

- 1N4099 THRU 1N4135 AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/435
- ZENER DIODE CHIPS
- ALL JUNCTIONS COMPLETELY PROTECTED WITH SILICON DIOXIDE
- 0.5 WATT CAPABILITY WITH PROPER HEAT SINKING
- ELECTRICALLY EQUIVALENT TO 1N4099 THRU 1N4135
- COMPATIBLE WITH ALL WIRE BONDING AND DIE ATTACH TECHNIQUES, WITH THE EXCEPTION OF SOLDER REFLOW

CD4099  
thru  
CD4135

### MAXIMUM RATINGS

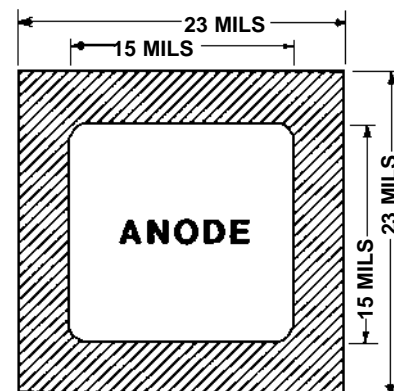
Operating Temperatures: -65°C to +175°C  
Storage Temperatures: -65°C to +175°C  
Forward Voltage @ 200 mA: 1.5 Volts maximum

ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

CDI TYPE NUMBER	NOMINAL ZENER VOLTAGE $V_Z @ I_{ZT}$	ZENER TEST CURRENT $I_{ZT}$	MAXIMUM ZENER IMPEDANCE $Z_{ZT}$	MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_R$	
	(Note 1) VOLTS	$\mu A$	(Note 2) OHMS	$\mu A$	VOLTS
CD4099	6.8	250	200	10.0	5.17
CD4100	7.5	250	200	10.0	5.70
CD4101	8.2	250	200	1.0	6.24
CD4102	8.7	250	200	1.0	6.61
CD4103	9.1	250	200	1.0	6.92
CD4104	10	250	200	1.0	7.60
CD4105	11	250	200	.05	8.44
CD4106	12	250	200	.05	9.12
CD4107	13	250	200	.05	9.87
CD4108	14	250	200	.05	10.65
CD4109	15	250	100	.05	11.40
CD4110	16	250	100	.05	12.15
CD4111	17	250	100	.05	12.92
CD4112	18	250	100	.05	13.67
CD4113	19	250	150	.05	14.44
CD4114	20	250	150	.01	15.20
CD4115	22	250	150	.01	16.72
CD4116	24	250	150	.01	18.25
CD4117	25	250	150	.01	19.00
CD4118	27	250	150	.01	20.46
CD4119	28	250	200	.01	21.28
CD4120	30	250	200	.01	22.80
CD4121	33	250	200	.01	25.08
CD4122	36	250	200	.01	27.38
CD4123	39	250	200	.01	29.65
CD4124	43	250	250	.01	32.56
CD4125	47	250	250	.01	35.75
CD4126	51	250	300	.01	38.76
CD4127	56	250	300	.01	42.60
CD4128	60	250	400	.01	45.60
CD4129	62	250	500	.01	47.10
CD4130	68	250	700	.01	51.68
CD4131	75	250	700	.01	57.00
CD4132	82	250	800	.01	62.32
CD4133	87	250	1000	.01	66.12
CD4134	91	250	1200	.01	69.16
CD4135	100	250	1500	.01	76.00

**NOTE 1** Zener voltage range equals nominal Zener voltage  $\pm$  5% for no suffix types. Zener voltage is read using a pulse measurement, 10 milliseconds maximum. "C" suffix =  $\pm$  2% and "D" suffix =  $\pm$  1%.

**NOTE 2** Zener impedance is derived by superimposing on  $I_{ZT}$  A 60Hz rms a.c. current equal to 10% of  $I_{ZT}$ .



Backside is Cathode

**FIGURE 1**

### DESIGN DATA

**METALLIZATION:**  
Top: (Anode).....Al  
Back: (Cathode).....Au

**AL THICKNESS**.....25,000 Å Min

**GOLD THICKNESS**.....4,000 Å Min

**CHIP THICKNESS**.....10 Mils

**CIRCUIT LAYOUT DATA:**  
For Zener operation, cathode must be operated positive with respect to anode.

**TOLERANCES: ALL**  
Dimensions  $\pm$  2 mils



**COMPENSATED DEVICES INCORPORATED**

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# CD4099 thru CD4135

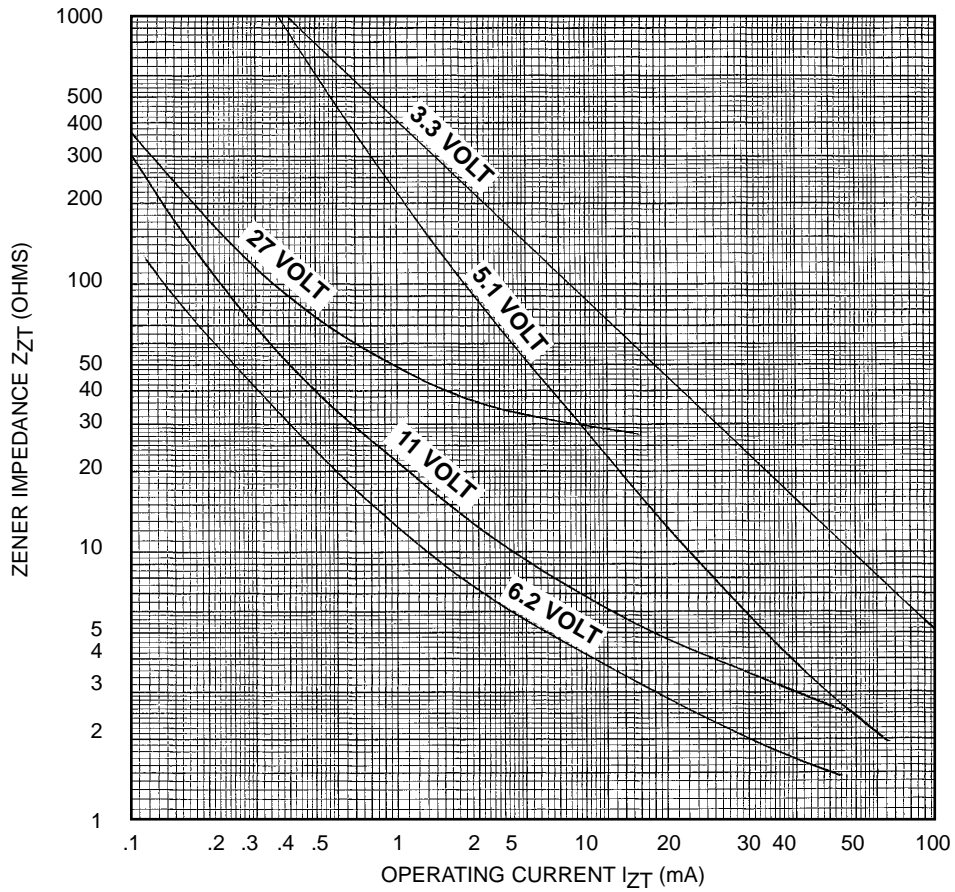


FIGURE 3

## ZENER IMPEDANCE VS. OPERATING CURRENT