

EDFA module • EATV5100-FM05

Technical Specification

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1.0 PRODUCT DESCRIPTION

The EATV5100-FM05 standard Booster EDFA module provides high power, high reliability, and superior optical performance in an industry standard form factor. This product enables deployment for flexible, high-density optical networks, while reducing capital and operating applications' requirements. This module is ideal for today's highly dynamic networks and cost sensitive market.

EATV5100-FM05 Full Function Booster EDFA Module adopts Standard Versions for Single Channel and Narrowband. The EDFA includes a cooling pump laser, input monitor and input isolator, output monitor and output isolator, and a reel of optimized erbium-doped fiber. These components are contained within a standard 150×125×22mm package.

A user-friendly 25-pin interface is included to enable the device to communicate with control electronics.

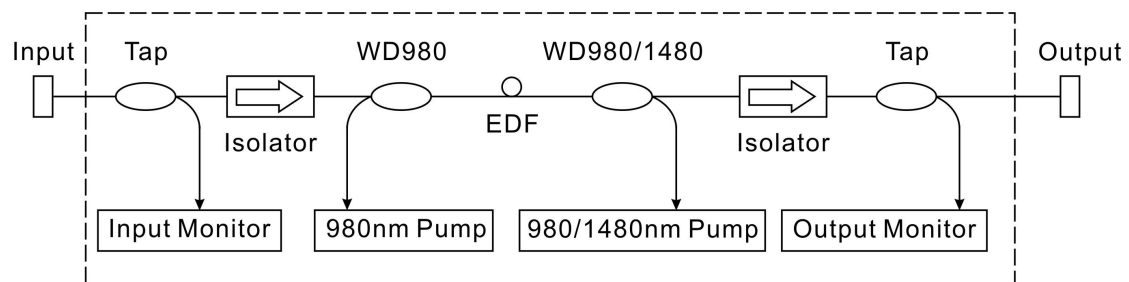
2.0 PRODUCT FEATURE

- Industry Standard Form Factor (150×125×22mm)
- Output power up to 24dBm
- Internal photodiodes to monitor input and output power
- Standard Version for Single-Channel or Narrowband amplification
- Low cost

3.0 MAIN APPLICATION

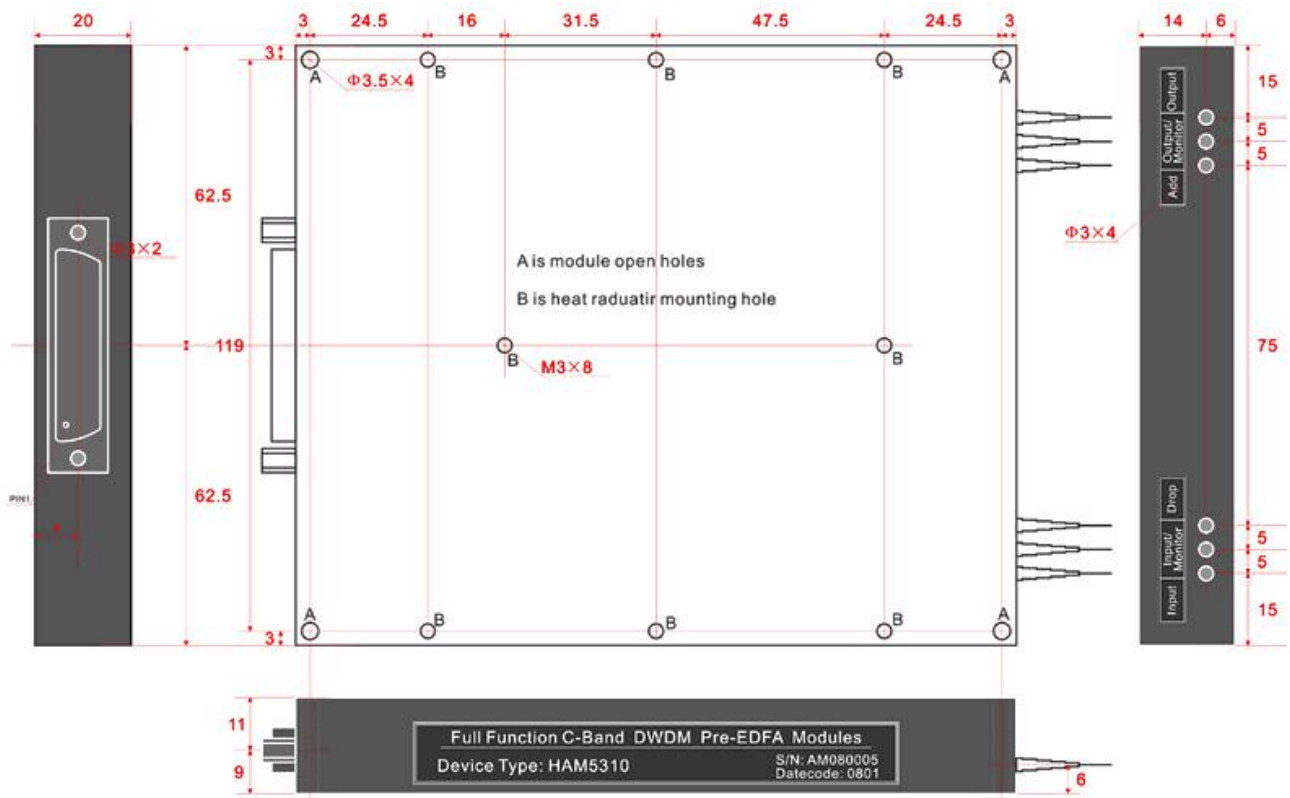
- Long-Hual and Metro Networks
- Single-Channel (SDH/SONET) or DWDM networks
- Wevelength Add/Drop and optical Cross Connect Power Equalization
- Transmitter and Receiver Amplification
- Digital CATV
- Amplet for long-hual networks
- Switch matrix
- Power equalization and pre-emphasis

4.0 FUNCTIONAL DIAGRAM

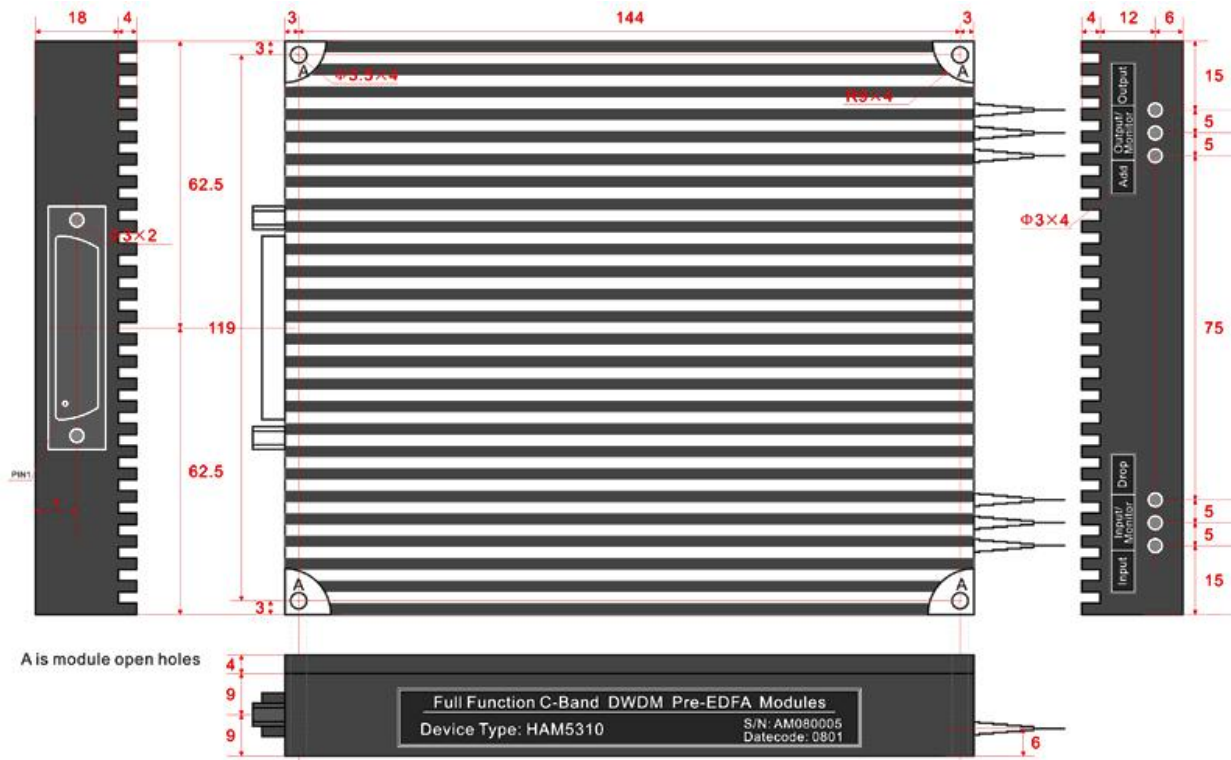


5.0 DIMENSION

5.1 WITHOUT HEAT RADIATOR.



5.2 HEAT RADIATOR.



6.0 TECHNIQUE INDEX

6.1 OPTICAL CHARACTERISTICS

Performance		Condition	Min.	Typ.	Max.
Operating wavelength range	(nm)		1528		1563
Input power (pin)	(dBm)		-10		+4
Output power	(dBm)	Pin=0dBm	+16		+27
Noise figure	(dB)	Pin = - 6dBm		5.0	6.0
Polarization dependent loss (PDL)	(dB)				0.3
Polarization dependent gain (PDG)	(dB)				0.5
Polarization mode dispersion (PMD)	(ps)				0.5
Pump power leakage	(dB)				-30
Output & input isolation	(dB)		30		
Return loss	(dB)		40		
Operating temp.	(°C)		0		65
Storage temp.	(°C)		-40		+85
Relative humidity	(%)		+5		+85
Power consumption, Un-cooled pump	(W)				1.5
Fiber type		SMF-28, 900µm loose tube			
Connector type		SC, FC, LC, MU, E2000			
Connector polish		UPC, APC			
Dimensions	(mm)	125×150×22			

Note: The range of optical input power can be specified.

6.2 INPUT AND OUTPUT MONITOR PD SPECIFICATIONS

Performance		Min.	Typ.	Max.
Input monitor PD responsivity	($\mu\text{A}/\text{mW}$)	30	-	75
Output monitor PD responsivity	($\mu\text{A}/\text{mW}$)	1.0	-	25
Monitor PD reverse voltage	(V)	-	5	20
Monitor PD forward current	(mA)	-	-	10
Dark current (-5v, 25°C)	(nA)	-	-	5

6.3 TEC COOLED PUMP LASER SPECIFICATIONS

Performance		Output power of 13 to 17dBm			Output power of 18 to 23dBm		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Pump laser threshold current	(mA)	-	-	50	-	-	50
Pump laser forward current (BOL)	(mA)	-	-	500	-	-	1000
Pump laser forward voltage	(V)	-	-	2.5	-	-	2.5
Pump laser reverse voltage	(V)	-	-	2.0	-	-	2.0
TEC current (max. $\Delta T=50^{\circ}\text{C}$)	(A)	-	-	1.3	-	-	1.8
TEC voltage (max. $\Delta T=50^{\circ}\text{C}$)	(V)	-	-	2.8	-	-	3.3
Thermostat resistance (25°C)	(K Ω)	9.5	10	10.5	9.5	10	10.5

7.0 PIN DEFINITION

The EDFA module has a DB25 Pin of male electric port. The Pin definition is as below:

Pin	Definition	Pin	Definition
1	VCC +5V	14	GND
2	VCC +5V	15	GND
3	VCC +5V	16	GND
4	VCC +5V	17	GND
5	NC (dual power supply is -5V)	18	RS232 out (TTL) TXD
6	NC (dual power supply is -5V)	19	Input power alarm*
7	EDFA temp. alarm*(TTL)	20	NC
8	Output power alarm*(TTL)	21	Amplifier expiration input
9	Pump bias current alarm*(TTL)	22	RS232 in (TTL) RXD
10	Pump temp. alarm*(TTL)	23	NC
11	NC	24	VCC +5V
12	VCC +5V	25	GND
13	GND		

* All warning set at the TTL high level.

8.0 PRODUCT SERIES

Model	Output power (dBm) (Pin=0dBm)	Input power range(dBm)	Noise figure(dB) (Pin=0dBm)	Input power monitor	Output power monitor
EATV5116-FM05	≥16	-10~+4	4.5	With	With
EATV5117-FM05	≥17	-10~+4	4.5	With	With
EATV5118-FM05	≥18	-10~+4	4.5	With	With
EATV5119-FM05	≥19	-10~+4	4.7	With	With
EATV5120-FM05	≥20	-10~+4	4.7	With	With
EATV5121-FM05	≥21	-10~+4	5.0	With	With
EATV5122-FM05	≥22	-10~+4	5.0	With	With
EATV5123-FM05	≥23	-10~+4	5.2	With	With
EATV5124-FM05	≥24	-10~+4	5.3	With	With
EATV5125-FM05	≥25	-10~+4	5.3	With	With
EATV5126-FM05	≥26	-10~+4	5.3	With	With
EATV5127-FM05	≥27	-10~+4	5.3	With	With

9.0 ORDER INFORMATION

EATV 5 1 □□ - FM 05 / C 5 1 - □□ - □□

Product series		Optical bandwidth		Product Type		Output power		Module Type		Exterior		PUMP		Input tap ratio		Output tap ratio		Connector		Fiber length	
CATV EDFA Module	5	1540~1563nm CATV	1	BA	16	16dBm	FM	Full function module	01	40 × 70 × 12	U	Un-cooled	0	None	1	1%		LA	LC/APC	05	0.5M
					17	17dBm			02	70 × 90 × 15	C	Cooling	5	5%				LP	LC/UPC	08	0.8M
					18	18dBm			05	125 × 150 × 22								SA	SC/APC	10	1.0M
					19	19dBm	GM	Gain block module										SP	SC/UPC		
					20	20dBm												FA	FC/APC		
					21	21dBm												FP	FC/UPC		
					22	22dBm															
					23	23dBm															
					24	24dBm															
					25	25dBm															
					26	26dBm															
					27	27dBm															