1550nm Narrow linewidth external cavity laser



Description

The PL-NL series directly modulated external cavity laser is cost effective solution for 2.5 Gbits/s digital transmission in SMF-28 fiber. This is fabricated in a hermetically sealed 14-pin butterfly package that contains thermoelectric cooler (TEC), thermistor, monitor photodiode, optical isolator.

The PL-NL provides substantially lower dispersion penalty and lower chirp than a directly modulated DFB. The wavelength stability is assured by design, eliminating the need for wavelength lockers and complex feedback control circuits.

Features

- ITU wavelengths across C-band
- 100 GHz channel spacing
- SONET/SDH OC-48/STM16 ring and meshed applications
- Low dispersion provides
- Low transient chirp provides unique narrow dynamic spectrum
- Excellent long-term wavelength stability eliminates the need for a wavelength locker

E/O Characteristics

Optical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λc	TL=15～35℃ CW	1549.62	1550.12	1550.62	nm
Peak Optical Output Power	PO	-	5	-	-	mW
Spectral linewidth	LW	-	-	1	10	MHz
Side-mode	SMSR	CW	30	40	-	dB

Suppression Ratio						
Optical Isolation	-	-10 < TC < +70 ºC	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 5mW	-	-	-135	dB
Wavelength drift with case (-10 to 70 ºC) temperature	△λ	TL=15～35℃	-	-	±30	pm

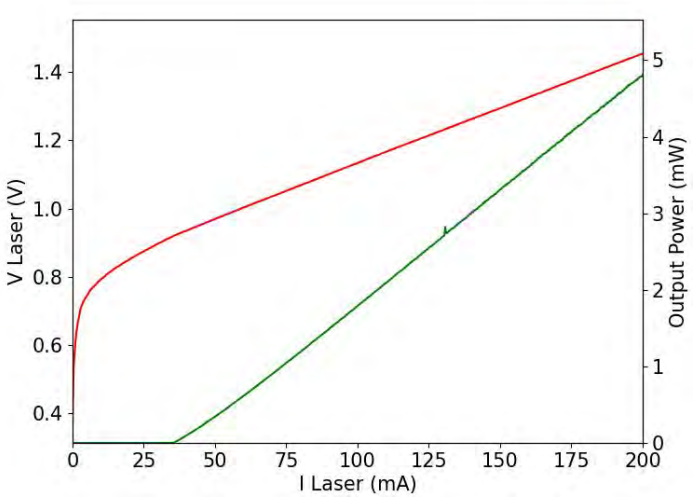
Electrical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	15	25	mA
Slope Efficiency	η	CW output power 5 mW	0.064	0.1	-	mW/mA
Operating current	Iop	CW	-	150	200	mA
TEC set temperature	Ts	-	15	-	35	℃
Laser Forward Voltage	VF	CW output power 5 mW	-	1.3	1.8	V
Monitor Dark Current	ID	-	-	-	0.1	μA
Input Impedance	ZIN	-	22	25	28	Ω
Thermistor Current	ITC	-	10	-	100	μA
Thermistor Resistance	RTH	TL = 25 °C	9.5	10	10.5	KΩ
TEC Current	ITEC	TL = 25 °C, TC = 70 °C	-	-	1.8	A
TEC Voltage	VTEC	TL = 25 °C, TC = 70 °C	-	-	3.5	V
TEC capacity	ΔT	Tc = 70°C	-	-	50	°C
Thermistor temperature	-	-	-	-	100	°C

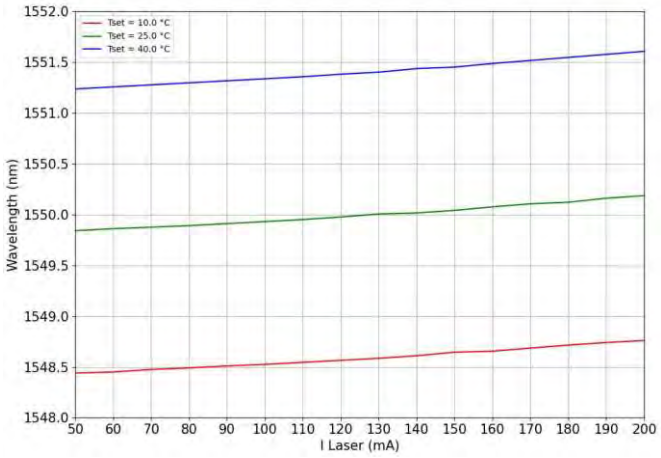
Spectrum



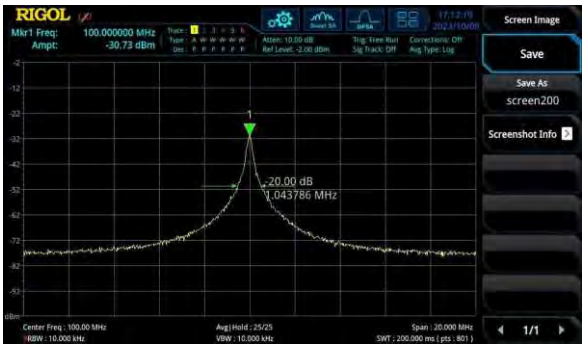
L-I Curve



Tuning Characteristics

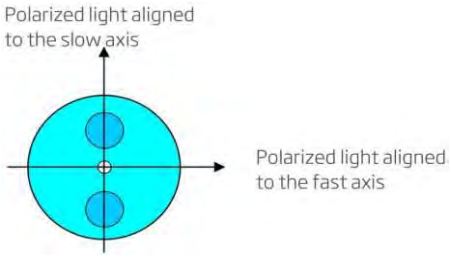


Linewidth Test Results (50km Time delay Coil)



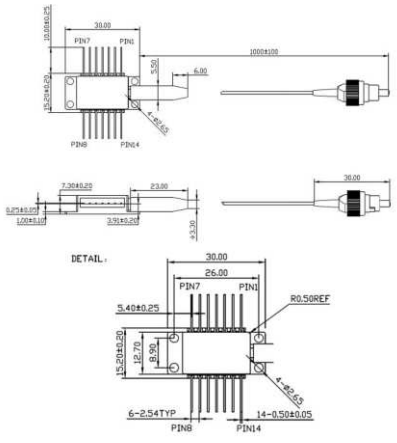
Fiber Pigtail Specifications

Parameters	Description
Fiber Type	PM fiber
Jacket Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC
PM fiber Connector Orientation	Please see the right figure



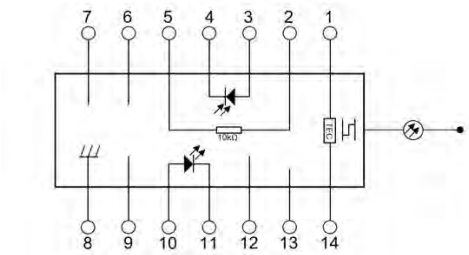
Note: The PM fiber and the connector key are aligned to the slow axis,fast axis is blocked.

Package Size



62 Highland Ave., Bethlehem, PA 18017, USA
Sales: contact@cybel-llc.com | Web: www.cybel-llc.com | Tel: +1 (610) 691-7012

Pin definition



PIN#	Function	PIN#	Function
1	TEC+	8	Case Ground
2	Thermistor	9	NC
3	Detector+	10	Laser Anode(+)
4	Detector-	11	Laser Cathode(-)
5	Thermistor	12	NC
6	NC	13	NC
7	NC	14	TEC-

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Storage temperature	Ts	-	-40	-	85	℃
Operating case temperature	Top	-	-15	-	75	℃
Forward Current	IF	CW	-	-	280	mA
Reverse Voltage	VR	-	-	-	2	V
Photodiode Forward Current	IFPD	-	-	-	2	mA
Photodiode Reverse Voltage	VRPD	-	-	-	10	V
TEC current	ITEC	-	-	0.8	1.5	A
TEC voltage	VTEC	-	-	1.5	3.5	V

Application

- Metro and Long Haul DWDM,100 GHz spaced networks
- SONET/SDH OC-48/STM16 ring and meshed applications
- Drop-side of DWDM long-haul transport equipment
- Optical Test and Instrumentation
- Microwave Photonics
- CATV networks
- Sensors

Ordering Info

PL-NL - □□□□-☆-A8▽- XX

□□□□：Wavelength

1550:1550nm

1555:1555nm

*****

1560：1560nm

☆ ：Output Power

A：5mW

B：10mW

▽：Linewidth

1：＜100KHz

XX: Fiber and Connector Type

SA=SMF-28E+ FC/APC

SP=SMF-28E+ FC/PC

PP=PM Fiber+ FC/PC

PA=PM Fiber+ FC/APC