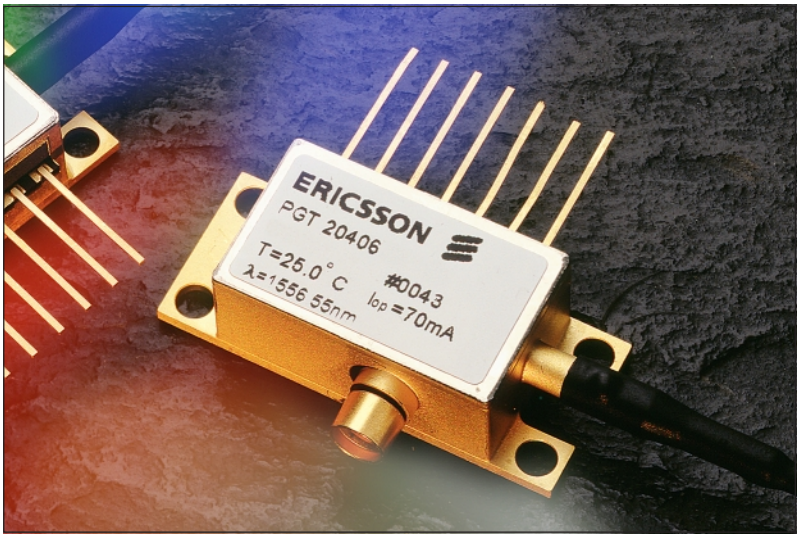
DFB/EA Laser Module for 10 Gb/s Applications

Key Features

- 1550 nm DFB CW source monolithicly integrated with an Electro Absorption-modulator (EA)
- Hermetic, 7 pin butterfly package
- Single-mode fiber pigtail
- 12 GHz typical bandwidth
- -3 dBm output power
- Multisourced footprint

Applications

- DWDM SDH STM-64 LH
- DWDM SONET OC-192 LR



Description

The laser module, intended for OC-192/STM-64 DWDM applications, consists of a DFB laser with integrated absorption modulator mounted in a high frequency package which includes an isolator. Laser wavelengths are available according to the ITU-T grid.

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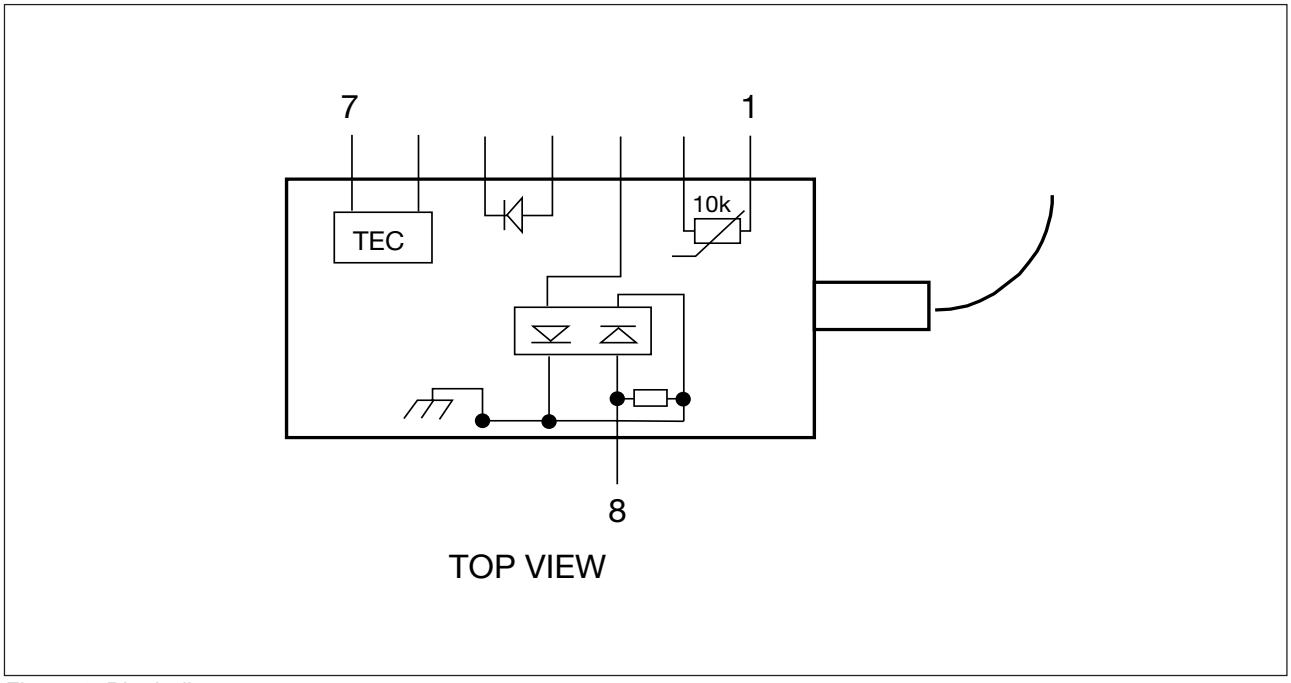
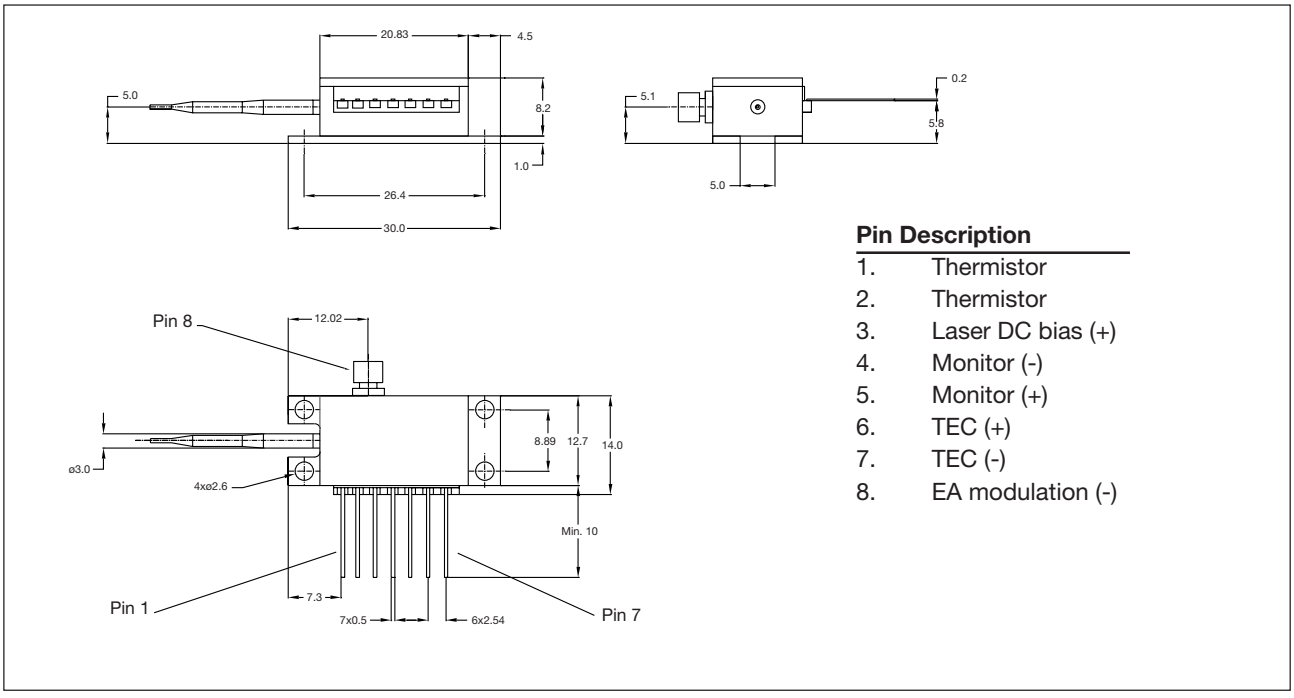


Figure 1. Block diagram



Pin Description

1.	Thermistor
2.	Thermistor
3.	Laser DC bias (+)
4.	Monitor (-)
5.	Monitor (+)
6.	TEC (+)
7.	TEC (-)
8.	EA modulation (-)

Figure 2. Pin description

Optical Characteristics

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Wavelength	ITU-T grid	λ	1530		1564	nm
Output power	BOL	P_{Out}	-3			dBm
Extinction ratio	2.5 V_{pp}	ER	10			dB
Dispersion penalty	@ 1600 ps/nm disp.				2	dB
Side mode suppr.ratio		SMSR	35			dB
Optical isolation			30			dB

Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Operating current		I_{Op}	50		100	mA
Threshold current		I_{th}			25	mA
Forward voltage		V_f			2	V
Reflection, S_{11}	0 - 5 GHz				-12	dB
	5 – 9 GHz				-9	dB
Small signal modulation bandwidth	-3 dB_e	f_c	12			GHz
Rise/Fall time	10/90%	t_r/t_f			40	ps
Monitor current		I_{Mon}	0.1		1	mA
Monitor dark current	-5 V			5	100	nA
Thermistor resistance	@ 25 °C		9.5		10.5	kΩ
TEC Voltage			-2.5		2.5	V
Current			-1.2		1.2	A
Power					3	W

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating case temperature	T_{Case}	0		70	°C
Operating chip temperature	T_{Op}	20		35	°C

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage temperature	T_{Stg}	-40	85	°C
Laser forward current	I_{LD}		150	mA
Modulator voltage	V_{Mod}	-4	1	V

CAUTION: *Stresses outside those listed in "Absolute Maximum Ratings" may cause permanent damage to the device.*

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

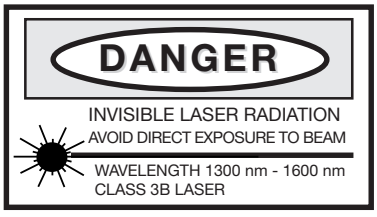
Ericsson Microelectronics commitment to quality has been proven through a decade of semiconductor device production and has been confirmed to ISO 9001. Opto product qualification is made according to the intention of applicable Telcordia standards.

Connector Options

FC/PC

SC

(Other connectors available on request)



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