Combline Cavity Filters

Microwave Devices produces a full line of high "Q," low–loss combline cavity filters. The combline design provides high performance and is well suited to demanding environmental conditions. Our combline filters cover the frequency range of 0.5–18 GHz, with bandwidths from .1 to 50%. Standard designs are available with 3 to 12 sections, and are equipped with SMA connectors.

Noncontiguous multiplexers are also available.

Typical electrical specifications that can be enhanced include insertion loss, VSWR, power handling, and spurious response suppression. Call us regarding nonstandard parameters.

SPECIFICATIONS

| Frequency (GHz)	3 dB BW (%)	VSWR	Impedance	Sections	Shock	Vibration	Temperature
0.5–18.0	.1–50	1.5:1	50 Ohms	3–12	10G	10G	-55 to 85 C

Insertion Loss

Combline filters offer system designers extremely low insertion loss in the medium to wide bandwidth ranges. Typical losses are less than 1 dB for most designs with bandwidths greater than 5%. An approximation for insertion loss is 0.1 dB per section.

Attenuation

The curves in the graph on the following page are used to estimate stopband attenuation. These curves show attenuation at multiples of the filter's 3 dB bandwidth.

48

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Attenuation
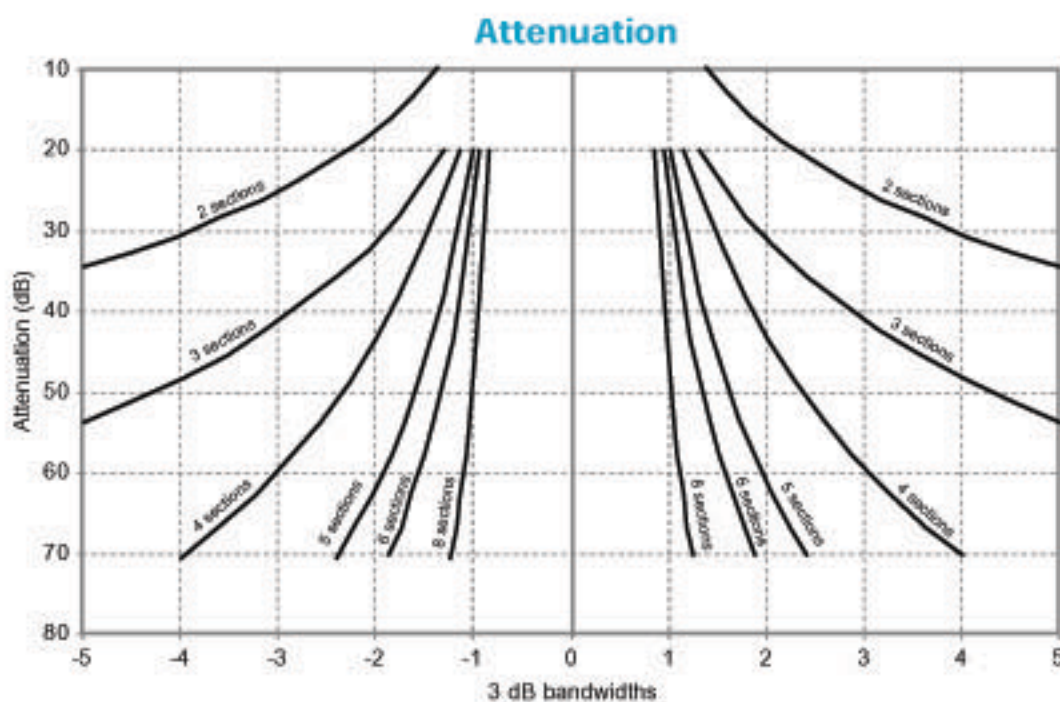
While the size of combline filters can be optimized to suit most requirements, the following equation can be used to approximate standard lengths (L).

$L = (N) \times (Y) + 0.4$ Where N = Number of sections; Y = Bandwidth (%) value from table

Frequency (GHz)	Bandwidth (%)			Frequency (GHz)	Width (inches)	Height (inches)
	5–15	15–25	25–35			
0.5–4.0	0.50	0.40	0.30	0.5–4.0	0.8	1.2
4.0–5.5	0.45	0.35	0.25	4.0–5.5	0.8	1.0
5.5–7.0	0.40	0.30	0.20	5.5–7.0	0.8	0.8
7.0–18.0	0.30	0.25	0.20	7.0–18.0	0.6	0.6

Tapped mounting holes, the location and size of which are determined at the time of design, are provided on the bottom surface of the filter. Contact the factory for applications requiring nonstandard lengths or connector configurations.

49