# EDFA gain block for WDM applications

## Key features

- Operating wavelength range: 1528-1562nm
- Operating temperature range: -5°C to 70°C (with cooled pump)
- Small size (120x80x15mm)
- Integrated gain flattening filter
- Gain flatness < ±0.75dB

## Applications

- Used as a booster, line or pre-amplifier in WDM applications


## Description

This EDFA gain block is intended for WDM applications in the C-band wavelength range. It can be optimized to perform as a booster, line or pre-amplifier in WDM systems and subsystems for metro and long haul applications. It is designed for one or two pump laser configurations. The gain block contains input and output monitor diodes, as well as input and output 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. Heatsink is provided via the bottom surface.

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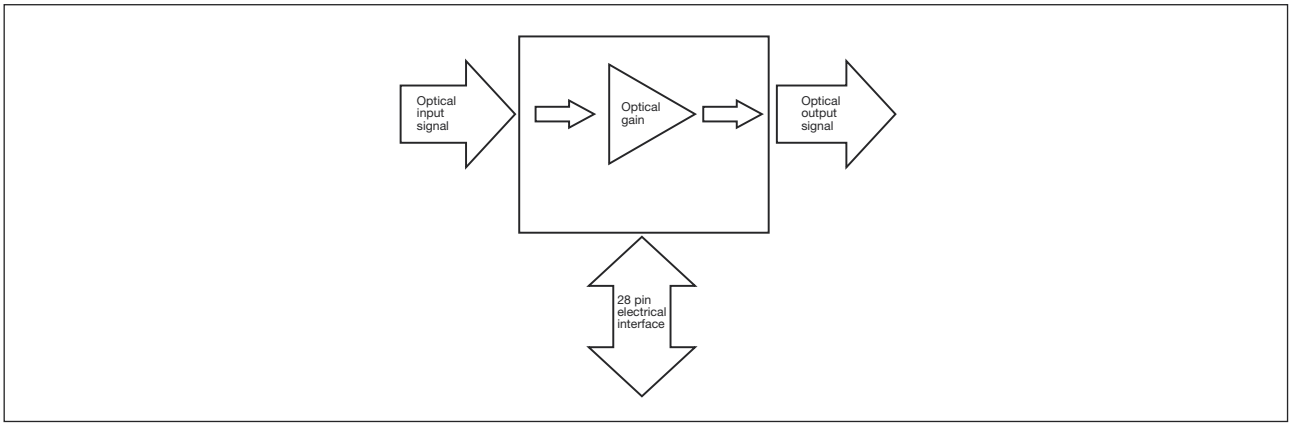
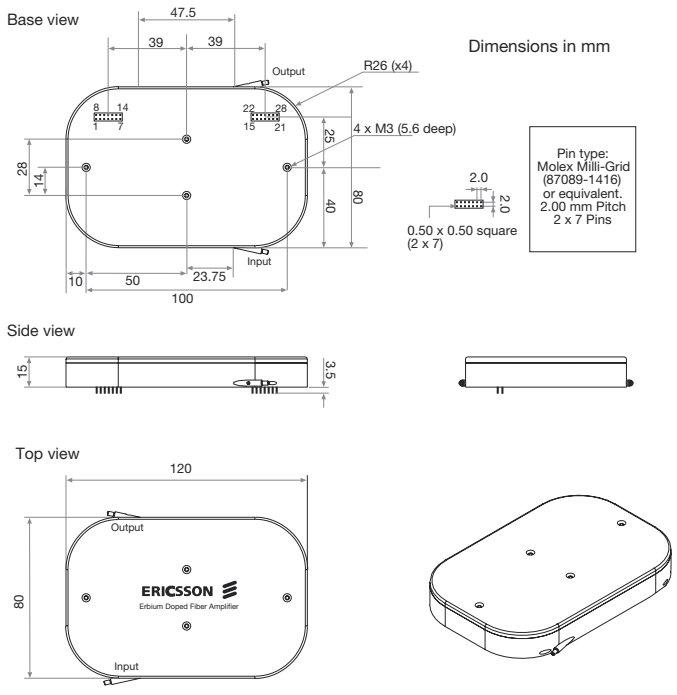



*Figure 1. Block diagram.*




| Pin | Description |
|---|---|
| 1 | Thermistor, pump |
| 2 | Laser anode, pump |
| 3 | TEC neg., pump |
| 4 | GND |
| 5 | Pump monitor anode, pump |
| 6 | NC |
| 7 | Input monitor cathode |
| 8 | Thermistor, pump |
| 9 | Laser cathode, pump |
| 10 | TEC pos., pump |
| 11 | GND |
| 12 | Pump monitor cathode, pump |
| 13 | NC |
| 14 | Input monitor anode |
| 15-17 | NC |
| 18 | GND |
| 19-24 | NC |
| 25 | GND |
| 26-28 | NC |

*Figure 2. Mechanical outline drawing and pin connection.*

## Optical characteristics

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

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating wavelength | $\lambda$ | 1528 | | 1562 | nm |
| Input power | $P_I$ | -30 | | 3 | dBm |
| Output power | $P_O$ | | 20 | | dBm |
| Noise figure | NF | | 5.5 | | dB |
| Polarization mode dispersion | PMD | | 0.3 | | ps |
| Polarization dependent loss | PDL | | ±0.3 | | dB |
| Optical return loss at input/output | RL | 40 | | | dB |
| Gain flatness | $G_{Flat}$ | -0.75 | | 0.75 | dB |

## Electrical characteristics

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating current | $I_{LD}$ | | | 600+720 | mA |
| Operating voltage | $V_{LD}$ | | | 2.5+2.5 | V |
| Power consumption | $P_D$ | | 3 | | W |
| Thermistor resistance | $R_{TH}$ | | 10 | | kΩ |
| TEC current | $I_{TEC}$ | | | 1.2+1.4 | A |
| TEC voltage | $V_{TEC}$ | | | 2.5+2.5 | V |

## Recommended operating conditions

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

## Absolute maximum ratings

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Storage temperature | $T_{Stg}$ | -40 | | 75 | °C |

***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

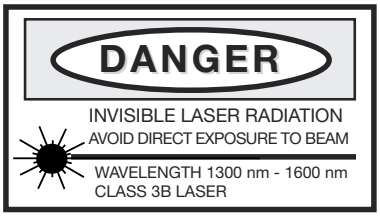
This device may be damaged as a result of electrostatic discharge (ESD). Take proper precautions during both handling and testing. This typically includes grounded wrist wraps, workbenches and floor mats in ESD controlled areas. Semiconductor devices may be damaged by current surges, use appropriate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

SC/SPC
(Other connectors available on request)



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