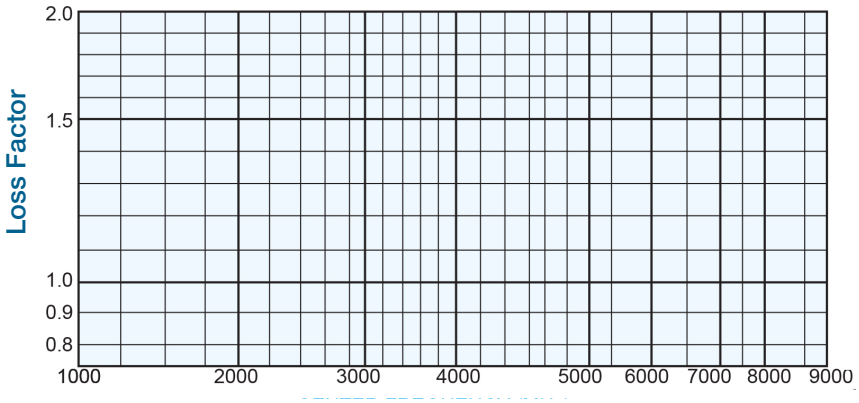
Benchmark
lark technology

Bandpass
2B Series
2000-9000 MHz

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

Specification	Standard	*Special
Electrical		
Center Frequency (Fc)	2000 to 9000 MHz	1000 to 12000 MHz
3dB Relative Bandwidth (% of Fc)	3 to 30	2 to 70
Number of Sections Available	3 to 10	2 to 14
Nominal Impedance	50Ω	50Ω
Maximum Insertion Loss	See Curve	See Curve
Maximum VSWR	1.5/1	1.3/1
Attenuation in the Stopband	See Page 40	See Page 40
Maximum Input Power (Average) (Watts to 10,000 ft.)	$\frac{300 \times 3 \text{ dB BW (MHz)}}{\text{(LOSS FACTOR)(Fc MHz)}}$	See Standards
Maximum Input Power (Peak) (Watts to 10,000 ft.)	$\frac{1500 \times 3 \text{ dB BW (MHz)}}{\text{Fc (MHz)}}$	See Standards
Environmental		
Shock	5G's	15G's
Vibration	2 G's	15 G's
Humidity	90% relative	100% relative
Altitude	Unlimited	Unlimited
Temperature Range (Operating)	- 25°C to + 50°C	- 54°C to + 100°C
Temperature (Non-Operating)	- 54°C to + 70°C	- 62°C to + 150°C
Mechanical		
Approximate Weight in oz.	1.7 x L x W	1.0 x L x W
Mounting Provisions	See Next Page	See Next Page
Special Configurations	Consult Factory	Consult Factory

*Contact Benchmark Lark Engineering for Special Configurations



Insertion Loss:

The maximum Insertion Loss at center frequency is equal to:

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

Where:
LF = Loss Factor N = Number of Sections
% 3dB BW:

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

Example:
A 5 section 2B with a center frequency of 5000 MHz and a 3dB BW of 500 MHz would have:

$$\frac{0.8 \times 5.5}{10} = \frac{4.4}{10} = 0.44 + 0.1$$

$$= 0.5 \text{ dB}$$

Stopband Specifications — 2B Series

The graphs on the following pages define the normal specification limits on attenuation for Lark bandpass filter series 2B, 3B, and 4B. 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 of filte r. The different graphs represent various 3dB percentage bandwidths. Intermediate values should be interpolated.

The 3dB percentage bandwidth is defined as follows:

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

The exact relationship is as follows: 1. 3dB Bandwidths

$$\text{Center Frequency (MHz)} = \frac{\text{Rejection Frequency (MHz)} - \text{Center Frequency (MHz)}}{\text{3dB Bandwidth (MHz)}}$$

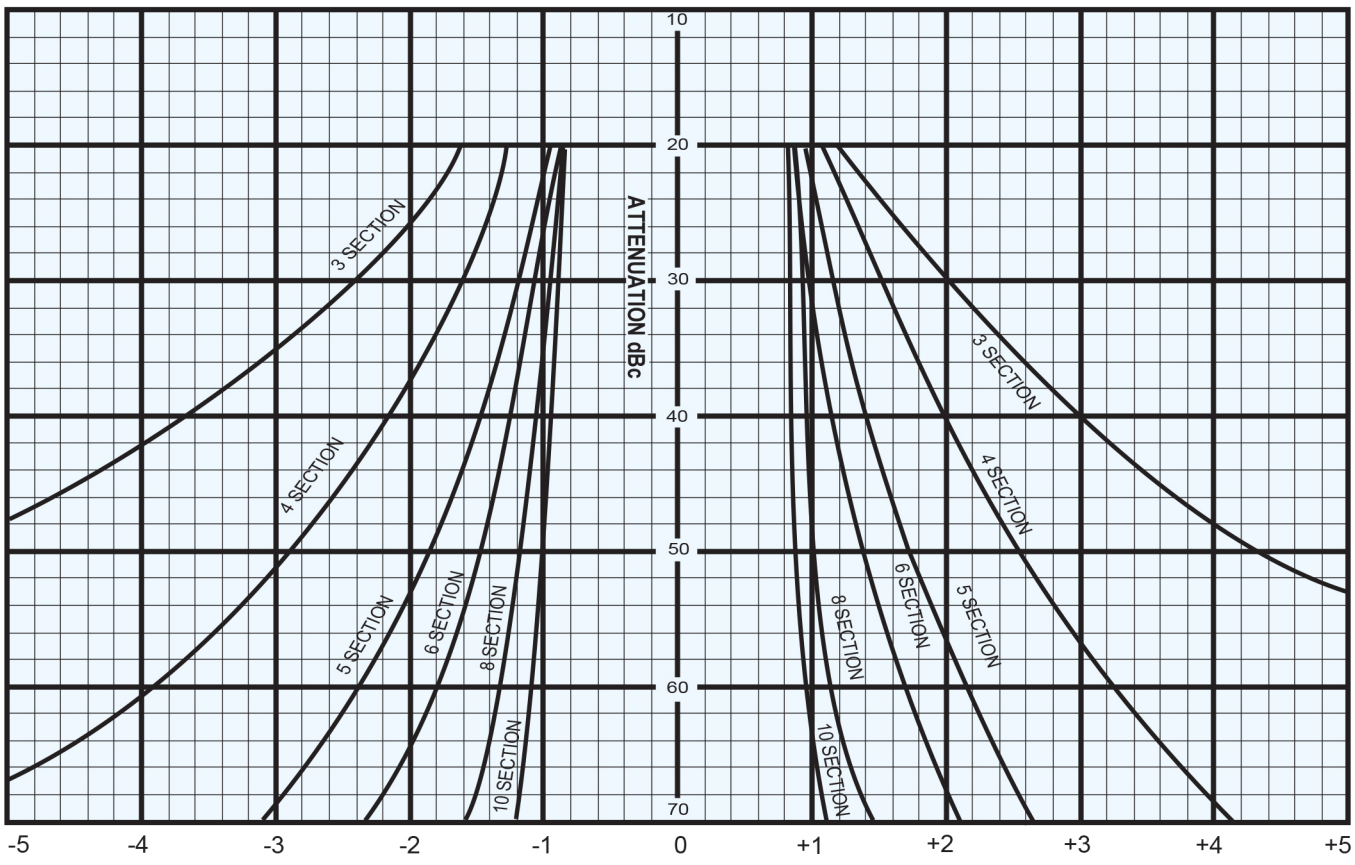
Example:

Given: 2. Center Frequency = 5000 MHz
Minimum 3dB Bandwidth = 500 MHz
Number of Sections = 5
Find: Minimum attenuation levels at 4250 MHz and 5800 MHz.

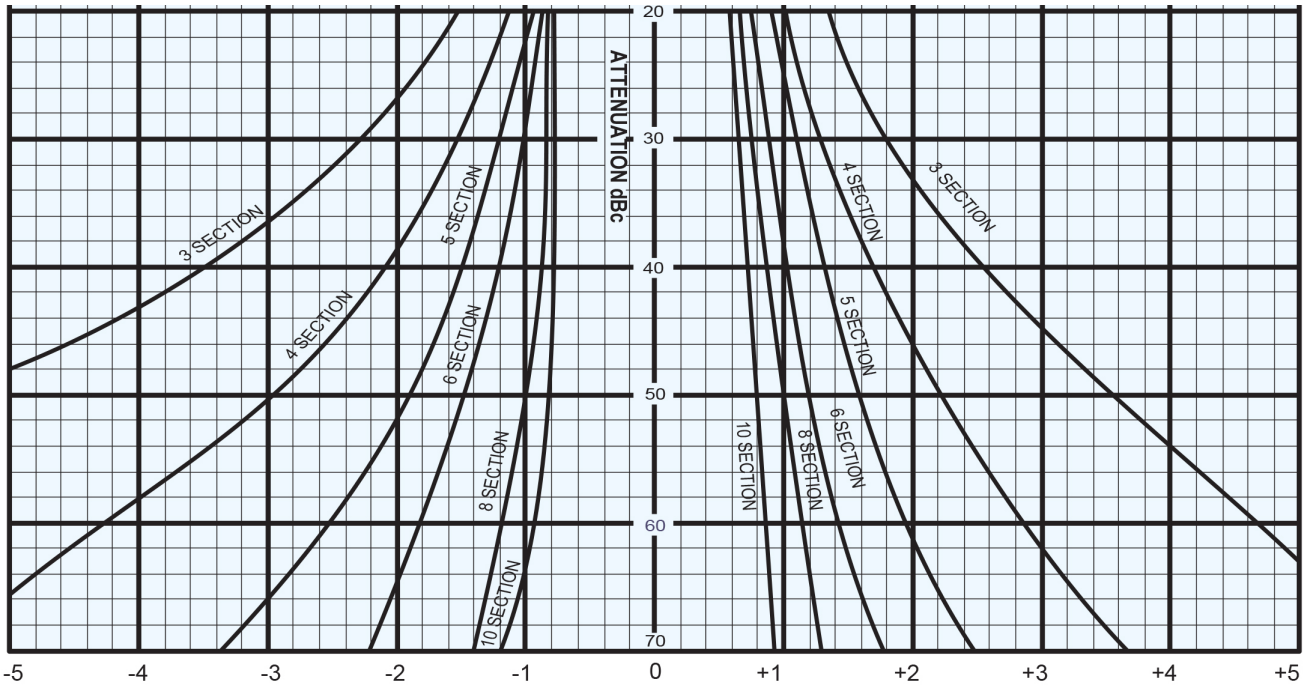
$$\text{3dB BW's from Fc} = \frac{4250 - 5000}{500} = -1.5$$

$$\text{and } \frac{5800 - 5000}{500} = +1.6$$

The answer can be read directly from the 10% graph. Using the 5 section curve at the point -1.5 (4250 MHz) we find the minimum level of attenuation is 40dB. At +1.6 (5800 MHz) the minimum level of attenuation is 50dB. For special requirements, please contact our Application Engineering Department.

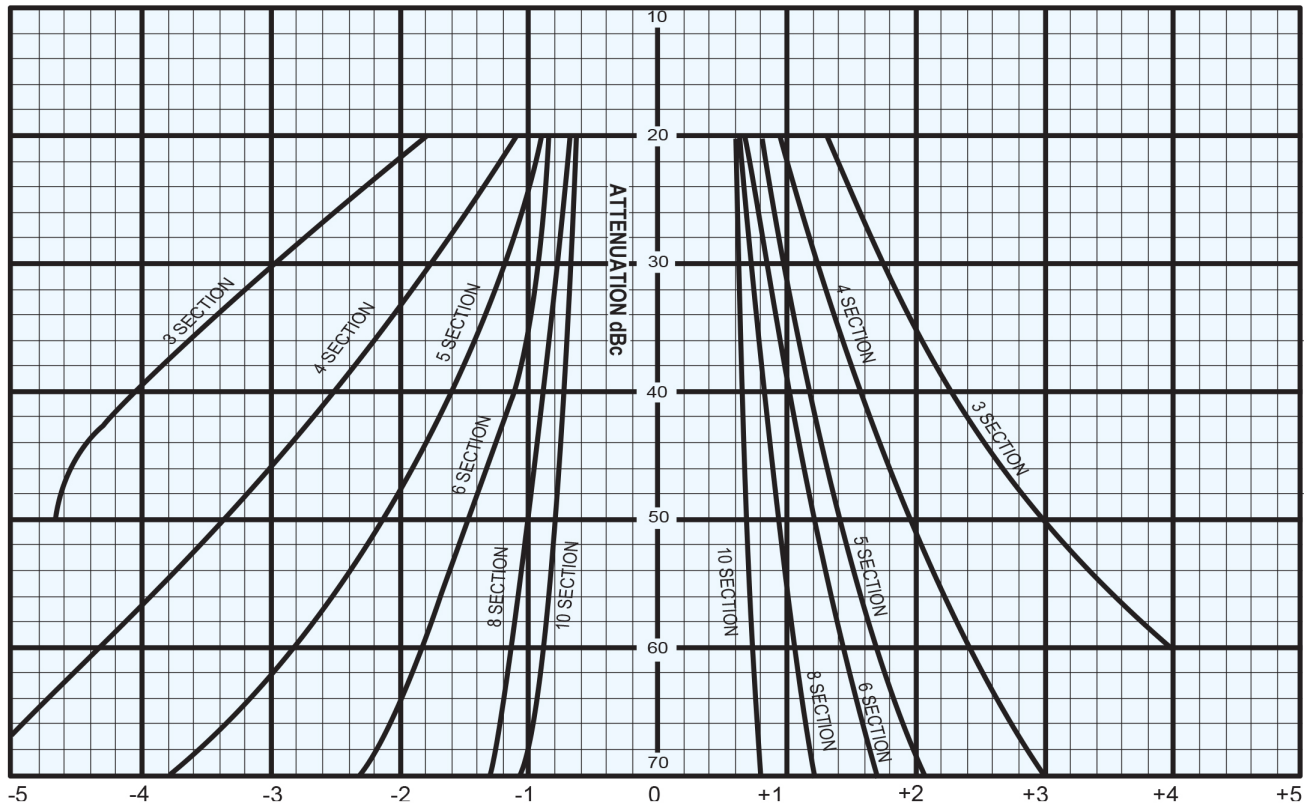


2B, 3B, AND 4B SERIES



NO. OF 3dB BANDWIDTHS

3dB BANDWIDTH APPROX. 10% OF Fc



NO. OF 3dB BANDWIDTHS

3dB BANDWIDTH APPROX. 20% OF Fc

Benchmark Lark Technology

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