

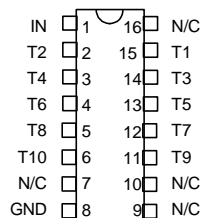
**10-TAP DIP DELAY LINE**

$T_D/T_R = 5$   
**(SERIES 1519)**

**data**  
**delay**  
**devices, inc.**


**FEATURES**

- 10 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**

1519-xxz  
 xx = Delay ( $T_D$ )  
 z = Impedance Code

**FUNCTIONAL DESCRIPTION**

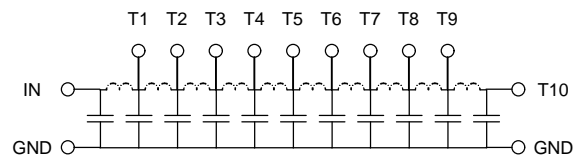
The 1519-series device is a fixed, single-input, ten-output, passive delay line. The signal input (IN) is reproduced at the outputs (T1-T10) in equal increments. The delay from IN to T10 ( $T_D$ ) is given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See Table). The rise time ( $T_R$ ) of the line is 20% of  $T_D$ , and the 3dB bandwidth is given by  $1.75 / T_D$ .

**PIN DESCRIPTIONS**

IN Signal Input  
 T1-T10 Tap Outputs  
 GND Ground

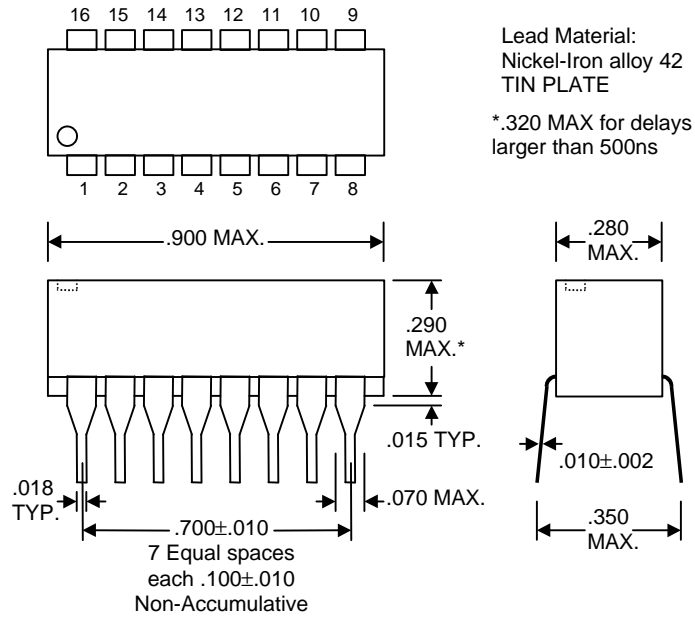
**SERIES SPECIFICATIONS**

- 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

**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) |
|-------------|------------|-----------|---------|-------------|------------|-----------|---------|-------------|------------|-----------|---------|
| 1519-20A    | 20 ± 1.0   | 50        | 1.0     | 1519-100C   | 100 ± 5.0  | 200       | 6.0     | 1519-360E   | 360 ± 18.0 | 300       | 21.0    |
| 1519-25A    | 25 ± 1.3   | 50        | 1.0     | 1519-120C   | 120 ± 6.0  | 200       | 6.5     | 1519-450E   | 450 ± 22.5 | 300       | 24.0    |
| 1519-30A    | 30 ± 1.5   | 50        | 1.2     | 1519-160C   | 160 ± 8.0  | 200       | 7.0     | 1519-600E   | 600 ± 30.0 | 300       | 40.0    |
| 1519-40A    | 40 ± 2.0   | 50        | 1.5     | 1519-180C   | 180 ± 9.0  | 200       | 8.5     | 1519-40F    | 40 ± 2.0   | 400       | 8.5     |
| 1519-45A    | 45 ± 2.3   | 50        | 1.5     | 1519-200C   | 200 ± 10.0 | 200       | 9.0     | 1519-80F    | 80 ± 4.0   | 400       | 9.0     |
| 1519-50A    | 50 ± 2.5   | 50        | 1.5     | 1519-240C   | 240 ± 12.0 | 200       | 9.5     | 1519-120F   | 120 ± 6.0  | 400       | 9.0     |
| 1519-60A    | 60 ± 3.0   | 50        | 1.5     | 1519-300C   | 300 ± 15.0 | 200       | 16.0    | 1519-160F   | 160 ± 8.0  | 400       | 16.0    |
| 1519-75A    | 75 ± 3.8   | 50        | 1.8     | 1519-400C   | 400 ± 20.0 | 200       | 18.0    | 1519-200F   | 200 ± 10.0 | 400       | 18.0    |
| 1519-100A   | 100 ± 5.0  | 50        | 2.0     | 1519-50D    | 50 ± 2.5   | 250       | 5.5     | 1519-240F   | 240 ± 12.0 | 400       | 20.0    |
| 1519-10B    | 10 ± 1.0   | 100       | 1.0     | 1519-75D    | 75 ± 3.8   | 250       | 6.0     | 1519-320F   | 320 ± 16.0 | 400       | 26.0    |
| 1519-20B    | 20 ± 1.0   | 100       | 1.5     | 1519-100D   | 100 ± 5.0  | 250       | 7.0     | 1519-360F   | 360 ± 18.0 | 400       | 28.0    |
| 1519-30B    | 30 ± 1.5   | 100       | 1.5     | 1519-125D   | 125 ± 6.3  | 250       | 8.0     | 1519-480F   | 480 ± 24.0 | 400       | 38.0    |
| 1519-40B    | 40 ± 2.0   | 100       | 1.8     | 1519-150D   | 150 ± 7.5  | 250       | 8.5     | 1519-600F   | 600 ± 30.0 | 400       | 45.0    |
| 1519-50B    | 50 ± 2.5   | 100       | 2.0     | 1519-200D   | 200 ± 10.0 | 250       | 10.0    | 1519-800F   | 800 ± 40.0 | 400       | 40.0    |
| 1519-60B    | 60 ± 3.0   | 100       | 3.0     | 1519-225D   | 225 ± 12.0 | 250       | 11.0    | 1519-50G    | 50 ± 2.5   | 500       | 6.0     |
| 1519-80B    | 80 ± 4.0   | 100       | 3.5     | 1519-300D   | 300 ± 15.0 | 250       | 17.0    | 1519-100G   | 100 ± 5.0  | 500       | 10.0    |
| 1519-90B    | 90 ± 4.5   | 100       | 3.5     | 1519-375D   | 375 ± 18.8 | 250       | 20.0    | 1519-150G   | 150 ± 7.5  | 500       | 16.0    |
| 1519-100B   | 100 ± 5.0  | 100       | 4.0     | 1519-500D   | 500 ± 25.0 | 250       | 24.0    | 1519-200G   | 200 ± 10.0 | 500       | 30.0    |
| 1519-120B   | 120 ± 6.0  | 100       | 4.0     | 1519-30E    | 30 ± 1.5   | 300       | 5.0     | 1519-250G   | 250 ± 12.5 | 500       | 25.0    |
| 1519-150B   | 150 ± 7.5  | 100       | 5.0     | 1519-60E    | 60 ± 3.0   | 300       | 6.0     | 1519-300G   | 300 ± 15.0 | 500       | 26.0    |
| 1519-200B   | 200 ± 10.0 | 100       | 6.0     | 1519-90E    | 90 ± 4.5   | 300       | 7.0     | 1519-400G   | 400 ± 20.0 | 500       | 42.0    |
| 1519-250B   | 250 ± 12.5 | 100       | 7.0     | 1519-120E   | 120 ± 6.0  | 300       | 8.0     | 1519-450G   | 450 ± 22.5 | 500       | 45.0    |
| 1519-20C    | 20 ± 1.0   | 200       | 3.0     | 1519-150E   | 150 ± 7.5  | 300       | 9.0     | 1519-500G   | 500 ± 25.0 | 500       | 55.0    |
| 1519-40C    | 40 ± 2.0   | 200       | 4.0     | 1519-180E   | 180 ± 9.0  | 300       | 11.0    | 1519-600G   | 600 ± 30.0 | 500       | 58.0    |
| 1519-60C    | 60 ± 3.0   | 200       | 4.5     | 1519-240E   | 240 ± 12.0 | 300       | 16.0    | 1519-750G   | 750 ± 37.5 | 500       | 50.0    |
| 1519-80C    | 80 ± 4.0   | 200       | 5.5     | 1519-270E   | 270 ± 13.5 | 300       | 18.0    | 1519-1000G  | 1000 ± 50  | 500       | 65.0    |

**PACKAGE DIMENSIONS**

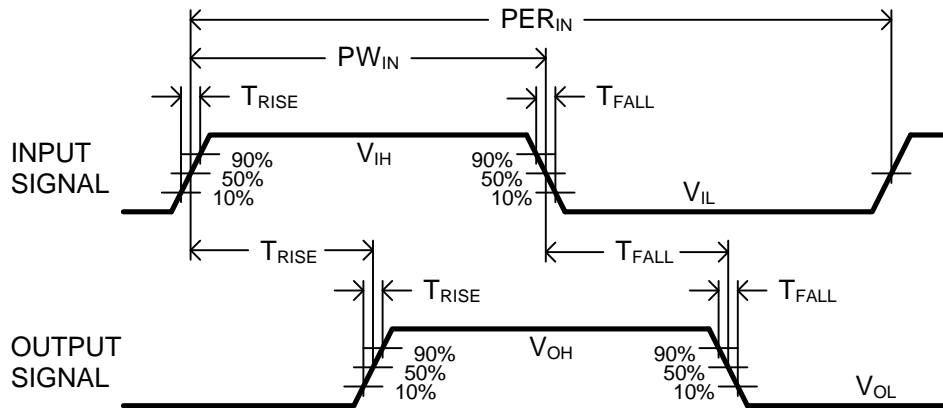


# PASSIVE DELAY LINE TEST SPECIFICATIONS

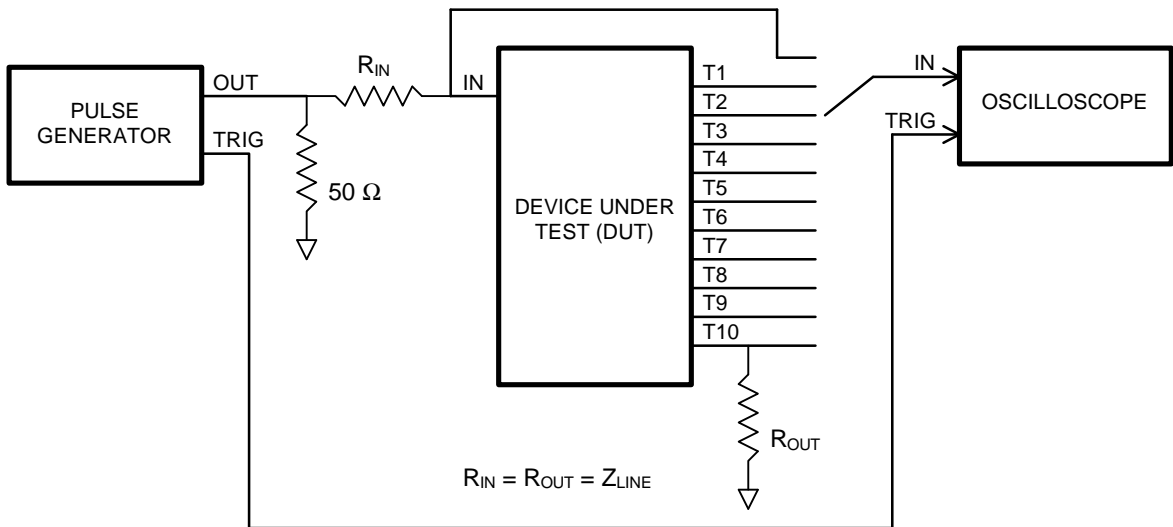
## TEST CONDITIONS

|   |   |                          |                        |
|---|---|--------------------------|------------------------|
| <b>INPUT:</b>                                 |   | <b>OUTPUT:</b>           |                        |
| <b>Ambient Temperature:</b>                   | 25°C ± 3°C                                      | <b>R<sub>load</sub>:</b> | 10MΩ                   |
| <b>Input Pulse:</b>                           | High = 3.0V typical<br>Low = 0.0V typical       | <b>C<sub>load</sub>:</b> | 10pf                   |
| <b>Source Impedance:</b>                      | 50Ω Max.  | <b>Threshold:</b>        | 50% (Rising & Falling) |
| <b>Rise/Fall Time:</b>                        | 3.0 ns Max. (measured<br>at 10% and 90% levels) |                          |                        |
| <b>Pulse Width (T<sub>D</sub> ≤ 75ns):</b>    | PW <sub>IN</sub> = 100ns                        |                          |                        |
| <b>Period (T<sub>D</sub> ≤ 75ns):</b>         | PER <sub>IN</sub> = 1000ns                      |                          |                        |
| <b>Pulse Width (T<sub>D</sub> &gt; 75ns):</b> | PW <sub>IN</sub> = 2 x T <sub>D</sub>           |                          |                        |
| <b>Period (T<sub>D</sub> &gt; 75ns):</b>      | PER <sub>IN</sub> = 10 x T <sub>D</sub>         |                          |                        |

**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**