DENSELIGHT
6 Changi North St. 2,
S498831 SINGAPORE
sales@denselight.com
www.denselight.com

SPECIFICATIONS

Ultra-Narrow Linewidth 1550nm Laser In BTF Package

DL-CLS101B-FP-S1550-LW100

A. PRODUCT DESCRIPTION

DenseLight DL-CLS101B-FP-S1550-LW100 is a cooled ultra-narrow linewidth laser in BTF package with PMF pigtail emitting at 1550nm wavelength. It is engineered for modulation up to 622Mbps. This laser is based on an external cavity laser with built-in fiber Bragg grating, offering very stable performance of lasing wavelength, narrow spectral linewidth and excellent SMSR.

B. FEATURES

- Strained InGaAsP/InP MQW gain chip coupled with built-in fiber Bragg grating
- Lasing wavelength of 1550nm
- Minimum 10mW CW operation
- Minimum SMSR of 45dB
- Maximum linewidth of 100kHz
- Polarization Extinction Ratio of >15dB
- Internal thermoelectric cooler and thermistor
- Designed for 155/622Mbps operation
- RoHS Compliance

C. APPLICATIONS

- OTDR
- Optical measuring instrumentation
- Optical gas and chemical sensor
- Doppler LIDAR
- BOTDR

D. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	V_R	-	-	2	V
Forward current	I_F	-	-	200	mA
Forward voltage	V_F	I_{op}	-	2.5	V
Case temperature	T_c	I_{op}	0	60	°C
Laser temperature[1]	T_{Laser}	I_{op}	0	70	°C
Thermoelectric cooler voltage	V_{TEC}	-	-	3.0	V
Thermoelectric cooler current	I_{TEC}	-	-	1.8	A
Storage temperature	T_{stg}	Unbiased	-40	85	°C
Storage humidity		-	5	85	%RH
Electro static discharge (ESD)	V_{ESD}	Human body model	-	500	V
Lead soldering temperature	S_{temp}	-	-	260	°C
Lead soldering time	S_{time}	-	-	10	sec

[1] T_{laser} is monitored by internal thermistor with external pin out

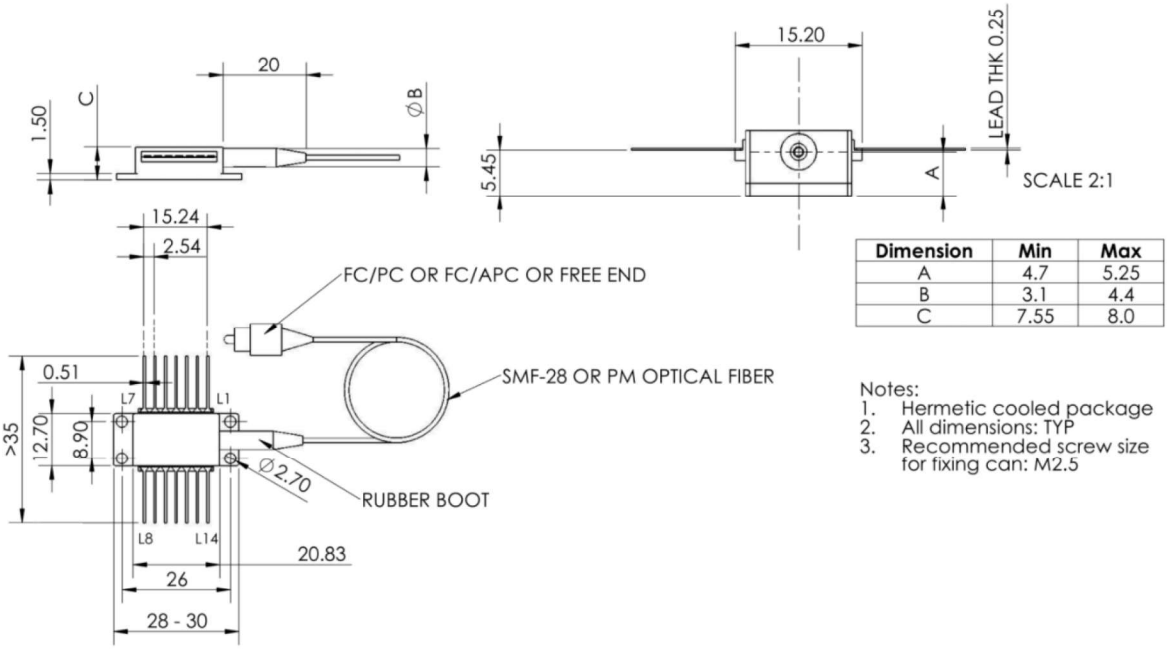
E. ELECTRICAL AND OPTICAL CHARACTERISTICS[2]

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Optical output power	P_O	CW, I=120mA	10	–	–	mW
Threshold current	I_{th}	CW	–	20	30	mA
Operating current	I_{op}	CW, 10mW	–	100	120	mA
Operation voltage	V_{op}	CW, 10mW	–	1.5	2.0	V
Slope efficiency	η	CW, 10mW	0.08	0.12	–	mW/mA
Peak wavelength	λ_p	CW, 10mW	1548	1550	1552	nm
Side mode suppression ratio	SMSR	CW, 10mW	45	–	–	dB
Polarization Extinction Ratio	PER	CW, 10mW	15	–	–	dB
Linewidth	$\Delta\lambda$	CW, 10mW	–	–	100	kHz
Thermistor resistance	R_{therm}	T_{therm} = 25 °C	9.5	10	10.5	kΩ

2) All measurements were done at room temperature and T_{laser}=25 °C otherwise specified

F. PACKAGE

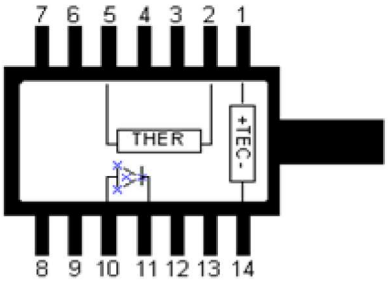
Part	Description
Package type	14-pin BTF
Fiber:	Panda PMF
MFD	10.5μm
Cladding diameter	125μm
Coating diameter	245μm
Fiber pigtail length	>1m
Fiber connector	FC/APC



Dimension	Min	Max
A	4.7	5.25
B	3.1	4.4
C	7.55	8.0

Notes:
1. Hermetic cooled package
2. All dimensions: TYP
3. Recommended screw size for fixing can: M2.5

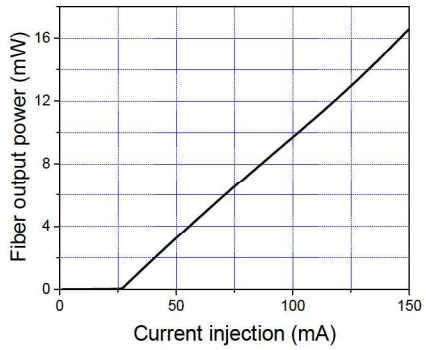
Pin Assignment	
1	TEC (+)
2	THERMISTOR
3	
4	
5	THERMISTOR
6	–
7	–
8	–
9	–
10	LD ANODE (+)
11	LD CATHODE (-)
12	–
13	CASE
14	TEC (-)



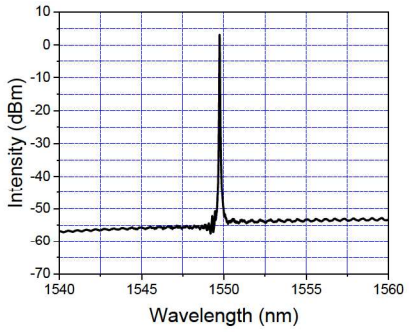
Top view

G. TYPICAL PERFORMANCE CHARACTERISTICS

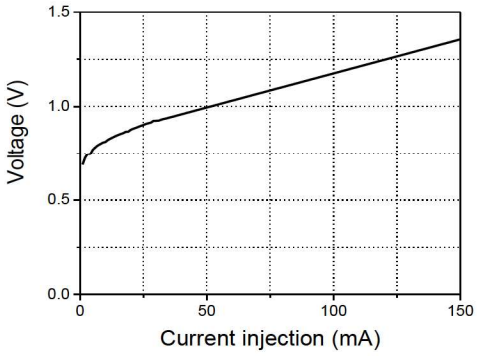
Operating condition: T= 25 °C



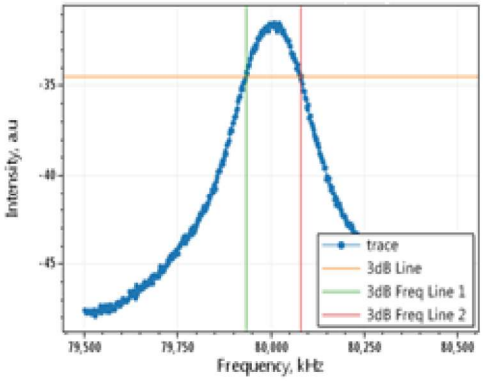
L-I Curve



Spectrum



I-V Curve



Linewidth

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