

# Low Pass Filter

**ULP-288+**

## 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
	0.11	0.12	0.14	42.77	40.69	39.33	43.62	41.30	39.84
2	0.10	0.12	0.13	43.45	41.17	39.75	44.41	41.89	40.35
5	0.10	0.12	0.13	44.11	41.68	40.16	45.43	42.63	40.99
10	0.10	0.12	0.13	42.06	40.14	38.90	42.97	40.92	39.59
15	0.12	0.13	0.14	40.09	38.77	37.76	40.99	39.68	38.52
20	0.13	0.14	0.16	39.26	38.22	37.25	39.89	39.00	37.91
25	0.14	0.16	0.17	38.13	37.44	36.58	38.62	38.15	37.21
50	0.19	0.21	0.22	32.97	33.31	33.42	33.52	34.12	34.35
100	0.28	0.31	0.33	26.84	25.43	24.73	27.25	25.68	24.94
150	0.39	0.45	0.49	22.14	20.72	19.65	22.09	20.68	19.59
200	0.49	0.56	0.60	23.34	23.90	23.46	23.35	23.93	23.51
225	0.54	0.63	0.68	34.73	48.47	53.22	34.21	43.26	47.02
250	0.66	0.78	0.85	24.37	22.33	21.01	24.18	22.16	20.84
275	0.88	1.02	1.12	19.41	19.12	18.36	18.91	18.52	17.72
280	0.92	1.07	1.17	20.05	20.09	19.42	19.27	19.11	18.37
285	0.96	1.13	1.23	21.82	22.38	21.80	20.32	20.36	19.65
288	1.00	1.17	1.28	23.93	25.08	24.56	21.35	21.41	20.67
290	1.02	1.20	1.32	26.23	28.13	27.62	22.15	22.10	21.31
295	1.11	1.31	1.45	52.18	34.16	31.71	22.95	21.79	20.84
300	1.26	1.50	1.67	22.81	20.58	19.77	19.18	17.69	16.89
310	2.02	2.40	2.67	10.98	10.26	9.84	10.40	9.70	9.25
312	2.29	2.70	3.00	9.54	8.96	8.59	9.09	8.51	8.11
314	2.62	3.06	3.38	8.29	7.82	7.50	7.92	7.45	7.11
315	2.80	3.26	3.60	7.72	7.30	7.01	7.38	6.97	6.65
320	3.94	4.47	4.87	5.39	5.19	5.00	5.18	4.96	4.76
325	5.44	6.00	6.45	3.78	3.72	3.62	3.63	3.56	3.45
330	7.24	7.81	8.29	2.71	2.74	2.70	2.60	2.62	2.57
340	11.37	11.90	12.39	1.57	1.67	1.69	1.50	1.59	1.60
350	15.83	16.31	16.78	1.08	1.19	1.23	1.03	1.14	1.17
360	20.46	20.91	21.36	0.85	0.96	1.01	0.81	0.92	0.96
370	25.37	25.82	26.28	0.73	0.83	0.88	0.69	0.79	0.83
378	29.72	30.20	30.68	0.66	0.76	0.80	0.63	0.73	0.77
380	30.90	31.40	31.89	0.65	0.75	0.79	0.62	0.72	0.76
390	37.92	38.56	39.18	0.60	0.69	0.73	0.56	0.66	0.70
400	49.31	49.62	49.67	0.55	0.65	0.68	0.53	0.61	0.65
420	41.65	41.35	41.10	0.49	0.58	0.61	0.47	0.55	0.59
450	37.95	37.94	37.87	0.43	0.50	0.54	0.40	0.48	0.51
475	37.80	37.86	37.81	0.39	0.46	0.49	0.36	0.43	0.47
500	38.30	38.40	38.37	0.35	0.42	0.45	0.33	0.39	0.43
525	39.02	39.13	39.10	0.31	0.38	0.41	0.30	0.36	0.39
550	39.78	39.89	39.86	0.29	0.35	0.38	0.27	0.33	0.36
600	41.18	41.27	41.23	0.24	0.30	0.33	0.22	0.29	0.31
650	42.26	42.33	42.30	0.20	0.26	0.29	0.19	0.25	0.27
700	43.05	43.16	43.10	0.17	0.23	0.25	0.16	0.22	0.24
750	43.69	43.77	43.75	0.15	0.21	0.23	0.13	0.19	0.21
800	44.15	44.27	44.21	0.13	0.19	0.21	0.12	0.18	0.20
850	44.51	44.63	44.59	0.12	0.17	0.19	0.10	0.16	0.18
900	44.88	44.99	44.97	0.11	0.17	0.18	0.09	0.15	0.17
950	45.19	45.28	45.28	0.09	0.15	0.17	0.07	0.13	0.15
1000	45.43	45.49	45.53	0.08	0.14	0.16	0.06	0.12	0.14
1050	45.70	45.75	45.75	0.07	0.14	0.15	0.06	0.12	0.14
1100	45.88	45.91	45.94	0.06	0.13	0.14	0.04	0.11	0.13
1150	45.99	46.05	46.08	0.06	0.12	0.14	0.04	0.11	0.13
1200	46.08	46.11	46.16	0.06	0.13	0.15	0.04	0.11	0.13
1300	45.91	46.01	46.05	0.05	0.12	0.14	0.03	0.10	0.12
1400	45.28	45.35	45.38	0.04	0.12	0.14	0.02	0.10	0.12
1425	45.02	45.06	45.14	0.05	0.12	0.14	0.02	0.10	0.12
1450	44.71	44.77	44.79	0.05	0.12	0.14	0.02	0.10	0.13
1475	44.33	44.36	44.39	0.05	0.13	0.15	0.02	0.11	0.13
1500	43.86	43.92	43.93	0.05	0.12	0.15	0.02	0.11	0.13



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## Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
1	2.28	2.30	2.27
2	2.26	2.27	2.25
3	2.24	2.25	2.23
4	2.22	2.22	2.21
5	2.20	2.20	2.19
10	2.15	2.16	2.16
15	2.14	2.14	2.14
20	2.13	2.13	2.13
25	2.13	2.12	2.13
30	2.12	2.12	2.12
35	2.12	2.12	2.12
40	2.12	2.12	2.12
45	2.13	2.13	2.13
50	2.14	2.13	2.13
55	2.14	2.14	2.14
60	2.15	2.15	2.15
65	2.16	2.16	2.16
70	2.17	2.16	2.17
75	2.17	2.17	2.17
80	2.18	2.18	2.19
85	2.19	2.20	2.20
90	2.21	2.21	2.21
100	2.24	2.24	2.24
110	2.27	2.27	2.27
120	2.31	2.30	2.30
130	2.35	2.34	2.34
140	2.40	2.39	2.39
150	2.45	2.44	2.44
160	2.51	2.50	2.49
165	2.54	2.54	2.53
170	2.58	2.57	2.57
175	2.61	2.61	2.61
180	2.65	2.65	2.65
185	2.70	2.70	2.70
190	2.75	2.75	2.76
195	2.81	2.81	2.81
200	2.86	2.87	2.88
205	2.92	2.93	2.94
210	2.99	3.00	3.01
215	3.06	3.07	3.08
225	3.22	3.23	3.25
230	3.31	3.32	3.34
235	3.40	3.41	3.43
240	3.50	3.51	3.52
245	3.60	3.61	3.62
250	3.72	3.72	3.73
255	3.84	3.84	3.85
260	3.98	3.98	3.99
265	4.13	4.14	4.15
270	4.31	4.33	4.35
275	4.53	4.56	4.59
280	4.80	4.85	4.89
281	4.87	4.91	4.96
282	4.93	4.98	5.03
283	5.00	5.06	5.11
284	5.07	5.13	5.18
285	5.15	5.21	5.26
286	5.23	5.29	5.35
287	5.31	5.38	5.44
288	5.40	5.47	5.53



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