Fiber Optical Tap Monitor Array

(8, 12, 24 channels)

DATASHEET

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The Integrated Fiber Optical Tap Monitor Array (ITMA) is a multi-channel power monitoring device that integrates an array of individual fiber optical tap monitors in a compact format. The ITMA combines the functions of a low-percentage optical coupler and a photodiode, delivering low insertion loss and low dark current, with excellent temperature stability over a wide operating wavelength range. It features a standard 12/14-pin package for easy PCB mounting, with each channel equipped with two fibers. Each tap monitor has two fibers, one for input and another for output.

A readout amplification PCB is available to mount the ITMA with a USB/RS232 interface. We also provide custom designs to meet specialized application needs.

Features

- Low Dark Current
- Ease PCB Mount
- Wide Wavelength
- High Stability

Applications

- WDM Channel Monitor
- System Monitor
- Sensor

Specifications

Parameter		Min	Typical	Max	Unit
Operation Wavelength		1260		1620	nm
Insertion Loss [1]	3%			0.5	dB
Polarization Dependent Loss				0.05	dB
Return Loss		45			dB
Responsivity [2]	3%	10		32	mA/W
	5%	26		65	
Responsivity Temperature Dependence				0.3	dB
Responsivity Polarization Dependence				0.1	dB
Dark Current [3]		2.5		10	nA
Reverse Voltage				20	V
Forward Current				10	mA
Input Optical Power	2%			21	dBm
	5%			16	
	10%			12	
Operating Temperature		-5		70	°C
Storage Temperature		-40		85	°C
Fiber Type		SM-28			

Notes:

[1]. @λop, Top, All SOP, Exclude Connector

[2]. Relative to input power

[3]. Measured at -5V bias, 70 ˚C

Warning: **The device is extremely ESD-sensitive. Its dark current increases by unprotected handling. It is recommended to be handled under a certified ion fan once the package is removed.**

Rev 06/25/25

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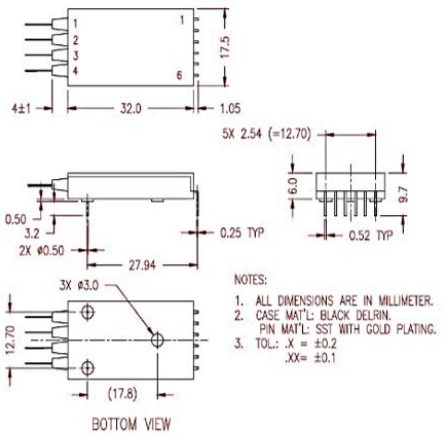
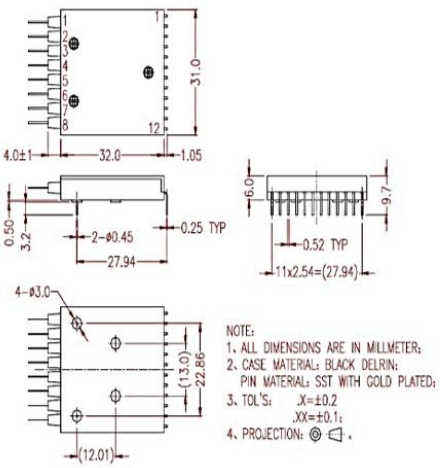
Mechanical Dimensions (mm)

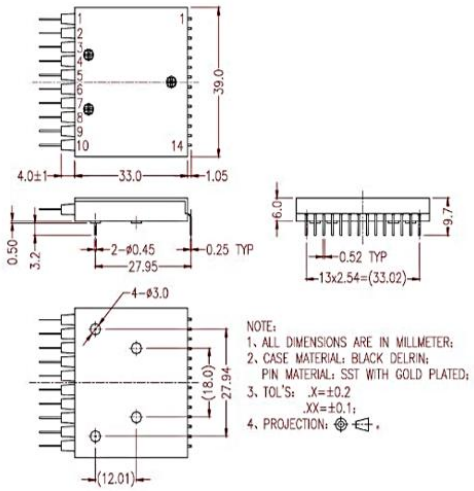
1) 4-ch ITMA



2) 8-ch ITMA



3) 10-ch ITMA



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical/Computer Connection

4-ch ITMA

Electrical Pin Assignment		
Pin #:	**Common Cathode Assignment**	**Common Anode Assignment**
Pin 1:	Common Cathode for Ch1 & 2	Common Anode for Ch1 & 2
Pin 2:	Anode Ch1	Cathode Ch1
Pin 3:	Anode Ch2	Cathode Ch2
Pin 4:	Common Cathode for Ch3 & 4	Common Anode for Ch3 & 4
Pin 5:	Anode Ch3	Cathode Ch3
Pin 6:	Anode Ch4	Cathode Ch4

8-ch ITMA

Electrical Pin Assignment		
Pin #:	**Common Cathode Assignment**	**Common Anode Assignment**
Pin 1:	Common Cathode for Ch1 & 2	Common Anode for Ch1 & 2
Pin 2:	Anode Ch1	Cathode Ch1
Pin 3:	Anode Ch2	Cathode Ch2
Pin 4:	Common Cathode for Ch3 & 4	Common Anode for Ch3 & 4
Pin 5:	Anode Ch3	Cathode Ch3
Pin 6:	Anode Ch4	Cathode Ch4
Pin 7:	Anode Ch5	Cathode Ch5
Pin 8:	Common Cathode for Ch5 & 6	Common Anode for Ch5 & 6
Pin 9:	Anode Ch6	Cathode Ch6
Pin 10:	Anode Ch7	Cathode Ch7
Pin 11:	Common Cathode for Ch7 & 8	Common Anode for Ch7 & 8
Pin 12:	Anode Ch8	Cathode Ch8

10-ch ITMA

Electrical Pin Assignment		
Pin #:	**Common Cathode Assignment**	**Common Anode Assignment**
Pin 1:	Common Cathode for Ch1 & 4	Common Anode for Ch1 & 4
Pin 2:	Anode Ch1	Cathode Ch1
Pin 3:	Anode Ch2	Cathode Ch2
Pin 4:	Anode Ch3	Cathode Ch3
Pin 5:	Anode Ch4	Cathode Ch4
Pin 6:	Anode Ch5	Cathode Ch5
Pin 7:	Common Cathode for Ch5 & 8	Common Anode for Ch5 & 8
Pin 8:	Anode Ch6	Cathode Ch6
Pin 9:	Anode Ch7	Cathode Ch7
Pin 10:	Anode Ch8	Cathode Ch8
Pin 11:	Anode Ch9	Cathode Ch9
Pin 12:	Common Cathode for Ch9 & 10	Common Anode for Ch9 & 10
Pin 13:	Anode Ch10	Cathode Ch10
Pin 14:	Not connected	Not connected

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Amplifier Daughter PCB

This amplifier PCB is designed as a daughterboard for integration with a detector array. It features a switch-based scanner that supports up to 24 optical detectors, enabling multichannel optical power measurement. The amplifier offers a programmable gain range from 10 to 1,000,000, and the digital output for each channel is individually calibrated via software to accommodate different detector types and wavelengths. The interface is USB/RS232

Specifications

Parameter	Min	Typical	Max	Unit
Measured Range	-50		10	dBm
Wavelength [1]	850		1630	nm
Response Speed [2]	1	2		MHz
Resolution	0.1			%
Repeatability		0.1		dB
Multichannel Scanning Rate [3]	0		100	Hz
DC Voltage	4.7	5	5.5	V
DC Power		0.8		W
Digital Signal Output		USB		
Operating Temperature	-10		70	˚C
Storage Temperature	-40		85	˚C

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Ordering Information

	☐☐	3	5	☐	1	1	2	☐
Prefix	**No. Channel**	**Tap Ratio**	**Bandwidth**	**Package ***	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
ITMA-	8 = 08 12 = 12 24 = 24	3% = 3 Special = 0	0.5G = 5	Component = 1 With Amplifier PCB = 3	SMF-28 = 1	Bare fiber = 1 Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

* Mount on PCB: amplifier PCB with 0-5V output or USB/RS232 interface with GUI. $990

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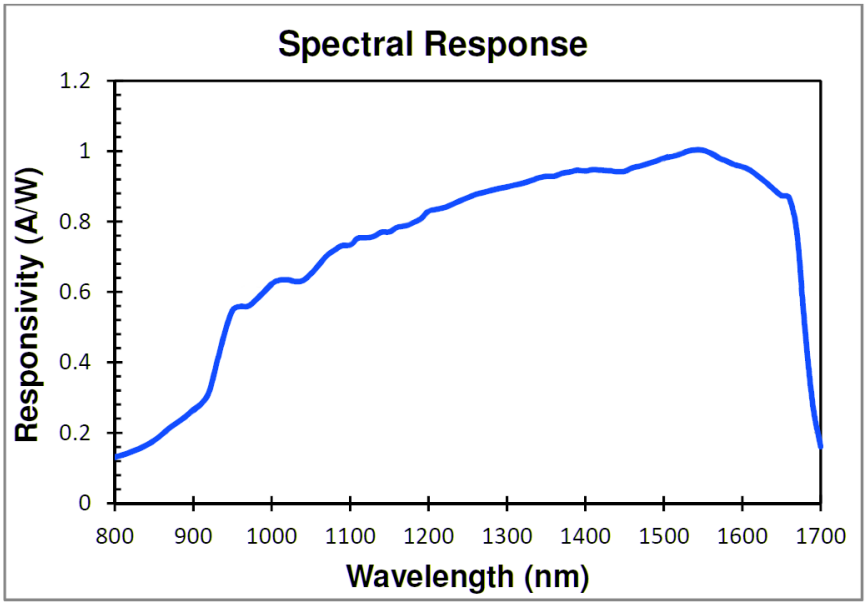
Spectral Response



Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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Caution Electrostatic Sensitivity

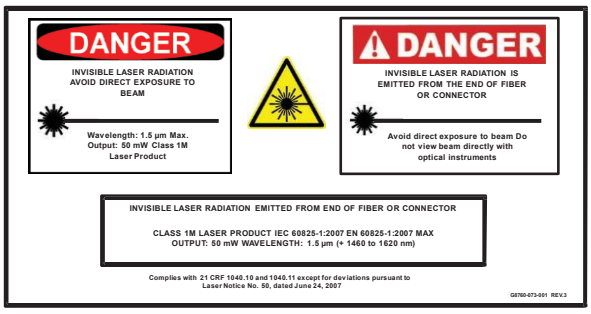
- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.

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