

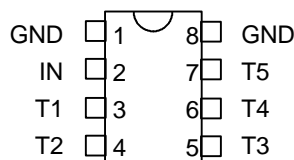
5-TAP DIP/SMD DELAY LINE

$T_D/T_R = 3$
(SERIES 1516)

data
delay
devices, inc.


FEATURES

- 5 taps of equal delay increment
- Delays to 200ns
- Low profile
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

**PACKAGES**

IN Signal Input
T1-T5 Tap Outputs
GND Ground

Note: Standard pinout shown
Other pinouts available

FUNCTIONAL DESCRIPTION

The 1516-series device is a fixed, single-input, five-output, passive delay line. The signal input (IN) is reproduced at the outputs (T1-T5) in equal increments. The delay from IN to T5 (T_D) and the characteristic impedance of the line (Z) are determined by the dash number. The rise time (T_R) of the line is 30% of T_D , and the 3dB bandwidth is given by $1.05 / T_D$. The device is available in a 8-pin DIP (1516) or a 8-pin SMD (1516S), and a wide range of pinouts may be specified.

Part numbers are constructed according to the scheme shown at right. For example, 1516C-101-500B is a 290 mil DIP, 100ns, 50 Ω delay line with pinout code B. Similarly, 1516SB-151-501 is a 240 mil SMD, 150ns, 500 Ω delay line with standard pinout.

PART NUMBER CONSTRUCTION

1516(S)m - xxx - zzz p

MOUNTING HEIGHT CODE
See Table

DELAY TIME
Expressed in nanoseconds (ns)
First two digits are significant figures
Last digit specifies # of zeros to follow

IMPEDANCE
Expressed in nanoseconds (ns)
First two digits are significant figures
Last digit specifies # of zeros to follow

PINOUT CODE
See Table
Omit for STD pinout

SERIES SPECIFICATIONS

- **Dielectric breakdown:** 50 Vdc
- **Distortion @ output:** 10% max.
- **Operating temperature:** -55 $^{\circ}$ C to +125 $^{\circ}$ C
- **Storage temperature:** -55 $^{\circ}$ C to +125 $^{\circ}$ C
- **Temperature coefficient:** 100 PPM/ $^{\circ}$ C

PINOUT CODES

CODE	IN	T1	T2	T3	T4	T5	GND
STD	2	3	4	5	6	7	1,8
A	1	2	3	4	6	7	5,8
B	1	7	3	6	4	5	8
C	7	2	6	3	5	4	1,8
D	1	2	7	3	6	4	5,8

MOUNTING HEIGHT CODES

CODE	HEIGHT (MAX)	DIP	SMD
A	0.187	Yes	No
B	0.240	Yes	Yes
C	0.290	Yes	Yes

Note: Codes A and B are not available
for all values of T_D
Contact technical staff for details

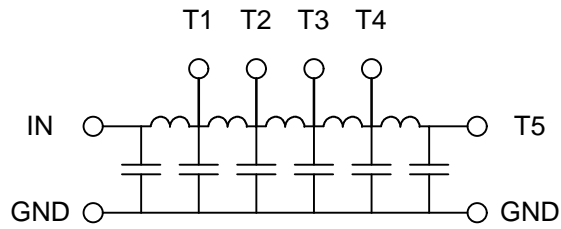
DELAY SPECIFICATIONS

T_D (ns)	T_1 (ns)	T_R (ns)	ATTENUATION (%) TYPICAL				
			Z=50 Ω	Z=100 Ω	Z=200 Ω	Z=300 Ω	Z=500 Ω
5	1.0	3.0	N/A	5	N/A	N/A	N/A
10	2.0	4.0	3	5	5	N/A	N/A
15	3.0	5.0	3	5	5	N/A	N/A
20	4.0	6.0	3	5	5	5	N/A
25	5.0	7.0	3	5	5	5	7
30	6.0	10.0	3	5	5	5	7
40	8.0	13.0	3	5	5	5	7
50	10.0	15.0	3	5	5	5	7
60	12.0	20.0	3	5	6	7	8
75	15.0	25.0	3	5	6	7	8
80	16.0	26.0	4	5	6	7	8
100	20.0	30.0	4	5	6	7	8
110	22.0	32.0	4	5	6	7	8
125	25.0	40.0	4	5	6	7	8
150	30.0	50.0	N/A	5	8	10	10
180	36.0	60.0	N/A	7	8	10	10
200	50.0	70.0	N/A	8	10	12	12

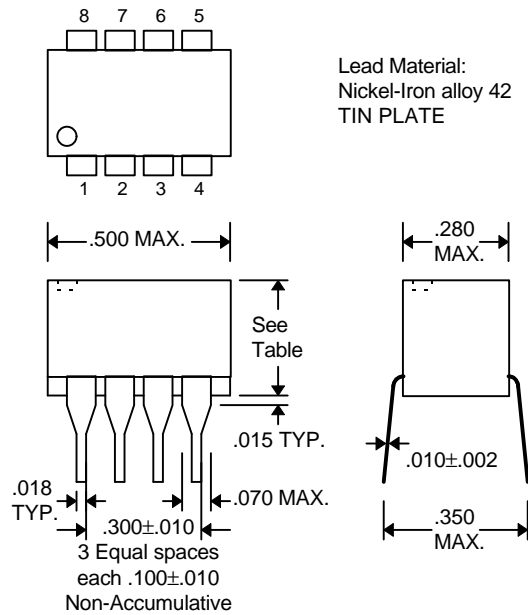
Notes: T_1 represents nominal tap-to-tap delay increment
Tolerance on $T_D = \pm 5\%$ or ± 2 ns, whichever is greater
Tolerance on $T_1 = \pm 5\%$ or ± 1 ns, whichever is greater
"N/A" indicates that delay is not available at this Z

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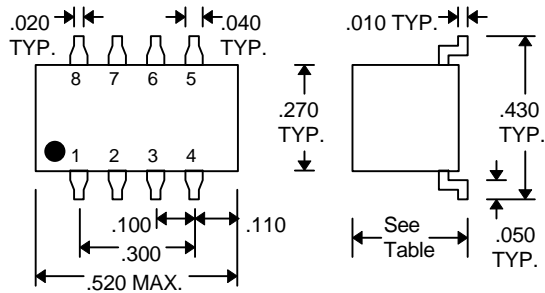
FUNCTIONAL DIAGRAM



PACKAGE DIMENSIONS



1516-xx (DIP)



1516S-xx (Gull-Wing)

PASSIVE DELAY LINE TEST SPECIFICATIONS

TEST CONDITIONS

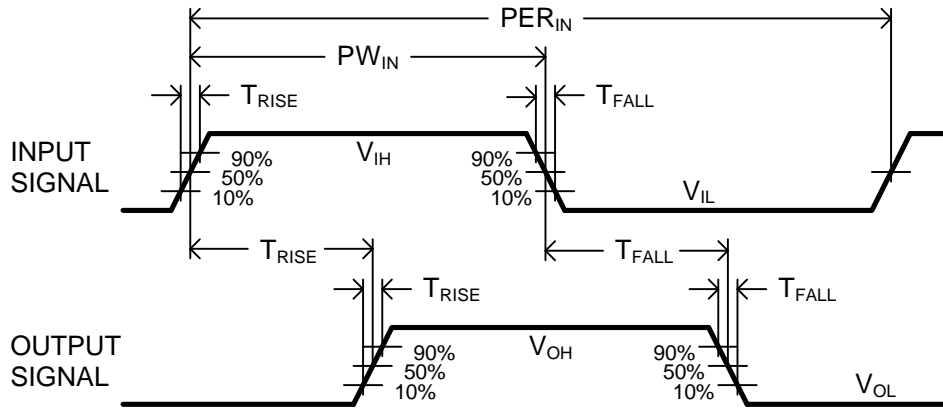
INPUT:

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 ($T_D \leq 75\text{ns}$): $PW_{IN} = 100\text{ns}$
Period ($T_D \leq 75\text{ns}$): $PER_{IN} = 1000\text{ns}$
Pulse Width ($T_D > 75\text{ns}$): $PW_{IN} = 2 \times T_D$
Period ($T_D > 75\text{ns}$): $PER_{IN} = 10 \times T_D$

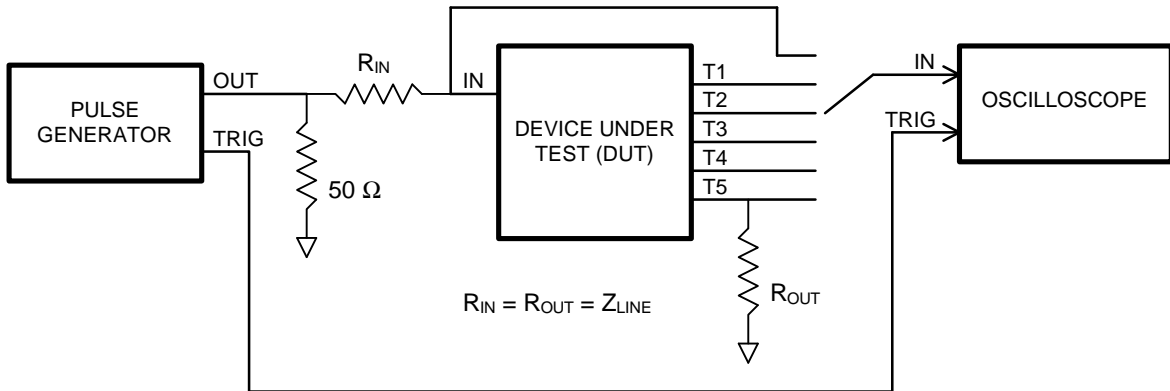
OUTPUT:

R_{load} : $10\text{M}\Omega$
 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