

## **SPECIFICATIONS**

### **Ultra-Narrow Linewidth 1550nm Laser In BTF Package**

### **DL-CLS101B-FP-S1550-LW200-CLC**

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## A. PRODUCT DESCRIPTION

DenseLight DL-CLS101B-FP-S1550-LW200-CLC 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 200kHz
- 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

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## 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 <sup>1</sup>	$T_{Laser}$	$I_{op}$	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

<sup>1</sup> $T_{laser}$  is monitored by internal thermistor with external pin out

## E. ELECTRICAL AND OPTICAL CHARACTERISTICS<sup>2</sup>

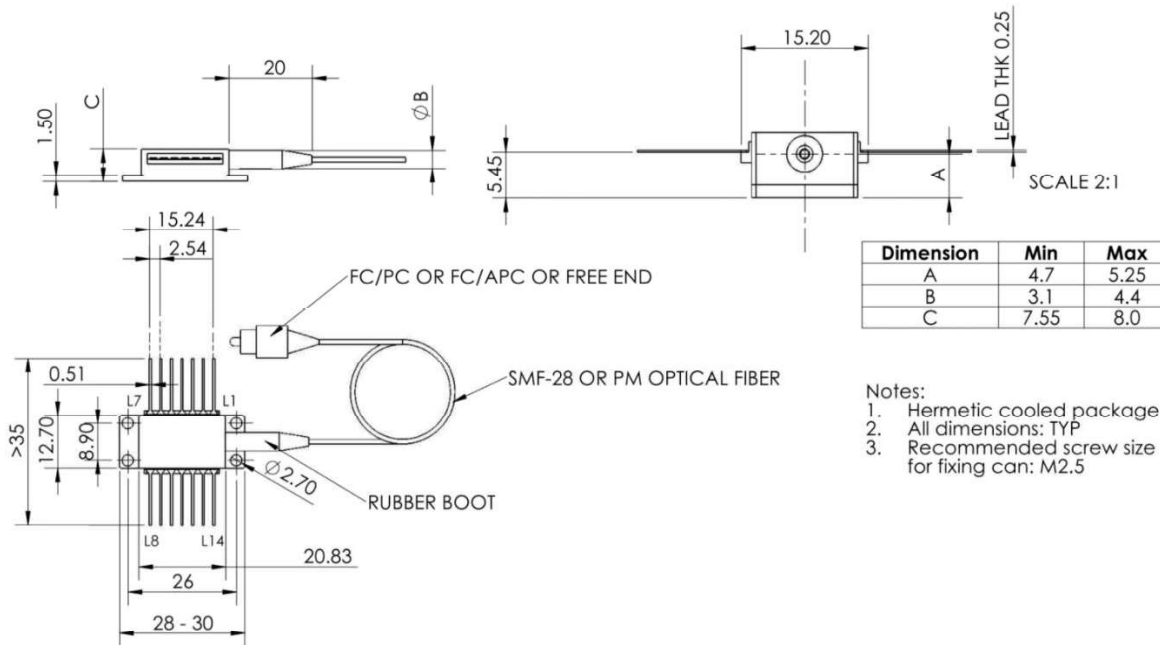
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Optical output power	$P_O$	CW, $I=120mA$	10	—	—	mW
Threshold current	$I_{th}$	CW	—	20	30	mA
Operating current	$I_{op}$	CW, 10mW	—	100	120	mA
Operation voltage	$V_{op}$	CW, 10mW	—	1.5	2.0	V
Slope efficiency	$\eta$	CW, 10mW	0.08	0.12	—	mW/mA
Peak wavelength	$\lambda_p$	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	—	—	200	kHz
Thermistor resistance	$R_{therm}$	$T_{therm} = 25\text{ }^{\circ}C$	9.5	10	10.5	k $\Omega$

2) All measurements were done at room temperature and  $T_{laser}=25\text{ }^{\circ}C$  otherwise specified

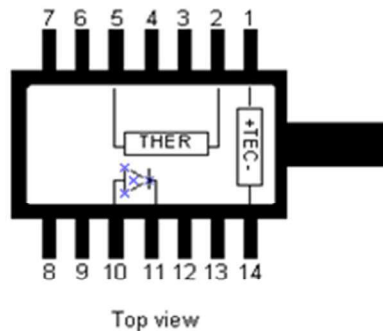
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## F. PACKAGE

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



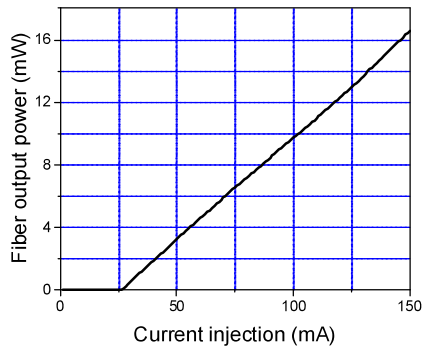
Pin Assignment	
1	TEC (+)
2	THERMISTOR
3	
4	
5	THERMISTOR
6	-
7	-
8	-
9	-
10	LD ANODE (+)
11	LD CATHODE (-)
12	-
13	CASE
14	TEC (-)



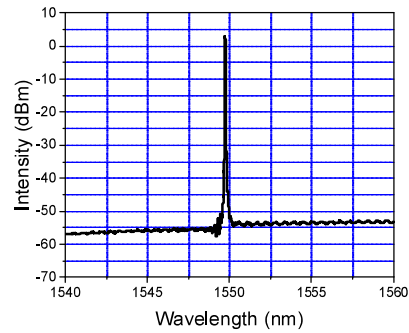
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## G. TYPICAL PERFORMANCE CHARACTERISTICS

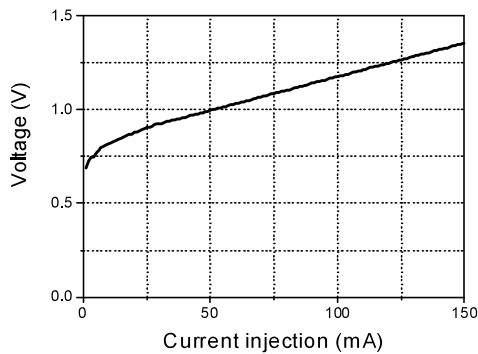
Operating condition:  $T = 25\text{ }^{\circ}\text{C}$



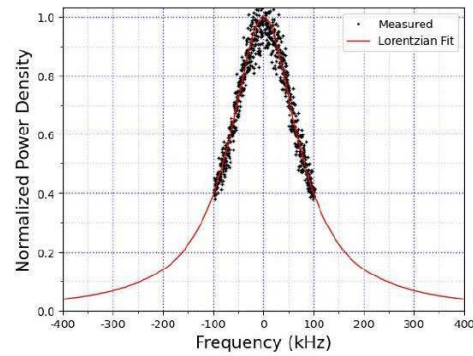
**L-I Curve**



**Spectrum**



**I-V Curve**



**Linewidth**

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