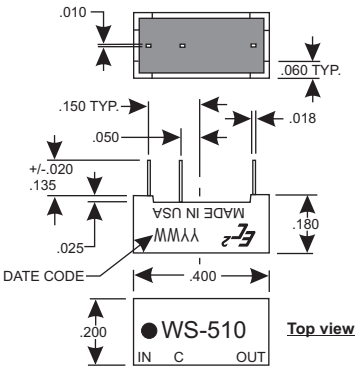
Wee SIP Passive Delay Line

The Wee SIP Passive Delay Lines manufactured by Engineered Components Company are designed to provide precise and stable delays for analog delay line applications. These untapped delay lines are provided in a small 4-pin SIP package and available in impedances of 50, 100, 200, 350, and 500 ohms.

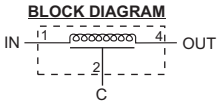
These delay lines are designed and tested in accordance with MIL-D-23859 and they are capable of meeting the environmental requirements of MIL-STD-202 for moisture resistance, vibration, temperature cycling, humidity, and life. The MTBF on these delay lines, when calculated per MIL-HDBK-217, for a 50 deg.C ground fixed environment and with 50VDC applied, is in excess of 12 million hours. The temperature coefficient of delay is less than 75 ppm/deg.C over the operating temperature range of -55 to +125 deg. C.

The delay line is fully encapsulated in epoxy resin and is housed in a Diallyl Phthalate case, green in color. The case marking is applied by silkscreen using white epoxy paint. The 3 beryllium copper leads are tin plated and meet the solderability requirements of MIL-STD-202, Method 208.

MECHANICAL DIAGRAM



BLOCK DIAGRAM



Product Selection Table

Delay Time (nS)	50 Ohm Impedance			100 Ohm Impedance			200 Ohm Impedance			350 Ohm Impedance			500 Ohm Impedance		
	Part Number	Rise Time (nS)	DCR (Ohms)	Part Number	Rise Time (nS)	DCR (Ohms)	Part Number	Rise Time (nS)	DCR (Ohms)	Part Number	Rise Time (nS)	DCR (Ohms)	Part Number	Rise Time (nS)	DCR (Ohms)
1 +/- 0.2	WS-501	1.0	0.2	WS-1001	1.2	0.2	WS-2001	2.2	0.2						
2 +/- 0.2	WS-502	1.0	0.3	WS-1002	1.6	0.3	WS-2002	2.4	0.3	WS-3502	4.5	0.2	WS-5002	4.5	0.2
3 +/- 0.3	WS-503	1.5	0.4	WS-1003	1.6	0.4	WS-2003	2.4	0.4	WS-3503	4.0	0.3	WS-5003	6.5	0.3
4 +/- 0.4	WS-504	2.0	0.4	WS-1004	1.8	0.5	WS-2004	2.4	0.5	WS-3504	4.0	0.5	WS-5004	6.5	0.3
5 +/- 0.5	WS-505	2.5	0.4	WS-1005	2.8	0.6	WS-2005	3.6	0.5	WS-3505	4.0	0.5	WS-5005	6.5	0.3
6 +/- 0.5	WS-506	2.5	0.4	WS-1006	2.8	0.6	WS-2006	3.6	0.5	WS-3506	4.0	0.6	WS-5006	6.5	0.6
7 +/- 0.5	WS-507	3.0	0.4	WS-1007	3.0	0.6	WS-2007	3.6	0.5	WS-3507	4.5	0.8	WS-5007	6.5	0.8
8 +/- 0.6	WS-508	3.2	0.5	WS-1008	3.2	0.6	WS-2008	3.6	0.5	WS-3508	4.5	0.8	WS-5008	7.0	0.8
9 +/- 0.6	WS-509	3.6	0.5	WS-1009	3.6	0.7	WS-2009	4.0	0.6	WS-3509	5.0	0.8	WS-5009	7.0	0.8
10 +/- 0.7	WS-510	4.4	0.6	WS-1010	4.6	0.8	WS-2010	5.5	0.8	WS-3510	5.5	0.8	WS-5010	7.0	0.8
12 +/- 0.7	WS-512	4.4	0.6	WS-1012	4.6	0.8	WS-2012	5.5	0.8	WS-3512	6.5	0.8	WS-5012	7.5	1.0
14 +/- 0.8	WS-514	5.2	0.6	WS-1014	5.0	0.9	WS-2014	5.5	0.8	WS-3514	6.5	0.9	WS-5014	8.0	1.0
16 +/- 0.8	WS-516	5.6	0.6	WS-1016	5.6	0.9	WS-2016	5.5	0.8	WS-3516	7.0	1.0	WS-5016	8.5	1.2
18 +/- 1.0	WS-518	6.5	0.6	WS-1018	6.5	1.0	WS-2018	6.5	1.0	WS-3518	7.5	1.0	WS-5018	8.5	1.2
20 +/- 1.0	WS-520	8.5	0.8	WS-1020	8.5	1.2	WS-2020	7.5	1.1	WS-3520	8.0	1.0	WS-5020	10.0	1.4
22 +/- 1.0	WS-522	8.5	0.8	WS-1022	8.5	1.0	WS-2022	7.5	1.1	WS-3522	8.5	1.0	WS-5022	10.0	1.4
24 +/- 1.0	WS-524	8.5	0.8	WS-1024	8.5	1.0	WS-2024	8.0	1.1	WS-3524	9.0	1.2	WS-5024	10.0	1.6
26 +/- 1.2	WS-526	8.5	0.8	WS-1026	9.0	1.0	WS-2026	8.5	1.2	WS-3526	10.0	1.4	WS-5026	12.0	1.6
28 +/- 1.2	WS-528	9.0	0.8	WS-1028	9.5	1.2	WS-2028	9.0	1.2	WS-3528	12.0	1.4	WS-5028	14.0	2.2
30 +/- 1.5	WS-530	12.0	1.1	WS-1030	12.0	1.0	WS-2030	12.0	1.4	WS-3530	12.0	1.4	WS-5030	14.0	2.4
35 +/- 1.5	WS-535	14.5	1.1	WS-1035	14.5	1.0	WS-2035	12.0	1.6	WS-3535	14.0	1.4	WS-5035	16.0	2.8
40 +/- 2.0	WS-540	16.0	1.2	WS-1040	14.5	1.2	WS-2040	16.0	2.6	WS-3540	15.0	2.4	WS-5040	18.0	2.8
45 +/- 2.0	WS-545	18.0	1.2	WS-1045	17.0	1.4	WS-2045	18.0	2.6	WS-3545	16.0	2.6	WS-5045	18.0	3.0
50 +/- 2.5	WS-550	19.0	1.2	WS-1050	19.0	1.2	WS-2050	18.0	2.8	WS-3550	18.0	3.0	WS-5050	20.0	3.5
60 +/- 2.5	WS-560	20.0	1.2	WS-1060	22.0	1.4	WS-2060	22.0	3.0	WS-3560	22.0	3.5	WS-5060	22.0	3.5
70 +/- 3.0	WS-570	23.0	1.2	WS-1070	24.0	2.3	WS-2070	24.0	3.2	WS-3570	25.0	5.0	WS-5070	25.0	5.0
80 +/- 3.0	WS-580	26.0	1.2	WS-1080	27.0	2.4	WS-2080	27.0	3.5	WS-3580	30.0	6.5	WS-5080	30.0	6.5
90 +/- 4.0	WS-590	32.0	1.2	WS-1090	32.0	2.6	WS-2090	32.0	5.2	WS-3590	35.0	7.0	WS-5090	35.0	7.0
100 +/- 4.0	WS-5100	35.0	1.3	WS-10100	35.0	2.8	WS-20100	35.0	5.6	WS-35100	38.0	7.0	WS-50100	38.0	7.5
110 +/- 4.5	WS-5110	38.0	1.3	WS-10110	38.0	2.8	WS-20110	38.0	5.6						
120 +/- 4.5	WS-5120	42.0	2.3	WS-10120	42.0	3.2	WS-20120	42.0	5.8						
130 +/- 5.0	WS-5130	46.0	2.3	WS-10130	46.0	3.2	WS-20130	45.0	5.6						
140 +/- 5.0	WS-5140	48.0	2.3	WS-10140	48.0	3.5	WS-20140	48.0	6.8						
150 +/- 5.5	WS-5150	50.0	2.5	WS-10150	50.0	3.5	WS-20150	52.0	6.8						
160 +/- 5.5	WS-5160	53.0	2.5	WS-10160	53.0	3.5	WS-20160	55.0	6.8						
170 +/- 6.0	WS-5170	56.0	2.7	WS-10170	56.0	4.8	WS-20170	58.0	7.0						
180 +/- 6.0	WS-5180	58.0	2.7	WS-10180	60.0	5.2	WS-20180	60.0	7.5						
190 +/- 7.0	WS-5190	62.0	2.8	WS-10190	62.0	5.5	WS-20190	64.0	7.5						
200 +/- 8.0	WS-5200	68.0	2.8	WS-10200	68.0	5.5	WS-20200	68.0	8.0						
210 +/- 8.5	WS-5210	68.0	3.0	WS-10210	70.0	5.5	WS-20210	68.0	8.0						
220 +/- 9.0	WS-5220	74.0	3.0	WS-10220	72.0	6.0	WS-20220	72.0	8.0						
230 +/- 9.5	WS-5230	74.0	3.0	WS-10230	74.0	6.0	WS-20230	75.0	8.0						
240 +/- 10.0	WS-5240	80.0	3.0	WS-10240	80.0	6.0	WS-20240	80.0	8.0						
250 +/- 10.0	WS-5250	80.0	3.0	WS-10250	85.0	6.0	WS-20250	80.0	8.0						

Operating Specifications:

All measurements made at 25 deg. C
Delays measured at 50% level on the leading edge
Impedance tolerance is +/-10%
Maximum attenuation is .5db
Maximum distortion is +/-5%
Maximum overshoot is 10%
Maximum working voltage is 25VDC
Dielectric strength is 100VDC @ 50uA
Minimum insulation resistance is10,000 megohms @ 100VDC

Special modules can often be manufactured to provide for customer specific applications.

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