

# 5-TAP DIP DELAY LINE

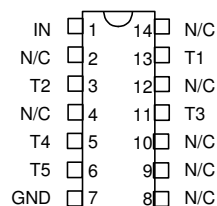
$T_D/T_R = 3$   
(SERIES 1517)



## FEATURES

- 5 taps of equal delay increment
- Delays as large as 300ns available
- Low DC resistance
- Standard 14-pin DIP package
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

## PACKAGES



1517-xxz  
xx = Delay ( $T_D$ )  
z = Impedance Code

## FUNCTIONAL DESCRIPTION

The 1517-series device is a fixed, single-input, five-output, passive delay line. The signal input (IN) is reproduced at the outputs (T1-T5) in equal increments. The delay from IN to T5 ( $T_D$ ) 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 33% of  $T_D$ , and the 3dB bandwidth is given by  $1.05 / T_D$ .

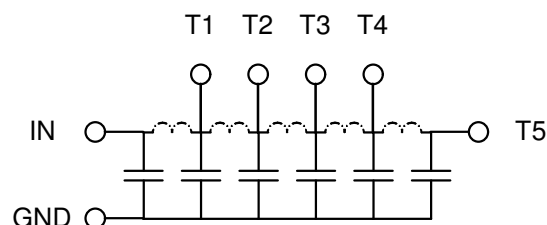
## PIN DESCRIPTIONS

IN Signal Input  
T1-T5 Tap Outputs  
GND Ground

## SERIES SPECIFICATIONS

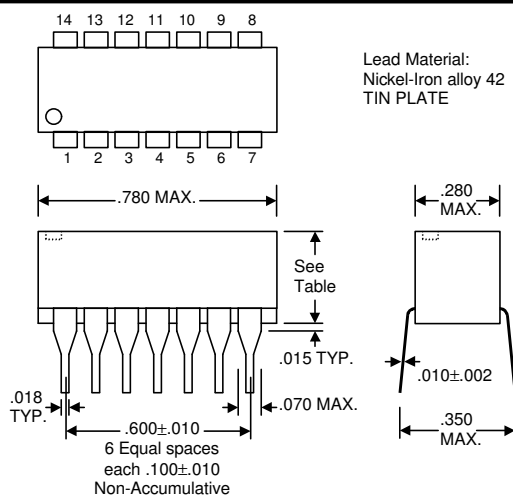
- Dielectric breakdown: 50 Vdc
- Distortion @ output: 10% max.
- Operating temperature: -55°C to +125°C
- Storage temperature: -55°C to +125°C
- Temperature coefficient: 100 PPM/°C

## FUNCTIONAL DIAGRAM



## DASH NUMBER SPECIFICATIONS

| Part Number | Delay (ns) | Imped (Ω) | RDC (Ω) | Part Number | Delay (ns)   | Imped (Ω) | RDC (Ω) | Part Number | Delay (ns)   | Imped (Ω) | RDC (Ω) |
|-------------|------------|-----------|---------|-------------|--------------|-----------|---------|-------------|--------------|-----------|---------|
| 1517-10A    | 10.0 ± 1.0 | 50        | 0.6     | 1517-80C    | 80.0 ± 4.0   | 200       | 3.5     | 1517-20F    | 20.0 ± 1.0   | 400       | 4.5     |
| 1517-15A    | 15.0 ± 1.0 | 50        | 0.6     | 1517-90C    | 90.0 ± 4.5   | 200       | 5.0     | 1517-40F    | 40.0 ± 2.0   | 400       | 5.0     |
| 1517-20A    | 20.0 ± 1.0 | 50        | 0.7     | 1517-120C   | 120.0 ± 6.0  | 200       | 5.0     | 1517-60F    | 60.0 ± 3.0   | 400       | 5.0     |
| 1517-30A    | 30.0 ± 1.5 | 50        | 0.7     | 1517-150C   | 150.0 ± 7.5  | 200       | 8.0     | 1517-80F    | 80.0 ± 4.0   | 400       | 8.0     |
| 1517-40A    | 40.0 ± 2.0 | 50        | 0.9     | 1517-25D    | 25.0 ± 1.3   | 250       | 2.5     | 1517-100F   | 100.0 ± 5.0  | 400       | 9.0     |
| 1517-5B     | 5.0 ± 1.0  | 100       | 0.5     | 1517-37D    | 37.0 ± 1.9   | 250       | 3.0     | 1517-120F   | 120.0 ± 6.0  | 400       | 10.0    |
| 1517-10B    | 10.0 ± 1.0 | 100       | 0.7     | 1517-50D    | 50.0 ± 2.5   | 250       | 3.5     | 1517-160F   | 160.0 ± 8.0  | 400       | 13.0    |
| 1517-15B    | 15.0 ± 1.0 | 100       | 0.7     | 1517-60D    | 60.0 ± 3.0   | 250       | 4.0     | 1517-180F   | 180.0 ± 9.0  | 400       | 14.0    |
| 1517-20B    | 20.0 ± 1.0 | 100       | 0.9     | 1517-75D    | 75.0 ± 3.8   | 250       | 4.0     | 1517-240F   | 240.0 ± 12.0 | 400       | 19.0    |
| 1517-25B    | 25.0 ± 1.3 | 100       | 1.0     | 1517-100D   | 100.0 ± 5.0  | 250       | 5.0     | 1517-300F   | 300.0 ± 15.0 | 400       | 23.0    |
| 1517-30B    | 30.0 ± 1.5 | 100       | 1.5     | 1517-150D   | 150.0 ± 7.5  | 250       | 8.5     | 1517-25G    | 25.0 ± 1.3   | 500       | 3.0     |
| 1517-40B    | 40.0 ± 2.0 | 100       | 1.8     | 1517-15E    | 15.0 ± 1.0   | 300       | 2.5     | 1517-50G    | 50.0 ± 2.5   | 500       | 5.0     |
| 1517-50B    | 50.0 ± 2.5 | 100       | 2.0     | 1517-30E    | 30.0 ± 1.5   | 300       | 3.0     | 1517-75G    | 75.0 ± 3.8   | 500       | 8.0     |
| 1517-60B    | 60.0 ± 3.0 | 100       | 2.0     | 1517-50E    | 50.0 ± 2.5   | 300       | 4.0     | 1517-100G   | 100.0 ± 5.0  | 500       | 15.0    |
| 1517-75B    | 75.0 ± 3.8 | 100       | 2.5     | 1517-60E    | 60.0 ± 3.0   | 300       | 4.0     | 1517-125G   | 125.0 ± 6.3  | 500       | 9.0     |
| 1517-10C    | 10.0 ± 1.0 | 200       | 1.5     | 1517-75E    | 75.0 ± 3.8   | 300       | 4.5     | 1517-150G   | 150.0 ± 7.5  | 500       | 13.0    |
| 1517-20C    | 20.0 ± 1.0 | 200       | 2.0     | 1517-90E    | 90.0 ± 4.5   | 300       | 5.5     | 1517-200G   | 200.0 ± 10.0 | 500       | 21.0    |
| 1517-30C    | 30.0 ± 1.5 | 200       | 2.5     | 1517-120E   | 120.0 ± 6.0  | 300       | 8.0     | 1517-225G   | 225.0 ± 11.3 | 500       | 23.0    |
| 1517-40C    | 40.0 ± 2.0 | 200       | 3.0     | 1517-130E   | 130.0 ± 6.5  | 300       | 9.0     | 1517-300G   | 300.0 ± 15.0 | 500       | 29.0    |
| 1517-50C    | 50.0 ± 2.5 | 200       | 3.0     | 1517-180E   | 180.0 ± 9.0  | 300       | 11.0    |             |              |           |         |
| 1517-60C    | 60.0 ± 3.0 | 200       | 3.5     | 1517-220E   | 220.0 ± 11.0 | 300       | 13.0    |             |              |           |         |



Package Dimensions

## 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:** 50Ω Max.

**Rise/Fall Time:** 3.0 ns Max. (measured at 10% and 90% levels)

#### OUTPUT:

**R<sub>load</sub>:** 10MΩ

**C<sub>load</sub>:** 10pf

**Threshold:** 50% (Rising & Falling)

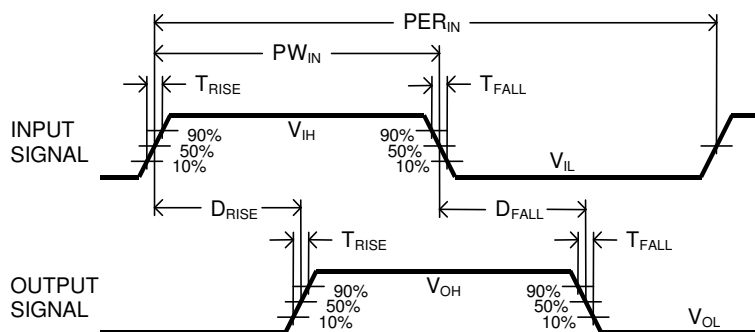
**Pulse Width ( $T_D \leq 75\text{ns}$ ):**  $PW_{IN} = 100\text{ns}$

**Period ( $T_D \leq 75\text{ns}$ ):**  $PER_{IN} = 1000\text{ns}$

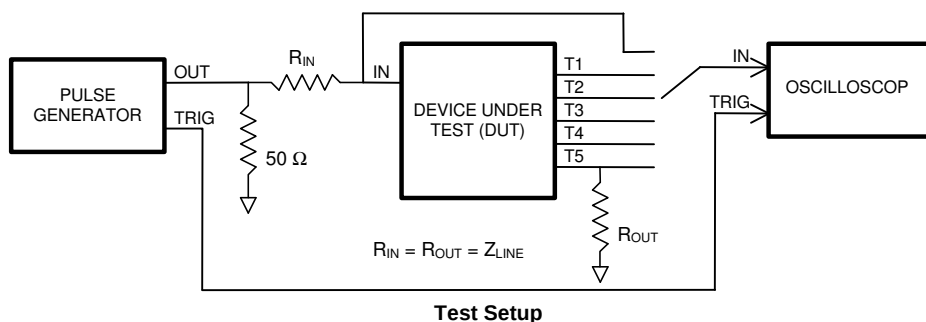
**Pulse Width ( $T_D > 75\text{ns}$ ):**  $PW_{IN} = 2 \times T_D$

**Period ( $T_D > 75\text{ns}$ ):**  $PER_{IN} = 10 \times T_D$

**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