

Ultra-Narrow Band-Pass Filter Module

IXC-FBG-PS-M

This all fiber-based filter provides a clean extraction of narrow-band signal, Full Width Half Maximum (FWHM) could be selected at time of order from 1 to 4 GHz. Filter shape exhibit a flat-top shape in order to preserve signal integrity, steep edges and a high crosstalk over the full C or L band to remove all unwanted signals and noises.

The all-fiber design with no moving part ensures long time reliability. Fiber Bragg Gratings used in the module are thermally packaged in order to get a very stable central wavelength against lab temperature variations.

Thanks to our dedicated packaging, the bandpass wavelength can be easily and finely adjusted by user by rotating a tiny screw on the package.

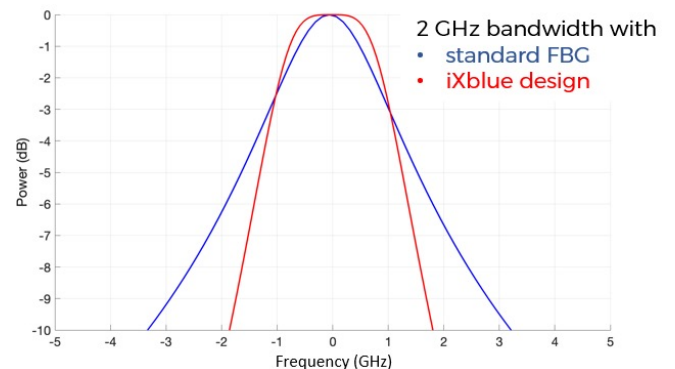
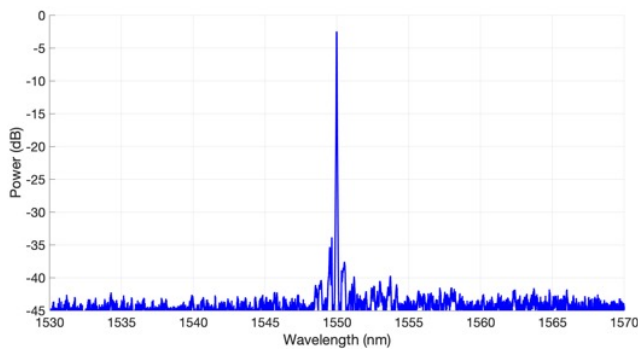


FEATURES & BENEFITS

- Flat-top symmetrical pass-band filter
- Down to 1 GHz (8 pm) FWHM
- < 4 dB Insertion Loss
- > 25 dB Optical Rejection Ratio @ 10 GHz
- PM or SMF
- +/- 100 pm fine tuning

APPLICATIONS

- Microwave photonics
- Quantum communication
- Space communication
- Lidar
- Lines filtering for lasers and sensors
- RF filtering
- ASE or laser mode suppression
- Linewidth reduction
- Frequency discriminator



*Typical response (IN → OUT)
Flat-top symmetrical band-pass design with an improved Q-factor, leading to better selectivity and higher signal-to-noise ratio.*

IXC-FBG-PS-M TECHNICAL SPECIFICATIONS

PARAMETERS

Band-pass center wavelength <u>CW</u> ¹	1525 1610 (TBD) nm
Band-pass bandwidth <u>B</u> (FWHM) ²	1, 2, 3 or 4 (TBD) ± 0.5 GHz
Insertion loss IL	< 4 dB
Out-of-band attenuation ΔT at ± 10 GHz	> 25 dB
Rejection bandwidth (IN → OUT)	C-band or L-band
Tuning range	± 100 pm
Tuning resolution	1 GHz
CW thermal drift [- 5 ; 70]°C	< 150 pm
Packaging	165 x 55 x 15 mm
Input power (max.) ³⁻⁴	500 mW
Pigtail length	0.5 m
Optical connectors <u>CC</u>	FC/APC, FC/PC, SC/APC, SC/PC (0.9 mm buffered fiber)

¹ Referenced to vacuum at +/- 0.05 nm, slow axis (PM Fiber)

² Lorentzian line shape for standard 1 GHz FWHM

³ Maximum input power: damage power threshold

⁴ Recommended input power for stable filter operation is below 2 mW for 1GHz and below 10 mW for 2 to 4 GHz FWHM version

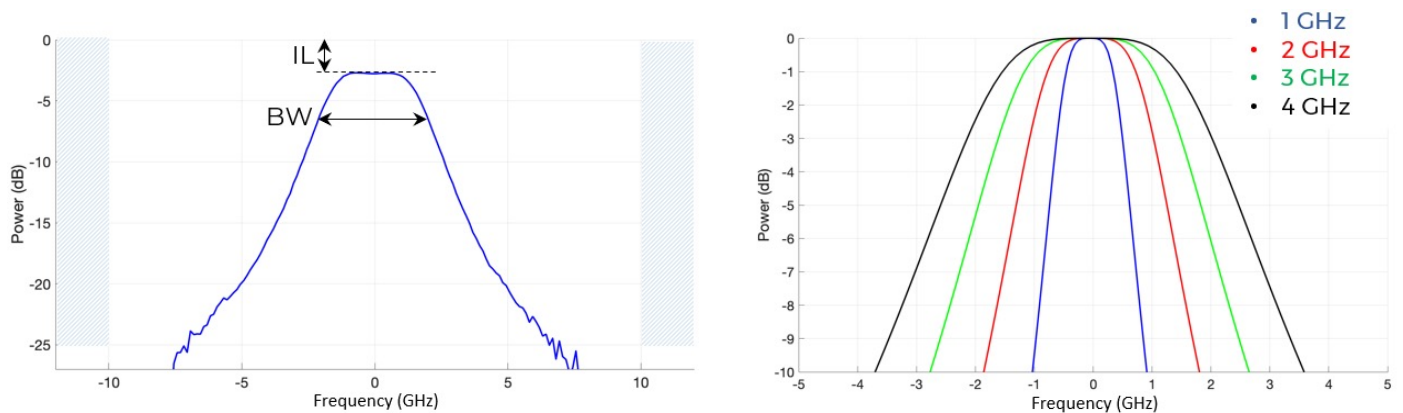
IXC-FBG-PS-M-CW-B-FT-CC ORDERING GUIDE

CW: wavelength in nm, between 1525 and 1610

B: filter bandwidth in GHz. Available: 1, 2, 3 and 4

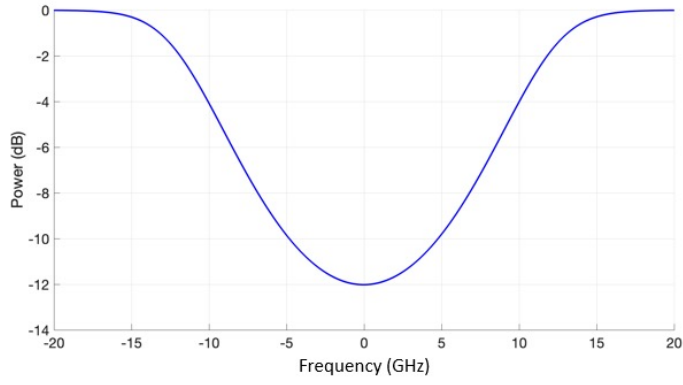
FT: Fiber Type. Selection between PM (PM1550 or equivalent) and SM (SMF28e+ for band-pass bandwidth ≥ 2 GHz)

CC: Optical Connector. Available: FA (FC/APC); FP (FC/PC); SA (SC/APC) and SP (SC/PC)



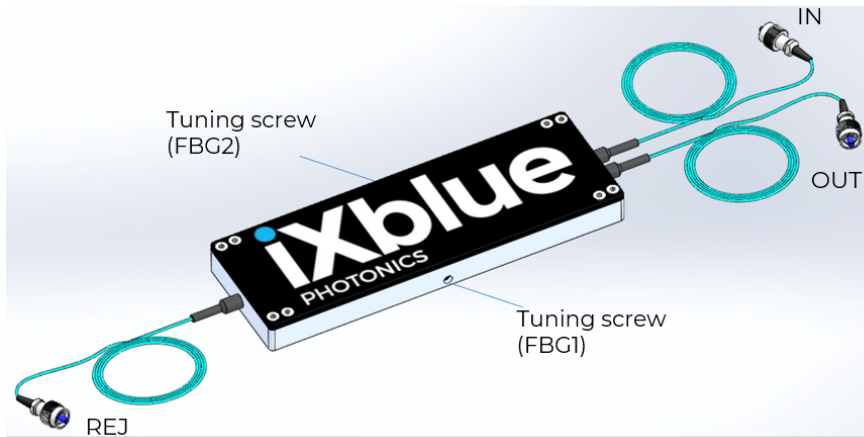
Typical response (IN → OUT)

*This filter allows transmission of a specific narrow band while rerouting other wavelengths in C or L-band.
Several bandwidths are available ranging from 1 to 4 GHz.*

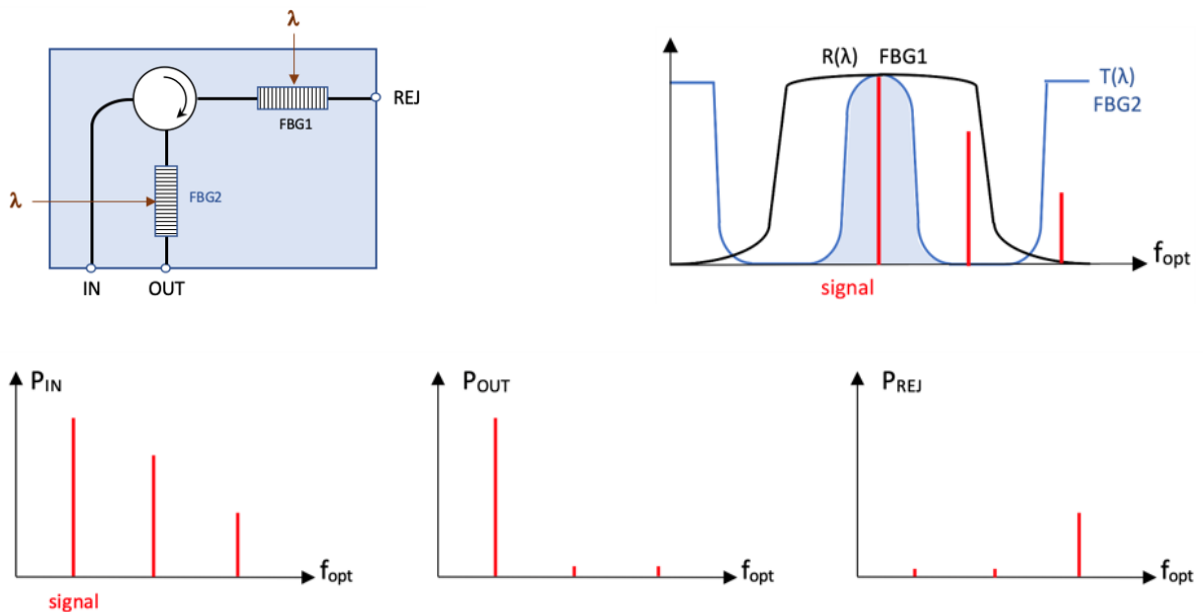


Typical response (IN → REJ)

PACKAGING



CONFIGURATION



Optical filter based on 2 athermal FBGs and an optical circulator