

OPTICAL CHANNEL MONITOR BASED ON PLANAR LIGHTWAVE CIRCUIT TECHNOLOGY

FEATURES

- Environmentally stable PLC Technology
- Simultaneous monitoring of a multiplex of DWDM wavelengths
- Telcordia-qualified packaging techniques
- Internal Temperature Controller for AWG

APPLICATIONS

- Feedback control signal for power balancing at DWDM metro or terminal nodes

OPTIONS

- Scalable up to 80 Channels
- Channel spacing of 50, 100 or 200 GHZ
- Athermal AWG



DESCRIPTION

Enablence' APMUX is an optical channel monitor designed for fast optical power detection of individual channels on a multiplex of DWDM wavelengths. The device is based on an arrayed waveguide grating based on our patented CVD system. Arrayed photodetectors are integrated into the package along with an internal temperature controller for automatic ITU grid alignment. An electric pin array serves as the output of the device.

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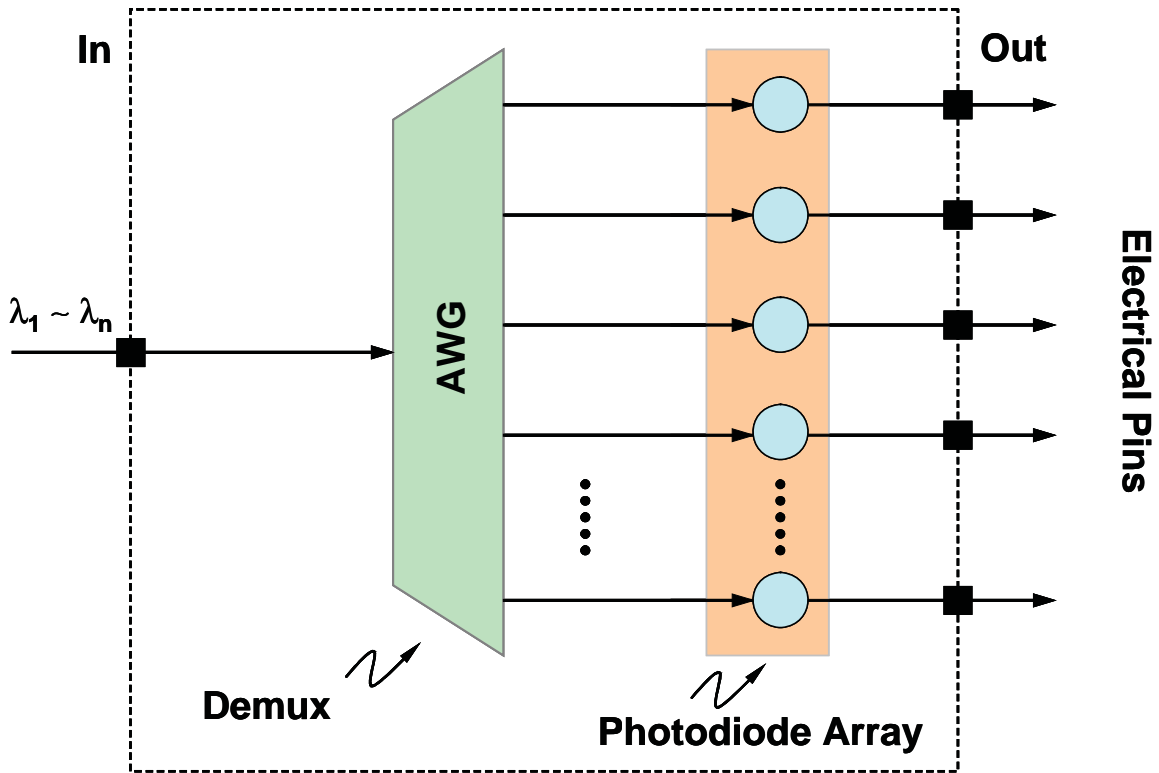
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CONFIDENTIAL

OPTICAL CHANNEL MONITOR

Optical Schematic



OPTICAL CHANNEL MONITOR**Optical Specifications**

Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
Number of Channels	-	48			-	
Channel Spacing	-	100			GHz	
Channel Frequencies	fc	196.150 to 191.450			THz	Frequencies can be modified to match custom requirements
Wavelength Accuracy	$\Delta\lambda_c$	-0.04		+0.04	nm	Offset from ITU grid
ITU Band	PB	-100		+100	pm	Centered at each ITU Channel Frequency, fc
Insertion Loss	IL			5.50	dB	Maximum in ITU Band
Insertion Loss Uniformity	ΔIL			1.5	dB	Over all channels
Polarization Dependent Loss	PDL			0.5	dB	Maximum within ITU Band
1dB Passband	$\delta 1dB$	0.40			nm	Measure 1dB down from min IL
3dB Passband	$\delta 3dB$	0.60			nm	Measure 3dB down from min IL
Adjacent Channel Crosstalk	AX			-23	dB	Maximum within ITU Band
Non-Adjacent Channel Crosstalk	NX			-25	dB	Maximum within ITU Band
Total Crosstalk	TX			-23	dB	Cumulative sum of all AX and NX
Return Loss	RL	45			dB	
Warm-up time	t_w			10	min	
Temperature Set-Point	Tsp	72		85	C	Temperatur set-point provided on device datasheet

OPTICAL CHANNEL MONITOR**Photo Detector (PD) Specifications**

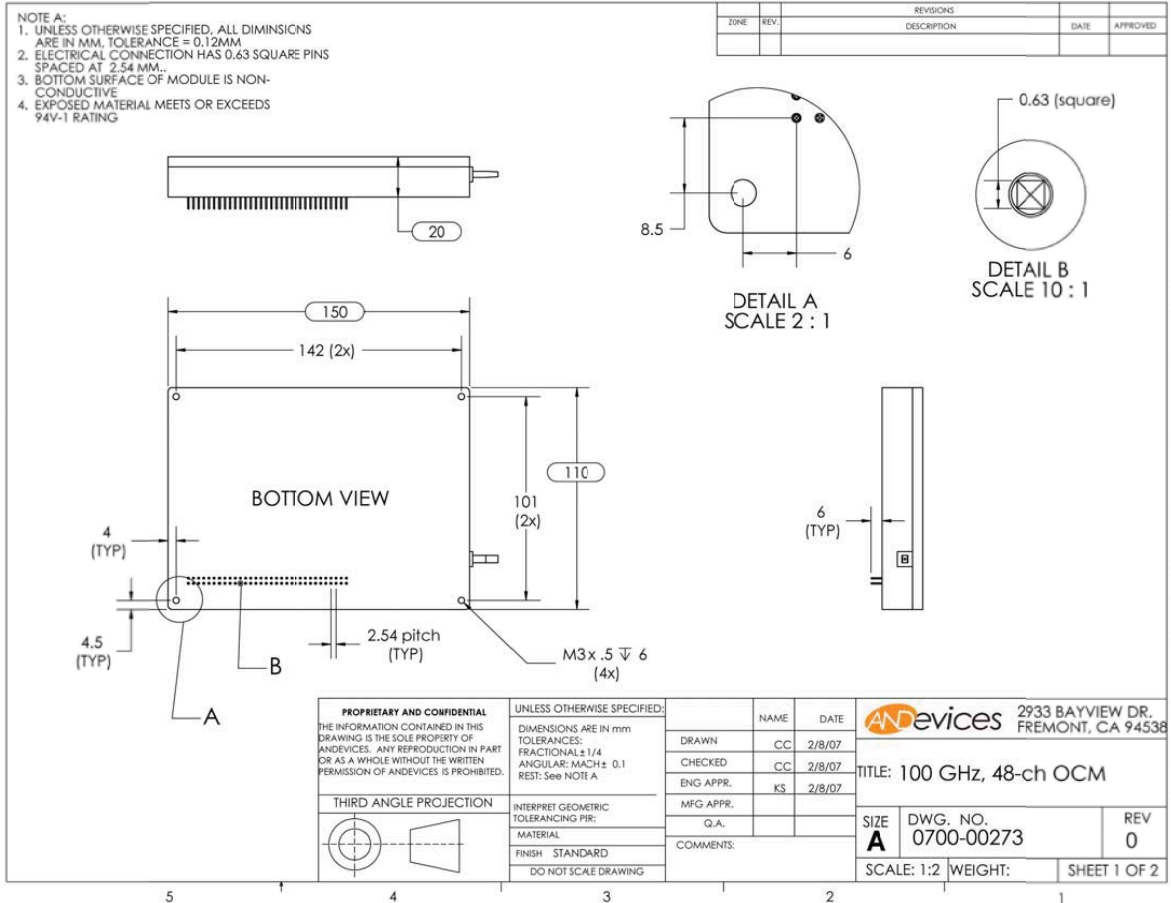
Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
PD Material	-	InGaAs			-	
PD Spectral Response	-	C-Band			-	
PD Responsivity	R_{pd}	0.7			A/W	Responsivity of PD alone
OCM Responsivity	R_{ocm}	0.3		0.55	A/W	Responsivity of PD including IL of AWG
Dark Current	D_{pd}			6	nA	@ 70C, -5V bias
Cutoff Frequency	fct	100		1.5	MHz	
PD Monitor Accuracy	-	-0.5		+0.5	dB	for optical input of +16 to -4 dBm
	-	-1.0		+1.0	dB	for optical input of -4 to -22 dBm
Line Monitor Response	-		~100		V/W	
Monitor Response Bandwidth (from DC)	-			1	Mhz	

Electrical Specifications

Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
Voltage	V	4.75		5.25	V	At room temperature
Current	I_{max}			2.5	A	
Power Consumption	-			5	W	Worst-case (i.e. case @ -5C)
	-			10	W	During warm-up (i.e. cold start)
RS-232	Baud Rate	-	9600		-	
	Bits	-	8		-	
	Parity	-	1		-	
Monitor Response Bandwidth (from DC)	-			1	Mhz	

OPTICAL CHANNEL MONITOR

Mechanical Drawing



About Enablence

Enablence Technologies Inc., (TSX-V: ENA) a publicly traded company, designs, manufactures and sells optical components, subsystems and systems to a global customer base. With corporate headquarters in Ottawa, Ontario, Canada, the company now owns Albis Optoelectronics, Wave7 Optics and ANDevices. The company, through its FTTx Networks Division provides its TRIDENT 7™ Universal Optical Line Terminals (OLTs), Optical Network Terminals (ONTs), and the TRIDENT 7™ Element Management System. Its Optical Components & Subsystems Division provides FTTx access products such as integrated Triplexers, Diplexers for BPON, GPON and GePON standards and splitters. AWG Chips/Modules, Optical Channel Monitors, VMUX, TODC and Photodetectors are offered for the metro and the long haul markets. Many of the company's component products apply its proprietary Planar Lightwave Circuit (PLC) technology to multiple components into a single optical chip to address the global rollout of Fiber-to-the-Home (FTTH).