratings^{3,4}

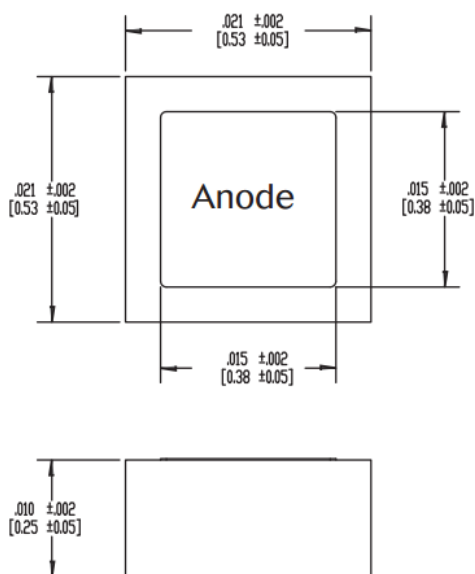
| Parameter | Absolute Maximum |
|-----------------------|------------------|
| Forward Voltage | 1.5 V @ 200 mA |
| Operating Temperature | -65°C to +175°C |
| Storage Temperature | -65°C to +175°C |

- 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



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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