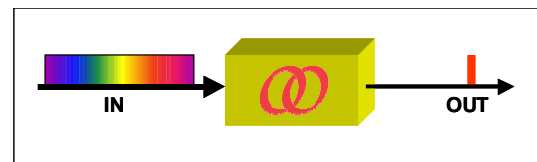


Tunable Optical Filter

Optoplex's **Tunable Optical Filter**, including **Tunable Bandpass Filter** and **Tunable Edge Filter**, is an integrated module, consisting of micro-optics and electronics. When receiving a stream of optical signals of a plurality of wavelengths from the Input-Port (IN), the 2-port Tunable Optical Filter directs a selected channel to the Output-Port (OUT). The selected channel can be varied (tuned) within the operating wavelength (frequency) range by a remote command sent through the built-in control PCB and firmware.

Optoplex's Tunable Optical Filter is based on a patented micro-optic design and thin-film filter coating technology. The *thin-film filter* used in the optical tunable filter is similar to those already widely used in DWDM devices. The wavelength tuning is achieved by varying the incident angle of the incoming light beam on the *thin-film filter*. Each single device is optimized to cover either C- or L-band wavelengths. The standard optical tunable filter product family supports 50-, 100-, and 200-GHz channel spacing.

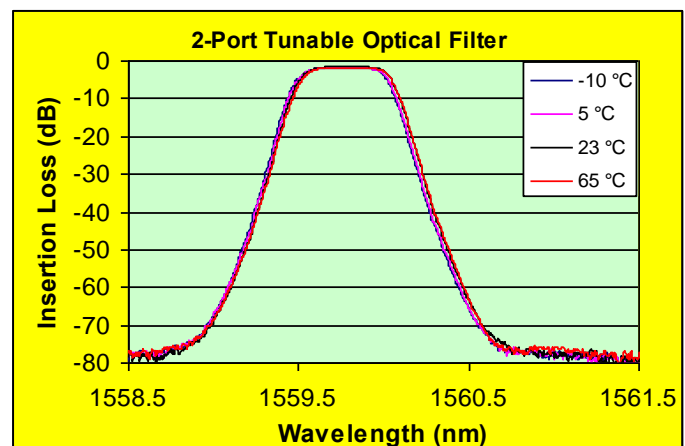


Applications

- Dynamic wavelength selection in DWDM systems
- Signal demultiplexing for DWDMs
- Optical performance monitoring
- Tunable optical noise filtering
- Noise suppression for optical amplifiers

Key Features and Benefits

- 40G compliance
- Athermal design
- Wide tuning range, covering entire C-band or L-band
- Flat and wide passband
- Low & uniform insertion loss
- High channel isolation
- Option for tunable bandpass & tunable edge filter
- Latching & low power consumption
- Option for electrical connector from side or bottom



Tunable Optical Filter Standard Product Datasheet¹

Parameter	Unit	50 GHz	100 GHz
Wavelength Tuning Range	<i>nm</i>	C-band: 1528 ~ 1562, L-band: 1567 ~ 1603	
Wavelength Tuning Resolution	<i>THz</i>	~ 10 pm or Calibrated to ITU grids	
Passband Width ¹ @ 0.5 dB	<i>GHz</i>	-	> 30
Passband Width ¹ @ 1.0 dB	<i>GHz</i>	> 16	-
Passband Width ¹ @ 3.0 dB	<i>GHz</i>	25 GHz (typical)	50 GHz (typical)
Passband Width ¹ @ 20 dB	<i>GHz</i>	< 85	-
Passband Width ¹ @ 25 dB	<i>GHz</i>	-	< 150
Peak Insertion Loss ¹ (without connector)	<i>dB</i>	< 4.5	< 3.0
Polarization Dependent Loss ¹	<i>dB</i>	<0.3 within CW±5GHz	< 0.4 within CW±10GHz
Polarization Mode Dispersion	<i>ps</i>	0.5	0.3
Chromatic Dispersion ¹	<i>ps/nm</i>	< ±100 within CW ±5GHz	< ±50 within CW ±12GHz
Wavelength Setting Error ²	<i>GHz</i>	< ±4	
Wavelength Repeatability ²	<i>GHz</i>	±1	
Wavelength Temperature Dependence	<i>pm/°C</i>	< ± 1 (typical)	
Return Loss	<i>dB</i>	> 40	
Maximum Input Optical Power	<i>mW</i>	300	
Tuning Speed (channel to channel)	<i>sec</i>	<10	
Tuning Power Consumption	<i>mW</i>	< 1800 (peak); < 300 (idle)	
Tuning Voltage	<i>V</i>	5 (DC)	
Electronic Interface	<i>mW</i>	RS232	
Operating Temperature	<i>°C</i>	0 to 65	
Storage Temperature	<i>°C</i>	-40 to 85	
Dimension (L×W×H) ³	<i>mm</i>	84×61×16	

Notes:

1. Over the stated spectral and operating temperature ranges and all polarization states.
2. Related to mechanical accuracy at a given temperature.
3. Including collimator sleeve and control PCB.

Optoplex Corporation, located in Fremont, California, is an ISO9001:2000 certified supplier of cutting-edge photonic components and modules for dynamic wavelength management and signal conditioning. The company designs, develops, manufactures, and markets innovative fiber-optic products to communications networks, and provides customized solutions to instrument, defense, spectroscopy and sensing industries. By combining its proprietary optical design and packaging technology with its state-of-the-art optical coating expertise and facility, Optoplex supplies DPSK demodulators, DQPSK demodulators, 90° optical hybrids, 2-port tunable optical filters, 3-port reconfigurable optical add/drop multiplexers (ROADMs), optical interleavers, flat-top comb filters, optical performance monitors (OPMs), and portable spectrometers.

1) C-Band, 100GHz DWDM Tunable Optical Filters (TOFs)

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
100GHz TOF, Std. Range	TO-2C2CT803	45	1527.994	196.2	62	1563.047	191.8	18
100GHz TOF, Extended	TO-2C2CT803E	55	1526.438	196.4	64	1570.416	190.9	9
100GHz TOF, Std. Range, PM Fiber	TO-2C2CT803P	45	1527.994	196.2	62	1563.047	191.8	18
100GHz TOF, Std. Range, High-Power (5W)	TO-2C2CT803SHP	45	1527.994	196.2	62	1563.047	191.8	18
100GHz TOF, Extended Range, High-Power (5W)	TO-2C2CT803EHP	55	1526.438	196.4	64	1570.416	190.9	9
100GHz TOF, Std. Range, Wide-Passband	TO-2C2CT813	45	1527.994	196.2	62	1563.047	191.8	18
100GHz TOF, Std. Range, Wide-Passband, High-Power (5W)	TO-2C2CT813SHP	45	1527.994	196.2	62	1563.047	191.8	18
100GHz TOF, Extended Range, Wide-Passband	TO-2C2CT813E	55	1526.438	196.4	64	1570.416	190.9	9
100GHz TOF, Extended Range, Wide-Passband, High-Power (5W)	TO-2C2CT813EHP	55	1526.438	196.4	64	1570.416	190.9	9

2) C-Band, 50GHz DWDM Tunable Optical Filters

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
50GHz TOF, Std.	TO-1C2CT801	85	1528.770	196.10	61.0	1562.230	191.90	19.0
50GHz TOF, Extended	TO-1C2CT801E	109	1526.827	196.35	63.5	1570.005	190.95	9.5

3) L-Band, 50GHz & 100GHz DWDM Tunable Optical Filters

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
100GHz TOF, L-Band, Std.	TO-2L2CT804	85	1568.000			1603.000		
100GHz TOF, L-Band, Extended	TO-2L2CT804E		1565.000			1610.000		
50GHz TOF, L-Band, Std.	TO-1L2CT802	109	1568.000			1603.000		

4) S-Band 100GHz Tunable Optical Filters

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
100GHz TOF, L-Band, Std.	TO-2S2CT823		1500.000			1520.000		

5) O-Band 100GHz Tunable Optical Filters

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
100GHz TOF, O-Band (1270 ~ 1300nm), 0.5dB BW >=30GHz	TO-2Q2AT831		1270.000			1300.000		
100GHz TOF, O-Band (1260 ~ 1300nm), 3dB BW >=0.55nm	TO-3Q2AT833		1260.000			1300.000		
100GHz TOF, 1310nm (1295 ~ 1325nm), 0.5dB BW >=30GHz	TO-2Q2AT832		1295.000			1325.000		
100GHz TOF, 1330nm (1315 ~ 1345nm), 0.5dB BW >=30GHz	TO-2Q2AT834		1315.000			1345.000		

1064nm 100GHz DWDM Tunable Optical Filters

Product Description	MPN	No of Channels	Start WVL (nm)	Start Freq (THz)	Start CH (ITU)	End WVL (nm)	End Freq (THz)	End CH (ITU)
100GHz TOF, 1030nm (1300 ~ 1340nm), 0.5dB BW >=30GHz	TO-2A2AT841		1320.000			1340.000		
100GHz TOF, 1064nm (1055 ~ 1075nm), 0.5dB BW >=30GHz	TO-2A2AT842		1055.000			1075.000		