

1550nm DFB Butterfly Laser Modules

LTP7331-110-S



Key Features

- DFB Laser Chip, Butterfly Package
- High Stabilization
- Standard ITU Grid Wavelengths
- Telecordia GR-468-CORE Compliant
- RoHS Compliant

Applications

- Narrow transmitter
- CATV system
- Architectures Using Separate Optical Wavelengths to Carry Targeted Services

Description

1550nm DFB laser Modules is a Dense Wavelength-Division Multiplexing (DWDM) laser for analog applications. It features a distributed feedback laser chip that has been designed specifically for Ratio Frequency (RF) applications. The laser module has a wide temperature range for reliable performance in harsh node environments and narrowband transmitter designs. It also features low adiabatic chirp to maximize signal quality in short and long lengths of fiber. The laser's excellent inherent linearity minimizes degradation of the broadcast signals caused by quadrature amplitude modulated (QAM) channels. The laser module reduces cable network architecture fiber needs and lessens equipment requirements in the hub.

The 1550nm DFB laser Modules is available in a wide range of standard ITU wavelengths. The lasers are offered as either forward-path (40MHz – 860MHz) or return-path (5MHz– 200MHz) modules.

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Unit
Case Operating Temperature Range	T _{op}	-20	65	°C
Relative Humidity	RH	0	85	%

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T_{stg}	-40	85	°C
Relative Humidity	RH	0	85	%
LD Forward Current	I_{LF}	-	150	mA
LD Reverse Voltage	V_{LR}	-	1	V
PD Reverse Voltage	V_{R}	-	10	V
TEC Current	I_{tec}	-	1.8	A
TEC Voltage	V_{tec}	-	2.5	V
Lead Soldering Temperature and Time	$T_{\text{sold/t}}$	-	260/10	°C/s
Fiber bend radius	r	30	-	mm

Optical/Electrical Characteristics

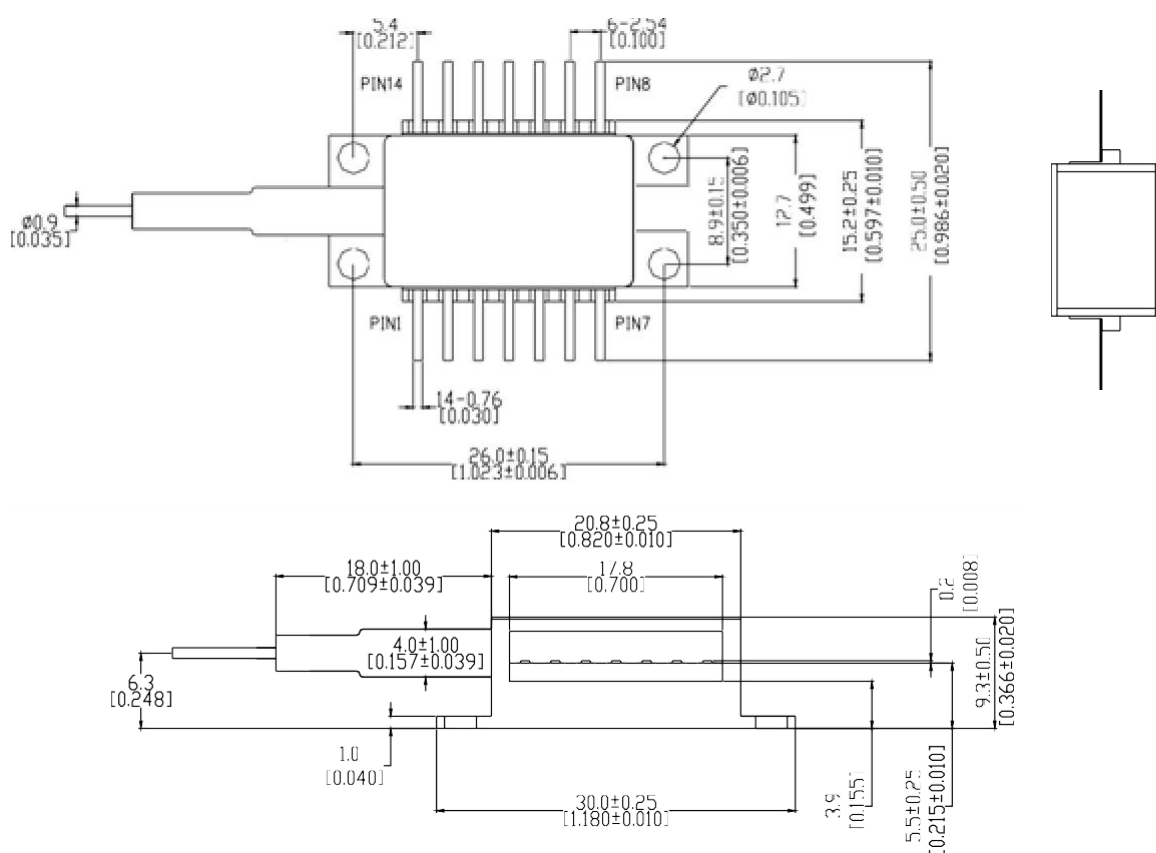
Parameter	Symbol	Test Conditions	Min.	Typ	Max.	Unit
Threshold Current	I_{th}	@25°C, CW	-	-	30	mA
Operation Current	I_{op}	-	-	-	120	mA
Optical Output Power	P	@25°C, $I_{\text{F}}=I_{\text{op}}$	10	-	-	mW
Monitor Operation Current	I_{MON}	@25°C, CW	10	-	200	μA/mW
TEC Current	I_{TEC}	-	-	-	1.8	A
Thermistor Resistance	RT	@25°C	9.5	10	10.5	kΩ
Thermistor Temp. Coeff.	α	@25°C	-	-4.39	-	%/°C
Peak Wavelength	c	@25°C, $I_{\text{F}}=I_{\text{op}}$	1528		1563	nm
3dB Bandwidth	BW	@25°C, $I_{\text{F}}=I_{\text{op}}$	-	-	1.2	GHz
Side Mode Suppression Ratio	SMSR	@25°C, $I_{\text{F}}=I_{\text{op}}$	35	-	-	dB
Isolation	ISO	@25°C, CW	30	-	-	dB
Laser Relative Intensity Noise	RIN	@25°C, $I_{\text{F}}=I_{\text{op}}$	-	<-155	-	dB/Hz
Fiber Length	-	-	1.0	1.5		m
Fiber Core/Cladding/Buffer	-	-		9/125/900		μm

RF Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ .	Max.	Unit
Composite Second Orde	CSO	@25°C, IF=lop	50	-	-	dB
Composite Triple Beat	CTB	@25°C, IF=lop	60	-	-	dB
Carrier to Noise Ratio	CNR	@25°C, IF=lop	51	-	-	dB

Package Outline:

Dimensions are in millimeters and (inches)



PIN Description

Pin	Description	Pin	Description
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	DC Laser Bias (-)	10	NC
4	MPD Anode	11	Laser Common (+) & Case Ground
5	MPD Cathode	12	Laser Modulation (-)
6	TEC (+)	13	Laser Common (+) & Case Ground
7	TEC (-)	14	NC

Order Information

Example: LTP7331-110-S

Family Name	Channel	Package	-	Cooled	Optical power	-	Connector
LTP7	33:ITU WL	1:14-pin BTF	-	1:with cooled	06:6mW 08:8mW 10:10mW	-	S:SC/APC F:FC/APC
LTP7	33	1	-	1	10	-	S

ITU Grid Channel Numbering

Channel	Wavelength (nm)
62	1527.99
61	1528.77
60	1529.55
59	1530.33
58	1531.12
57	1531.90
56	1532.68
55	1533.47
54	1534.25
53	1535.04
52	1535.82
51	1536.61
50	1537.40
49	1538.19
48	1538.98
47	1539.77

Channel	Wavelength (nm)
46	1540.56
45	1541.35
44	1542.14
43	1542.94
42	1543.73
41	1544.53
40	1545.32
39	1546.12
38	1546.92
37	1547.72
36	1548.51
35	1549.32
34	1550.12
33	1550.92
32	1551.72
31	1552.52

Channel	Wavelength (nm)
30	1553.33
29	1554.13
28	1554.94
27	1555.75
26	1556.56
25	1557.36
24	1558.17
23	1558.98
22	1559.79
21	1560.61
20	1561.42
19	1562.23
18	1563.05
17	1563.86
16	1564.68
15	1565.50