

Product Bulletin

New



50/100 GHz Active Interleavers IMC Series

The JDS Uniphase optical frequency interleaver offers wide bandwidth and flat top response, making the product useful for wide passband multiplexing and demultiplexing applications. As a multiplexer, the interleaver combines two streams of forty 100 GHz spaced channels into one output stream of eighty 50 GHz spaced channels. As a demultiplexer, the interleaver filters one input stream of eighty 50 GHz spaced channels into two output streams of forty 100 GHz. This terabit-enabling technology for ultra-dense wavelength division multiplexing can be used over the entire C or L bands. In addition, the interleaver provides transmission network suppliers with more flexibility at the OADM site and reduces the performance requirements of the post-filtering DWDM module.

Actively heated, the interleaver lends itself to integration with temperature-controlled arrayed waveguides (AWG). Its wide bandwidth and flat top response complement the narrower bandwidth AWG component resulting in almost negligible bandwidth narrowing of the AWG DWDM.

Key Features

- Low insertion loss
- Flat, wide clear bandwidth
- Very high channel isolation
- Doubles capacity of existing networks
- Supports 2.5 and 10 Gb/s
- Lower-cost overall DWDM solution

Applications

- High channel-count mux/demux
- Scalable terabit networks
- Bridge existing and new DWDM platforms
- Bidirectional networks
- Large node add/drop: entire set of odd or even channels can be dropped at once
- Comb filter

50/100 GHz Active Interleavers | 2

Optical Specifications

Parameter		50/100 GHz Mux Standard	50/100 GHz Demux Standard	50/100 GHz Demux Wide
Wavelength range (C band, for end channel)		1525.66 to 1574.95 nm		
Wavelength range (L band, for end channel)		1570.01 to 1610.056 nm		
Frequency range (C band, for end channel ITU grid)		196.500 to 190.350 THz		
Frequency range (L band, for end channel ITU grid)		190.950 to 186.200 THz		
Number of channels	Minimum	80 channel		
Reduced clear bandwidth ¹	Minimum	ITU ±10 GHz		
Clear bandwidth ¹	Minimum	ITU ±13 GHz	ITU ±11 GHz	ITU ±14 GHz
Insertion loss within reduced clear bandwidth ¹ (with one connection)	Maximum	1.0 dB	1.8 dB	4.7 dB
Ripple within clear bandwidth ^{1,2}	Maximum	0.5 dB		
Polarization dependent loss within reduced clear bandwidth ^{1,3}	Maximum	0.2 dB		
Insertion loss uniformity ^{1,4}	Maximum	0.6 dB	0.6 dB	1.0 dB
Adjacent channel isolation stopband of the reduced clear bandwidth ¹	Minimum	13 dB	27 dB	24 dB
Return loss for all ports	Minimum	45 dB		
Directivity	Minimum	55 dB		
Polarization mode dispersion within reduced clear bandwidth	Maximum	0.2 ps		
Chromatic dispersion within ±5 GHz	Maximum	±60 ps/nm	±70 ps/nm	±75 ps/nm
Chromatic dispersion within ±10 GHz	Maximum	±110 ps/nm	±200 ps/nm	±150 ps/nm
Optical power ²	Maximum	23 dBm		
Operating temperature		-5 to 70 °C		

1. Over all operating temperatures and states of polarization (SOP).

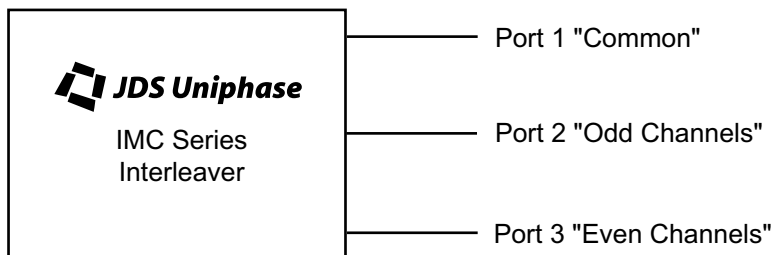
2. Measured at any given SOP.

3. Difference between insertion loss at any two SOP, measured at a given wavelength.

4. Difference between the maximum insertion loss over any two clear bandwidths, at any given SOP, and at any operating temperature.

5. Restricted to wavelength range (C and L bands) and 1300 to 1320 nm.

Interleaver (Top View)



Note: See Table 1 below for channel designation of Ports 2 and 3.

Table 1: Channel Designation of Ports 2 and 3

Channel Spacing on ITU Grid	C Band Port 2 Frequency	C Band Port 3 Frequency	L Band Port 2 Frequency	L Band Port 3 Frequency
50/100 GHz on ITU	190.400 to 196.500 THz	190.350 to 196.450 THz	186.200 to 190.900 THz	186.250 to 190.950 THz

Note: Frequencies (THz) listed are for start channel on ITU grid.

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Electrical Specifications

Parameter	50/100 GHz Mux Standard	50/100 GHz Demux Standard	50/100 GHz Demux Wide
Temperature sensor		100 Ω at 0 °C	
Temperature sensor slope (IEC 751 Class A)		+0.00385 $\Omega/\Omega\text{-}^\circ\text{C}$	
RTD current ¹	Maximum	1 mA	
Heater resistance		15 \pm 0.3 Ω	
Power consumption per heater (short-term, warm-up time only)	Maximum	3 W	
Module warm-up time (case temperature at -5 °C)	Maximum	8 minutes	

1. Platinum RTD, 3 wire.

Electrical Pin Layout

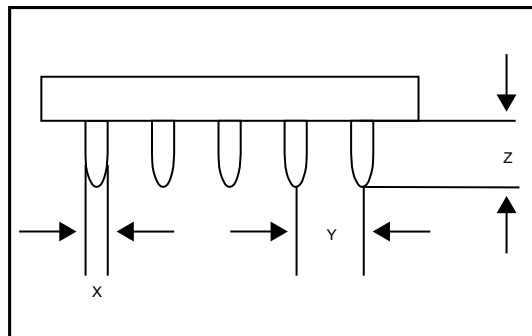
Pin	Description
1	Heater connection 1
2	Heater connection 2
3	RTDB1 ¹
4	RTDB2 ¹
5	RTDA
6	NC ²
7	NC ²
8	NC ²
9	NC ²
10	NC ²

1. RTDB1 and RTDB2 are connected together at the sensor.
2. Pins 6-10 are not connected.

Electrical Pin Specifications

Pin Specifications

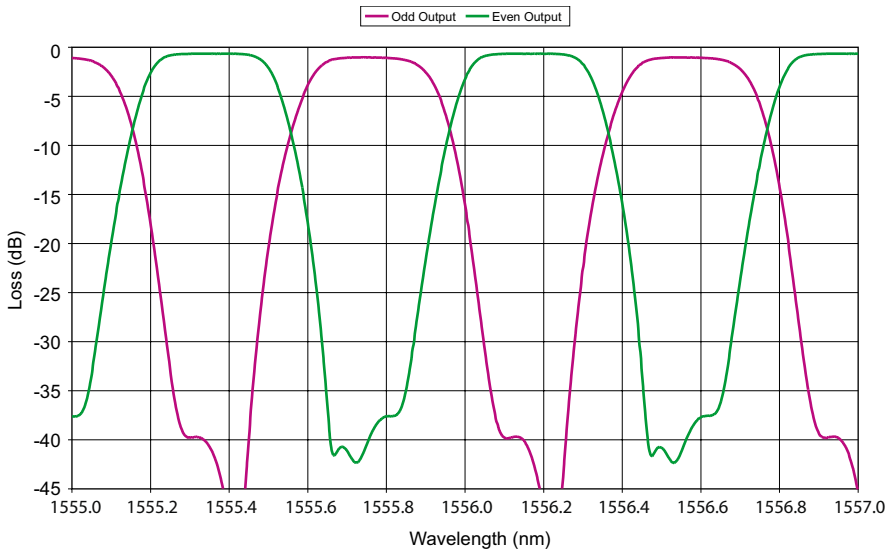
Pin length from cassette (Z):	3.25 mm \pm 0.25 (0.127" \pm 0.01")
Pin diameter (X):	0.51 mm \pm 0.05 mm (0.020" \pm 0.002")
Pin separation (Y): (center to center)	2.54 mm (0.100")



Mechanical Specifications

Parameter	50/100 GHz Mux Standard	50/100 GHz Demux Standard	50/100 GHz Demux Wide
Standard fiber type tight-buffer jacket		SMF-28, 900 μm	
Standard fiber length		1.0 \pm 0.1 m	
Standard package dimensions (L x W x H)		125.7 x 92.9 x 13.5 mm	

Spectral Response



Ordering Information

Indicate your requirements by selecting one option from each configuration table. Please print the corresponding codes in the available boxes to form your part number. For more information on this or other products and their availability, please contact your JDS Uniphase account manager, or call 1-877-550-JDSU toll free in the U.S. and Canada or visit www.jdsuniphase.com.

Sample: IMC-C05D02411

IMC- **5** **0** **2** **4** **1**

Code	Wavelength Range
C	C band
L	L band

Code	Design Type
0	Standard
W	Wideband

Code	Narrower Channel Spacing
5	50 GHz

Code	Function
D	Demux
M	Mux

Code	Center Wavelength
0	Aligned with ITU grid ¹

1. Standard.

Code	Fiber Length
1	1 meter ¹

Code	Fiber Type
4	900 μm tight buffer SMF-28

Code	Package
2	Standard with heater

Code	Connector
0	None
1	FC/PC ¹
2	FC/SPC
3	FC/APC
4	SC/SPC
5	SC/APC
9	FC/UPC
A	SC/UPC
B	LC/PC
C	LC/UPC
D	MU/PC

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