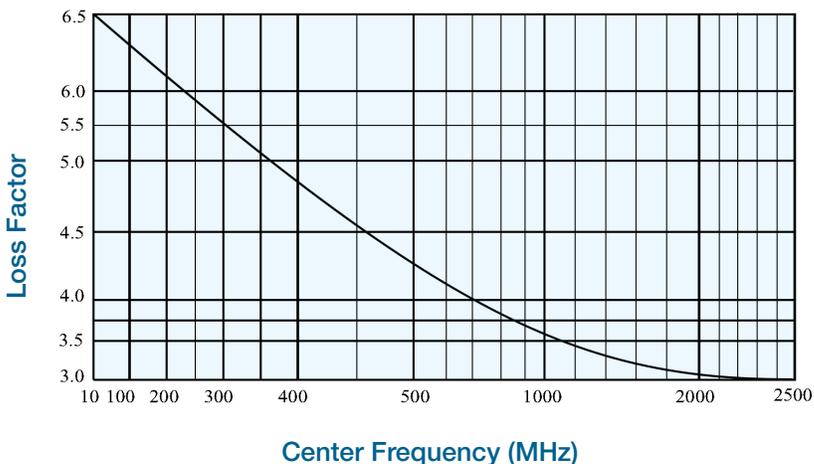


No. of Sections	2	3	4	5	6 or more
1.5/1 VSWR BW	0.4	0.7	0.8	0.85	0.9
MIN 3 dB BW					



Specification	Standard	*Special
<b>Electrical</b>		
Center Frequency (Fc)	1 to 5000 MHz	0.1 to 5000 MHz
3dB Relative Bandwidth (% of Fc)	2 to 50	3 to 100
Number of Sections Available	3 to 6	2 to 10
Nominal Impedance	50Ω	50 to 300Ω
Maximum Insertion Loss	See Curve	See Curve
Maximum VSWR	1.5/1	1.3/1
Attenuation in the Stopband	See Page 14	See Page 14
Maximum Input Power (Average) (Watts to 10,000 ft.)	2	4
Maximum Input Power (Peak) (Watts to 10,000 ft.)	20	40
<b>Environmental</b>		
Shock	20 G's	75 G's
Vibration	10 G's	30 G's
Humidity	95% relative	100% relative
Altitude	Unlimited	Unlimited
Temperature Range (Operating)	-40°C to + 85°C	-55°C to + 125°C
Temperature (Non-Operating)	-65°C to + 125°C	-65°C to + 150°C
<b>Mechanical</b>		
Approximate Weight in oz.	L + 10	L + 10
Mounting Provisions	See Next Page	See Next Page
Special Configurations	Consult Lark	Consult Lark

\*Contact Benchmark Lark Engineering for Special Configurations



### Insertion Loss:

The maximum Insertion Loss at center frequency is equal to:

$$\frac{LF \times (N-0.5)}{\% \text{ 3dB BW}} + 0.2$$

Where:

LF = Loss Factor N = Number of Sections

% 3dB BW:

$$\frac{3\text{dB BW (MHz)} \times 100}{\text{Center Frequency (MHz)}}$$

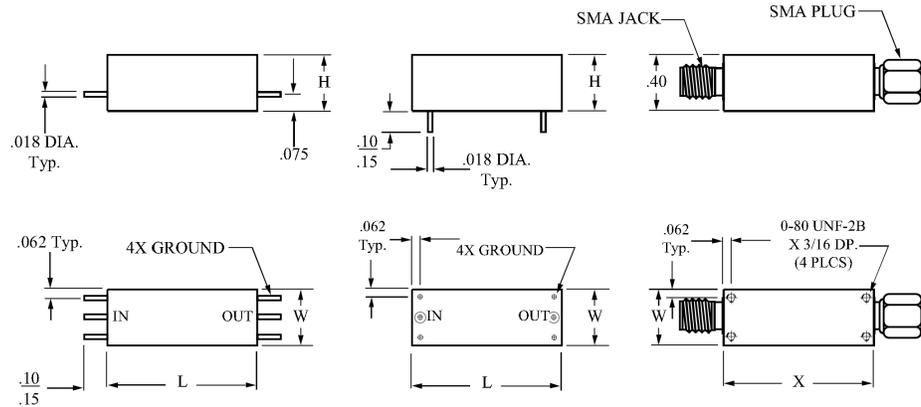
Example:

A 3 section MC with a center frequency of 700 MHz and a 3dB BW of 70 MHz would be:

$$\frac{4.0 \times 3.5}{10} \frac{14}{10} = 1.4$$

$$1.4 + 0.2 = 1.6 \text{ dB}$$

## Mechanical Specifications — MC Series



Frequency Range	Number of Sections	W	H	L	X
1 - 9.9 MHz	2 to 3	0.75	0.50	1.50	1.75
	4 to 5	0.75	0.50	2.50	2.75
	6 to 7	0.75	0.50	3.50	3.75
10 - 100 MHz	2 to 3	0.55	0.40	1.00	1.25
	4 to 5	0.55	0.40	1.50	1.75
	6 to 7	0.55	0.40	1.75	2.00
101 - 300 MHz	2 to 3	0.44	0.40	0.75	1.00
	4 to 5	0.44	0.40	1.00	1.25
	6 to 7	0.44	0.40	1.50	1.75
10 - 100 MHz	2 to 3	0.44	0.31	0.75	1.00
	4 to 5	0.44	0.31	0.75	1.00
	6 to 7	0.44	0.31	1.25	1.50

Over 7 sections- Consult Benchmark Lark Engineering  
 Note: All standard units with SMA Connectors are supplied H = 0.40"

### Connectors Available on MC Series

Code	Type
A	SMA Jack
B	SMA Plug
C	Solder Pin Axial

Code	Type
M	Solder Pin Radial
S	Special

The size shown is a standard used by Lark to facilitate low cost, easily reproduced units. Should you require another size, please submit all of your requirements, both electrical and mechanical, to Benchmark Lark Engineering. This will enable Lark to quote the optimum design for your application.

# Stopband Attenuation

The graphs on the following pages define the normal specification limits on attenuation for Lark's MC and MS bandpass filter series. The minimum level of attenuation in dB is shown as a "number of 3dB bandwidths from center frequency". Since the frequency characteristics vary for differing bandwidths, it is necessary to establish specifications for each bandwidth. The different graphs represent various 3dB percentage bandwidths. Intermediate values should be interpolated. The 3dB percentage bandwidth is defined as follows:

$$\frac{3\text{dB BW (MHz)} \times 100}{\text{Center Frequency (MHz)}}$$

The exact relationship is as follows:

$$\begin{matrix} 3\text{dB Bandwidths} \\ \text{From Center Frequency} \end{matrix} = \frac{\text{Rejection Frequency (MHz)} - \text{Center Frequency (MHz)}}{3\text{dB Bandwidth (MHz)}}$$

Example:

Given: Center Frequency = 500 MHz

Minimum 3dB Bandwidth = 50 MHz

Number of Sections = 5

Find: Minimum attenuation levels at 425 MHz and 585 MHz.

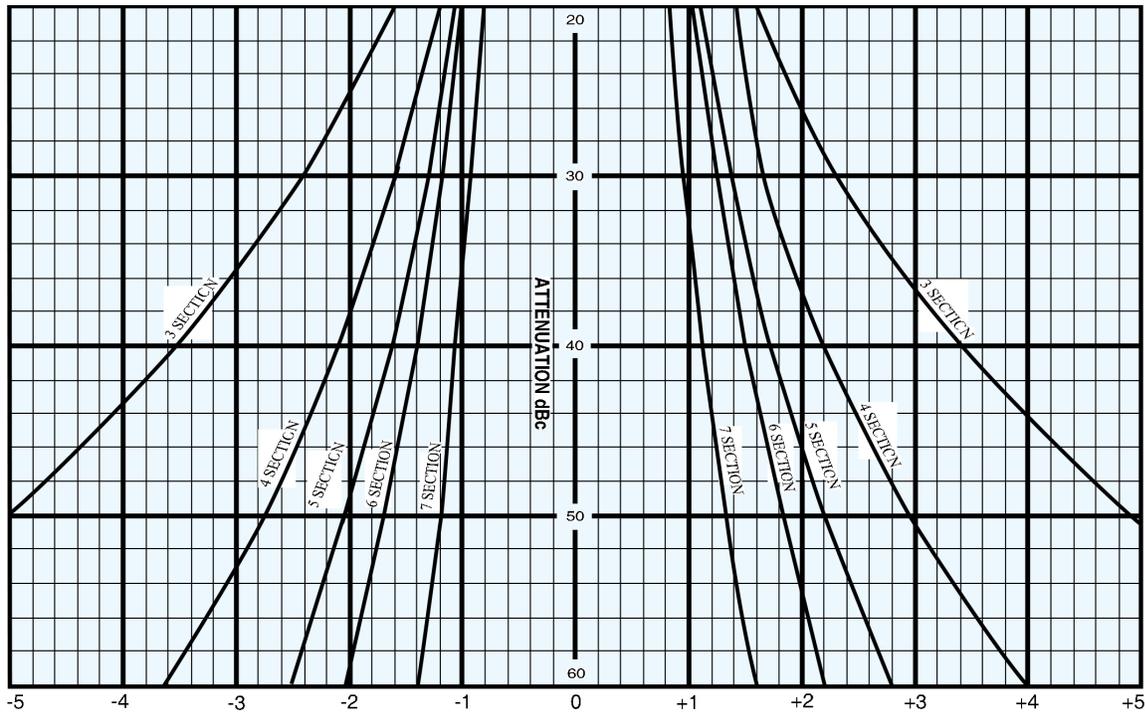
$$3\text{dB BW's from } F_c = \frac{425 - 500}{50} = -1.5$$

$$\text{and } \frac{585 - 500}{50} = +1.7$$

The answer can be read directly from the 10% graph. Using the 5 section curve at the point -1.5 (425 MHz) we find the minimum level of attenuation is 40dB. At +1.7 (585 MHz) the minimum level of attenuation is 39dB.

NOTE: The attenuation curves shown for the "MC" and "MS" series are for our standard designs. Other topologies may be utilized yielding different attenuation characteristics.

For special requirements, please contact our Engineering Department.



Lark Technology

3201 E Harbour Dr | Phoenix, AZ 85034, USA

833.236.2400 |

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