

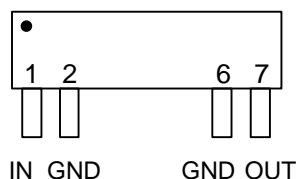
**FIXED SIP DELAY LINE**

$T_D/T_R = 5$   
**(SERIES 1514)**

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


**FEATURES**

- Fast rise time for high frequency applications
- Very narrow device (SIP package)
- Stackable for PC board economy
- Low profile
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

**PACKAGES**

1514-xxz  
 xx = Delay ( $T_D$ )  
 z = Impedance Code

**FUNCTIONAL DESCRIPTION**

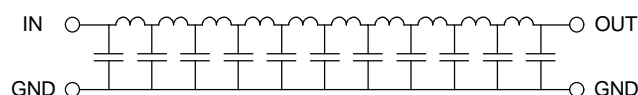
The 1514-series device is a fixed, single-input, single-output, passive delay line. The signal input (IN) is reproduced at the output (OUT), shifted by a time ( $T_D$ ) given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See 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:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Storage temperature:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Temperature coefficient: 100 PPM/ $^{\circ}\text{C}$



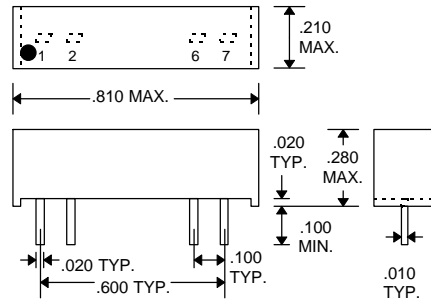
Functional Diagram

**DASH NUMBER SPECIFICATIONS**

Part Number	Delay (ns)	Rise Time (ns)	Impedance ( $\Omega$ )
1514-2.5A	2.5 $\pm$ 1.0	1.0	50
1514-5A	5.0 $\pm$ 1.0	1.0	50
1514-10A	10.0 $\pm$ 1.0	2.0	50
1514-15A	15.0 $\pm$ 1.0	3.0	50
1514-20A	20.0 $\pm$ 1.0	4.0	50
1514-25A	25.0 $\pm$ 1.3	5.0	50
1514-30A	30.0 $\pm$ 1.5	6.0	50
1514-40A	40.0 $\pm$ 2.0	8.0	50
1514-50A	50.0 $\pm$ 2.5	10.0	50
1514-60A	60.0 $\pm$ 3.0	12.0	50
1514-80A	80.0 $\pm$ 4.0	16.0	50
1514-100A	100 $\pm$ 5.0	20.0	50
1514-3.5Y	3.5 $\pm$ 1.0	1.0	75
1514-7.5Y	7.5 $\pm$ 1.0	1.5	75
1514-15Y	15.0 $\pm$ 1.0	3.0	75
1514-22.5Y	22.5 $\pm$ 1.2	4.5	75
1514-30Y	30.0 $\pm$ 1.5	6.0	75
1514-37.5Y	37.5 $\pm$ 1.9	7.5	75
1514-45Y	45.0 $\pm$ 2.3	9.0	75
1514-60Y	60.0 $\pm$ 3.0	12.0	75
1514-75Y	75.0 $\pm$ 3.8	15.0	75
1514-90Y	90.0 $\pm$ 4.5	18.0	75
1514-105Y	105 $\pm$ 5.3	21.0	75
1514-120Y	120 $\pm$ 6.0	24.0	75
1514-135Y	135 $\pm$ 6.8	27.0	75
1514-150Y	150 $\pm$ 7.5	30.0	75

**DASH NUMBER SPECIFICATIONS**

Part Number	Delay (ns)	Rise Time (ns)	Impedance ( $\Omega$ )
1514-5B	5.0 $\pm$ 1.0	1.0	100
1514-10B	10.0 $\pm$ 1.0	2.0	100
1514-20B	20.0 $\pm$ 1.0	4.0	100
1514-30B	30.0 $\pm$ 1.5	6.0	100
1514-40B	40.0 $\pm$ 2.0	8.0	100
1514-50B	50.0 $\pm$ 2.5	10.0	100
1514-60B	60.0 $\pm$ 3.0	12.0	100
1514-80B	80.0 $\pm$ 4.0	16.0	100
1514-100B	100 $\pm$ 5.0	20.0	100
1514-120B	120 $\pm$ 6.0	24.0	100
1514-140B	140 $\pm$ 7.0	28.0	100
1514-150B	150 $\pm$ 7.5	30.0	100
1514-50D	50.0 $\pm$ 2.5	10.0	250
1514-70D	70.0 $\pm$ 3.5	14.0	250
1514-120D	120 $\pm$ 6.0	24.0	250
1514-130D	130 $\pm$ 6.5	26.0	250
1514-150D	150 $\pm$ 7.5	30.0	250
1514-170D	170 $\pm$ 8.5	34.0	250
1514-270D	270 $\pm$ 13.5	54.0	250
1514-70E	70.0 $\pm$ 3.5	14.0	300
1514-140E	140 $\pm$ 7.0	28.0	300
1514-45G	45.0 $\pm$ 2.3	9.0	500
1514-50G	50.0 $\pm$ 2.5	10.0	500
1514-80G	80.0 $\pm$ 4.0	16.0	500
1514-100G	100 $\pm$ 5.0	20.0	500
1514-190G	190 $\pm$ 9.5	38.0	500



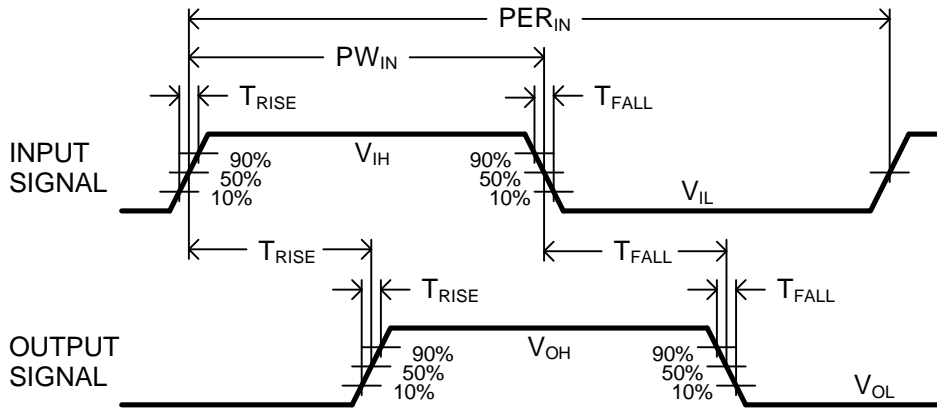
Package Dimensions

## PASSIVE DELAY LINE TEST SPECIFICATIONS

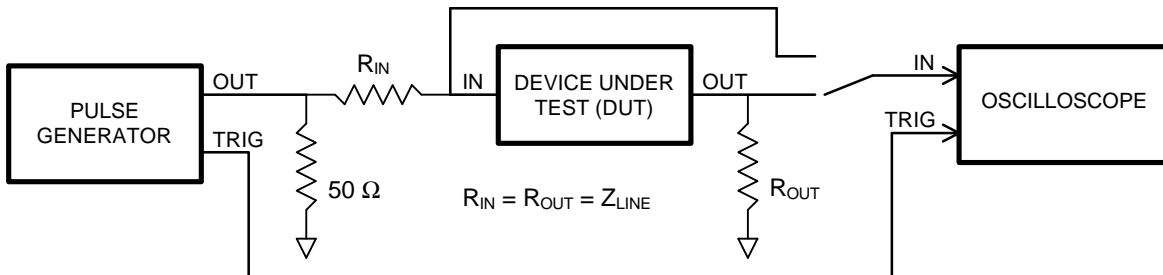
### TEST CONDITIONS

<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 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 at 10% and 90% levels)		
<b>Pulse Width (TD ≤ 75ns):</b>	PW <sub>IN</sub> = 100ns		
<b>Period (TD ≤ 75ns):</b>	PER <sub>IN</sub> = 1000ns		
<b>Pulse Width (TD &gt; 75ns):</b>	PW <sub>IN</sub> = 2 x T <sub>D</sub>		
<b>Period (TD &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