

# MSA Compact Low Cost Booster EDFA (Gain Block)



## Optical Characteristics

Parameter	Unit	Condition	Specification		
			Min.	Typ.	Max.
Operating Wavelength Range	nm		1528	-	1562
Input Optical Power (p <sub>in</sub> )	dBm		- 10	-	+ 4
Total Output Power	dBm	P <sub>in</sub> = -6dBm	+ 13	-	-
			+ 15	-	-
			+ 17	-	-
Noise Figure	dB	P <sub>in</sub> = -6dBm, P <sub>out</sub> = 13 ~ 17dBm	-	5.0	6.0
		P <sub>in</sub> = +4dBm, P <sub>out</sub> = 13dBm	-	7.0	8.0
		P <sub>in</sub> = +4dBm, P <sub>out</sub> = 15dBm	-	6.5	7.5
		P <sub>in</sub> = +4dBm, P <sub>out</sub> = 17dBm	-	6.0	7.0
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			

Specifications listed in this section are guaranteed under single channel operation over operating wavelength range and operating 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	Output power of 13 to 15dBm			Output power of 16 to 17dBm		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Pump Laser Threshold Current	mA	-	-	60	-	-	60
Pump Laser Forward Current (BOL)	mA	-	240	370	-	450	550
Pump Laser Forward Voltage	V	-	1.55	2.0	-	1.75	2.2
Pump Laser Reverse Voltage	V	-	-	2.0	-	-	2.0

## TEC Cooled Pump Laser Specifications

Parameters	Unit	Output power of 13 to 15dBm			Output power of 16 to 17dBm		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Pump Laser Threshold Current	mA	-	-	50	-	-	50
Pump Laser Forward Current (BOL)	mA	-	-	250	-	-	400
Pump Laser Forward Voltage	V	-	-	2.5	-	-	2.5
Pump Laser Reverse Voltage	V	-	-	2.0	-	-	2.0
TEC Current (Max. ΔT= 50°C)	A	-	1.1	1.3	-	1.1	1.3
TEC Voltage (Max. ΔT= 50°C)	V	-	2.4	2.9	-	2.4	2.9
Thermistor Resistance (25°C)	kΩ	9.5	10	10.5	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
- Amplifier for transmitter line card
- Power equalization and pre-emphasis
- Digital CATV

## 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.

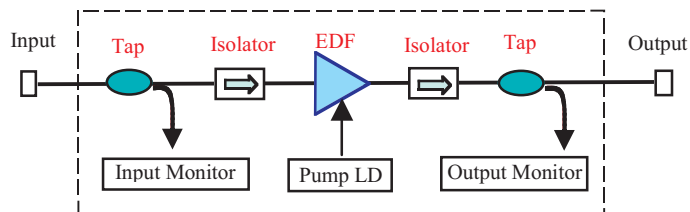
## Gain Block Pin Assignment

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 (-)

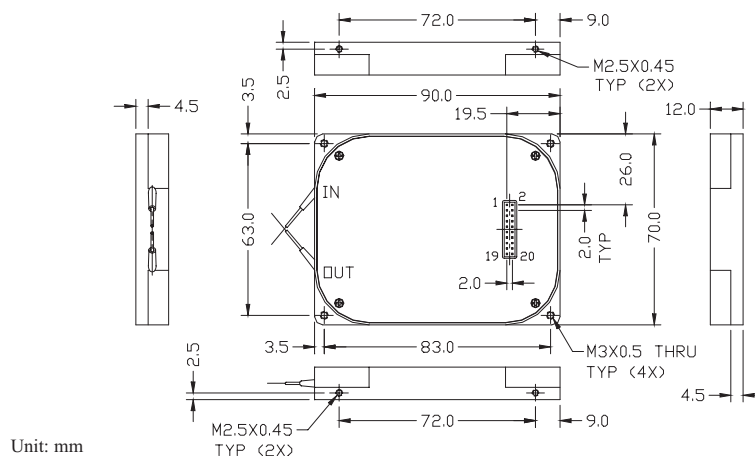
Note1: Electrical connection is made via a male 20 PIN connector (2 rows of 10, pin pitch 2.0mm, 0.5x0.5mm), Samtec TMMH-110-01-G-DV-EC or equivalent.

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

## Functional Diagram



## Dimensions



Unit: mm

## Ordering Information

M	O	A	B	G			N		5	1	0		1	
<p><b>Output Power @ Pin= -6dBm</b>            13 = 13dBm            14 = 14dBm            15 = 15dBm            16 = 16dBm            17 = 17dBm</p> <p><b>Pump</b>            U= uncooled            C= cooled</p> <p><b>Input Tap Ratio</b>            5= 5%</p> <p><b>Output Tap Ratio</b>            1= 1%</p> <p><b>Fiber Length</b>            1= 1.0 ± 0.1m            5= 1.5 ± 0.1m</p> <p><b>Pigtail Type</b>            1= 900µm loose tube</p> <p><b>Connector</b>            0= None            1= FC/UPC            2= FC/APC            3= SC/UPC            4= SC/APC            5= LC/UPC            6= MU/UPC</p>														

This product information is subject to change without notice.