

DATA SHEET

PASSIVE DWDM 2 CHANNEL FILTER

DESCRIPTION

Jabil Photonics DWDM optical filters have low insertion and low polarization dependent losses.

Different filters are available for the add/drop of 1, 2, 4, 8, 16 channels (in any combination as per customer requirements). In addition it is possible to monitor the signal at the ingress or at the egress of the line system, and to provide additional features like the possibility to add/drop a bandwidth or to manage at the same time CWDM and DWDM wavelengths.

The filter can be packaged in an LGX compatible module but also customization is possible. It is designed to be used in extreme temperature environments within a temperature range of -40° to $+85^{\circ}\text{C}$.

Standard version is the two fiber pair (one fibers for RX and one fiber for TX) at 100GHz channel spacing, with LC/APC connectors, monitoring port and upgrade port. Customized versions are available.



KEY FEATURES

- MUX/DMUX/OADM
- Low insertion loss, wide bandwidth and high isolation
- High stability and high reliability
- Any combination of ITU wavelength plan
- Fully customized to customer requirements
- Telcordia GR-1209, GR-1221-CORE qualified
- Mini-cassette, Fiber Tray, LGX & Rackmount

APPLICATIONS

- Data Center Interconnect
- Enterprise networking
- Access networks
- CATV fiber optic links

COMPLIANCES

- Compliant with Telcordia GR-1209, GR-1221-CORE
- Compliant with RoHS-6

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ENVIRONMENTAL SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Unit |
|-----------------------|------|-------|------|------|
| Operation Temperature | -40 | | +85 | °C |
| Storage Temperature | -40 | ----- | +85 | °C |
| Operation Humidity* | 5 | ----- | 95 | % |
| Storage Humidity | 5 | ----- | 95 | % |

(*) not condensing

OPTICAL SPECIFICATIONS

| Parameter | Value | Note | Unit |
|--------------------------------|---|--------------|-------|
| Channel Spacing | 100 | | GHz |
| Channel Pass Band@0.5dB | ± 0.125nm | | nm |
| Operating Wavelength | 1527.22 - 1564.68 | C16-63 | nm |
| UPG Wavelength | 1527.22 - 1564.68 (Except channel used) | | nm |
| EXP Wavelength Range | 1260-1520, 1570-1635 | | nm |
| MON Insertion Loss | 19-21 | Only coupler | dB |
| Ripple | ≤ 0.5 | | dB |
| UPG & EXP Isolation | ≥ 12 | | dB |
| Adjacent Channel Isolation | ≥ 30 | | dB |
| Non-adjacent Channel Isolation | ≥ 40 | | dB |
| PDL | ≤ 0.2 | | dB |
| PMD | ≤ 0.15 | | ps |
| Return Loss | ≥ 45 | | dB |
| IL Thermal stability | ≤0.005 | | dB/°C |
| Wavelength Thermal Stability | ≤0.002 | | nm/°C |
| Directivity | ≥ 45 | | dB |
| Maximum Input Power | ≤300 | | mW |
| MAX Channel Insertion Loss | 1.8 | | dB |
| MAX UPG Insertion Loss | 1.8 | | dB |
| MAX EXP Insertion Loss | 1 | | dB |

DATA SHEET

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ORDERING INFORMATION

| WDM | TYPE | #CHANNELS | GRID | FORM | TECHNOLOGY | CH PLAN | CONNECTOR |
|---------------------|-----------|-----------|---------|-------------|------------|---------|-----------|
| CWDM | MUX/DEMUX | 2CH | 100GHZ | | TFF | | |
| SINGLE / DUAL FIBER | EXPRESS | UPGRADE | MON | FIBE LENGTH | FIBER DIA | OTHERS | |
| DUAL | EXP | UPG | TXRXMON | | | | |

1. WDM

- DWDM for Dense WDM
- CWDM for Coarse WDM

2. TYPE

- **MUX/DEMUX**: it can also act as OADM function, requiring UPG port (see dedicated field)
- **MUX**: unidirectional application with only MUX function
- **DEMUX**: unidirectional application with only DEMUX function

3. #Channels:

- Number of add/dropped channels: **2CH,4CH,8CH,16CH,40CH** etc.

4. Grid: (applicable only to DWDM)

- **50GHZ** - **100GHZ** - **200GHZ**

5. Form: form factor (available **CGM, LGX 1RU, LGX 2RU, HDLGX1, HDLGX2**)

6. Technology:

- **TFF** (typically for 4,8,16)
- **AAWGM** (typically for 40,48,64)

7. Channel Plan:

- It can indicate the first and the last channel in case of consecutive channels or the specific channels to be managed
- **CHxx-CHyy**
- **CHxx, CHyy, CHzz**

8. Connector:

- **LCA** (LC/APC) - **SCA** (SC/APC)
- **LCU** (LC/UPC) - **FCU** (FC/UPC)
- **SCU** (SC/UPC) - **FCA** (FC/APC)

9. Single/Dual Fiber:

- **SINGLE**: Single Fiber application: it means that only one connector is provided for each port, and some channels are used for TX and others for RX
- **DUAL**: Dual Fiber application: pair of connector (IN/OUT) for each port.

The following are instead optional fields needed to specify additional requests:

10. **EXPRESS**: it indicates if additional bandwidth is extracted before filtering the channels. This typically applies to cases where mix of CWDM and DWDM network is managed:
 - **EXP**: it indicates that EXPRESS port (or port pair) is requested.

11. **UPGRADE**: it indicates that the rest of the channels (not dropped) is sent to an UPGRADE port. This applies to OADM configurations and to Terminal MUX with the possibility of expanding the number of terminated channels
 - **EXP**: it indicates that EXPRESS port (or port pair) is requested.

12. **MONITORING**: it indicates that monitoring port is requested. There are some options possible:
 - **RXMON**: monitoring associated to the Ingress COM interface (ingress line)
 - **TXMON**: monitoring associated to the Egress COM interface (egress line)
 - **TXRXMON**: pair of monitoring ports associated to both the Ingress COM interface (ingress line) and to Egress COM interface (egress line)
 - **BIDMON**: monitoring associated to the single COK interface (single fiber application)

13. Fiber Length:

- **0.5M** : 50cm
- **1M** : 1 meter
- **2M** : 2 meter

14. Fiber Diameter:

- **900um**
- **250um**
- **1.2mm**
- **2mm**
- **3mm**

15. **Others**: it is also possible to specify other characteristics

CONTACT INFORMATION

For additional information and evaluation samples order, please contact:

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DATA SHEET

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CHANNEL PLAN

| Channel (nm) | Frequency (THz) | 50GHZ GRID CHANNEL NUMBER | 100GHZ-200GHZ GRID CHANNEL NUMBER |
|--------------|-----------------|---------------------------|-----------------------------------|
| 191.70 | 1563.86 | 170 | 17 |
| 191.75 | 1563.45 | 175 | |
| 191.80 | 1563.05 | 180 | 18 |
| 191.85 | 1562.64 | 185 | |
| 191.90 | 1562.23 | 190 | 19 |
| 191.95 | 1561.83 | 195 | |
| 192.00 | 1561.42 | 200 | 20 |
| 192.05 | 1561.01 | 205 | |
| 192.10 | 1560.61 | 210 | 21 |
| 192.15 | 1560.20 | 215 | |
| 192.20 | 1559.79 | 220 | 22 |
| 192.25 | 1559.39 | 225 | |
| 192.30 | 1558.98 | 230 | 23 |
| 192.35 | 1558.58 | 235 | |
| 192.40 | 1558.17 | 240 | 24 |
| 192.45 | 1557.77 | 245 | |
| 192.50 | 1557.36 | 250 | 25 |
| 192.55 | 1556.96 | 255 | |
| 192.60 | 1556.55 | 260 | 26 |
| 192.65 | 1556.15 | 265 | |
| 192.70 | 1555.75 | 270 | 27 |
| 192.75 | 1555.34 | 275 | |
| 192.80 | 1554.94 | 280 | 28 |
| 192.85 | 1554.54 | 285 | |
| 192.90 | 1554.13 | 290 | 29 |
| 192.95 | 1553.73 | 295 | |
| 193.00 | 1553.33 | 300 | 30 |
| 193.05 | 1552.93 | 305 | |
| 193.10 | 1552.52 | 310 | 31 |
| 193.15 | 1552.12 | 315 | |
| 193.20 | 1551.72 | 320 | 32 |
| 193.25 | 1551.32 | 325 | |
| 193.30 | 1550.92 | 330 | 33 |
| 193.35 | 1550.52 | 335 | |

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| Channel (nm) | Frequency (THz) | 50GHZ GRID CHANNEL NUMBER | 100GHZ-200GHZ GRID CHANNEL NUMBER |
|--------------|-----------------|---------------------------|-----------------------------------|
| 193.40 | 1550.12 | 340 | 34 |
| 193.45 | 1549.72 | 345 | |
| 193.50 | 1549.32 | 350 | 35 |
| 193.55 | 1548.91 | 355 | |
| 193.60 | 1548.51 | 360 | 36 |
| 193.65 | 1548.11 | 365 | |
| 193.70 | 1547.72 | 370 | 37 |
| 193.75 | 1547.32 | 375 | |
| 193.80 | 1546.92 | 380 | 38 |
| 193.85 | 1546.52 | 385 | |
| 193.90 | 1546.12 | 390 | 39 |
| 193.95 | 1545.72 | 395 | |
| 194.00 | 1545.32 | 400 | 40 |
| 194.05 | 1544.92 | 405 | |
| 194.10 | 1544.53 | 410 | 41 |
| 194.15 | 1544.13 | 415 | |
| 194.20 | 1543.73 | 420 | 42 |
| 194.25 | 1543.33 | 425 | |
| 194.30 | 1542.94 | 430 | 43 |
| 194.35 | 1542.54 | 435 | |
| 194.40 | 1542.14 | 440 | 44 |
| 194.45 | 1541.75 | 445 | |
| 194.50 | 1541.35 | 450 | 45 |
| 194.55 | 1540.95 | 455 | |
| 194.60 | 1540.56 | 460 | 46 |
| 194.65 | 1540.16 | 465 | |
| 194.70 | 1539.77 | 470 | 47 |
| 194.75 | 1539.37 | 475 | |
| 194.80 | 1538.98 | 480 | 48 |
| 194.85 | 1538.58 | 485 | |
| 194.90 | 1538.19 | 490 | 49 |
| 194.95 | 1537.79 | 495 | |
| 195.00 | 1537.40 | 500 | 50 |
| 195.05 | 1537.00 | 505 | |

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| Channel (nm) | Frequency (THz) | 50GHZ GRID CHANNEL NUMBER | 100GHZ-200GHZ GRID CHANNEL NUMBER |
|--------------|-----------------|---------------------------|-----------------------------------|
| 195.10 | 1536.61 | 510 | 51 |
| 195.15 | 1536.22 | 515 | |
| 195.20 | 1535.82 | 520 | 52 |
| 195.25 | 1535.43 | 525 | |
| 195.30 | 1535.04 | 530 | 53 |
| 195.35 | 1534.64 | 535 | |
| 195.40 | 1534.25 | 540 | 54 |
| 195.45 | 1533.86 | 545 | |
| 195.50 | 1533.47 | 550 | 55 |
| 195.55 | 1533.07 | 555 | |
| 195.60 | 1532.68 | 560 | 56 |
| 195.65 | 1532.29 | 565 | |
| 195.70 | 1531.90 | 570 | 57 |
| 195.75 | 1531.51 | 575 | |
| 195.80 | 1531.12 | 580 | 58 |
| 195.85 | 1530.72 | 585 | |
| 195.90 | 1530.33 | 590 | 59 |
| 195.95 | 1529.94 | 595 | |
| 196.00 | 1529.55 | 600 | 60 |
| 196.05 | 1529.16 | 605 | |
| 196.10 | 1528.77 | 610 | 61 |
| 196.15 | 1528.38 | 615 | |
| 196.20 | 1527.99 | 620 | 62 |
| 196.25 | 1527.60 | 625 | |
| 196.30 | 1527.22 | 630 | 63 |
| 196.35 | 1526.83 | 635 | |
| 196.40 | 1526.44 | 640 | 64 |
| 196.45 | 1526.05 | 645 | |