

- MONOLITHIC TEMPERATURE COMPENSATED ZENER REFERENCE CHIPS
- ALL JUNCTIONS COMPLETELY PROTECTED WITH SILICON DIOXIDE
- 8.5 & 9.1 VOLT NOMINAL ZENER VOLTAGE  $\pm 5\%$
- ELECTRICALLY EQUIVALENT TO 1N4765 THRU 1N4772A AND 1N4775 THRU 1N4782A SERIES
- COMPATIBLE WITH ALL WIRE BONDING AND DIE ATTACH TECHNIQUES, WITH THE EXCEPTION OF SOLDER REFLOW

CD4765 thru CD4767A  
and  
CD4770 thru CD4772A  
and  
CD4775 thru CD4777A  
and  
CD4780 thru CD4782A

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C  
Storage Temperature: -65°C to +175°C

ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

TYPE NUMBER	ZENER VOLTAGE $V_Z @ I_{ZT}$	ZENER TEST CURRENT $I_{ZT}$	MAXIMUM ZENER IMPEDANCE $Z_{ZT}$	MAXIMUM VOLTAGE TEMPERATURE STABILITY $\Delta V_{ZT}$ MAXIMUM	TEMPERATURE RANGE	EFFECTIVE TEMPERATURE COEFFICIENT
	(Note 3) VOLTS	mA	(Note 1) OHMS	(Note 2) mV	°C	% / °C
CD4765	9.1	0.5	350	68	0 to +75	0.01
CD4765A	9.1	0.5	350	141	-55 to +100	0.01
CD4766	9.1	0.5	350	34	0 to +75	0.005
CD4766A	9.1	0.5	350	70	-55 to +100	0.005
CD4767	9.1	0.5	350	14	0 to +75	0.002
CD4767A	9.1	0.5	350	28	-55 to +100	0.002
CD4770	9.1	1.0	200	68	0 to +75	0.01
CD4770A	9.1	1.0	200	141	-55 to +100	0.01
CD4771	9.1	1.0	200	34	0 to +75	0.005
CD4771A	9.1	1.0	200	70	-55 to +100	0.005
CD4772	9.1	1.0	200	14	0 to +75	0.002
CD4772A	9.1	1.0	200	28	-55 to +100	0.002
CD4775	8.5	0.5	350	64	0 to +75	0.01
CD4775A	8.5	0.5	350	132	-55 to +100	0.01
CD4776	8.5	0.5	350	32	0 to +75	0.005
CD4776A	8.5	0.5	350	66	-55 to +100	0.005
CD4777	8.5	0.5	350	13	0 to +75	0.002
CD4777A	8.5	0.5	350	26	-55 to +100	0.002
CD4780	8.5	1.0	200	64	0 to +75	0.01
CD4780A	8.5	1.0	200	132	-55 to +100	0.01
CD4781	8.5	1.0	200	32	0 to +75	0.005
CD4781A	8.5	1.0	200	66	-55 to +100	0.005
CD4782	8.5	1.0	200	13	0 to +75	0.002
CD4782A	8.5	1.0	200	26	-55 to +100	0.002

**NOTE 1** Zener impedance is derived by superimposing on  $I_{ZT}$  A 60Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

**NOTE 2** The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specified mV at any discrete temperature between the established limits, per JEDEC standard No.5.

**NOTE 3** Zener voltage range is  $\pm 5\%$

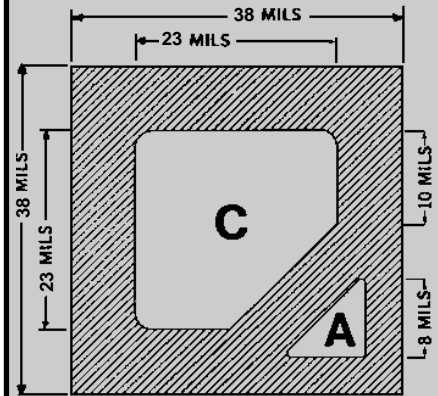


FIGURE 1

## DESIGN DATA

### METALLIZATION:

Top: C (Cathode).....Al  
A (Anode).....Al  
Back: .....Au

AL THICKNESS.....25,000 Å Min

GOLD THICKNESS.....4,000 Å Min

CHIP THICKNESS.....10 Mils

### CIRCUIT LAYOUT DATA:

Backside must be electrically isolated.

### Backside is not cathode.

For Zener operation cathode must be operated positive with respect to anode.

### TOLERANCES: ALL

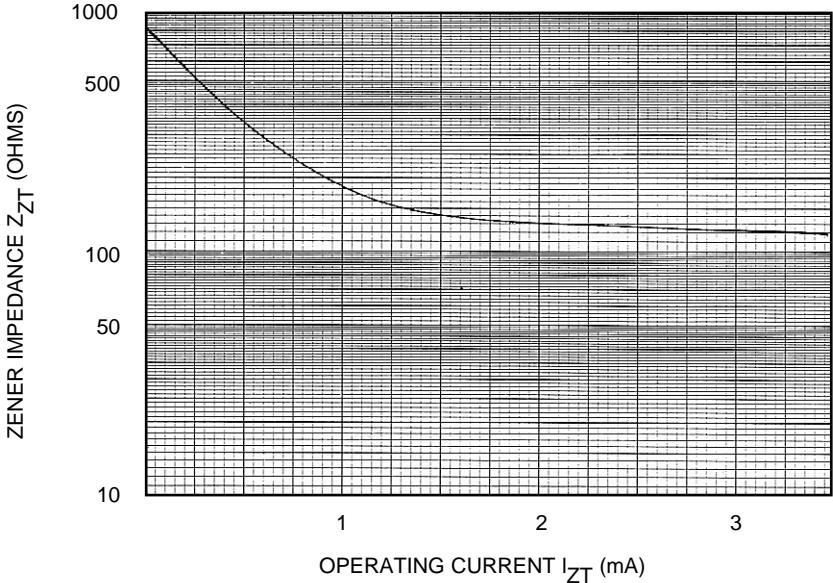
Dimensions  $\pm 2$  mils



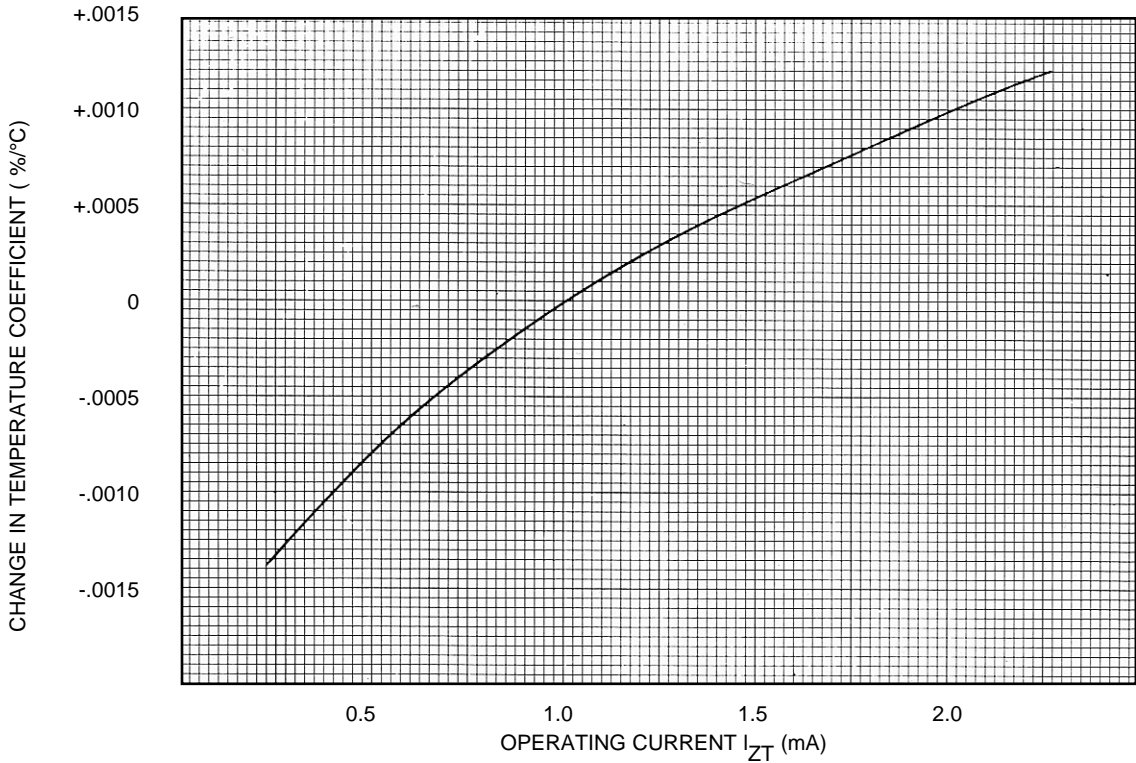
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**CD4765 thru CD4767A thru CD4770 thru CD4772A and  
CD4775 thru CD4777A and CD4780 thru CD4782A**



**FIGURE 2**  
**ZENER IMPEDANCE**  
**VS.**  
**OPERATING CURRENT**



**FIGURE 3**  
**TYPICAL CHANGE OF TEMPERATURE COEFFICIENT**  
**WITH CHANGE IN OPERATING CURRENT**