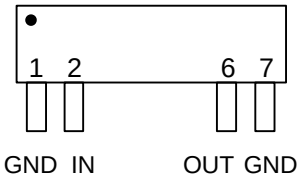
FIXED SIP DELAY LINE
$T_D/T_R = 5$
(SERIES 1513)

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



1513-xxz
xx = Delay (T_D)
z = Impedance Code

FUNCTIONAL DESCRIPTION

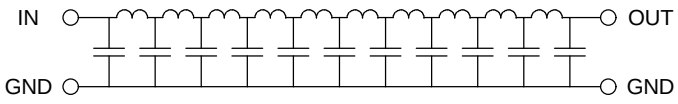
The 1513-series device is a fixed, single-input, single-output, passive delay line. The signal input (IN) is reproduced at the output (OUT), shifted by a time (T_D) given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See 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

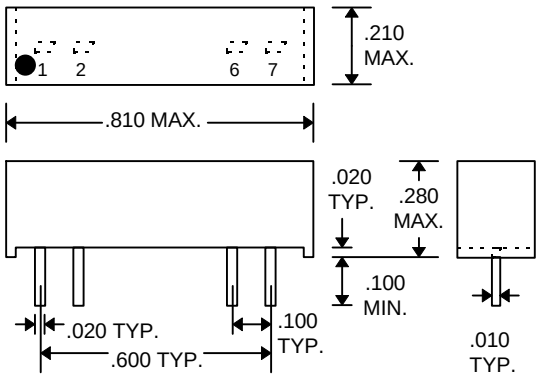
IN	Signal Input
OUT	Signal Output
GND	Ground

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



Package Dimensions

DASH NUMBER SPECIFICATIONS

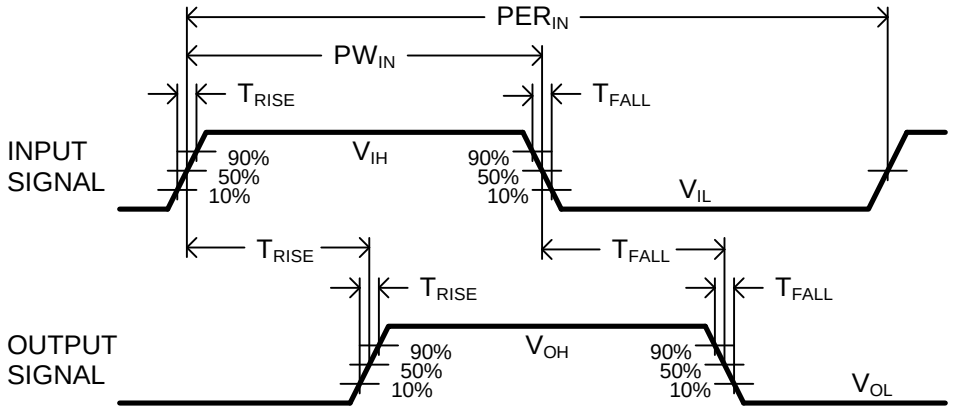
Part Number	Delay (ns)	Rise Time (ns)	Impedance (Ω)
1513-2.5A	2.5 ± 1.0	1.0	50
1513-5A	5.0 ± 1.0	1.0	50
1513-10A	10.0 ± 1.0	2.0	50
1513-15A	15.0 ± 1.0	3.0	50
1513-20A	20.0 ± 1.0	4.0	50
1513-25A	25.0 ± 1.3	5.0	50
1513-30A	30.0 ± 1.5	6.0	50
1513-40A	40.0 ± 2.0	8.0	50
1513-50A	50.0 ± 2.5	10.0	50
1513-60A	60.0 ± 3.0	12.0	50
1513-80A	80.0 ± 4.0	16.0	50
1513-100A	100 ± 5.0	20.0	50
1513-3.5Y	3.5 ± 1.0	1.0	75
1513-7.5Y	7.5 ± 1.0	1.5	75
1513-15Y	15.0 ± 1.0	3.0	75
1513-22.5Y	22.5 ± 1.2	4.5	75
1513-30Y	30.0 ± 1.5	6.0	75
1513-37.5Y	37.5 ± 1.9	7.5	75
1513-45Y	45.0 ± 2.3	9.0	75
1513-60Y	60.0 ± 3.0	12.0	75
1513-75Y	75.0 ± 3.8	15.0	75
1513-90Y	90.0 ± 4.5	18.0	75
1513-105Y	105 ± 5.3	21.0	75
1513-120Y	120 ± 6.0	24.0	75
1513-135Y	135 ± 6.8	27.0	75
1513-150Y	150 ± 7.5	30.0	75
1513-5B	5.0 ± 1.0	1.0	100
1513-10B	10.0 ± 1.0	2.0	100
1513-20B	20.0 ± 1.0	4.0	100
1513-30B	30.0 ± 1.5	6.0	100
1513-40B	40.0 ± 2.0	8.0	100
1513-50B	50.0 ± 2.5	10.0	100
1513-60B	60.0 ± 3.0	12.0	100
1513-80B	80.0 ± 4.0	16.0	100
1513-100B	100 ± 5.0	20.0	100
1513-120B	120 ± 6.0	24.0	100
1513-140B	140 ± 7.0	28.0	100
1513-150B	150 ± 7.5	30.0	100

PASSIVE DELAY LINE TEST SPECIFICATIONS

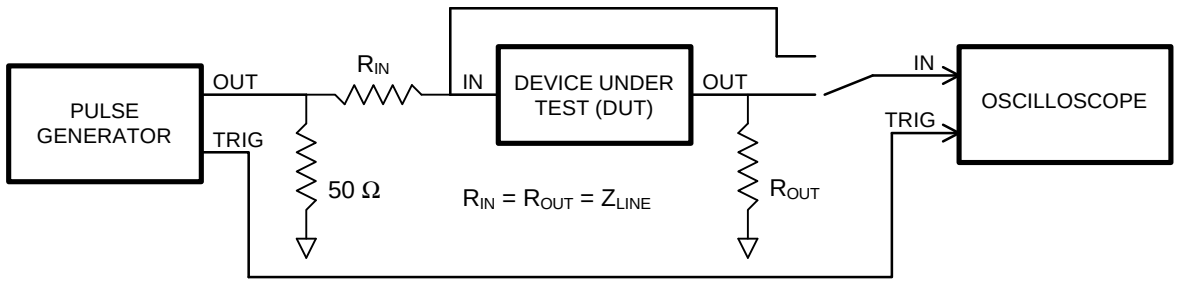
TEST CONDITIONS

INPUT:		**OUTPUT:**	
Ambient Temperature:	25°C ± 3°C	**R_{load}:**	10MΩ
Input Pulse:	High = 3.0V typical	**C_{load}:**	10pf
	Low = 0.0V typical	**Threshold:**	50% (Rising & Falling)
Source Impedance:	50Ω Max.		
Rise/Fall Time:	3.0 ns Max. (measured at 10% and 90% levels)		
Pulse Width (T_D <= 75ns):	PW_{IN} = 100ns		
Period (T_D <= 75ns):	PER_{IN} = 1000ns		
Pulse Width (T_D > 75ns):	PW_{IN} = 2 x T_D		
Period (T_D > 75ns):	PER_{IN} = 10 x 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