

# EDFA Gain Block for DWDM Applications

## Key Features

- Operating wavelength window:  
1543-1558 nm
- Gain flatness  $< \pm 0.5\text{dB}$
- Low noise figure, typ.  $< 5\text{ dB}$
- +11 dBm output power
- Input and output monitor diodes
- Optical output monitor
- Operating temperature range:  
 $-5\text{ }^{\circ}\text{C}$  to  $70\text{ }^{\circ}\text{C}$
- Multisourced footprint
- Small size (120x80x15) mm

## Applications

- Pre-amplifier in single-channel or DWDM networks



## Description

The DWDM gain block is intended to be used as a pre-amplifier in WDM / DWDM networks. The gain block has input and output power monitoring. The input and output ports have isolators to attenuate spurious reflections in the system.

External electronic circuitry is needed for biasing the pump laser and for controlling the pump laser temperature. Heat sink is provided via the bottom surface.

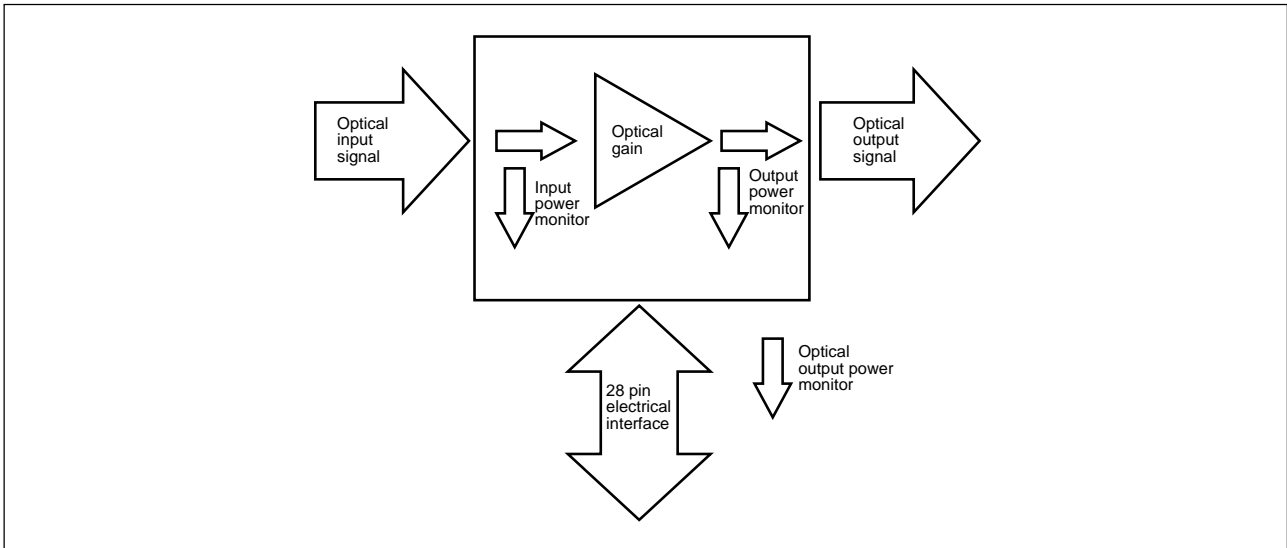


Figure 1. Block diagram

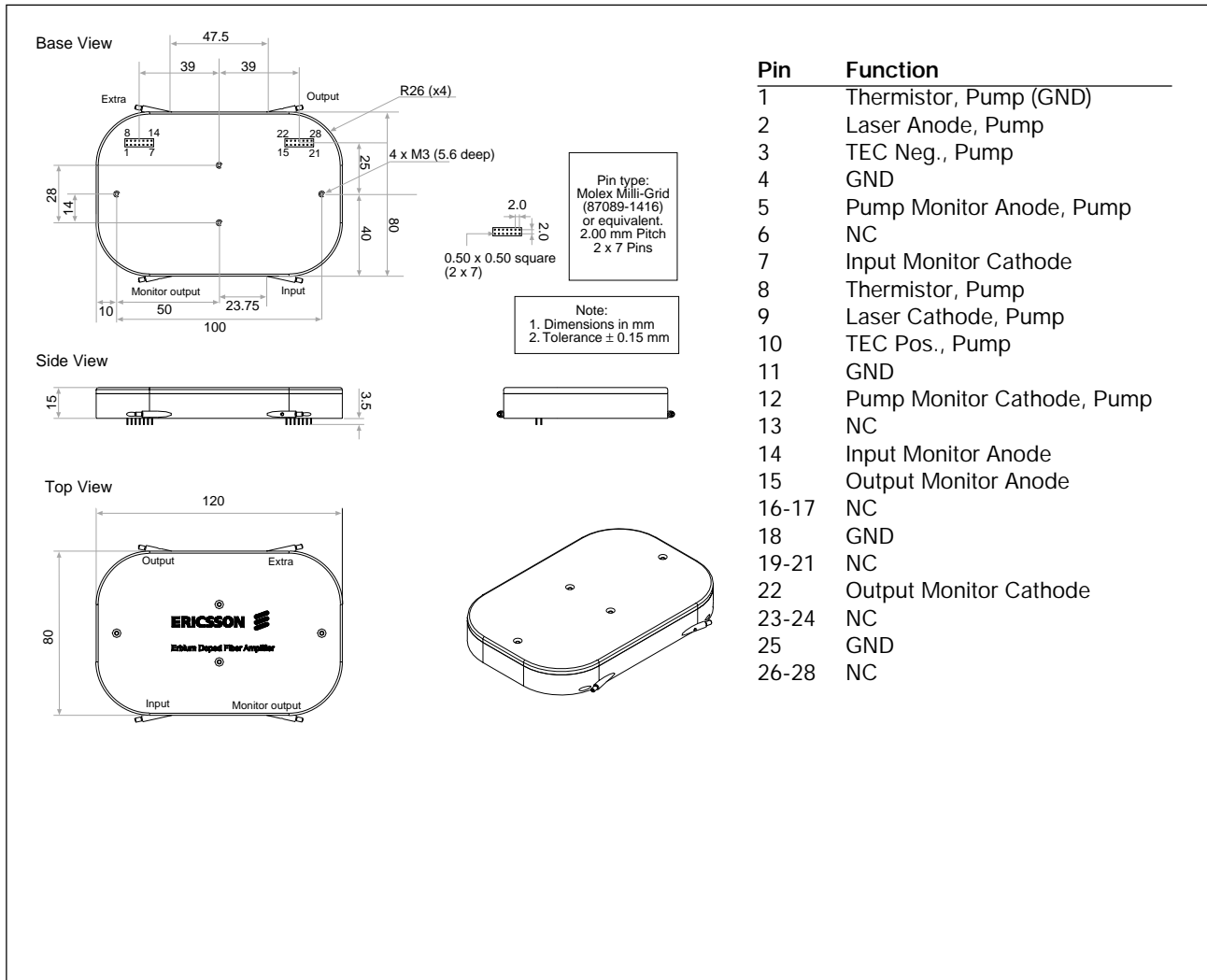


Figure 2. Mechanical Outline Drawing and Pin Connection

## Optical Characteristics

Electrical and optical characteristics over recommended operating conditions, unless otherwise noted.

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Operating Wavelength		$\lambda_L$	1543		1558	nm
Measurement Wavelength		$\lambda_M$		1550		nm
Input Power		$P_{IL}$			-6.5	dBm
Output Power	@ $P_{IL} = -12.5$ dBm and @ $\lambda_L$	$P_{O1}$	11			dBm
Output Power	@ $P_{IL} = -18.5$ dBm and @ $\lambda_L$	$P_{O2}$	7.5			dBm
Input/Output Return Loss	With EDFA not activated @ $\lambda_L$	IRL/ORL	40			dB
Noise Figure	Over $P_{IL}$ and $\lambda_L$	NF			5.5	dB
Gain Flatness	Over $\lambda_L$ for $G(\lambda_M) = 15.5$ dB	$G_{FLAT}$	-0.4		0.4	dB

## Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Operating Current		$I_{DRIVE}$			270	mA
Operating Voltage		V <sub>F</sub>			2.4	V
Power Dissipation		$P_E$			3.5	W
Thermistor Resistance	@ 25 °C	$R_{TH}$	9.5	10.0	10.5	k $\Omega$
TEC Current	@ $\Delta T = 50$ K	$I_{TEC}$			1.1	A
TEC Voltage	@ $\Delta T = 50$ K	$V_{TEC}$			2.6	V

## Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	$T_{Case}$	-5		70	°C

## Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	$T_{stg}$	-40	75	°C
Drive Current	$I_{LD\_MAX}$		300	mA

**CAUTION:** Stresses outside those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

## Handling Precautions

This device may be damaged as a result of electrostatic discharge (ESD). Take proper precautions during both handling and testing. This typically includes grounded wrist wraps, workbenches and floor mats in ESD controlled areas. Semiconductor devices may be damaged by current surges, use appropriate transient protection.

## Quality Assurance

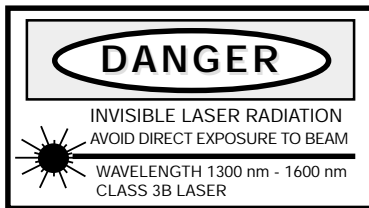
Ericsson Microelectronics commitment to quality has been proven through a decade of semiconductor device production and has been confirmed to ISO 9001. Opto product qualification is made according to the intention of applicable Telcordia standards.

## Connector Options

FC/PC

SC

(Other connectors available on request)



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