

- 9.1 VOLT NOMINAL ZENER VOLTAGE  $\pm 5\%$
- TEMPERATURE COMPENSATED ZENER REFERENCE DIODES
- LOW CURRENT RANGE: 0.5 AND 1.0 mA
- METALLURGICALLY BONDED
- DOUBLE PLUG CONSTRUCTION

1N4765  
thru  
1N4774A

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C  
Storage Temperature: -65°C to +175°C  
DC Power Dissipation: 500mW @ +50°C  
Power Derating: 4 mW / °C above +50°C

## REVERSE LEAKAGE CURRENT

$I_R = 10 \mu A$  @ 25°C &  $V_R = 6 V_{dc}$

ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

| JEDEC<br>TYPE<br>NUMBER | ZENER<br>VOLTAGE<br>$V_Z @ I_{ZT}$<br>(Note 3) | ZENER<br>TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM<br>DYNAMIC<br>IMPEDANCE<br>$Z_{ZT}$<br>(Note 1) | MAXIMUM<br>VOLTAGE<br>TEMPERATURE<br>STABILITY<br>$\Delta V_{ZT}$<br>(Note 2) | TEMPERATURE<br>RANGE | EFFECTIVE<br>TEMPERATURE<br>COEFFICIENT |
|-------------------------|------------------------------------------------|--------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------|----------------------|-----------------------------------------|
|                         | VOLTS                                          | mA                                   | OHMS                                                    | mV                                                                            | °C                   | % / °C                                  |
| 1N4765                  | 9.1                                            | 0.5                                  | 350                                                     | 68                                                                            | 0 to +75             | 0.01                                    |
| 1N4765A                 | 9.1                                            | 0.5                                  | 350                                                     | 141                                                                           | -55 to +100          | 0.01                                    |
| 1N4766                  | 9.1                                            | 0.5                                  | 350                                                     | 34                                                                            | 0 to +75             | 0.005                                   |
| 1N4766A                 | 9.1                                            | 0.5                                  | 350                                                     | 70                                                                            | -55 to +100          | 0.005                                   |
| 1N4767                  | 9.1                                            | 0.5                                  | 350                                                     | 14                                                                            | 0 to +75             | 0.002                                   |
| 1N4767A                 | 9.1                                            | 0.5                                  | 350                                                     | 28                                                                            | -55 to +100          | 0.002                                   |
| 1N4768                  | 9.1                                            | 0.5                                  | 350                                                     | 6.8                                                                           | 0 to +75             | 0.001                                   |
| 1N4768A                 | 9.1                                            | 0.5                                  | 350                                                     | 14                                                                            | -55 to +100          | 0.001                                   |
| 1N4769                  | 9.1                                            | 0.5                                  | 350                                                     | 3.4                                                                           | 0 to +75             | 0.0005                                  |
| 1N4769A                 | 9.1                                            | 0.5                                  | 350                                                     | 7                                                                             | -55 to +100          | 0.0005                                  |
| 1N4770                  | 9.1                                            | 1.0                                  | 200                                                     | 68                                                                            | 0 to +75             | 0.01                                    |
| 1N4770A                 | 9.1                                            | 1.0                                  | 200                                                     | 141                                                                           | -55 to +100          | 0.01                                    |
| 1N4771                  | 9.1                                            | 1.0                                  | 200                                                     | 34                                                                            | 0 to +75             | 0.005                                   |
| 1N4771A                 | 9.1                                            | 1.0                                  | 200                                                     | 70                                                                            | -55 to +100          | 0.005                                   |
| 1N4772                  | 9.1                                            | 1.0                                  | 200                                                     | 14                                                                            | 0 to +75             | 0.002                                   |
| 1N4772A                 | 9.1                                            | 1.0                                  | 200                                                     | 28                                                                            | -55 to +100          | 0.002                                   |
| 1N4773                  | 9.1                                            | 1.0                                  | 200                                                     | 6.8                                                                           | 0 to +75             | 0.001                                   |
| 1N4773A                 | 9.1                                            | 1.0                                  | 200                                                     | 14                                                                            | -55 to +100          | 0.001                                   |
| 1N4774                  | 9.1                                            | 1.0                                  | 200                                                     | 3.4                                                                           | 0 to +75             | 0.0005                                  |
| 1N4774A                 | 9.1                                            | 1.0                                  | 200                                                     | 7                                                                             | -55 to +100          | 0.0005                                  |

**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 equals 9.1 volts  $\pm 5\%$ .

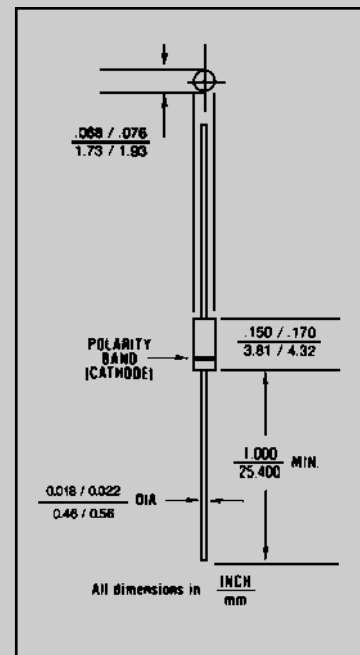


FIGURE 1

## DESIGN DATA

**CASE:** Hermetically sealed glass case. DO – 35 outline.

**LEAD MATERIAL:** Copper clad steel.

**LEAD FINISH:** Tin / Lead

**POLARITY:** Diode to be operated with the banded (cathode) end positive.

**MOUNTING POSITION:** ANY.



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# 1N4765 thru 1N4774A

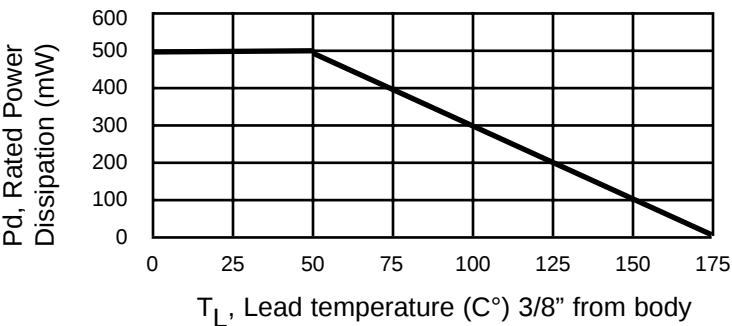


FIGURE 2  
POWER DERATING CURVE

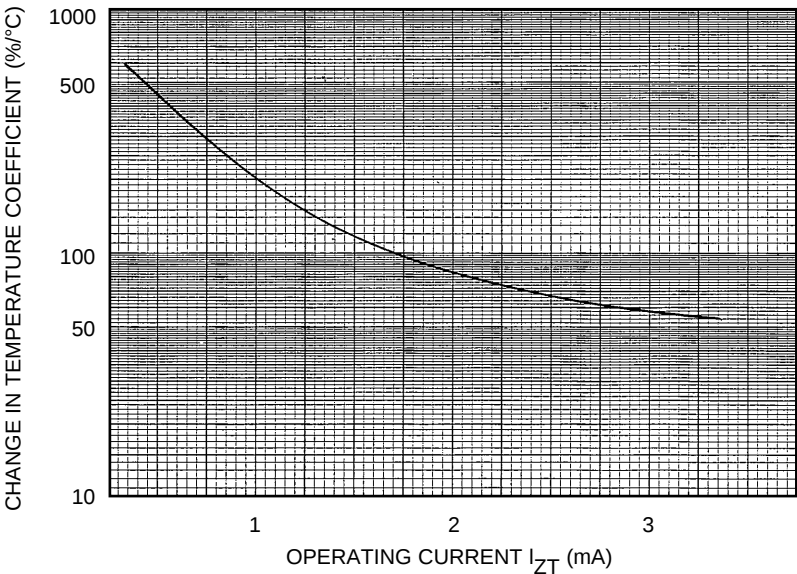


FIGURE 3  
ZENER IMPEDANCE VS. OPERATING CURRENT

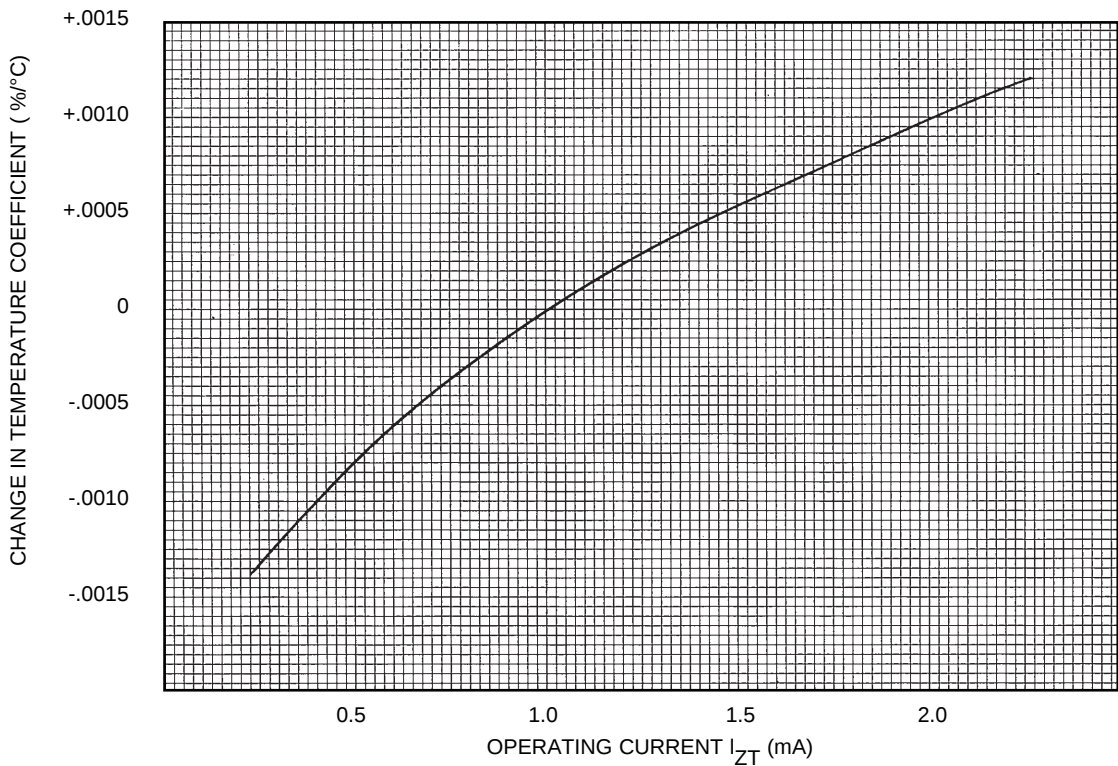


FIGURE 4  
TYPICAL CHANGE OF TEMPERATURE COEFFICIENT  
WITH CHANGE IN OPERATING CURRENT