

FIXED DIP DELAY LINE

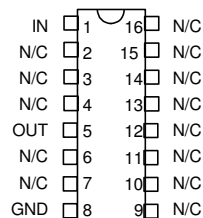
$T_D/T_R = 5$
(SERIES 1504)



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

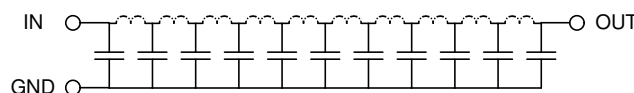
The 1504-series device is a fixed, single-input, single-output, passive delay line. The signal input (IN) is reproduced at the output (OUT), shifted by a time (T_D) given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See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

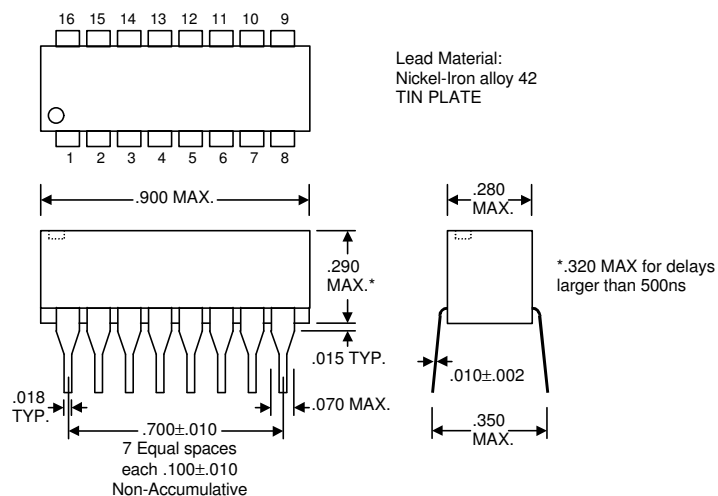
- Dielectric breakdown: 50 Vdc
- Distortion @ output: 10% max.
- Operating temperature: -55°C to +125°C
- Storage temperature: -55°C to +125°C
- Temperature coefficient: 100 PPM/°C



Functional Diagram

DASH NUMBER SPECIFICATIONS

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



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)

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

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

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

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

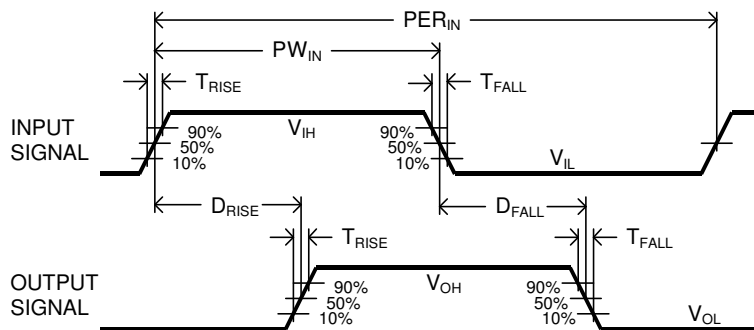
OUTPUT:

R_{load}: $10M\Omega$

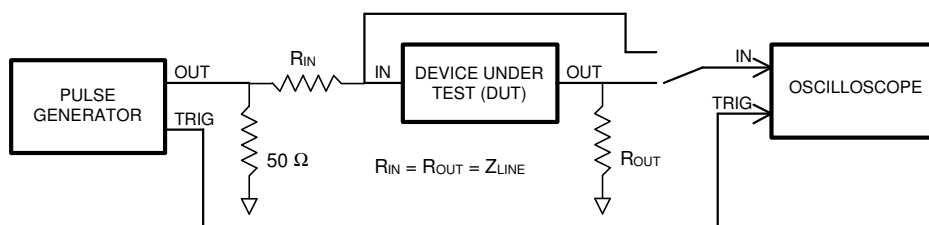
C_{load}: 10pf

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