

# Cable Low Pass Filter



RLC Electronics' Cable Lowpass Filters are available and built to your cutoff, rejection and mechanical specifications.

Computer designed and advanced coaxial techniques ensure optimal performance in a minimum amount of space.

## Specifications

CLPF-1-2-3-4

Cut-Off Frequency fc (MHz)	Number of Sections (N)	3 dB Point (Typical)	30 dB Point (Typical)	60 dB Point (Min)
100 to 26,000	2	1.4 fc	2.5 fc	5.2 fc
	3	1.15 fc	1.7 fc	2.8 fc
	4	1.09 fc	1.4 fc	2.0 fc
	5	1.07 fc	1.26 fc	1.62 fc
	6	1.05 fc	1.18 fc	1.44 fc
	7	1.04 fc	1.14 fc	1.33 fc
	8	1.04 fc	1.11 fc	1.26 fc
	9	1.04 fc	1.08 fc	1.19 fc
	10	1.02 fc	1.06 fc	1.14 fc

**Pass Band VSWR:** See table 2

**Pass Band Insertion Loss:** See table below

**Power Rating:** 2 watts average

**Impedance:** 50 ohms

**Connector Type:** SMA Male

**Cable Diameter:** .141, .086

**Environment:** MIL-E-5400, Class 1A except operating temperature range -55°C to +85°C

To designate the bias tee desired use:

(1) Cut-off frequency in MHz

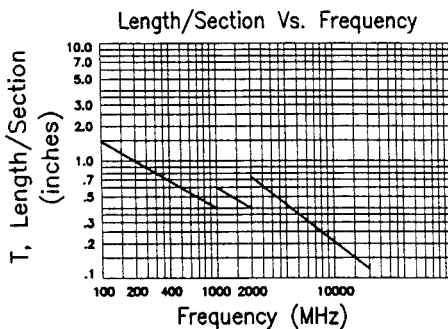
(2) Number of sections (N)

(3) Connector Spacing (S in inches)

(4) Cable diameter AC for .141, BC for .086

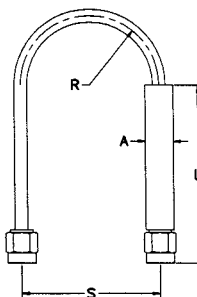
Example: CLPF-5000-5-1.5-AC is a 5000 MHz cutoff, 5 section filter with the connector 1.5 inches apart using a .141 diameter cable.

## Outline Drawing



FREQUENCY (MHz)	A	CONNECTOR LENGTH
100 to 4,500	.50	.85
4,500 to 18,000	.31	.70
18,000 to 26,000	.25	.70

Cable Dia	Minimum Bend Radius
.086	0.23
.141	0.45



Approximate Length of filter (L) =  $T \times N + \text{Connector Length}$

Approximate Cable Length =  $R \times \pi + L$

## Passband Response

VSWR Passband	Cable Loss Constant		Filter Loss Constant in dB per Section
	.141 Diameter	.086 Diameter	
1.4:1 to 2.0 GHz	.14 dB/ft	.24 dB/ft	.10 dB/N
1.5:1 to 8.0 GHz	.30 dB/ft	.61 dB/ft	.08 dB/N
1.6:1 to 12.4 GHz	.33 dB/ft	.67 dB/ft	.075 dB/N
1.8:1 to 18.0 GHz*	.41 dB/ft	.83 dB/ft	.07 dB/N
2.0:1 to 26.0 GHz**	.50 dB/ft	1.00 dB/ft	.07 dB/N

Calculation Notes

Passband Insertion Loss (Max) = (Filter Loss Constant x N) + Cable Loss \* VSWR  
 12.4 GHz to 18 GHz for more than 8 sections to be  $1.8 + (0.05 \times (N-7))$   
 \*\*VSWR 18 GHz to 26 GHz for more than 8 sections to be  $2.0 + (0.05 \times (N-7))$   
 Approximate Cable Length =  $R \times \pi + L$



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