Delay Equalized Sharp Cutoff Lowpass Custom Built LC Filters - 1 KHz to 250 MHz

± .25dB MAXIMUM RIPPLE—2dB MAXIMUM INSERTION LOSS
MAXIMUM DELAY VARIATION +/-3% TO - .25dB FREQUENCY

descolpPrinter

The Allen Avionics DELAY EQUALIZED SHARP CUT-OFF LOWPASS FILTERS tabulated on this page are the result of many years of experience in the use of specialized computer programs for the design and optimization of Delay Equalized Filters. By using modern digital computers, the composite behavior of the filter and equalizer are optimized to yield the ultimate in both amplitude and delay response.

This type of filter is ideally suited for use as an Anti-Aliasing Filter in analog to digital conversion. When used as a Post-Aliasing Filter in digital processing applications, the passband can be shaped to correct for sin x/x amplitude distortion.

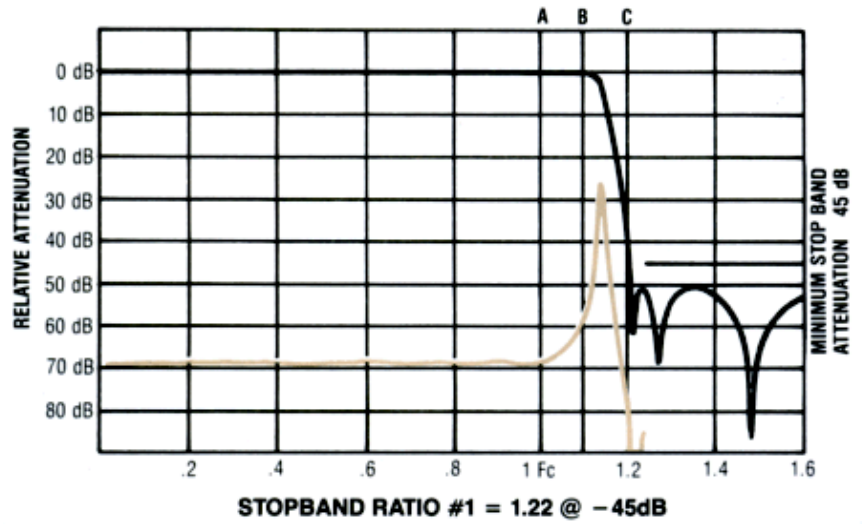
The filters tabulated below represent a widely used group. However, many other combinations of stopband ratio, impedance, delay distortion and size are possible. Two stopband ratios are listed in the table below, 1.22 @ 45dB and 1.32 @ 60dB.

Units normally supplied in metal cans for printed circuit mounting. SMA connectors same size. BNC connectors may require larger cans.

Amplitude, phase and/or delay matching between filters is also available.

CALL FACTORY FOR SPECIAL SIZES AND DELIVERY INFORMATION.

ORDER ANY CUT-OFF FREQUENCY FROM 1KHz TO 250MHz. INTERPOLATION BETWEEN TABULATED DATA ALLOWABLE



Normalized Plot of Amplitude & Delay Response of Delay Equalized Lowpass Filter

A = -.25dB Frequency
B = -3dB Frequency
C = -45dB Frequency or -60dB

Stopband Ratio #1 = 1.22 @ 45dB Delay (D) = 25.37
Stopband Radio #2 = 1.32 @ 60dB Delay (D) = 25.03

APPROXIMATE PASSBAND DELAY (seconds)= Delay (D)

2 x π x Frequency A(Hz)

Delay Equalized Sharp Cutoff Lowpass Filters								
Maximum -.25dB Cut-Off Frequency (Last point that delay flatness Is specified) (Graph location A)	Maximum 3dB Attenuation Frequency (Graph location B) B = 1.14 x A	Attenuation Frequency Graph Location C		Impedance Range (Ohms)	Approximate Passband Delay Micro-Seconds		Standard Size Inches	"Space-Saving" Size Inches
		45dB Ratio #1 C = 1.22 x A	60dB Ratio *#2* C = 1.32 x A		Ratio #1	Ratio *#2*		
1 .0 KHz	1.14 KHz	1.22 KHz	1 .32 KHz	500-2.5K	4038	3984	6 x 3 x 1-1/4	--
2.5 KHz	2.85 KHz	3.05 KHz	3.30 KHz	500-2.5K	1615	1539	6 x 3 x 1-1/4	--
5.0 KHz	5.70 KHz	6.10 KHz	6.60 KHz	500-2.5K	808	797	6 x 3 x 1-1/4	--
10.0 KHz	1 1 .40 KHz	12.22 KHz	13.20 KHz	500-2.5K	404	398	6 x 3 x 1-1/4	5 x 2 x1-1/4
25.0 KHz	28.50 KHz	30.50 KHz	33.00 KHz	100-1. OK	162	159	5 x 3 x 1-1/4	5 x 2 x1-1/4
50.0 KHz	57.00 KHz	61.00 KHz	66.00 KHz	50-600	81	79	5 x 3 x 1-1/4	5 x 2 x1-1/4
100.0 KHz	114.00 KHz	122.00 KHz	132.00 KHz	50-200	40	39	5 x 2 x 1-1/4	4 x 2 x1-1/4
250.0 KHz	285.00 KHz	305.00 KHz	330.00 KHz	50-100	16	15	5 x 2 x 1-1/4	4 x 2 x1-1/4
500.0 KHz	570.00 KHz	610.00 KHz	660.00 KHz	50-100	8.08	7.96	5 x 2 x 1-1/4	4 x 2 x1-1/4
1.0 MHz	1.14 MHz	1.22 MHz	1.32 MHz	50-75	4.04	3.98	5 x 2 x 1-1/4	4 x 2 x1-1/4
2.5 MHz	2.85 MHz	3.05 MHz	3.30 MHz	50-75	1.62	1.59	5 x 2 x 1-1/4	4 x 2 x1-1/4
5.0 MHz	5.70 MHz	6.10 MHz	6.60 MHz	50-75	.81	.79	5 x 2 x 1-1/4	4 x 2 x1-1/4
7.5 MHz	8.55 MHz	9.15 MHz	9.90 MHz	50-75	.537	.531	5 x 2 x 1-1/4	4 x 2 x1-1/4
10.0 MHz	11 .40 MHz	12.20 MHz	13.20 MHz	50-75	.404	.398	5 x 2 x 1-1/4	4 x 2 x1-1/4
12.5 MHz	14.25 MHz	15.25 MHz	16.50 MHz	50-75	.322	.318	5 x 2 x 1-1/4	4 x 2 x1-1/4
15.0 MHz	17.10 MHz	18.30 MHz	19.80 MHz	50-75	.268	.264	5 x 2 x 1-1/4	4 x 2 x1-1/4
17.5 MHz	19.95 MHz	21.35 MHz	23.10 MHz	50-75	.230	.227	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
20 MHz	22.80 MHz	24.40 MHz	26.40 MHz	50-75	.202	.199	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
25 MHz	28.50 MHz	30.50 MHz	33.00 MHz	50-75	.162	.159	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
30 MHz	34.20 MHz	36.60 MHz	39.60 MHz	50-75	.134	.132	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
35MHz	39.90 MHz	42.70 MHz	46.20 MHz	50	.115	.113	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
40MHz	45.60 MHz	48.80 MHz	52.80 MHz	50	.100	.099	5 x 2 x 1-1/4	4 x- 1-1/2 x 1-1/4
45MHz	51.30 MHz	54.90 MHz	59.40 MHz	50	.090	.088	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1-1/4
50 MHz	57.00 MHz	61.00 MHz	66.00 MHz	50	.081	.069	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 3/4
60 MHz	68.40 MHz	73.20 MHz	79.20 MHz	50	.067	.066	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 3/4
70 MHz	79.80 MHz	85.40 MHz	92.40 MHz	50	.058	.056	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 3/4
80 MHz	91.20 MHz	97.600 MHz	105.60 MHz	50	.050	.049	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 3/4
90MHz	102.60 MHz	109.80 MHz	118.80 MHz	50	.045	.044	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 3/4
* 100 MHz	114.00 MHz	122.00 MHz	132.00 MHz	50	.040	.039	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 125 MHz	142.50 MHz	152.50MHz	156.00MHz	50	.032	.031	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 150 MHz	171.00 MHz	183.00 MHz	198.00 MHz	50	.027	.026	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 175 MHz	199.50 MHz	213.50 MHz	231.00 MHz	50	.023	.022	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 200 MHz	228.00 MHz	244.00 MHz	264.00 MHz	50	.020	.019	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 225 MHz	256.50 MHz	274.50 MHz	297.00 MHz	50	.018	.017	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2
* 250 MHz	285.00 MHz	305.00 MHz	330.00 MHz	50	.016	.015	5 x 1-1/2 x 1-1/4	4 x- 1-1/2 x 1/2

***At frequencies of 100MHz and above, the maximum attenuation at location A becomes .5dB and the delay variation up to location A becomes ± 5%**

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We are pleased to accept