MSA Compact Low Cost Pre-Amplifier EDFA (Gain Block)

Optical Characteristics

Parameter	Unit	Condition	Specification		
			Min.	Typ.	Max.
Operating Wavelength Range	nm		1528	-	1562
Input Optical Power (p_{in})	dBm		- 30	-	- 10
Signal Gain	dB	P_{in}= -30dBm, λ= 1562nm	20	-	-
			25	-	-
Noise Figure	dB	P_{in}= -30dBm, P_{out}= -5dBm	-	-	5.5
		P_{in}= -20dBm, P_{out}= -5dBm	-	-	6.0
		P_{in}= -10dBm, P_{out}= -5dBm	-	-	7.5
Polarization Dependent Gain	dB		-	-	0.5
Polarization Mode Dispersion	ps		-	-	0.5
Return Loss	dB	Pump LD off	35	-	-
Operating Temperature	°C		- 5	-	70
Fiber Type	-	SMF-28, 900µm loose tube			
Dimensions	mm	70 x 90 x 12			

Unless otherwise noted, specifications listed in this section are guaranteed under single channel operation over operating wavelength range and operating case temperature range and without connectors.

Input and Output Monitor PD Specifications

Parameters	Unit	Min.	Typ.	Max.
Input Monitor PD Responsivity	µA / mW	30	-	75
Output Monitor PD Responsivity	µA / mW	4	-	25
Monitor PD Reverse Voltage	V	-	5	20
Monitor PD Forward Current	mA	-	-	10
Dark Current (5V, 25°C)	nA	-	-	1

Uncooled Pump Laser Specifications

Parameters	Unit	Min.	Typ.	Max.
Pump Laser Threshold Current	mA	-	-	60
Pump Laser Forward Current (BOL)	mA	-	240	370
Pump Laser Forward Voltage	V	-	1.55	2.0
Pump Laser Reverse Voltage	V	-	-	2.0

TEC Cooled Pump Laser Specifications

Parameters	Unit	Min.	Typ.	Max.
Pump Laser Threshold Current	mA	-	-	50
Pump Laser Forward Current (BOL)	mA	-	-	250
Pump Laser Forward Voltage	V	-	-	2.5
Pump Laser Reverse Voltage	V	-	-	2.0
TEC Current (max. ΔT= 50°C)	A	-	1.1	1.3
TEC Voltage (max. ΔT= 50°C)	V	-	2.4	2.9
Thermistor Resistance (25°C)	kΩ	9.5	10	10.5

Features/Benefits

- Package size (70 x 90 x 12mm)
- Input monitor/isolator
- Output monitor/isolator
- User-friendly 20-pin interface
- 980 nm pump laser
- Low power consumption
- Low cost

Applications

- Single-channel or narrow-band amplification
- Metropolitan and access networks
- Amplet for long haul networks
- Optical cross-connect
- Switch matrix
- Optical add/drop module
- Signal loss compensation in optical modules
- Digital CATV

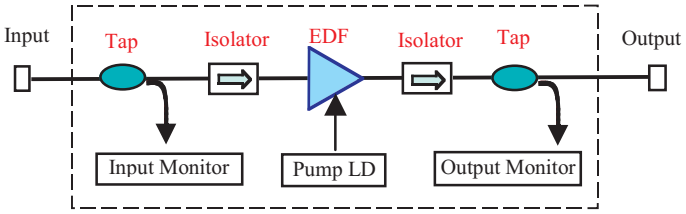
Gain Block Pin Assignment

Pin	Function	Pin	Function
1	Ground, optical power monitor PD	2	Input monitor PD cathode (-)
3	Input monitor PD anode (+)	4	Output monitor PD cathode (-)
5	Output monitor PD anode (+)	6	Thermistor
7	Pump laser diode anode (+)	8	Pump laser diode anode (+)
9	Pump backfacet monitor PD cathode(-)	10	Pump backfacet monitor PD anode (+)
11	TEC anode(+), (NC for uncooled)	12	TEC anode(+),(NC for uncooled)
13	TEC anode(+), (NC for uncooled)	14	TEC cathode(-), (NC for uncooled)
15	TEC cathode(-), (NC for uncooled)	16	TEC cathode(-), (NC for uncooled)
17	Ground, pump laser diode	18	Thermistor
19	Pump laser diode cathode(-)	20	Pump laser diode cathode (-)

Note1: Electrical connection is made via a male 20 PIN connector (2 rows of 10, pin pitch 2.0mm, 0.5x0.5mm), Samtec TMMH-110-01-G-DV-EC or equivalent.

Note2: The gain block case is isolated with the pump laser diode case.

Functional Diagram

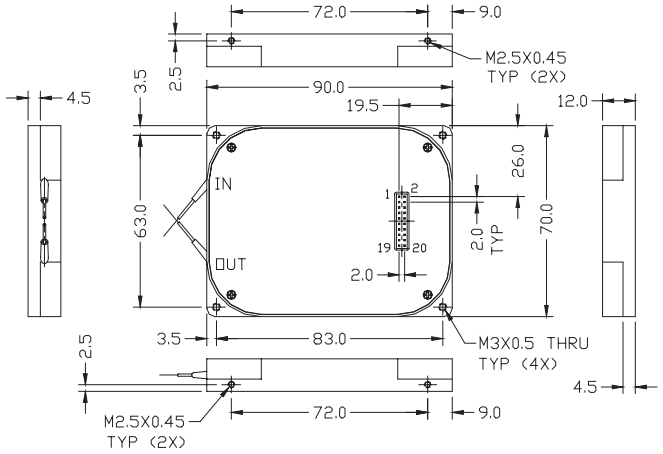


Safety Information

ESD Protection

The laser diodes and photodiodes in the module can be easily destroyed by electrostatic discharge. Use wrist straps, grounded work surfaces, and anti-static techniques when operating this module. When not in use, the module shall be kept in a static-free environment.

Dimensions



Unit: mm

Ordering Information

M	O	A	P	G			N		5	1	0		1	

Signal Gain @ Pin= -30dBm
20 = 20dB
25 = 25dB

Pump
U= uncooled
C= cooled

Input Tap Ratio
5= 5%

Output Tap Ratio
1= 1%

Fiber Length
1= 1.0 ± 0.1m
5= 1.5 ± 0.1m

Pigtail Type
1= 900μm loose tube

Connector
0= None
1= FC/UPC
2= FC/APC
3= SC/UPC
4= SC/APC
5= LC/UPC
6= MU/UPC

This product information is subject to change without notice.