CD821 thru CD829A

TC Zener Diode Chip Series

Rev. V1

Features

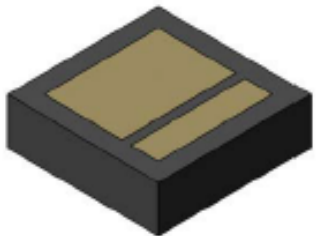
- Monolithic Temperature Compensated Zener Reference Chips
- Electrically Equivalent to 1N821 - 1N829A

Description

These 0.5 W zener diodes are electrically equivalent to the 1N821 - 1N829A series diodes. All junctions are completely protected with silicon dioxide. 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-19500/159.

Die



Electrical Specifications: T_A = +25°C (unless otherwise specified)

Part #	Nominal Zener Voltage V_{ZT} @ I_{ZT}[1]	Zener Test Current I_{ZT}	Maximum Zener Impedance[1] Z_{ZT} @ I_{ZT}	-55°C to +100° C Voltage Temperature Stability[2] $3V_{ZT}$ @ I_{ZT}	Effective Temperature Coefficent
	V	mA	Ω	mV	% / °C
CD821 CD821A	5.9 - 6.5	7.5	15 13	96	0.01
CD823 CD823A	5.9 - 6.5	7.5	15 13	48	0.005
CD825 CD825A CD826	5.9 - 6.5	7.5	15 13 15	19 19 20	0.002
CD827 CD827A CD828	5.9 - 6.5 5.9 - 6.5 6.2 - 6.9	7.5	15 13 15	9 9 10	0.001
CD829 CD829A	5.9 - 6.5	7.5	15 13	5	0.0005

1. Zener impedance is derived by superimposing on I_{ZT} at 60 HZ RMS AC current equal to 10% of I_{ZT}.
2. The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specialized mV at any discrete temperature between the established limits, per JEDEC standard No.5.

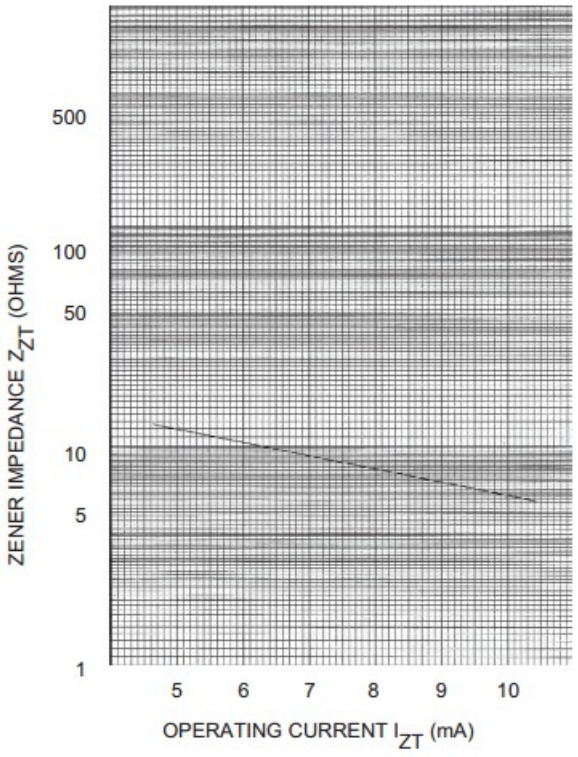
* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

Absolute Maximum Ratings[5,6]

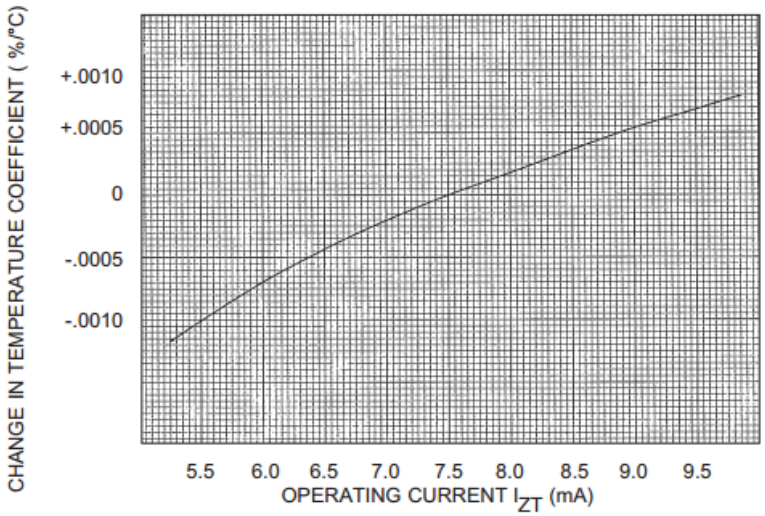
Parameter	Absolute Maximum
Reverse Leakage Current	I_R = 2 µA, V_R = 3 V_{DC}
Operating Temperature	-65°C to +175°C
Storage Temperature	-65°C to +175°C

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

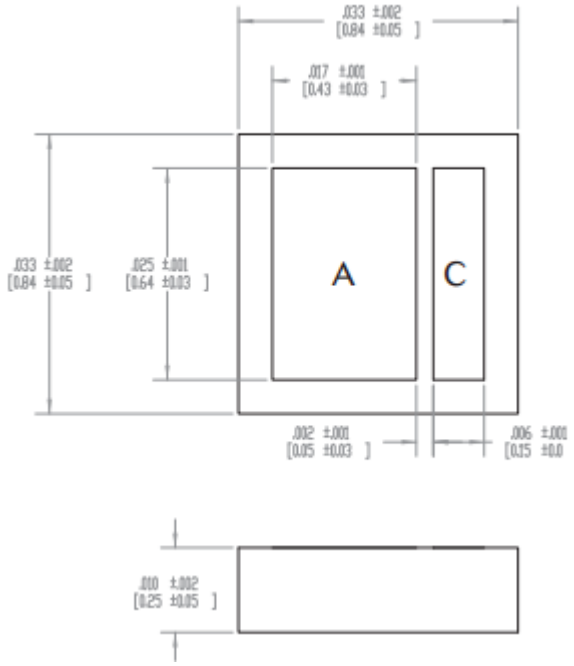
Zener Impedance vs. Operating Current



Change in Temperature Coefficient vs. Operating Current



Die



Metallization:	Top: A (anode) AL C (cathode) AL Back: 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.