1310 nm High Power SLED

Product Description

The LED-1310B series is a broadband SLED that operates in a true inherent super-luminescent mode. This super-luminescent 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 photo-receiver noise and improves spatial resolution (in OCT) and measure sensitivity (in sensors). The SLED is available in 14-pin DIL and BTF package. It is compliance with the requirements of Telcordia GR-468-CORE.

Enabled by our spread spectra bandgap engineering technology, future generations of SLEDs promise higher chip powers (up to 50mW possible), and broader spectral bands (beyond 120nm). Higher levels of integration may feature integrated SLEDs with phase modulators, optical couplers and photo-detectors into a complete optical sensor chipset.

Features

- Typical ex-fiber output power of 20mW
- 3dB bandwidth of >40nm
- Typical spectral modulation of 0.15dB
- 14-pin DIL package
- Single mode fiber

Applications

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

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	V_R			2	V
Forward current	I_F			400	mA
Forward voltage	V_F	I_{op}		2.5	V
Case temperature	T_c	I_{op}	-40	65	° C
SLED temperature	T_{SLED}	I_{op}	0	70	° C
Thermoelectric cooler voltage	V_{TEC}			3	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

Specifications (TSLED = 25 °C)

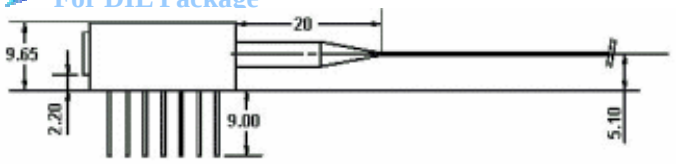
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating current	Iop				350	mA
Forward voltage	VF	Iop			2	V
Power in SMF	Po	Iop	18	20		mW
Central wavelength	λ	Iop	1290	1310	1330	nm
Bandwidth	BFWHM	Iop	40			nm
Spectrum modulation	R	Iop		0.15	0.35	dB
Thermistor resistance	Rtherm	T = 25 °C	9.5	10	10.5	kΩ
Thermoelectric cooler voltage	VTEC	Iop			2.8	V
Thermoelectric cooler current	ITEC	Iop			1.2	A

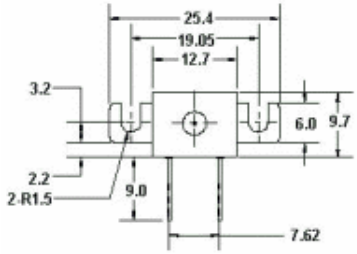
1 T_{SLED} is monitored by internal thermistor with external pin out.

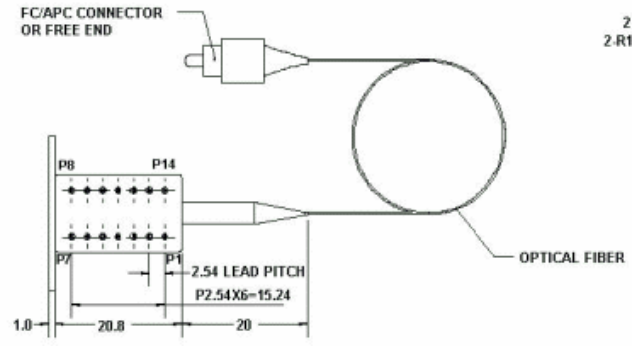
Package

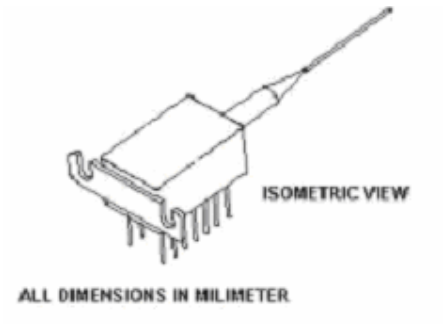
Part	Description
Package type	DIL or BTF
Fiber:	SMF-28 `
MFD	9μm
Cladding diameter	125μm
Coating diameter	245μm
Jacket	900μm loose tube
Fiber pigtail length	1m
Fiber bending radius	>40mm
Fiber Connector	FC/APC
Dimensions	See figure

For DIL Package

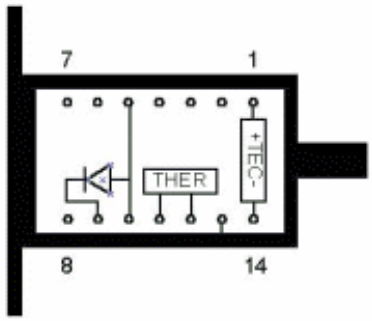




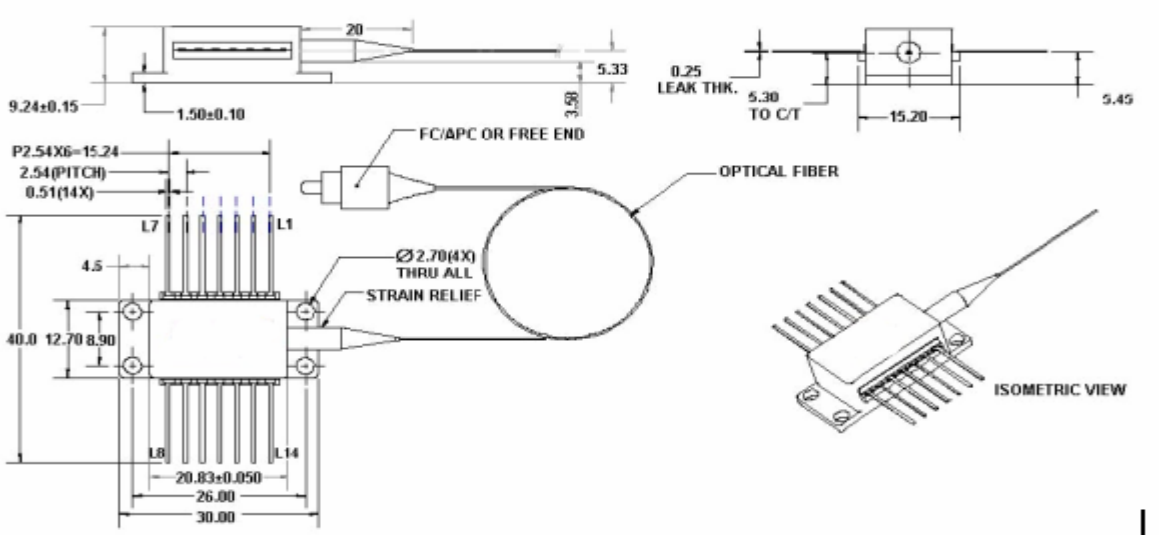




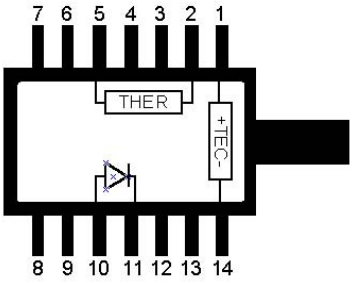
Pin Assignment	
1	TEC+
2	--
3	--
4	--
5	SLED ANODE +
6	--
7	--
8	--
9	SLED CATHODE -
10	SLED ANODE +
11	THERMISTOR
12	THERMISTOR
13	CASE
14	TEC -



For BTF Package

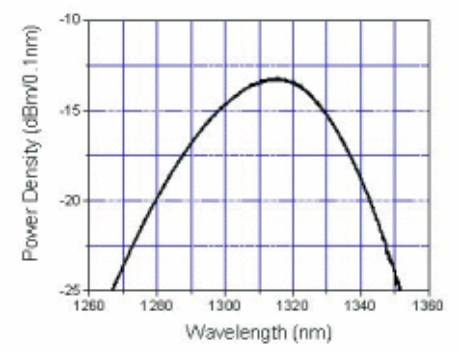


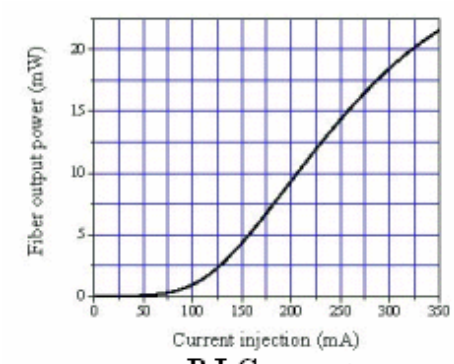
Pin Assignment	
1	TEC+
2	THERMISTOR
3	–
4	–
5	THERMISTOR
6	–
7	–
8	–
9	–
10	SLED ANODE +
11	SLED CATHODE -
12	–
13	CASE
14	TEC -



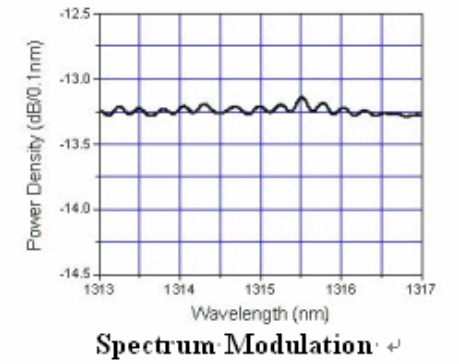
Typical Performance Characteristi

Operating condition: T_{SLED}= 25 °C

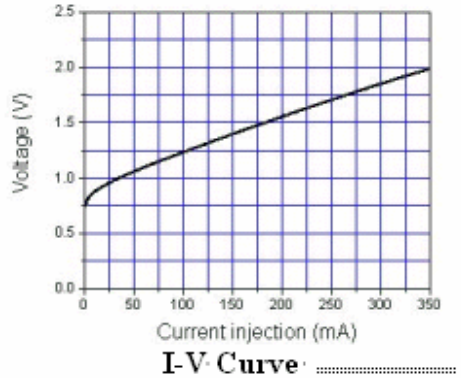




P-I Curve



Spectrum Modulation



I-V Curve