DenseLight
Semiconductors

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1550nm Wide Band Superluminescent LED

DL-CS51010A-T30

(Preliminary)

A. PRODUCT DESCRIPTION

The DenseLight DL-CS51010A-T30 series is a broadband SLED that operates in a true inherent superluminescent mode. This superluminescent property generates broader band at higher drive currents in contrast to other conventional SLEDs which are ASE-based, where high drive tends to give narrower band. Its low coherence reduces Rayleigh backscattering noise. Coupled with high power and large spectral width, it offsets photoreceiver noise and improves spatial resolution (in OCT) and measurand sensitivity (in sensors). The SLED is available in 14-pin BTF package. It is compliance with the requirements of Telcordia Document GR-468-CORE.

For responsive prototyping enquiries please email: info@denselight.com

B. FEATURES

- Typical Ex-fiber output power of 10mW
- Typical 3dB bandwidth of 100nm
- Spectrum covers 1510-1590nm bandwidth –25dBm/0.1nm resolution
- Spectral modulation of <0.5dB
- 14-pin BTF package
- Single mode fiber

C. APPLICATIONS

- Fiber Optic Gyroscope
- Optical Test Instrument
- Fiber Optic Sensors
- Fiber Optic Communications
- Optical Coherence Tomography
- Biomedical Imaging Device
- Clinical Healing Equipment

D. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	V_R			2	V
Forward current	I_F			650	mA
Forward voltage	V_F	I_{op}		3.0	V
Case temperature	T_C	I_{op}	-20	60	°C
SLED temperature[1]	T_{SLED}	I_{op}	0	70	°C
Thermoelectric cooler voltage	V_{TEC}			3.56	V
Thermoelectric cooler current	I_{TEC}			2.6	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

E. SPECIFICATIONS (T_{SLED} = 30 °C)

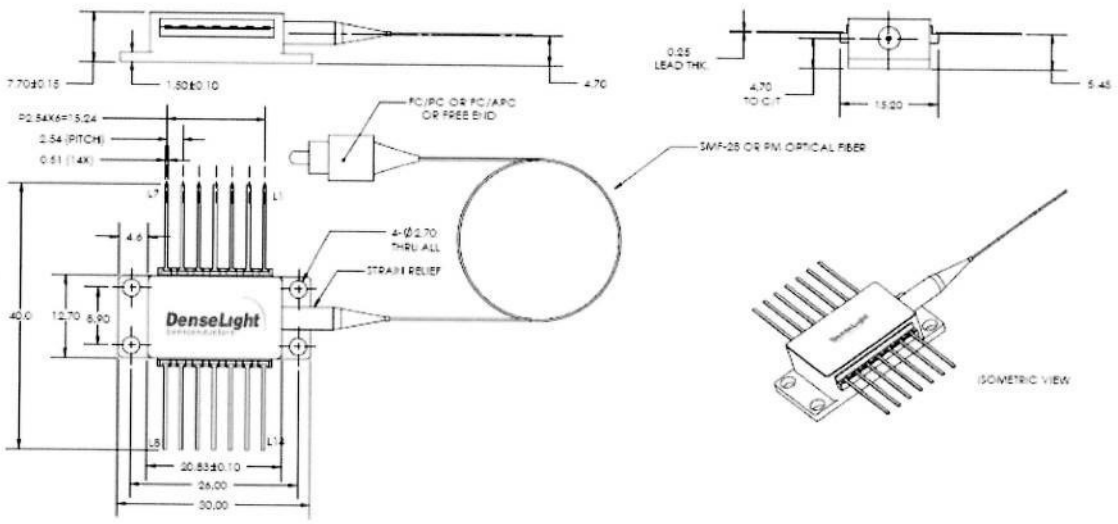
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating current	I_{op}				600	mA
Forward voltage	V_F	I_{op}			2.5	V
Power in SMF	P_o	I_{op}	8	10		mW
Central wavelength	λ	I_{op}	1540	1555	1570	nm
Bandwidth	B_{FWHM}	I_{op}	95	100		nm
Spectrum modulation	R	I_{op}			0.5	dB
Thermistor resistance	R_{therm}	T = 30 °C	7.6	8.1	8.6	kΩ
Thermoelectric cooler voltage	V_{TEC}	I_{op}			2.8	V
Thermoelectric cooler current	I_{TEC}	I_{op}			1.4	A

1 T_{SLED} is monitored by internal thermistor with external pin out.

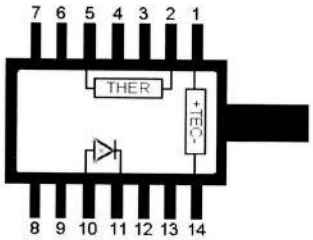
F. PACKAGE

BTF package

Part	Description
Package type	BTF
Fiber:	SMF-28
MFD	10μm
Cladding diameter	125μm
Coating diameter	245μm
Jacket	900μm loose tube
Fiber pigtail length	1m
Fiber bending radius	>40mm
Connector	FC/APC
Dimensions	See figure

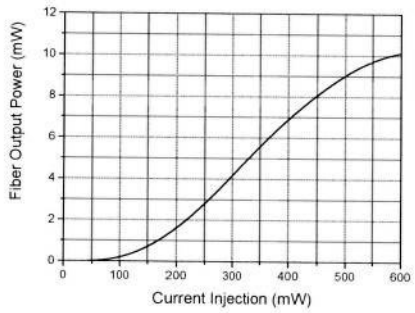


Pin Assignment	
1	TEC+
2	THERMISTOR
3	–
4	–
5	THERMISTOR
6	–
7	–
8	–
9	–
10	SLED ANODE +
11	SLED CATHODE -
12	–
13	CASE
14	TEC -

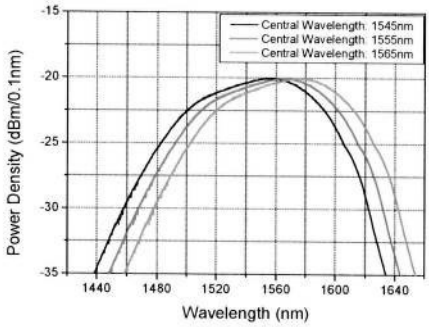


G. TYPICAL PERFORMANCE CHARACTERISTICS

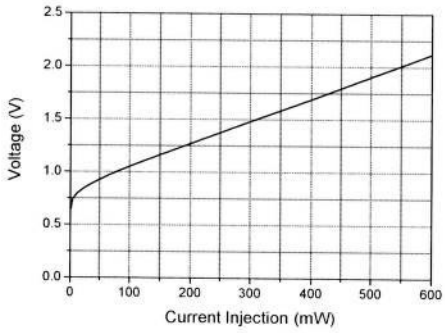
Operating condition: T_{SLED}= 30 °C



P-I Curve



Spontaneous Emission Spectrum



I-V Curve