

Low Pass Filter

ULP-176+

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
	0.15	0.18	0.21	38.18	35.79	34.30	37.88	35.56	34.12
1	0.15	0.19	0.22	37.40	35.32	33.96	37.18	35.12	33.78
2	0.16	0.20	0.22	33.79	32.54	31.68	33.61	32.37	31.53
5	0.18	0.22	0.24	29.40	28.58	28.05	29.32	28.51	27.99
10	0.34	0.38	0.40	22.26	22.16	22.01	22.29	22.21	22.08
50	0.52	0.59	0.64	26.36	24.63	23.28	26.13	24.46	23.15
100	0.80	0.92	0.99	32.77	31.33	29.17	28.68	28.14	27.01
150	1.24	1.45	1.58	26.75	28.29	29.62	20.66	20.01	19.38
176	1.42	1.66	1.82	21.59	21.39	21.41	17.71	16.97	16.43
180	1.88	2.20	2.43	13.77	13.25	12.91	12.35	11.73	11.27
191	3.16	3.63	3.99	7.64	7.34	7.10	7.07	6.73	6.45
200	7.17	7.80	8.30	3.13	3.13	3.09	2.90	2.88	2.82
210	13.33	13.94	14.46	1.53	1.63	1.66	1.41	1.50	1.52
220	19.76	20.30	20.78	1.03	1.14	1.18	0.95	1.05	1.09
222	21.05	21.57	22.04	0.98	1.08	1.12	0.90	1.00	1.04
225	22.97	23.48	23.94	0.91	1.01	1.06	0.84	0.94	0.98
228	24.90	25.40	25.85	0.85	0.95	1.00	0.79	0.89	0.93
230	26.20	26.69	27.14	0.82	0.92	0.96	0.76	0.86	0.90
235	29.50	29.98	30.42	0.76	0.85	0.89	0.70	0.79	0.84
238	31.55	32.03	32.48	0.72	0.81	0.86	0.67	0.76	0.81
240	32.95	33.44	33.89	0.70	0.79	0.83	0.66	0.74	0.79
242	34.40	34.89	35.36	0.69	0.77	0.82	0.64	0.73	0.77
244	35.90	36.41	36.89	0.67	0.75	0.80	0.62	0.71	0.75
245	36.69	37.20	37.68	0.66	0.75	0.79	0.62	0.70	0.74
250	40.92	41.50	42.03	0.62	0.71	0.75	0.58	0.66	0.71
255	46.16	46.87	47.50	0.59	0.67	0.71	0.55	0.63	0.67
260	53.61	54.46	55.09	0.56	0.64	0.68	0.52	0.61	0.65
270	53.46	52.67	52.05	0.51	0.59	0.63	0.48	0.56	0.59
280	48.11	47.82	47.60	0.47	0.55	0.58	0.44	0.51	0.55
285	46.94	46.78	46.62	0.45	0.52	0.56	0.42	0.50	0.53
290	46.24	46.12	46.01	0.44	0.51	0.54	0.40	0.48	0.51
295	45.83	45.75	45.65	0.42	0.49	0.52	0.39	0.46	0.50
300	45.60	45.55	45.43	0.40	0.48	0.51	0.38	0.45	0.48
325	45.71	45.71	45.63	0.34	0.41	0.44	0.32	0.39	0.41
350	46.61	46.64	46.57	0.30	0.36	0.38	0.28	0.34	0.36
400	48.63	48.72	48.70	0.23	0.28	0.30	0.21	0.27	0.29
450	50.32	50.46	50.45	0.18	0.23	0.25	0.17	0.22	0.24
500	51.71	51.87	51.80	0.14	0.19	0.21	0.13	0.18	0.20
550	52.90	52.98	52.96	0.11	0.17	0.18	0.11	0.16	0.17
600	53.85	53.99	54.01	0.09	0.14	0.16	0.08	0.14	0.15
750	56.31	56.51	56.49	0.04	0.10	0.11	0.04	0.10	0.11
1000	59.55	59.68	59.82	0.00	0.07	0.08	0.01	0.07	0.09
1100	60.11	60.28	60.55	0.01	0.07	0.08	0.00	0.07	0.09
1150	60.24	60.47	60.52	0.01	0.06	0.08	0.00	0.07	0.09
1200	60.10	60.32	60.49	0.02	0.06	0.08	0.01	0.07	0.09
1250	59.59	59.82	59.81	0.02	0.06	0.08	0.00	0.07	0.09
1300	58.72	58.85	58.95	0.02	0.07	0.08	0.01	0.07	0.09
1400	55.78	55.83	55.82	0.02	0.07	0.08	0.01	0.08	0.10
1500	50.73	50.66	50.57	0.02	0.07	0.09	0.01	0.08	0.10
1750	40.26	40.71	41.08	0.00	0.10	0.12	0.01	0.10	0.13
2000	46.50	46.72	46.74	0.00	0.10	0.12	0.00	0.11	0.14
2250	40.33	40.33	40.08	0.03	0.13	0.16	0.02	0.13	0.16
2300	33.88	33.63	33.12	0.10	0.23	0.28	0.09	0.22	0.27
2400	44.85	45.97	46.73	0.04	0.14	0.16	0.03	0.14	0.17
2500	56.80	57.80	58.43	0.03	0.13	0.16	0.02	0.13	0.16
2600	65.51	65.89	66.46	0.04	0.14	0.17	0.02	0.13	0.16
2700	70.62	70.67	70.36	0.04	0.14	0.17	0.02	0.13	0.16
2800	64.22	64.12	65.04	0.05	0.15	0.17	0.02	0.13	0.16
2900	62.24	62.60	63.03	0.05	0.15	0.17	0.02	0.13	0.16
3000	59.90	60.93	60.85	0.05	0.15	0.18	0.01	0.13	0.15



ISO 9001 ISO 14001 AS 9100 CERTIFIED

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

Mouser Electronics The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

I/F/RF MICROWAVE COMPONENTS



REV. OR

ULP-176+

170208

Page 1 of 2

Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
1	4.34	4.35	4.44
2	4.14	4.14	4.17
4	4.04	4.05	4.05
6	3.99	3.99	3.99
8	3.99	4.00	4.00
10	3.98	3.99	3.99
12	3.97	3.98	3.98
14	3.96	3.97	3.98
16	3.95	3.96	3.96
18	3.95	3.96	3.96
20	3.94	3.95	3.96
22	3.94	3.95	3.95
24	3.94	3.94	3.95
26	3.94	3.95	3.95
28	3.94	3.95	3.95
30	3.94	3.95	3.95
32	3.95	3.95	3.96
34	3.95	3.96	3.96
36	3.96	3.97	3.97
38	3.97	3.97	3.98
40	3.97	3.98	3.99
42	3.99	3.99	4.00
44	4.00	4.01	4.01
46	4.01	4.02	4.02
48	4.02	4.03	4.04
50	4.04	4.05	4.05
52	4.05	4.06	4.07
54	4.07	4.08	4.09
56	4.09	4.09	4.10
58	4.10	4.11	4.12
60	4.12	4.13	4.14
62	4.14	4.15	4.17
64	4.16	4.17	4.18
66	4.18	4.19	4.21
68	4.21	4.22	4.23
70	4.23	4.24	4.25
72	4.25	4.27	4.28
75	4.29	4.30	4.31
80	4.35	4.36	4.37
85	4.42	4.43	4.43
90	4.49	4.49	4.50
95	4.56	4.57	4.57
110	4.83	4.83	4.84
115	4.95	4.95	4.96
120	5.08	5.09	5.10
125	5.24	5.25	5.27
130	5.42	5.44	5.46
135	5.62	5.65	5.69
140	5.86	5.89	5.93
145	6.13	6.16	6.20
150	6.42	6.45	6.49
155	6.75	6.79	6.82
160	7.15	7.19	7.23
165	7.65	7.71	7.76
168	8.03	8.11	8.17
170	8.34	8.43	8.50
172	8.68	8.79	8.88
174	9.08	9.20	9.31
175	9.30	9.42	9.54
176	9.53	9.66	9.79



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
 **The Design Engineers Search Engine** Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

