

# **FILTERS**

## Cavity Filters "BP", "BR" And "PR" Series

Davicom Technologies offers a complete range of high-Q cavity filters to provide the best bandpass, reject and pass-reject responses. These resonant cavity filters are the building blocks of our duplexer and multicoupler series.

Individual or cascaded filters may be used for a variety of interference problems, such as cleaning up the performance of existing duplexers that have inadequate isolation or off channel interference rejection. At crowded antenna sites, filters are ideal for quieting noisy transmitters or for preventing transmitter IM mixing. Receiver front-end selectivity can be greatly enhanced by the use of filters, thus eliminating desensitization, intermodulation, and overload problems.

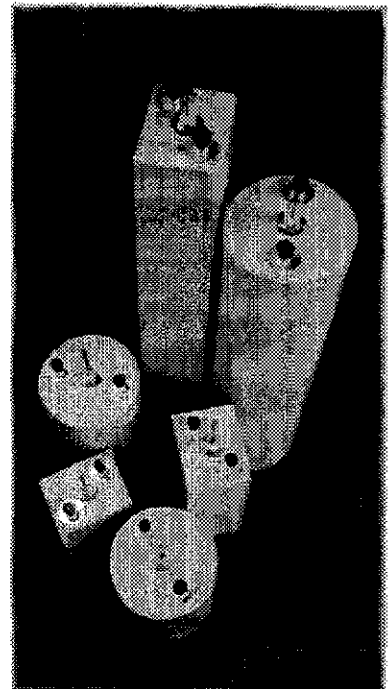
The basic cavity filters are constructed of either a 6.625 in. aluminum cylinder or a 4"x 5" rectangular tubing, with a coaxial inner conductor of brass and copper, silver plated to eliminate problems of noise, high loss and degraded selectivity. The use of an INVAR tuning rod results in extremely low frequency drift over the operating temperature range.

Our basic cavity filters offers the flexibility of broad system design capability with a variety of different but interchangeable coupling loop assemblies that allow our basic cavity resonator to operate in a number of filter modes, thus providing an optimum filter response characteristic for almost any applications. These coupling loop assemblies are not only interchangeable, they are also continuously adjustable within their range for various frequency separations to tailor a filter response to specific needs.

Filter convertibility allows to solve many complex filtering and multicoupling problems with relative ease and minimum expenses. Duplexer cavities can be connected into multicoupling cavities or for any other uses when the need arises.

Consult our representative for assistance in selecting the appropriate filter(s) or in designing a filter system to meet your requirements.

# CAVITY FILTERS

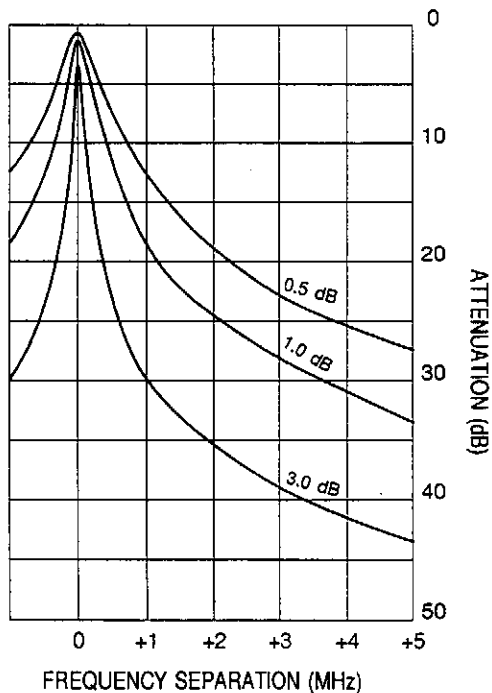




## Features

- ◆ High selectivity to minimize interference from adjacent systems
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased isolation
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loops to facilitate field adjustment
- ◆ Replaceable coupling loops for easy field conversion to other filter modes
- ◆ Available in other frequency bands from 50 to 406 MHz

## BP-15107



# Bandpass Cavity Filters

## BP-11107 • 13107 • 15107

BP Series

108-174 MHz

The «BP» Series Bandpass cavity is an all aluminum 7 inch diameter, quarter wave resonator providing the selectivity needed to alleviate the problems created by spectrum congestion. These filters pass a band of frequencies while attenuating frequencies on either side of the desired frequency band.

Electrical Specifications		BP-11107	BP-13107	BP-15107
Frequency Range:	MHz	108-136	132-150	138-174
Insertion Loss:	dB	Adjustable - 0.5 to 3.0		
Selectivity:		See Curves		
VSWR at Resonance:	(max.)	1.5:1		
Power Rating:				
with 0.5 dB insertion loss	watts		350	
with 1.0 dB insertion loss	watts		250	
with 2.0 dB insertion loss	watts		150	
with 3.0 dB insertion loss	watts		100	
Temperature Range:	Deg.	-40 C to +60 C		
Termination:		Type «N» Female		

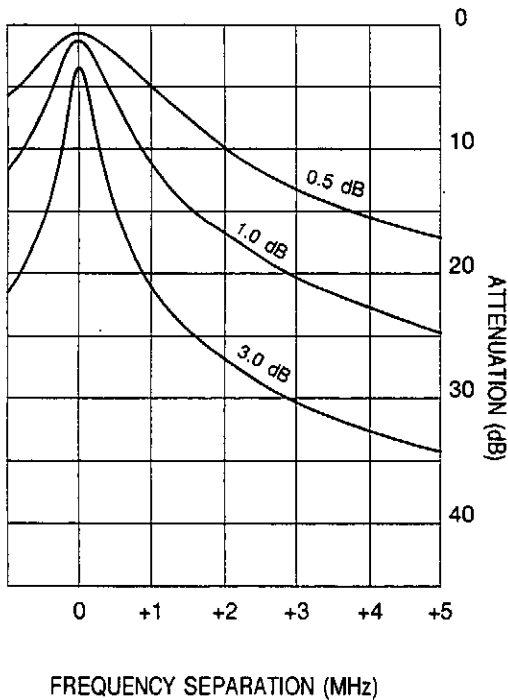
Mechanical Specifications		BP-11107	BP-13107	BP-15107
Cavity Diameter:	in. (mm)	6.625 (168)		
Cavity Length:	in. (mm)	32 (813)	26 (660)	24 (610)
Maximum Length (Tuning rod extended)	in. (mm)	39 (991)	35 (889)	33 (838)
Weight:	lbs. (kg)	14 (6.4)	11 (5.0)	10 (4.5)



## Features

- ◆ High selectivity to minimize interference from adjacent systems
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased isolation
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loops to facilitate field adjustment
- ◆ Replaceable coupling loops for easy field conversion to other filter modes

## BP-45107



# Bandpass Cavity Filters

## BP-45107

BP series

406-512 MHz

The BP Series Bandpass cavity is an all aluminum 7 inch diameter, quarter wave resonator providing the selectivity needed to alleviate the problems created by spectrum congestion. These filters pass a band of frequencies while attenuating frequencies on either side of the desired frequency band.

### Electrical Specifications

BP-45107

Frequency Range:	MHz	406-512
Insertion Loss:	dB	Adjustable - 0.5 to 3.0
Selectivity:		See Curves
VSWR at Resonance:	(max.)	1.5:1
Power Rating:		
with 0.5 dB insertion loss	watts	350
with 1.0 dB insertion loss	watts	250
with 2.0 dB insertion loss	watts	150
with 3.0 dB insertion loss	watts	100
Temperature Range:	Deg.	-40 C to +60 C
Termination:		Type «N» Female

### Mechanical Specifications

BP-45107

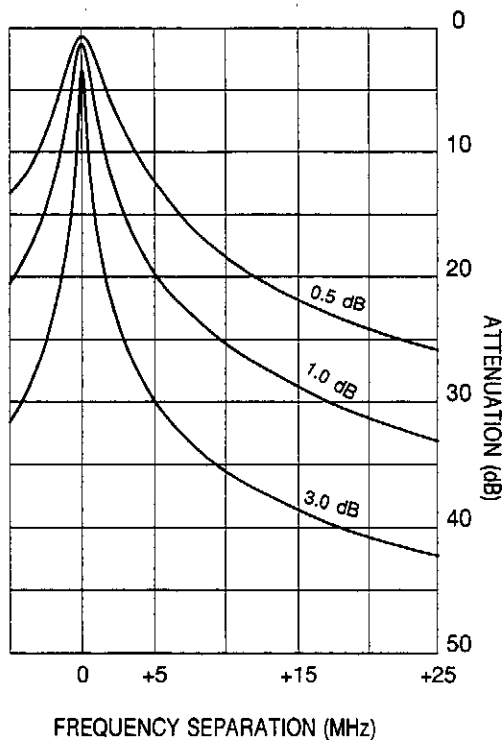
Cavity Diameter:	in. (mm)	6.625 (168)
Cavity Length:	in. (mm)	12 (305)
Maximum Length (Tuning rod extended)	in. (mm)	18 (457)
Weight:	lbs. (kg)	6 (2.7)



## Features

- ◆ High selectivity to minimize interference from adjacent systems
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased isolation
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loops to facilitate field adjustment
- ◆ Replaceable coupling loops for easy field conversion to other filter modes

### BP-80107



## Bandpass Cavity Filters BP-80107 • 80137

BP series

806-960 MHz

*The BP Series Bandpass cavity is an all aluminum 7 inch diameter, quarter wave resonator providing the selectivity needed to alleviate the problems created by spectrum congestion. These filters pass a band of frequencies while attenuating frequencies on either side of the desired frequency band.*

Electrical Specifications	BP-80107	BP-80137
Frequency Range:	MHz	806-960
Insertion Loss:	dB	Adjustable - 0.5 to 3.0
Selectivity:		See Curves
VSWR at Resonance:	(max.)	1.5:1
Power Rating:		
with 0.5 dB insertion loss	watts	350
with 1.0 dB insertion loss	watts	250
with 2.0 dB insertion loss	watts	150
with 3.0 dB insertion loss	watts	100
Temperature Range:	Deg.	-40 C to +60 C
Termination:		Type «N» Female

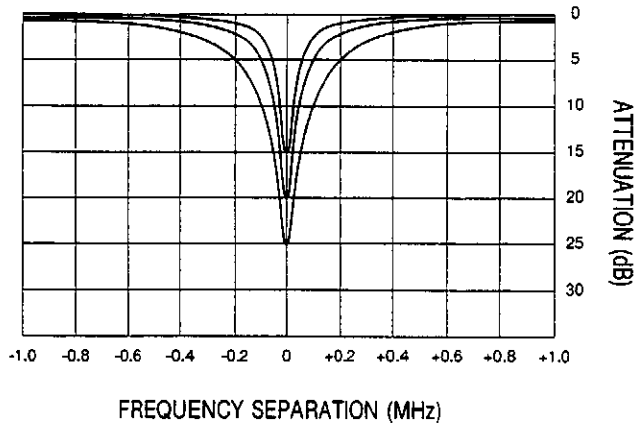
Mechanical Specifications	BP-80107	BP-80137
Cavity Diameter:	in. (mm)	6.625 (168)
Cavity Length:	in. (mm)	7 (178)
Maximum Length (Tuning rod extended)	in. (mm)	17 (432)
Weight:	lbs. (kg)	5 (2.3)



# Features

- ◆ Variable notch depth to minimize interference from adjacent systems
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased rejection
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loop to facilitate field adjustment
- ◆ Releacable coupling loops for easy field conversion to other filter modes.
- ◆ Available in other frequency bands from 50 to 960 MHz

## BR-15107



# Reject (Notch) Cavity Filters BR-11107 • 13107 • 15107

BR Series

108-174 MHz

*The BR Series Notch Filters are designed to reject one narrow band frequency while passing all others in the operating band. They provide exactly the opposite response to a bandpass filter. This type of filter is especially useful to eliminate adjacent frequencies or interference from intermodulation.*

Electrical Specifications		BR-11107	BR-13107	BR-15107
Frequency Range:	MHz	118-136	132-150	138-174
Insertion Loss:	dB	0.6 or less		
Minimum Separation:				
15 dB	MHz	0.25		
20 dB	MHz	.35	.45	.55
25 dB	MHz	.70	.85	1.0
VSWR		1.5:1		
Power Rating:	watts	150		
Temperature Range:	Deg.	-40 C to +60 C		
Termination:		Type «N» Female		

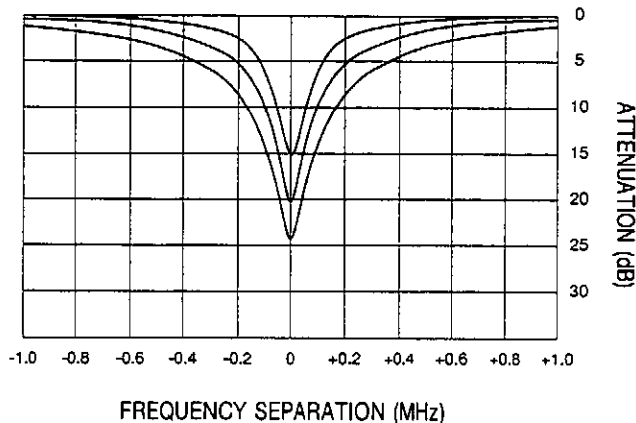
Mechanical Specifications		BR-11107	BR-13107	BR-15107
Cavity Diameter:	in. (mm)	6.625 (168)		
Cavity Length:	in. (mm)	32 (813)	26 (660)	24 (610)
Maximum Length (Tuning rod extended)	in. (mm)	43 (1092)	36 (914)	33 (838)
Weight:	lbs. (kg)	14 (6.4)	11 (5.0)	10 (4.5)



# Features

- ◆ Variable notch depth to minimize interference from adjacent systems
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased rejection
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loop to facilitate field adjustment
- ◆ Repleacable coupling loops for easy field conversion to other filter modes.
- ◆ Available in other frequency bands from 50 to 960 MHz

## BR-45107



# Reject (Notch) Cavity Filters BR-45107

BR Series

406-512 MHz

*The BR Series Notch Filters are designed to reject one narrow band frequency while passing all others in the operating band. They provide exactly the opposite response to a bandpass filter. This type of filter is especially useful to eliminate adjacent frequencies or interference from intermodulation.*

### Electrical Specifications

### BR-45107

Frequency Range:	MHz	406-512
Insertion Loss:	dB	0.6 or less
Minimum Separation:		
15 dB	MHz	0.6
20 dB	MHz	1.1
25 dB	MHz	2.4
VSWR		1.5:1
Power Rating:	watts	150
Temperature Range:	Deg.	-40 C to +60 C
Termination:		Type «N» Female

### Mechanical Specifications

### BR-45107

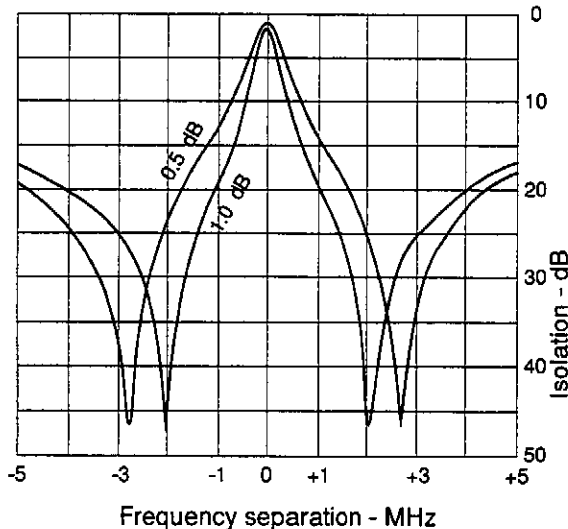
Cavity Diameter:	in. (mm)	6.625 (168)
Cavity Length:	in. (mm)	12 (305)
Maximum Length (Tuning rod extended)	in. (mm)	18 (457)
Weight:	lbs. (kg)	6 (2.7)



# Features

- ◆ Unique «W» circuit loop with symmetrical response to attenuate undesired close-spaced frequencies on both sides of the pass frequency
- ◆ Dual notch circuitry with pseudo bandpass characteristics resulting in high Tx to Rx isolation between and adjacent to the operating frequencies
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased isolation
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loop to facilitate field adjustment
- ◆ Replaceable coupling loops for easy field conversion to other filter modes
- ◆ Available in other frequency bands from 50 to 406 MHz

## PR-15107 Symetrical separation



# Pass-Reject Cavity Filters

## PR-11107 • 13107 • 15107

PR Series

118-174 MHz

*Our unique Pass-Reject Dual Notch Cavity Filters provide high reject attenuation for applications with narrow frequency spacing. They can pass one frequency and reject another either above or below the pass frequency. The closed-spaced dual notch symmetrical response obtained from our special coupling loop allows more flexibility to systems engineers when designing complex filter systems. It also forms the building block to a new generation of products.*

Electrical Specifications		PR-11107	PR-13107	PR-15107
Frequency Range:	MHz	118-136	132-150	138-174
Insertion Loss:	dB	0.3 to 0.6		
Reject Attenuation:	See Curves			
VSWR at resonance:	(max)	1.5:1		
Power Rating:	watts	350		
Temperature Range:	Deg.	-40 C to +60 C		
Termination:		Type «N» Female		

Mechanical Specifications		PR-11107	PR-13107	PR-15107
Cavity Diameter:	in. (mm)	6.625 (168)		
Cavity Length:	in. (mm)	32 (813)	26 (660)	24 (610)
Maximum Length (Tuning rod extended)	in. (mm)	43 (1092)	36 (914)	33 (838)
Weight:	lbs. (kg)	14 (6.4)	11 (5.0)	10 (4.5)

(Other performance curves on reverse page)





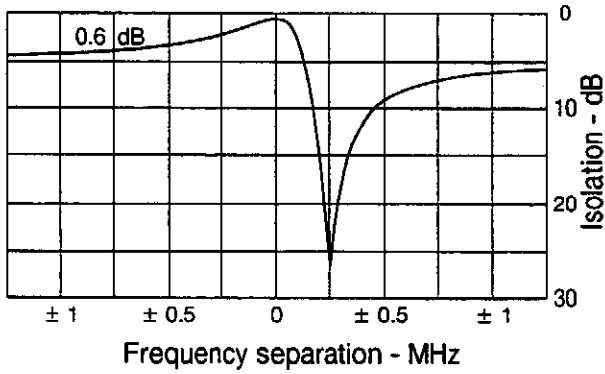
# Pass-Reject Cavity Filters

## PR-11107 • 13107 • 15107

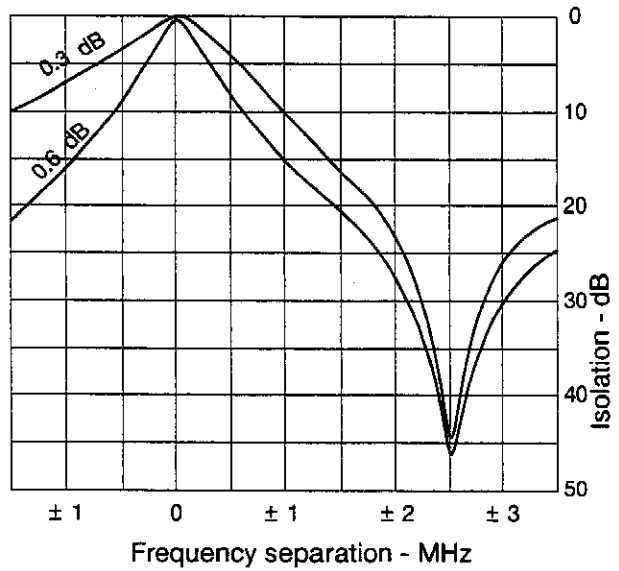
PR Series

118-174 MHz

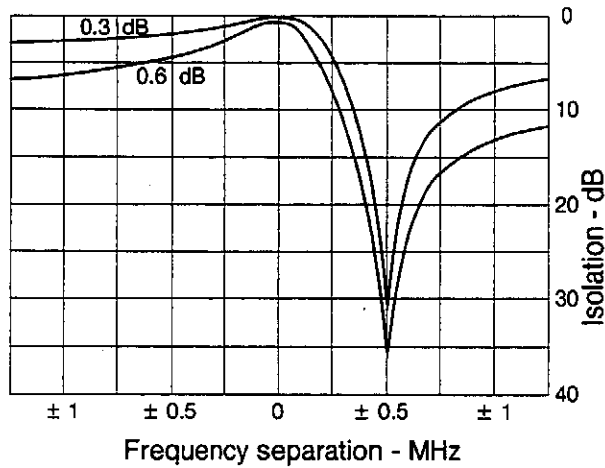
**PR-15107 Close separation**



**PR-15107 Wide separation**



**PR-15107 Moderate separation**





# Features

- ◆ Unique «W» circuit loop with symmetrical response to attenuate undesired close-spaced frequencies on both sides of the pass frequency
- ◆ Dual notch circuitry with pseudo bandpass characteristics resulting in high Tx to Rx isolation between and adjacent to the operating frequencies
- ◆ Available in single or multiple cavity assemblies of two, three or more units for increased isolation
- ◆ Factory adjusted selectivity setting to maximize system performance
- ◆ Temperature compensated to assure frequency stability
- ◆ Adjustable loop to facilitate field adjustment
- ◆ Replaceable coupling loops for easy field conversion to other filter modes

# Pass-Reject Cavity Filters PR-45107 • 80107

PR Series

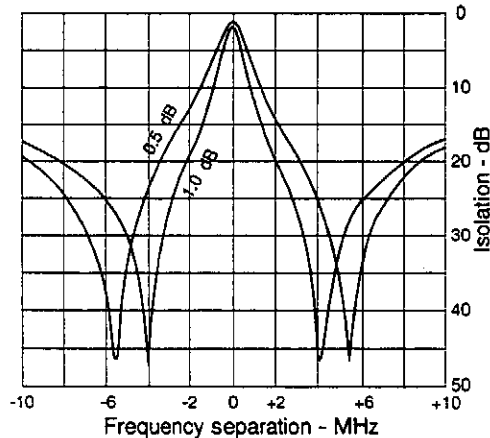
406-960 MHz

*Our unique Pass-Reject Dual Notch Cavity Filters provide high reject attenuation for applications with narrow frequency spacing. They can pass one frequency and reject another either above or below the pass frequency. The closed-spaced dual notch symmetrical response obtained from our special coupling loop allows more flexibility to systems engineers when designing complex filter systems. It also forms the building block to a new generation of products.*

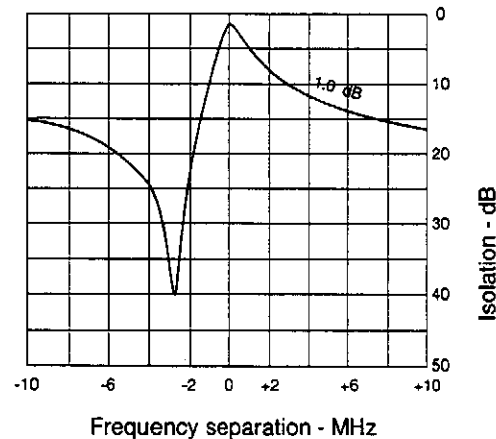
Electrical Specifications	PR-45107	PR-80107
Frequency Range:	MHz 406-512	806-960
Insertion Loss:	dB	0.3 to 0.6
Reject Attenuation:	See Curves	
VSWR at resonance	(max)	1.5:1
Power Rating:	watts	350
Temperature Range:	Deg.	-40 C to +60 C
Termination:	Type «N» Female	

Mechanical Specifications	PR-45107	PR-80107
Cavity Diameter:	in. (mm)	6.625 (168)
Cavity Length:	in. (mm)	12 (305) 7 (178)
Maximum Length (Tuning rod extended)	in. (mm)	18 (457) 9.5 (241)
Weight:	lbs. (kg)	6 (2.7) 5 (2.3)

**PR-45107 Symmetrical separation**



**PR-80107 Wide separation**



(Other performance curves on reverse page)

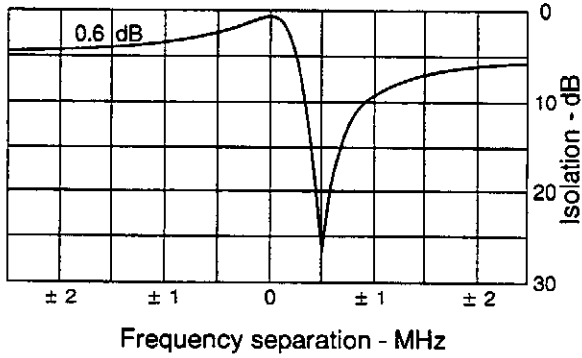


# Pass-Reject Cavity Filters PR-45107 • 80107

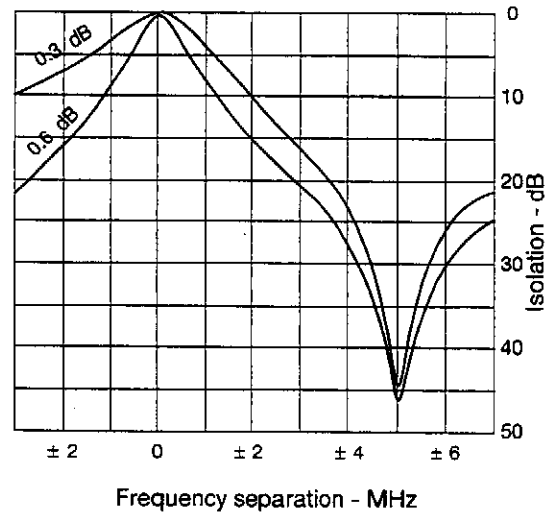
PR Series

406-960 MHz

**PR-45107 Close separation**



**PR-45107 Wide separation**



**PR-45107 Moderate separation**

