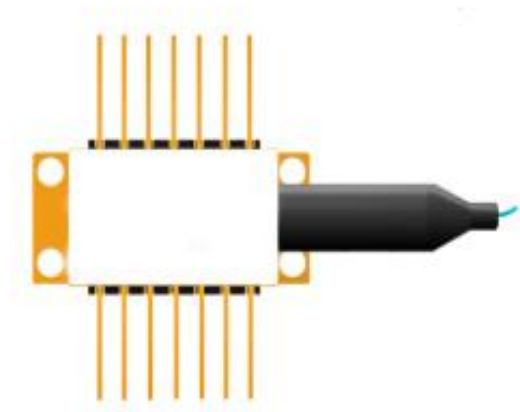


1550nm 5mW PM Narrow Linewidth Laser

Diodes



● Product Description

The 1550nm 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.

● Product features

100 GHz channel spacing; SMSR 40dB; Optical Isolation 30dB; Pigtail Length 1.0 ±0.1m; PM fiber; FC/APC

● Part Number

MP-NL-1550-A-A81-PA

● Application area

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

● Core parameters

Wavelength	Output Power	Fiber Type
1550nm	5mW	PM

● General Parameters

Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~ 35°C CW	1549.62	1550.12	1550.62	nm
Peak Optical Output Power	PO	-	5	-	-	mW

Spectral linewidth	LW	-	-	1	10	MHz
Side-mode Suppression Ratio	SMSR	CW	30	40	-	dB
Optical Isolation	-	-10 < TC < +70 °C	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 5mW	-	-	-135	dB
Wavelength drift with case temperature (-10 to 70 °C)	$\Delta\lambda$	TL=15~35°C	-	-	±30	pm

Electrical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	15	25	mA

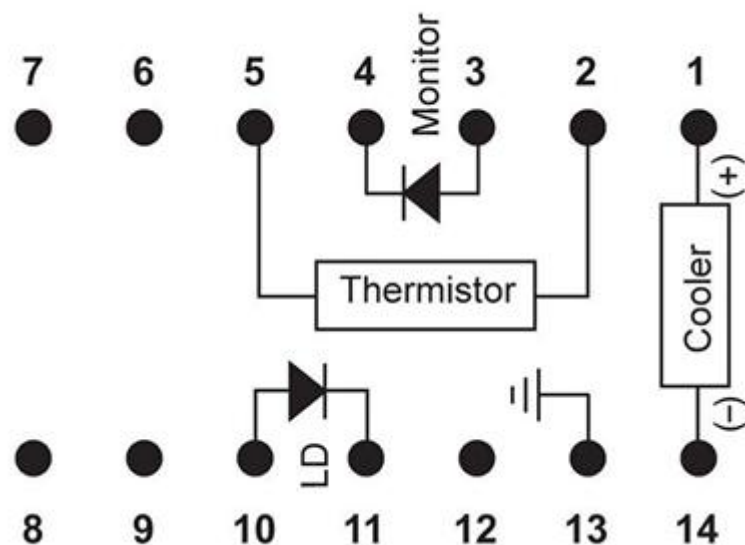
Slope Efficiency	η	CW output power 5 mW	0.064	0.1	-	mW/mA
Operating current	I _{op}	CW	-	150	200	mA
TEC set temperature	T _s	-	15	-	35	°C
Laser Forward Voltage	V _F	CW output power 5 mW	-	1.3	1.8	V
Monitor Dark Current	I _D	-	-	-	0.1	μA
Input Impedance	Z _{IN}	-	22	25	28	Ω
Thermistor Current	I _{TC}	-	10	-	100	μA
Thermistor Resistance	R _{TH}	T _L = 25 °C	9.5	10	10.5	KΩ
TEC Current	I _{TEC}	T _L = 25 °C, T _C = 70 °C	-	-	1.8	A
TEC Voltage	V _{TEC}	T _L = 25 °C, T _C = 70 °C	-	-	3.5	V
TEC capacity	ΔT	T _C = 70°C	-	-	50	°C
Thermistor	-	-	-	-	100	°C

temperature			
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Absolute maximum ratings:

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage temperature	Ts	-40	-	85	°C
Operating case temperature	Top	-15	-	75	°C
Forward Current	If	-	-	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

Pin definition

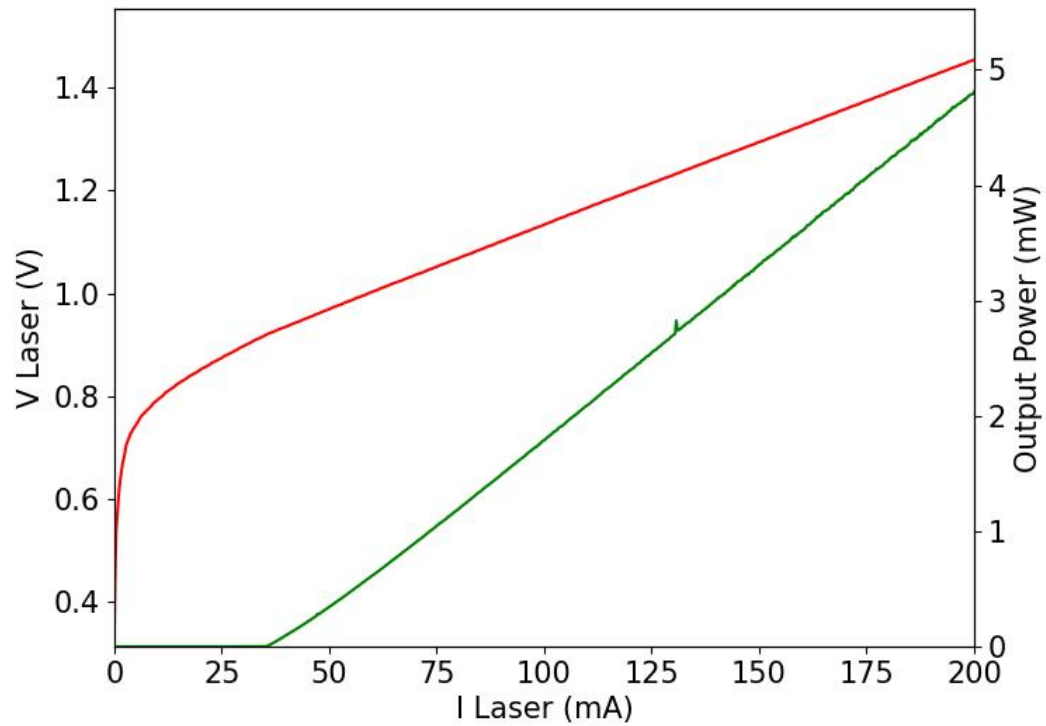


None PZT Built inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	NC
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler cathode-

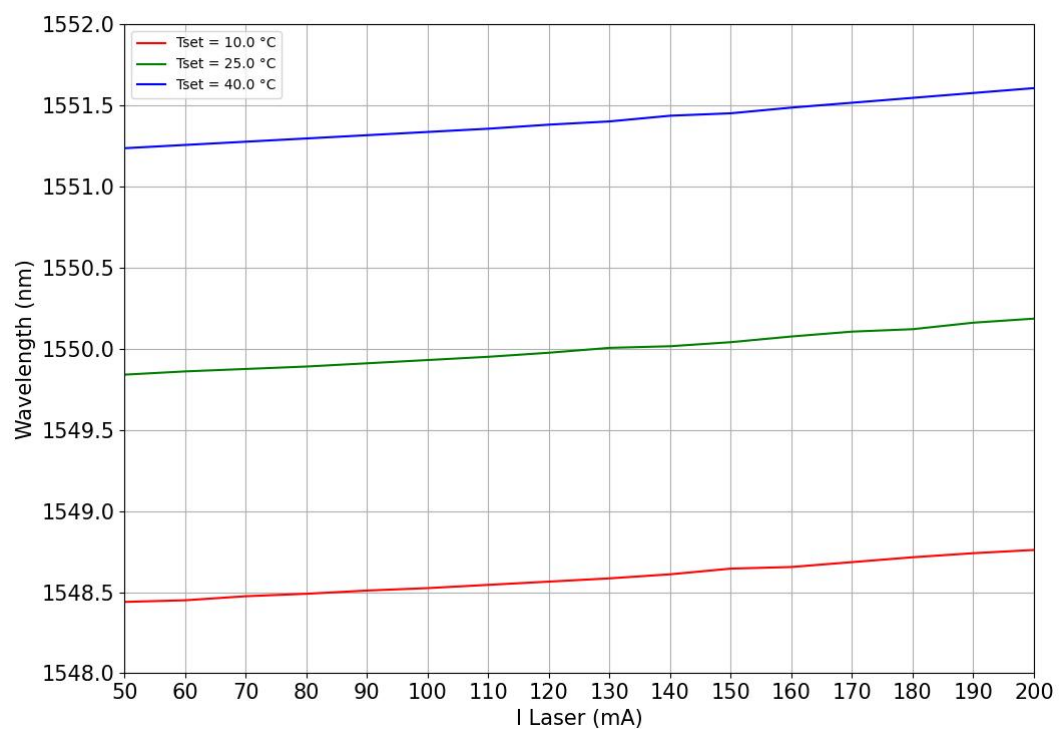
Spectrum



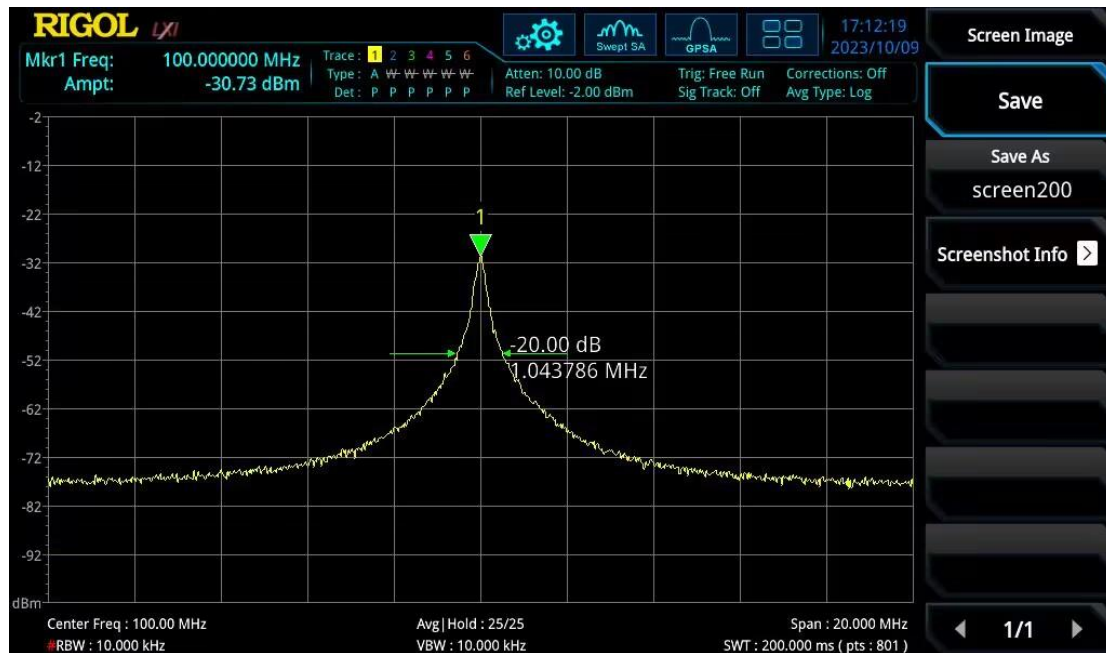
L-I-V Curve



Tuning Characteristics



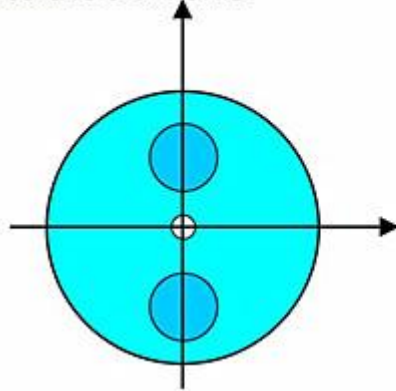
Linewidth test



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

Polarized light aligned
to the slow axis



Polarized light aligned
to the fast axis

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