

DENSELIGHT SEMICONDUCTORS PTE. LTD.  
6 Changi North St. 2, S498831 SINGAPORE  
Tel: (65) 6415 4488  
Fax: (65) 6415 7988  
[www.denselight.com](http://www.denselight.com)

## **SPECIFICATIONS**

### **Pulsed Ultra Narrow Linewidth 1260nm Laser In BTF Package**

#### **DL-CLS309B-S1260**

DenseLight Semiconductors reserves the right to make product design or specifications changes without notice.

## **A. PRODUCT DESCRIPTION**

DenseLight **DL-CLS309B-S1260** is a pulsed and cooled ultra narrow linewidth laser in BTF package with SMF pigtail emitting at 1260nm wavelength. 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
- Pulsed single mode optical output of >30mW
- Lasing wavelength of 1260 nm
- Minimum SMSR of 45 dB
- Internal thermoelectric cooler and thermistor
- RoHS Compliance

## **C. PACKAGING**

- 14-pin BTF package with SMF-28 pigtail

## **D. APPLICATIONS**

- OTDR
- Optical measuring instrumentation
- Optical gas and chemical sensor

## E. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	$V_R$			2	V
Forward current	$I_F$	pulse width = 10 $\mu$ s, duty = 1%		450	mA
Forward voltage	$V_F$	$I_{op}$		3.5	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.

## F. ELECTRICAL AND OPTICAL CHARACTERISTICS ( $T_{Laser} = 25\text{ }^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Threshold current	$I_{th}$	CW	–	30	40	mA
Optical output power	$P_o$	Pulsed width=10 $\mu$ s, duty=1%, 30 mW	30	–	–	mW
Operating current	$I_{op}$	Pulsed width=10 $\mu$ s, duty=1%, 30 mW	–	375	400	mA
Operation voltage	$V_{op}$	Pulsed width=10 $\mu$ s, duty=1%, 30 mW	–	–	3.3	V
Peak wavelength	$\lambda_p$	CW, 5mW, 50 mA (typ)	1259	1260	1261	nm
Side mode suppression ratio	SMSR	CW, 5mW, 50 mA (typ)	45	–	–	dB
Linewidth <sup>2</sup>	$\Delta\lambda$	CW, 5mW	–	200	–	kHz
Pulse shape	$V_{peak}/V_{min}$	Pulsed width=10 $\mu$ s, duty=1%, 30 mW	–	–	1.5	–
	$V_{max}/V_{min}$		–	–	1.33	–
Thermistor resistance	$R_{therm}$	$T_{therm} = 25^\circ\text{C}$	9.5	10	10.5	k $\Omega$

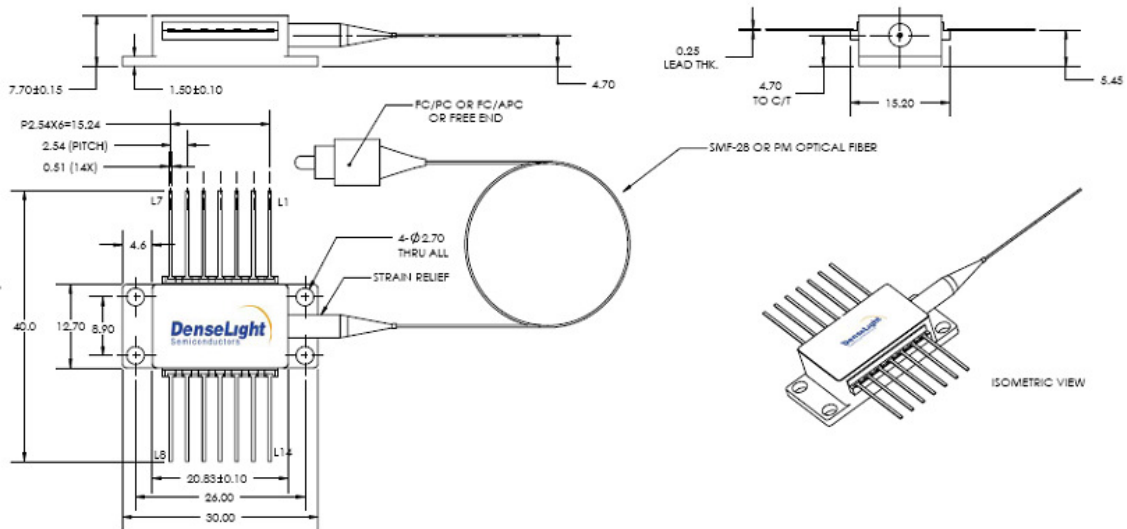
<sup>2</sup> Typical linewidth is narrowed to < 10kHz when module is integrated inside DenseLight's BF-series box with high precision laser driver & temperature controller.

## G. PACKAGE

Part	Description
Package type	14-pin BTF
Fiber:	SMF-28
MFD	9 $\mu$ m
Cladding diameter	125 $\mu$ m
Coating diameter	245 $\mu$ m
Fiber pigtail length	>1m
Fiber connector	FC/APC

## H. OUTLINE DRAWINGS

### Typical Package Dimension



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 (-)

