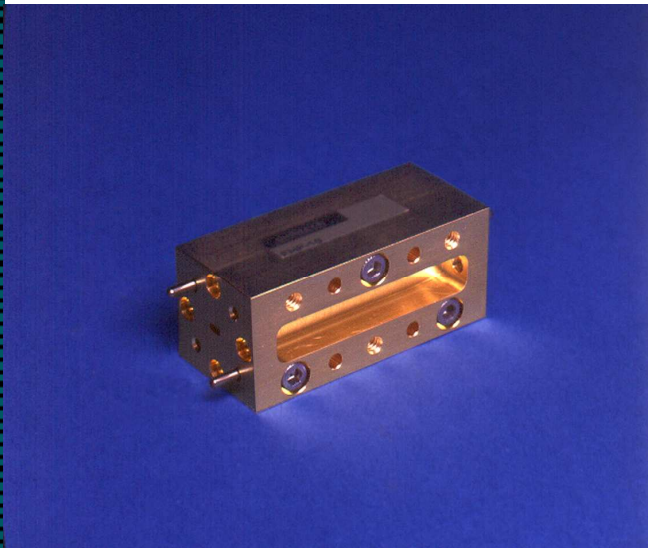


SERIES FHP

HIGH PASS FILTERS



FEATURES:

- Low insertion loss
- High selectivity (10 to 12 dB/GHz)
- Small, rugged package

APPLICATIONS:

- Downconverters and receivers
- Image/sideband rejection filter
- Receiver protection
- LO radiation suppression

DESCRIPTION

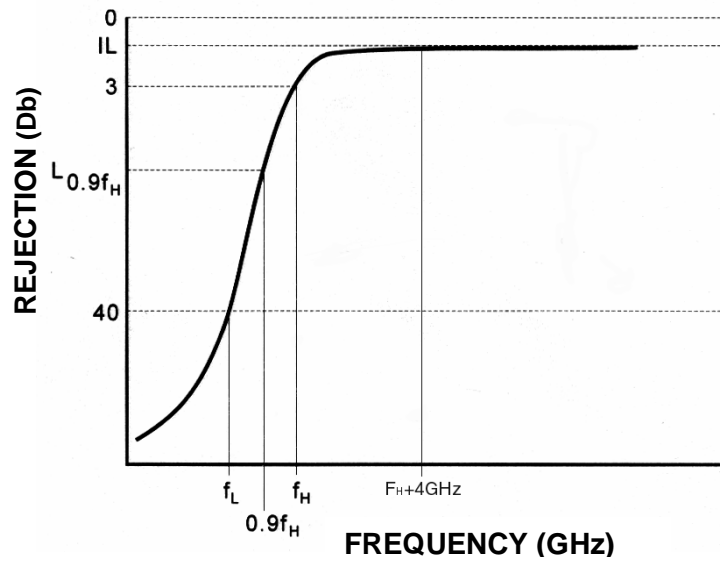
Millitech series FHP high pass filters are designed and constructed to provide a sharp skirt selectivity of low frequencies with minimum insertion loss in the passband. These filters offer significantly high rejection only a few GHz below the passband edge frequency.

Series FHP filters are available from 18 to 140 GHz. Hence, they are ideal for eliminating local oscillator leakage and for sideband (or image band) rejection in receivers and broadband downconverters where local oscillator frequency is below the desired signal band. These filters can also be used as receiver protectors from high power at frequencies below the signal band.

In addition, they are ideally suited for use between millimeter-wave LNA and broadband mixers to eliminate the contributions due to noises from the image band. A broad bandpass filter can be configured by combining this filter with an appropriate low pass filter (series FLP) in tandem. The skirt selectivity (lower frequency rejection) increases with the length of the filter.

Filters with any cut-off frequency (passband cut-off) between 18 and 140 GHz can be produced with specified rejection (selectivity) at and below a desired lower frequency. Typical skirt selectivity is 10 to 12 dB/GHz below the cut-off frequency.

Figure 1 – General Characteristics of High Pass Filters



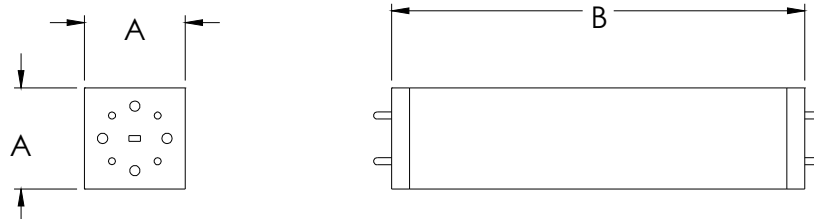
Legend
F_H = cut-off frequency (approx 3 dB loss)
f_L = 40 dB rejection point
$f_H + 4$ GHz = beginning of insertion loss passband

ELECTRICAL SPECIFICATIONS

Model Number	FHP-42	FHP-28	FHP-22	FHP-19	FHP-15	FHP-12	FHP-10	FHP-08
Frequency band and range (GHz)	K 18-26.5	KA 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140
Range of cut-off frequency (band edge) (GHz) ^{*1}	14-23	21-35	25-44	31-52	40-64	48-80	59-95	116-125
Passband loss (dB) (max) ^{*2}	0.7	1.0	1.0	1.2	1.3	1.3	1.5	2.0
Rejection at 90% of cut off frequency (dB) (typ) ^{*3}	45	45	40	40	40	35	35	35

*1 – Cut-off frequency has typical 3 dB loss. Rejection increases rapidly below this frequency.
 *2 – Insertion loss passband is measured 4.0 GHz from the 3 dB cut-off frequency.
 *3 – Longer length necessary to achieve greater rejection.

OUTLINE DRAWINGS*



*The outlines shown may not reflect the latest information. Please contact Millitech for current outline drawings.

MECHANICAL SPECIFICATIONS

Model Number	FHP-42	FHP-28	FHP-22	FHP-19	FHP-15	FHP-12	FHP-10	FHP-08
A (in/mm)	0.88/22.4	0.75/19.1	1.13/28.7	1.13/28.7	0.75/19.1	0.75/19.1	0.75/19.1	0.75/19.1
B (in/mm)	3.60/91.4	2.70/68.6	1.40/35.6	1.40/35.6	1.70/43.2	1.70/43.2	1.70/43.2	1.70/43.2
Flange MIL.F-3922	/54-001*	/54-003*	/67B-006	/67B-007	/67B-008	/67B-009	/67B-010	/67B-M08

* With # 4-40 threaded holes.

HOW TO ORDER

Specify Model Number FHP-XX-AAAB

XX = Waveguide Band
WR – number

AAA = Band Edge Specification [frequency in GHz at approximately 3 dB loss point (f_H)]

Examples:

074 = 74 GHz

108 = 108 GHz

BB = Rejection Options [rejection in dB desired at 90% of cut-off frequency ($0.9 f_H$)]

Example:

35 = 35 dB loss at $0.9 f_H$

EXAMPLE:

To Order: a series FHP in WR-15 with a round flange, a cut-off frequency of 60 GHz (at 3 dB loss point) and 40 dB rejection at $0.9 f_H$ (54 GHz)

Specify: FHP-15-Ø6Ø40