

TARGET SPECIFICATION

Description: The 43Gb/s EML module is a 1.55 μm DFB laser diode monolithically integrated with an electro-absorption modulator (*) for 43Gb/s applications packaged in a 7 Pin housing with K or V connectors or CPW feedthrough for HF connections.

Features :

- 7-Pin package with K connector or CPW RF input
- Low drive voltage typical : - 2.5 Vpp
- Large dynamic extinction ratio @ 43 Gb/s
- Al based Electro-Absorption Modulated Lasers (EML)
- Package with 50 ohms RF impedance
- Single mode optical fibre with FC/APC connector, R-type key.

Applications :

- 43Gb/s very short reach (2 km) transmission
- 43 Gb/s transponders

Enclosed data :

1. Absolute Maximum Rating
2. Target specifications
3. Digital measurement @ 43 Gb/s NRZ
 - Test Conditions
 - Output Eye Diagrams
4. Outline drawings & Pin allocation

(*) Chip designed and fabricated by Alcatel-Thales III-V Lab

1. Absolute Maximum Ratings

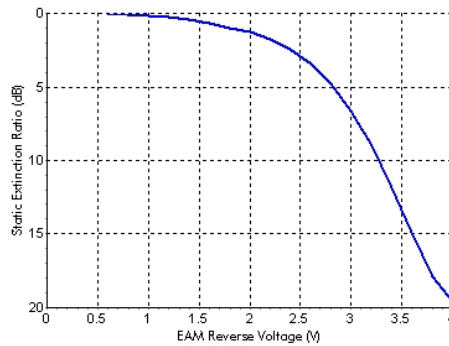
Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	T_c	0	+ 70	°C
Storage Temperature	T_{stg}	- 40	+ 85	°C
Laser Forward Current	I_{Lf}	-	150	mA
Modulator Forward Voltage	V_{Mf}	-	+ 1	V
Modulator Reverse Voltage	V_{Mr}	-	- 4	V
TEC Voltage	V_{TEC}	-	4.0	V
TEC Current	V_{TEC}	-	1.4	A
Fiber Bend Radius		25	-	mm

2. Main Target Specifications ($T_{LD} = 25^{\circ}\text{C}$)

No.	Parameter	Symbol	Conditions	Min	Typ	Max	Unit
1	Peak Wavelength	λ_{Peak}		1530		1565	nm
2	Average optical power	$P_{av. out}$		0			dBm
3	Operation Current	I_{LD}	$P_{out} = + 5 \text{ dBm}$ CW, $V_{EAM} = 0 \text{ V}$			100	mA
4	Threshold current	I_{th}				25	mA
5	Side Mode Suppression Ratio	SMSR	$I_{LD} = 50 \text{ mA}$ CW, $V_{EAM} = 0 \text{ V}$	35			dB
6	Static Extinction Ratio	SER	CW, 0 to -4 V	15			dB
7	Dynamic Extinction Ratio	DER	$V_{pp} = 2.5 \text{ V}$	8.2	9.5		dB
8	3 dB Bandwidth	f_{-3dB}	CW, $V = -3\text{V}$	30			GHz
9	Electrical Return Loss	S11	DC ~ 12 GHz 12 GHz ~ 65 GHz			- 10 - 4	dB

3. Major Characteristics (*)

➤ Static Extinction Ratio



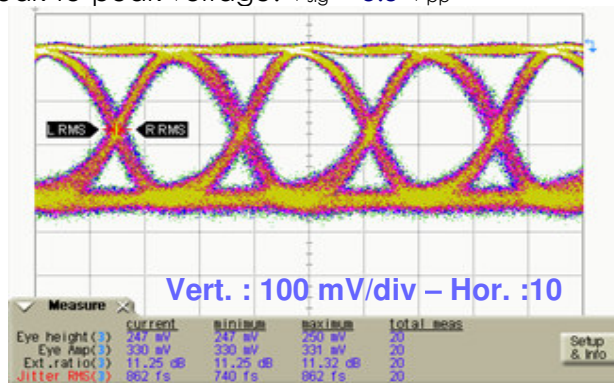
Typical static extinction ratio of the electro-absorption modulator Laser CW; T = 25°C

➤ Typical eye diagram (1)(2)@ 43 Gb/s NRZ (2¹⁵-1 PRBS), T_{chip} = 25°C

Back-to-back:

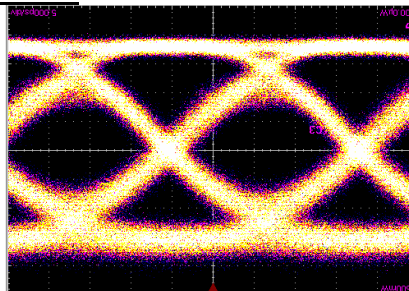
Operating current: I_{LD} = 30 mA - EAM bias voltage: V_{EAM} = -2.3 V

Operating peak-to-peak voltage: V_{sig} = 3.3 V_{pp}



Dynamic extinction ratio > 11 dB

Transmission over SMF 2km



Notes :

(1) : Response measured using Agilent 86100C 70 GHz bandwidth oscilloscope.

(2) : Response measured using Photodiode NEL KEPD2564nVDG.

(*) By courtesy of Alcatel-Thales III-V Lab

4. Thermal Regulation

Use thermal conductive grease for heatsink.

Peltier cooler : $I_{TEC} < 1.4$ A and $V_{TEC} < 4$ V recommended.

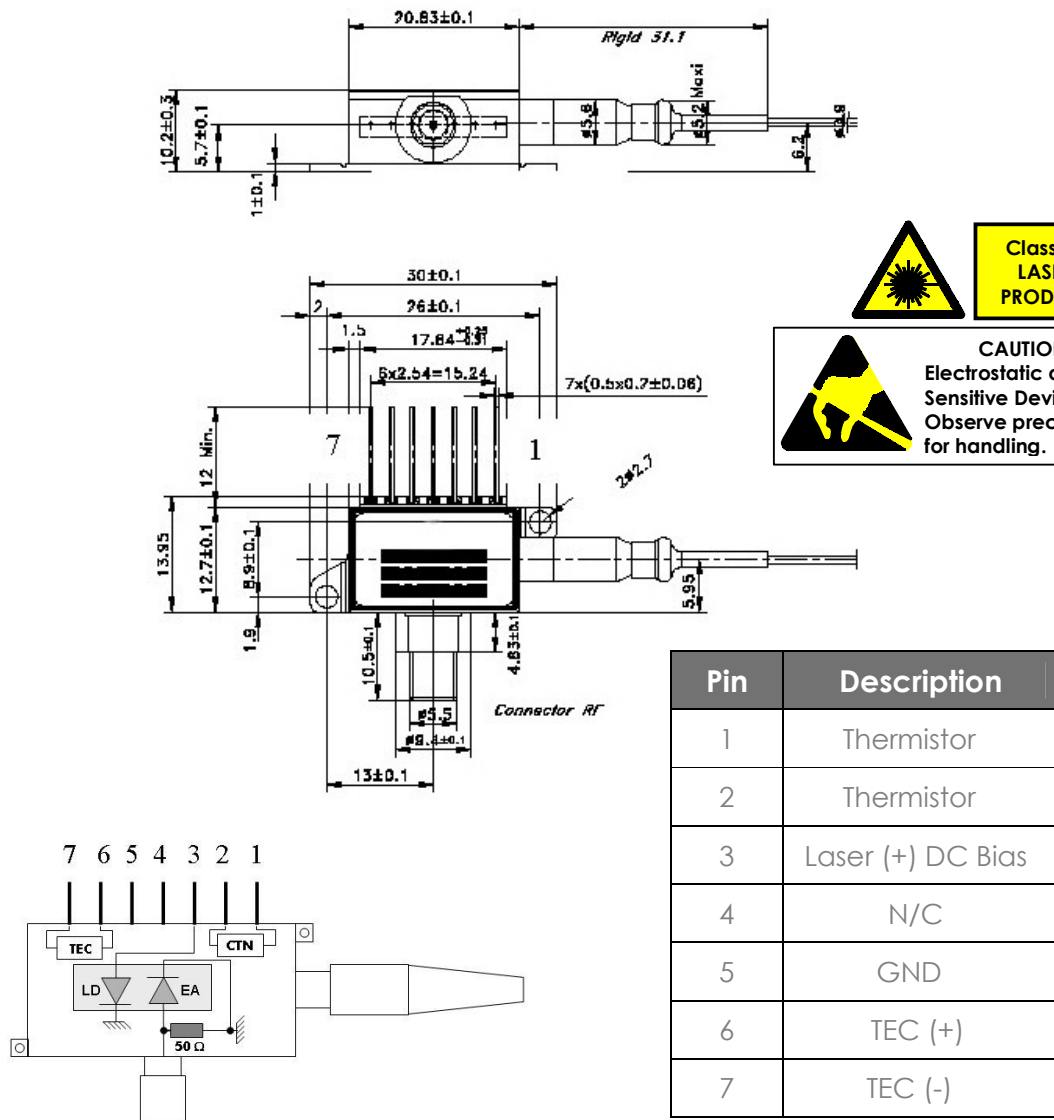
[!] Invert Peltier polarity shall cause a rapid heating and irreparable damage.

Thermistor type : NTC

T°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C
R_{NTC}	19.9 kΩ	15.7 kΩ	12.5 kΩ	10.0 kΩ	8.1 kΩ	6.5 kΩ	5.3 kΩ

5. Outline drawings & Pin allocation

All the dimensions in mm, unless otherwise stated




**Class 3R
LASER
PRODUCT**



CAUTION !
Electrostatic discharge
Sensitive Device.
Observe precautions
for handling.