Flat-Top Comb Filter

Optoplex provides customized **flat-top optical comb filter** based on its optical interleaver technology. In contrast with traditional Fabry-Perot cavity-based comb filter, Optoplex's **comb filter** is capable of transmitting modulated DWDM signals with its passband width available anywhere down to a few GHz. Both the filter channel spacing (FSR) and filter duty cycle (3-dB bandwidth to FSR ratio) can be specified by customers.

Based on Optoplex's patented technologies of micro-optics and phase modulation through thin-film coating, the flat-top comb filter is a purely passive device characterized by minimal temperature dependence, flat-top passband, high channel isolation, low PDL, and uniform insertion loss. The product is Telcordia GR-1221 qualified.

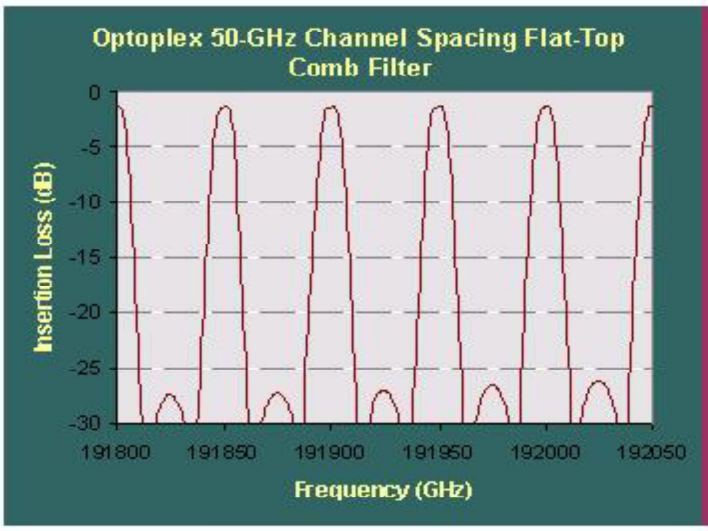

Figure 1.1, Spectrum of a 50GHz comb filter

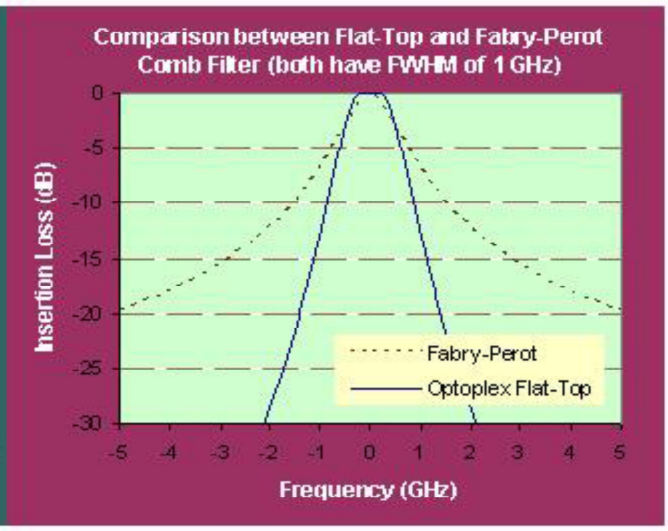

Figure 1.2, Pass-band of a flat-top comb filter, compared to an F-P filter

Key Features and Benefits

- Wide and Flat Passband
- Minimal PDL
- High Isolation
- Minimal Thermal Drift
- Low and Customizable Dispersion
- Dual C- and L-Band Coverage
- Telcordia GR-1221/63 Qualified

Figure 1.3, Photo of a 50GHz comb filter

Applications

- Noise Suppression in DWDM System
- Reshape Signal Passband
- Optical Ruler in DWDM System
- Passband Reduction of Signals with High Modulation Rate

Optical Performance Specification

Parameter	Symbol	Unit	Specification
Wavelength Range (C-Band)	WR	*nm*	1527 ~ 1567
Free Spectral Range (FSR)	FSR	*GHz*	100
Spectrum Valley Position	VP	*GHz*	Offset 50GHz from ITU Grid
Channel Center Frequency Error	CFE	*GHz*	< ± 1.0
Peak Insertion Loss[1]	IL	*dB*	< 4.5
Insertion Loss Uniformity	UNI	*dB*	< 0.7
Passband Width @ 1.0 dB	BW_1	*GHz*	> 2.5
Passband Width @ 3.0 dB	BW_3	*GHz*	> 7.0
Passband Width @ 20 dB	BW_{20}	*GHz*	< 40
PDL[1]	PDL	*dB*	< 0.3
Chromatic Dispersion (within ITU-Grid ±15 GHz)	CD	*ps/nm*	< ± 90
Polarization Mode Dispersion (within ITU-Grid ±15 GHz)	PMD	*ps*	< 0.2
Return Loss[1]		*dB*	> 40

Note:

1. Over the stated spectral and operating temperature ranges and all polarization states

Ordering Information