

TeraXion

OF High-Precision Optical Filters



The OF High-Precision Optical Filters are made of state-of-the-art fiber Bragg gratings (FBGs). They are offered in different options, including TeraXion's best-in-class athermal package.

TeraXion's optical filters can be centered from 700 nm up to 2100 nm. They can also be shaped with a bandwidth (BW) as low as 2 GHz (0.016 nm) up to thousands of GHz.

Thanks to its proven simulation modelling, manufacturing processes, and athermal packaging expertise backed by 20 years delivering high-precision FBG components, TeraXion provides optical filters that can meet a wide set of demanding requirements.

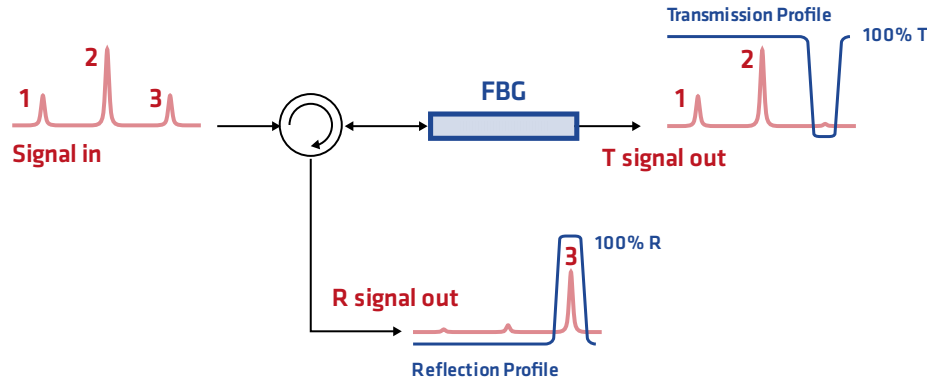
Top 6 Features

- **Outstanding central wavelength accuracy:** < 50 pm absolute accuracy.
- **High stability:** < 0.5 pm / °C drift when integrated within TeraXion's best-in-class athermal package.
- **Flat top & steep edge shapes:** > 20 dB drop over 4 GHz for steep edge models, tailored for challenging signal isolation needs.
- **Low dispersion models:** < 5 ps peak-to-peak group delay, ideal for picosecond laser spectral filtering.
- **High reflectivity & high optical isolation:** Up to 99.9% reflectivity combined with typical > 35 dB mean out-of-band isolation, provides remarkable signal-to-noise ratio (SNR) enhancement.
- **Narrow to wide bandwidth (BW):** As low as 2 GHz (0.016 nm) up to thousands of GHz.

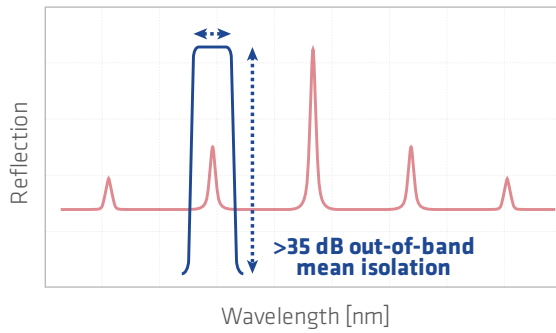


[1] Select packages

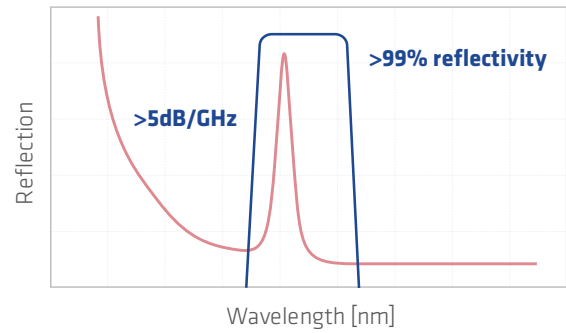
Filter Profile Examples, Usage and Applications



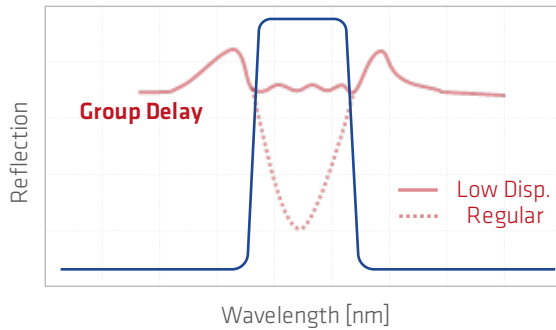
High Isolation & Narrow



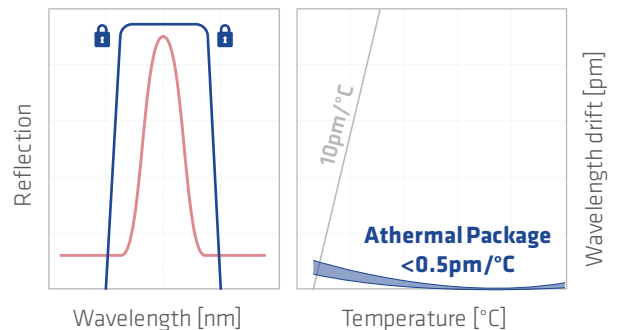
Flat-top Step-edge



Low Dispersion



Minimal Thermal Drift



Usage	Key Features	Applications
<ul style="list-style-type: none"> Optical communication carrier and side-band suppression 	<ul style="list-style-type: none"> Flat-top step-edge High optical isolation <p>BW: 2 - 8 GHz typical</p>	<ul style="list-style-type: none"> RF over Fiber DWDM Access & DCI
<ul style="list-style-type: none"> Brillouin or Rayleigh signal isolation Probe or pump wavelength isolation ASE suppression 	<ul style="list-style-type: none"> High reflectivity High optical isolation Minimal thermal drift <p>BW: 5 - 15 GHz typical</p>	<ul style="list-style-type: none"> Distributed Fiber Sensing (DAS, BOTDR, etc.) Quantum Sensing
<ul style="list-style-type: none"> Picosecond lasers spectral filtering Cyberattacks prevention 	<ul style="list-style-type: none"> Low dispersion High isolation <p>BW: 0.1 - 0.8 nm typical</p>	<ul style="list-style-type: none"> Quantum Communications Ultrafast lasers

Optical Specifications	Values	Units
Single center wavelength at 25° C (referenced to vacuum)	700 - 2100	nm
Center wavelength accuracy ^{1,2}	< 50	pm
Center wavelength stability (athermal package)	< 0.5	pm / °C
Reflection bandwidth (BW) ²	2 - thousands	GHz
	0.015 - tens	nm
Reflectivity ³	Up to 99.9	%
Mean out-of-band isolation ⁴	Typ. > 35	dB
Power handling	Up to 1	W
Fiber type	PM or non-PM	
Polarization extinction ratio (PER) ⁵	> 20	dB
Optional Features		
Steep edge model: Transition slope	> 20	dB over 4 GHz
Low dispersion model: Peak-to-peak group delay (GD)	< 5	ps

(1) < 150 pm when using PM fiber in athermal package

(2) Maximum wavelength accuracy and minimum BW are available between 700 - 900, 1020 - 1070 nm, and 1520 - 1620 nm

(3) Maximum measurable reflectivity may be limited by BW and fiber type

(4) Equivalent to the metrology and test noise floor, higher isolation by design

(5) Lower PER for athermal packages

Packaging/Mechanical Specifications	Values	Units
Package options	Bare - Recoat - Athermal - Module	-
Athermal tube dimensions (Φ x L): Short tube ¹	4.8 x 75	mm
Athermal tube dimensions (Φ x L): Long tube ¹	6.3 x 195	mm
Module dimensions (H x W x L): FBG filter + circulator ¹	9.0 x 20 x 162	mm
Module dimensions (H x W x L): double FBG filter + circulator ¹	8.6 x 65 x 207	mm
Pigtail length options	0.5 - 1 - 1.5	m
Connectors	Various options	-
RoHS, REACH, Telcordia GR-1221/GR-1209	Yes ²	-

(1) Package availability to be confirmed by TeraXion based on filter specification requirements

(2) Select packages

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