

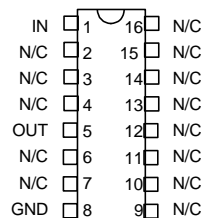
**FIXED DIP DELAY LINE**

$T_D/T_R = 5$   
(SERIES 1504)

**data  
delay  
devices, inc.** 

**FEATURES**

- Fast rise time for high frequency applications
- Delays as large as 1000ns available
- Low DC resistance
- Standard 16-pin DIP package
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

**PACKAGE**

1504-xxz

xx = Delay ( $T_D$ )

z = Impedance Code

**FUNCTIONAL DESCRIPTION**

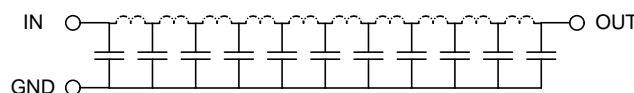
The 1504-series device is a fixed, single-input, single-output, passive delay line. The signal input (IN) is reproduced at the output (OUT), shifted by a time ( $T_D$ ) given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See 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  
OUT Signal Output  
GND Ground

**SERIES SPECIFICATIONS**

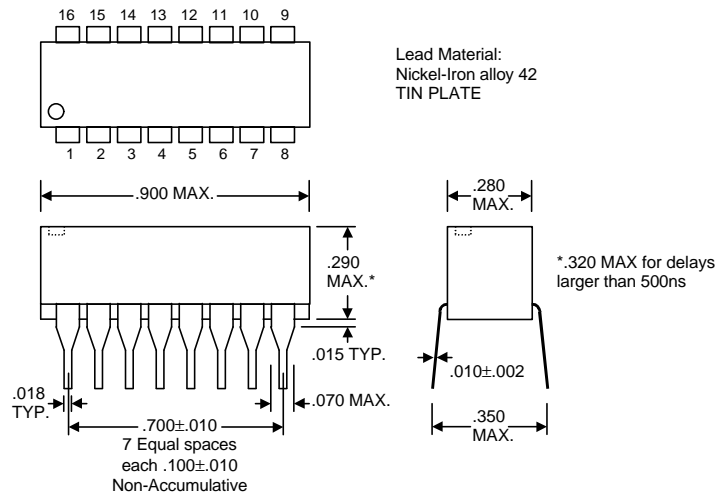
- Dielectric breakdown: 50 Vdc
- Distortion @ output: 10% max.
- Operating temperature: -55°C to +125°C
- Storage temperature: -55°C to +125°C
- Temperature coefficient: 100 PPM/°C



Functional Diagram

**DASH NUMBER SPECIFICATIONS**

Part Number	Delay (ns)	Imped ( $\Omega$ )	RDC ( $\Omega$ )	Part Number	Delay (ns)	Imped ( $\Omega$ )	RDC ( $\Omega$ )	Part Number	Delay (ns)	Imped ( $\Omega$ )	RDC ( $\Omega$ )
1504-20A	20 $\pm$ 1.0	50	1.0	1504-160C	160 $\pm$ 8.0	200	7.0	1504-40F	40 $\pm$ 2.0	400	8.5
1504-25A	25 $\pm$ 1.3	50	1.0	1504-180C	180 $\pm$ 9.0	200	8.5	1504-80F	80 $\pm$ 4.0	400	9.0
1504-30A	30 $\pm$ 1.5	50	1.2	1504-240C	240 $\pm$ 12.0	200	9.5	1504-120F	120 $\pm$ 6.0	400	9.0
1504-40A	40 $\pm$ 2.0	50	1.5	1504-300C	300 $\pm$ 15.0	200	16.0	1504-160F	160 $\pm$ 8.0	400	16.0
1504-45A	45 $\pm$ 2.3	50	1.5	1504-400C	400 $\pm$ 20.0	200	18.0	1504-200F	200 $\pm$ 10.0	400	18.0
1504-60A	60 $\pm$ 3.0	50	1.5	1504-25D	25 $\pm$ 1.3	250	5.0	1504-240F	240 $\pm$ 12.0	400	20.0
1504-75A	75 $\pm$ 3.8	50	1.8	1504-50D	50 $\pm$ 2.5	250	5.5	1504-320F	320 $\pm$ 16.0	400	26.0
1504-100A	100 $\pm$ 5.0	50	2.0	1504-75D	75 $\pm$ 3.8	250	6.0	1504-360F	360 $\pm$ 18.0	400	28.0
1504-10B	10 $\pm$ 1.0	100	1.0	1504-100D	100 $\pm$ 5.0	250	7.0	1504-480F	480 $\pm$ 24.0	400	38.0
1504-20B	20 $\pm$ 1.0	100	1.5	1504-125D	125 $\pm$ 6.3	250	8.0	1504-600F	600 $\pm$ 30.0	400	45.0
1504-30B	30 $\pm$ 1.5	100	1.5	1504-150D	150 $\pm$ 7.5	250	8.5	1504-800F	800 $\pm$ 40.0	400	40.0
1504-40B	40 $\pm$ 2.0	100	1.8	1504-200D	200 $\pm$ 10.0	250	10.0	1504-50G	50 $\pm$ 2.5	500	6.0
1504-50B	50 $\pm$ 2.5	100	2.0	1504-225D	225 $\pm$ 12.0	250	11.0	1504-100G	100 $\pm$ 5.0	500	10.0
1504-60B	60 $\pm$ 3.0	100	3.0	1504-300D	300 $\pm$ 15.0	250	17.0	1504-150G	150 $\pm$ 7.5	500	16.0
1504-80B	80 $\pm$ 4.0	100	3.5	1504-375D	375 $\pm$ 18.8	250	20.0	1504-200G	200 $\pm$ 10.0	500	30.0
1504-100B	100 $\pm$ 5.0	100	4.0	1504-500D	500 $\pm$ 25.0	250	24.0	1504-220G	220 $\pm$ 11.0	500	31.0
1504-120B	120 $\pm$ 6.0	100	4.0	1504-30E	30 $\pm$ 1.5	300	5.0	1504-250G	250 $\pm$ 12.5	500	25.0
1504-150B	150 $\pm$ 7.5	100	5.0	1504-60E	60 $\pm$ 3.0	300	6.0	1504-300G	300 $\pm$ 15.0	500	26.0
1504-200B	200 $\pm$ 10.0	100	6.0	1504-90E	90 $\pm$ 4.5	300	7.0	1504-380G	380 $\pm$ 19.0	500	33.0
1504-250B	250 $\pm$ 12.5	100	7.0	1504-120E	120 $\pm$ 6.0	300	8.0	1504-400G	400 $\pm$ 20.0	500	42.0
1504-20C	20 $\pm$ 1.0	200	3.0	1504-150E	150 $\pm$ 7.5	300	9.0	1504-450G	450 $\pm$ 22.5	500	45.0
1504-40C	40 $\pm$ 2.0	200	4.0	1504-180E	180 $\pm$ 9.0	300	11.0	1504-500G	500 $\pm$ 25.0	500	55.0
1504-60C	60 $\pm$ 3.0	200	4.5	1504-240E	240 $\pm$ 12.0	300	16.0	1504-600G	600 $\pm$ 30.0	500	58.0
1504-80C	80 $\pm$ 4.0	200	5.5	1504-270E	270 $\pm$ 13.5	300	18.0	1504-750G	750 $\pm$ 37.5	500	50.0
1504-100C	100 $\pm$ 5.0	200	6.0	1504-360E	360 $\pm$ 18.0	300	21.0	1504-1000G	1000 $\pm$ 50	500	65.0
1504-120C	120 $\pm$ 6.0	200	6.5	1504-450E	450 $\pm$ 22.5	300	24.0				
1504-140C	140 $\pm$ 7.0	200	7.0	1504-600E	600 $\pm$ 30.0	300	40.0				



Package Dimensions

## PASSIVE DELAY LINE TEST SPECIFICATIONS

### TEST CONDITIONS

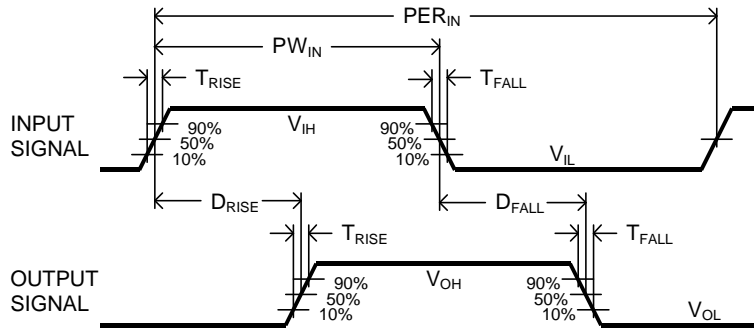
**INPUT:**

**Ambient Temperature:** 25°C ± 3°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)  
**Pulse Width (TD ≤ 75ns):** PW<sub>IN</sub> = 100ns  
**Period (TD ≤ 75ns):** PER<sub>IN</sub> = 1000ns  
**Pulse Width (TD > 75ns):** PW<sub>IN</sub> = 2 x T<sub>D</sub>  
**Period (TD > 75ns):** PER<sub>IN</sub> = 10 x T<sub>D</sub>

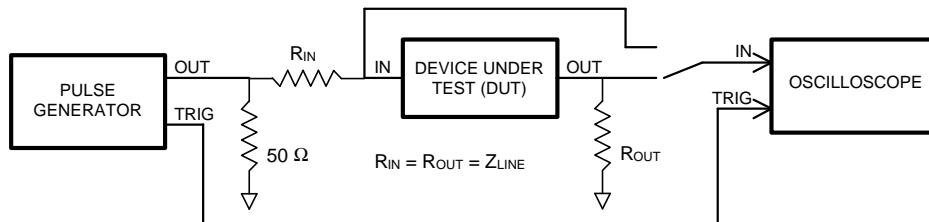
**OUTPUT:**

**R<sub>load</sub>:** 10MΩ  
**C<sub>load</sub>:** 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