

# 10-TAP SIP DELAY LINE

$$T_D/T_R = 5$$

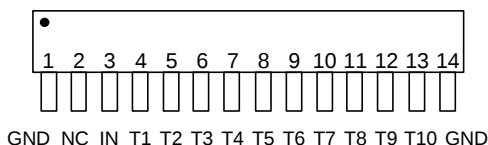
(SERIES 1507)



## FEATURES

- 10 taps of equal delay increment
- Very narrow device (SIP package)
- Stackable for PC board economy
- Low profile
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

## PACKAGES



1507-xxz  
xx = Delay ( $T_D$ )  
z = Impedance Code

## FUNCTIONAL DESCRIPTION

The 1507-series device is a fixed, single-input, ten-output, passive delay line. The signal input (IN) is reproduced at the outputs (T1-T10) in equal increments. The delay from IN to T10 ( $T_D$ ) is given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See Table). The rise time ( $T_R$ ) of the line is 10% of  $T_D$ , and the 3dB bandwidth is given by  $3.5 / T_D$ .

## PIN DESCRIPTIONS

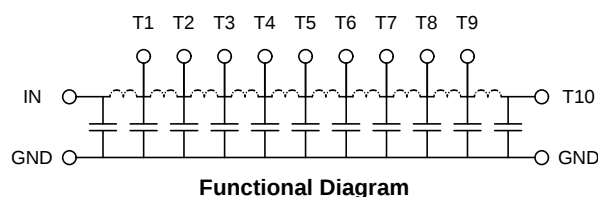
IN Signal Input  
T1-T10 Tap Outputs  
GND Ground

## SERIES SPECIFICATIONS

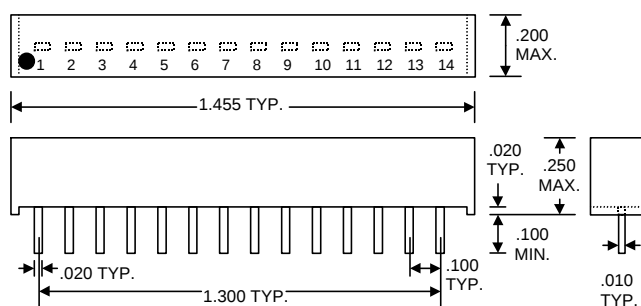
- Dielectric breakdown: 50 Vdc
- Distortion @ output: 10% max.
- Operating temperature: -55°C to +125°C
- Storage temperature: -55°C to +125°C
- Temperature coefficient: 100 PPM/°C

## DASH NUMBER SPECIFICATIONS

| Part Number | $T_D$ (ns)     | Delay per Tap (ns) | $T_R$ (ns) | Impedance ( $\Omega$ ) | $R_{DC}$ ( $\Omega$ ) |
|-------------|----------------|--------------------|------------|------------------------|-----------------------|
| 1507-20A    | 20.0 $\pm$ 2.0 | 2.0 $\pm$ 0.4      | 4.0        | 50                     | 1.0                   |
| 1507-40A    | 40.0 $\pm$ 2.0 | 4.0 $\pm$ 1.0      | 8.0        | 50                     | 1.5                   |
| 1507-50A    | 50.0 $\pm$ 2.5 | 5.0 $\pm$ 1.5      | 9.0        | 50                     | 1.5                   |
| 1507-100A   | 100 $\pm$ 5.0  | 10.0 $\pm$ 2.0     | 18.0       | 50                     | 2.0                   |
| 1507-150A   | 150 $\pm$ 7.5  | 15.0 $\pm$ 2.0     | 28.0       | 50                     | 3.0                   |
| 1507-200A   | 200 $\pm$ 10.0 | 20.0 $\pm$ 3.0     | 38.0       | 50                     | 4.0                   |
| 1507-20B    | 20.0 $\pm$ 2.0 | 2.0 $\pm$ 0.4      | 4.0        | 100                    | 1.5                   |
| 1507-50B    | 50.0 $\pm$ 2.5 | 5.0 $\pm$ 1.5      | 9.0        | 100                    | 2.0                   |
| 1507-100B   | 100 $\pm$ 5.0  | 10.0 $\pm$ 2.0     | 18.0       | 100                    | 4.0                   |
| 1507-200B   | 200 $\pm$ 10.0 | 20.0 $\pm$ 3.0     | 38.0       | 100                    | 6.0                   |
| 1507-250B   | 250 $\pm$ 13.0 | 25.0 $\pm$ 4.0     | 48.0       | 100                    | 7.0                   |
| 1507-20C    | 20.0 $\pm$ 2.0 | 2.0 $\pm$ 0.4      | 4.0        | 200                    | 3.0                   |
| 1507-50C    | 50.0 $\pm$ 2.5 | 5.0 $\pm$ 1.5      | 9.0        | 200                    | 4.5                   |
| 1507-100C   | 100 $\pm$ 5.0  | 10.0 $\pm$ 2.0     | 18.0       | 200                    | 6.0                   |
| 1507-200C   | 200 $\pm$ 13.0 | 20.0 $\pm$ 3.0     | 38.0       | 200                    | 9.0                   |
| 1507-50G    | 50.0 $\pm$ 2.5 | 5.0 $\pm$ 1.5      | 9.0        | 500                    | 6.0                   |
| 1507-100G   | 100 $\pm$ 5.0  | 10.0 $\pm$ 2.0     | 18.0       | 500                    | 10.0                  |
| 1507-200G   | 200 $\pm$ 10.0 | 20.0 $\pm$ 3.0     | 38.0       | 500                    | 30.0                  |
| 1507-300G   | 300 $\pm$ 15.0 | 30.0 $\pm$ 4.0     | 58.0       | 500                    | 30.0                  |
| 1507-500G   | 500 $\pm$ 25.0 | 50.0 $\pm$ 5.0     | 98.0       | 500                    | 55.0                  |



Functional Diagram



Package Dimensions

©1997 Data Delay Devices

## PASSIVE DELAY LINE TEST SPECIFICATIONS

### TEST CONDITIONS

#### INPUT:

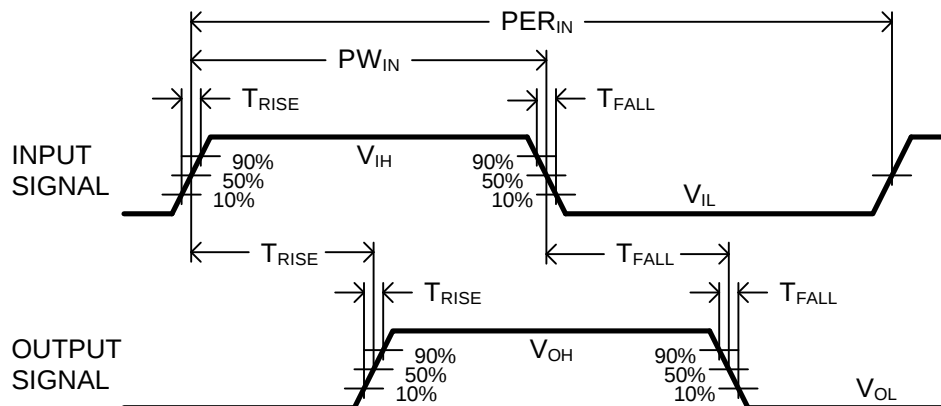
**Ambient Temperature:**  $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$   
**Input Pulse:** High = 3.0V typical  
 Low = 0.0V typical  
**Source Impedance:**  $50\Omega$  Max.  
**Rise/Fall Time:** 3.0 ns Max. (measured at 10% and 90% levels)

**Pulse Width ( $T_D \leq 75\text{ns}$ ):**  $PW_{IN} = 100\text{ns}$   
**Period ( $T_D \leq 75\text{ns}$ ):**  $PER_{IN} = 1000\text{ns}$   
**Pulse Width ( $T_D > 75\text{ns}$ ):**  $PW_{IN} = 2 \times T_D$   
**Period ( $T_D > 75\text{ns}$ ):**  $PER_{IN} = 10 \times T_D$

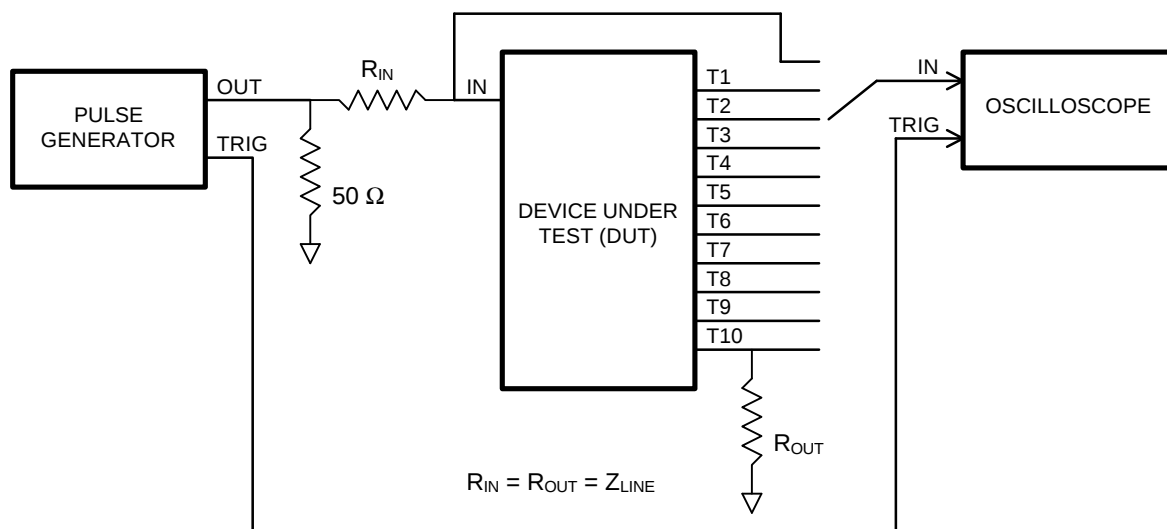
#### OUTPUT:

**$R_{load}$ :**  $10M\Omega$   
 **$C_{load}$ :** 10pf  
**Threshold:** 50% (Rising & Falling)

**NOTE:** The above conditions are for test only and do not in any way restrict the operation of the device.



Timing Diagram For Testing



Test Setup