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SKU: E3HExxx

DWDM C-Band EDFA (Erbium-Doped Fiber Amplifier) module

Part Number: EDFA-xAxxGxxx-xxxx-xx-xxx



Overview

The DWDM C-Band EDFA modules can be operated at constant gain (Automatic Gain Control AGC), constant output power (Automatic Power Control, APC). There are isolators at input and output port. Integrated VOA can be automatically adjusted to achieve smooth gain spectrum for different gain value. It can amplify the C-Band signal with or w/o middle stage access (MSA), which brings great flexibility for the network application. Optical supervisory channel (OSC) is optional function integrated in the module.

Applications

- Metro DWDM distance extension
- Single wavelength distance extension
- CATV network system
- Long-Haul transmission system

Features

- Low Noise Figure : Max 6dB
- Operating modes : AGC, APC, ACC
- Support automatic power reduction (APR)
- Support built-in VOA adjustable attenuation and can help to make EDFA gain software adjustable
- Support external VOA adjustable attenuator with SFP packaging
- Support Mid-Stage access for insertion of a DCM or OADM unit without it's inherent loss.
- Optional OSC management channel for remote management
- Monitor port for on-line monitoring optical power and OSNR

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Specification

Parameters		Min.	Typ	Max.	Unit
Operating Wavelength		1528		1565	nm
MAX. Output Power*1		-9		+23	dBm
Input Power*1		-32		+3	dBm
Input threshold		-33		Can be adjusted	dBm
Gain*1		8		35	dB
Gain Adjustable Range	without VOA			±3	dB
	with VOA			±5	
Gain Flatness			1.0	1.5	dB
Noise Figure			5.0	6.0	dB
Polarization dependence loss				0.5	dB
Polarization dependence Gain				0.3	dB
Polarization mode dispersion				0.5	ps
Pump power leakage				-30	dBm
Return Loss				-45	dB
Power Input Voltage		DC +5.0			V
Power Consumption	Two-Stage*2			30	W
	Single-Stage			20	
Operating Temperature		-5		55	°C
Storage Temperature		-40		75	°C
Relative Humidity		5		95	RH%
OSC Channel Wavelength		1310, 1490, 1510(default), 1590, 1625			nm
OSC Insertion Loss (Optional)				1	dB
Electrical Interface Connector		50(Type-B) / 20(Type-M) Pin Male, 2.0mm Pitch, Dual-Row			
Dimension	Type-B*3	100mm (W) x 130mm (D) x 14.8mm (H)			
	Type-M	90mm (W) x 70mm (D) x 15mm (H)			
Fiber Cable		SMF 900um White Tight Buffer 50±5cm (default length)			
Fiber Connector		LC/PC 0.9mm (default option)			

Note1: Output Power, Input Power, Gain should vary based on different EDFA models.
Note2: Two Stage for EDFA models with MSA (Mid-Stage Access) or Big Output Power like +23dBm
Note3: Only Type-B allows Two-Stage or Two Pumps configuration.

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Pin Description of Type-B

Pin	Function / Description	Pin	Function / Description
1	+5VDC	26	Reserve
2	+5VDC	27	Stage2 Input LOS Alarm (Active High)
3	+5VDC	28	GND
4	+5VDC	29	Stage2 Output/Gain Alarm (Active High)
5	+5VDC	30	GND
6	+5VDC	31	GND
7	GND	32	GND
8	GND	33	Module Temperature Alarm (Active High)
9	GND	34	Stage1 Output/Gain Alarm (Active High)
10	GND	35	Pump Temperature Alarm (Active High)
11	Reserve	36	Reserve
12	Reserve	37	Disable Input (Active High)
13	GND	38	Output Power Mute Input (Active High)
14	Reset Input	39	Reserve
15	Serial Input LVTTL	40	Reserve
16	Serial Output LVTTL	41	GND
17	Pump Current Alarm (Active High)	42	GND
18	Stage1 Input LOS Alarm (Active High)	43	GND
19	GND	44	GND
20	GND	45	+5VDC
21	Reserve	46	+5VDC
22	Reserve	47	+5VDC
23	Reserve	48	+5VDC
24	Reserve	49	+5VDC
25	GND	50	+5VDC

Note: Alarm Active is high 3.3V.

SKU: E3HExxx

Pin Description of Type-M

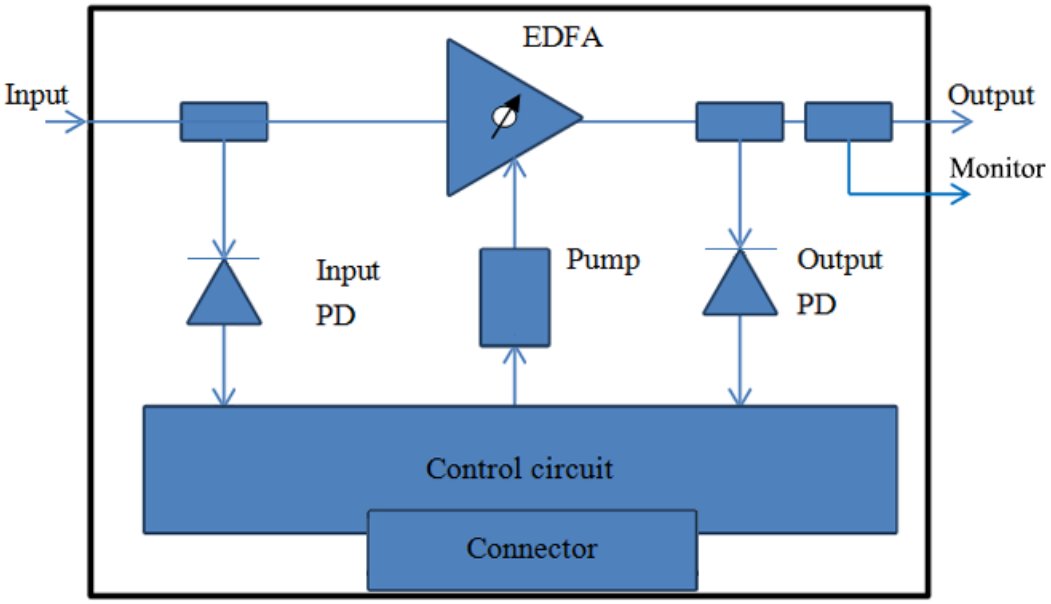
Pin	Function / Description	Pin	Function / Description
1	+5VDC	11	Module Temperature Alarm (Active High)
2	+5VDC	12	Output Power Mute Input (Active High)
3	GND	13	Pump Temperature Alarm (Active High)
4	GND	14	Pump Bias Alarm (Active High)
5	Serial Input LVTTL	15	Loss of Input Alarm (Active High)
6	Serial Output LVTTL	16	Loss of Output Alarm (Active High)
7	GND	17	GND
8	GND	18	GND
9	Amplifier Disable Input (Active High)	19	+5VDC
10	Reset Input (Active Low)	20	+5VDC

Note: Alarm Active is high 3.3V.

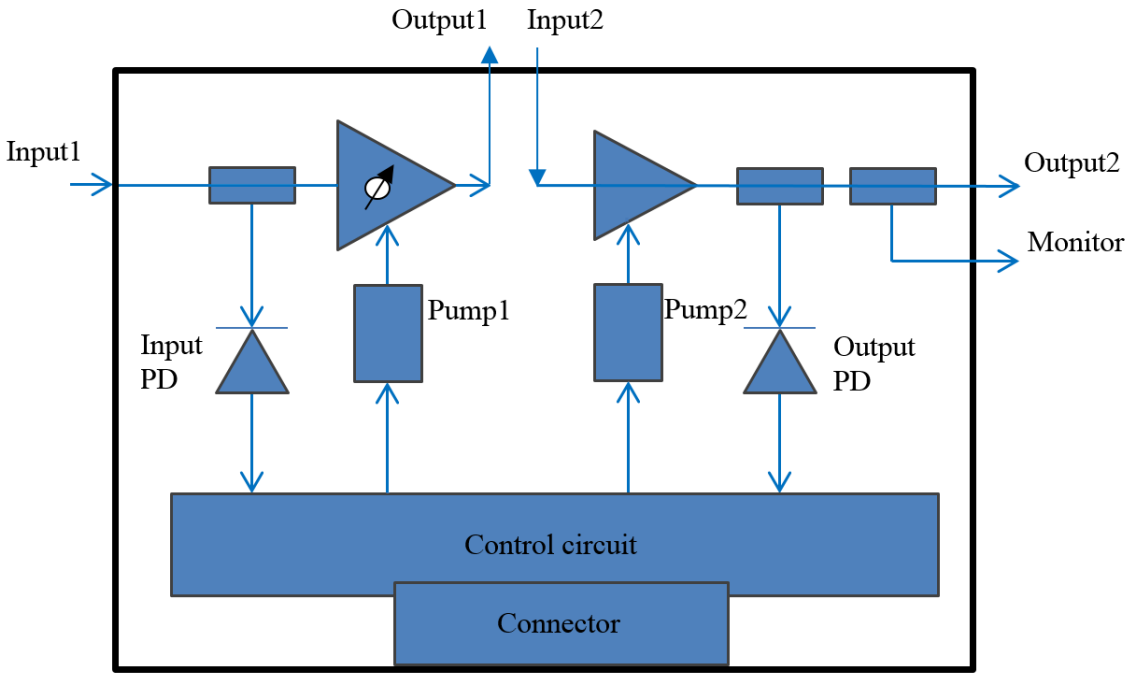
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EDAF Diagram

Single-Stage

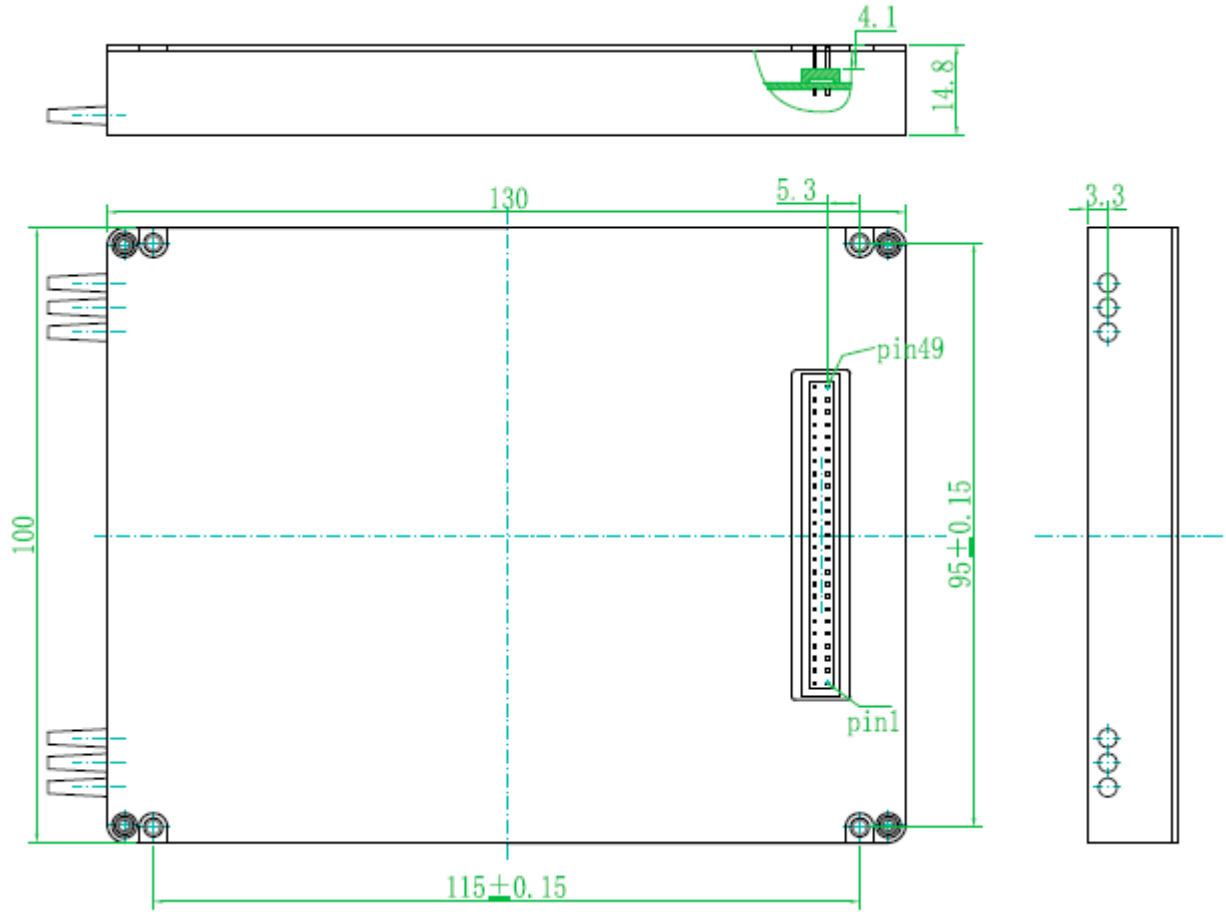


Two-Stage



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Mechanical Dimensions of Type-B



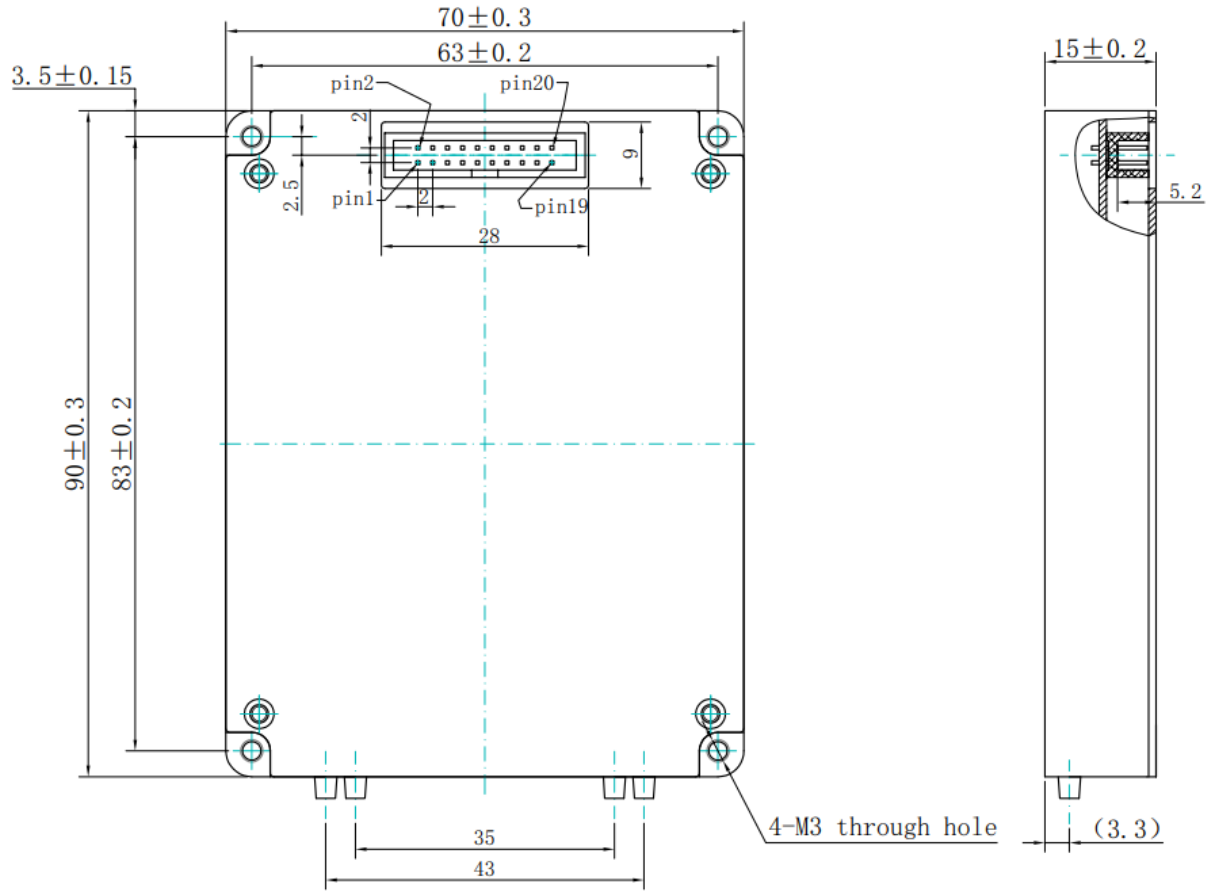
4-M3 screw holes (8mm depth) for mounting

(All Dimensions are ±0.20mm Unless Otherwise Specified, Unit: mm)

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Mechanical Dimensions of Type-M



4-M3 screw holes (8mm depth) for mounting

(All Dimensions are ±0.20mm Unless Otherwise Specified, Unit: mm)

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Ordering Information

EDFA-□A□□□□□□-□□□□-□□-□□□

Amplifier Type
B- Booster
L- In-Line Amplifier
P- Pre-Amplifier

MAX. Output Power
16- 16dBm 22- 22dBm
20- 20dBm XX- XXdBm

Operating Mode
G- AGC P- APC

Central Power Gain (for AGC)
12- 12dB 25- 25dB
20- 20dB XX- XXdB

Min Input Power (for APC)
41- -41dBm 32- -32dBm
XX- -XXdBm XX- XXdB

VOA Function
V- with VOA None- without VOA

Module Type
B- Type-B M- Type-M

OSC Function
0- No OSC 4- 1490nm 9- 1590nm
3- 1310nm 5- 1510nm 6- 1625nm

Mid-Stage Access
0- No MSA 8- 8dB B- 11dB
5- 5dB A- 10dB C- 12dB

Bidi Function
0- Not Bidi
B- Pass 1528~1543nm(Ch45~Ch60) / Reflect 1547~1561nm(Ch21~Ch36)
R- Pass 1547~1561nm(Ch21~Ch36) / Reflect 1528~1543nm(Ch45~Ch60)

Connector Type
LP- LC/UPC LA- LC/APC SP- SC/PC SA- SC/APC
FP- FC/PC FA- FC/APC UP- MU/PC UA- MU/APC
EP- E2000/PC EA- E2000/APC TP- ST/PC XX- Free End

Customization Code

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Common EDFA Modules #1

Part Number		EDFA-BA20G20-M500-LP			
Parameters		Min.	Typ	Max.	Unit
Operating Wavelength		1528		1565	nm
MAX. Output Power*				+20	dBm
Input Power*		-29		+3	dBm
Input threshold		-30		Can be adjusted	dBm
Gain*		17	20	23	dB
Gain Adjustable Range	without VOA			±3	dB
Gain Flatness			1.0	1.5	dB
Noise Figure			5.0	6.0	dB
Polarization dependence loss				0.5	dB
Polarization dependence Gain				0.3	dB
Polarization mode dispersion				0.5	ps
Pump power leakage				-30	dBm
Return Loss				-45	dB
Power Input Voltage		DC +5.0			V
Power Consumption	Single-Stage			20	W
Operating Temperature		-5		55	°C
Storage Temperature		-40		75	°C
Relative Humidity		5		95	RH%
OSC Channel Wavelength		1510			nm
OSC Insertion Loss (Optional)				1	dB
Electrical Interface Connector		20 Pin Male, 2.0mm Pitch, Dual-Row			
Dimension		90mm (W) x 70mm (D) x 15mm (H)			
Fiber Cable		SMF 900um White Tight Buffer 50±5cm			
Fiber Connector		LC/PC 0.9mm			

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Common EDFA Modules #2

Part Number		EDFA-PA20G30V-M500-LP			
Parameters		Min.	Typ	Max.	Unit
Operating Wavelength		1528		1565	nm
MAX. Output Power*				+20	dBm
Input Power*		-32		-5	dBm
Input threshold		-33		Can be adjusted	dBm
Gain*		25	30	35	dB
Gain Adjustable Range	with VOA			±5	dB
Gain Flatness			1.0	1.5	dB
Noise Figure			5.0	6.0	dB
Polarization dependence loss				0.5	dB
Polarization dependence Gain				0.3	dB
Polarization mode dispersion				0.5	ps
Pump power leakage				-30	dBm
Return Loss				-45	dB
Power Input Voltage		DC +5.0			V
Power Consumption	Single Stage			20	W
Operating Temperature		-5		55	°C
Storage Temperature		-40		75	°C
Relative Humidity		5		95	RH%
OSC Channel Wavelength		1510			nm
OSC Insertion Loss (Optional)				1	dB
Electrical Interface Connector		20 Pin Male, 2.0mm Pitch, Dual-Row			
Dimension		90mm (W) x 70mm (D) x 15mm (H)			
Fiber Cable		SMF 900um White Tight Buffer 50±5cm			
Fiber Connector		LC/PC 0.9mm			

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