CEL

LASER DIODE
NX5310 Series

1 310 nm FOR 156 Mb/s, 622 Mb/s, 1.25 Gb/s, FTTH InGaAsP MQW-FP LASER DIODE

DESCRIPTION

The NX5310 Series is a 1 310 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode with InGaAs monitor PIN-PD. These devices are designed for application up to 1.25 Gb/s.



APPLICATIONS

- STM-1 (I-1, S-1.1), STM-4 (I-4, S-4.1), ITU-T recommendations
- FTTH P2P (Fiber To The Home Point to Point) system

FEATURES

- Optical output power P_o = 5.0 mW
- Low threshold current I_{th} = 6 mA
- Differential efficiency η_d = 0.3 W/A
- Wide operating temperature range T_C = −40 to +85°C
- InGaAs monitor PIN-PD
- CAN package ϕ5.6 mm
- Fiber coupling point 5.8 mm

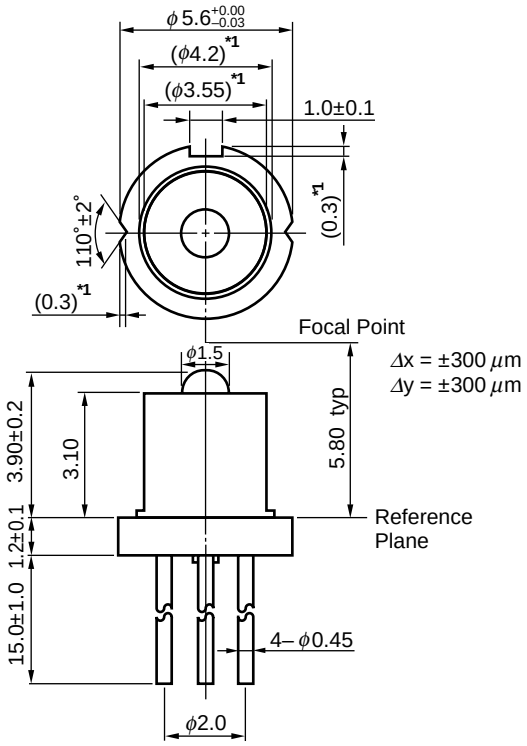
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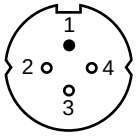
The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

<R> **PACKAGE DIMENSIONS (UNIT: mm)**

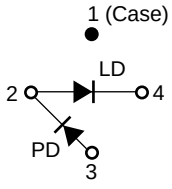


BOTTOM VIEW

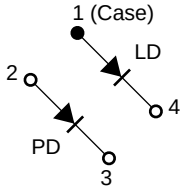


PIN CONNECTIONS

NX5310EH

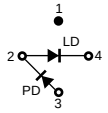
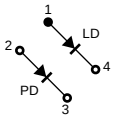


NX5310EK



***1** ( ) indicates nominal dimension.

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX5310EH-AZ*	4-pin CAN with ball lens cap	
NX5310EK-AZ*		

Remark The hermetic test will be performed as AQL 1.0%.

***NOTE:**

Please refer to the last page of this data sheet, “Compliance with EU Directives” for Pb-Free RoHS Compliance Information.

ABSOLUTE MAXIMUM RATINGS

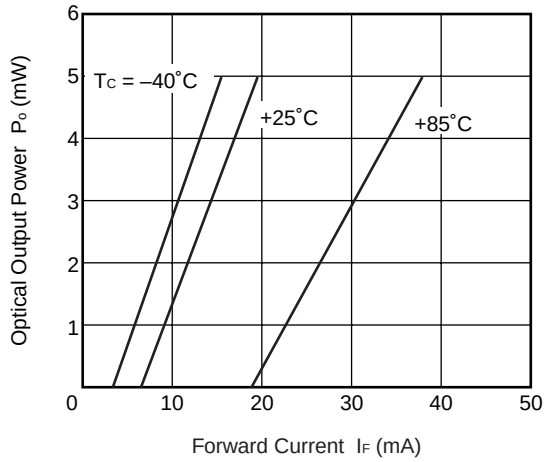
Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	10	mW
Forward Current of LD	I_F	150	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10	mA
Reverse Voltage of PD	V_R	20	V
Operating Case Temperature	T_C	–40 to +85	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Assembly Temperature	T_{asb}	150 (15 Hr)	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

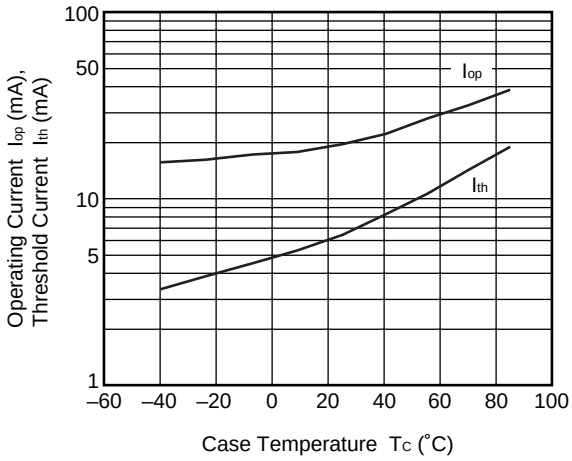
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	P_o = 5.0 mW		1.1	1.5	V
Operating Current	I_{op}	P_o = 5.0 mW	10	20	35	mA
Threshold Current	I_{th}		3	6	15	mA
Differential Efficiency	η_d		0.2	0.3	0.7	W/A
Center Wavelength	λ_C	P_o = 5.0 mW, RMS (–20 dB)	1 290	1 310	1 330	nm
Spectral Width	σ	P_o = 5.0 mW, RMS (–20 dB)		1.0	2.0	nm
Rise Time	t_r	10-90%		0.15	0.3	ns
Fall Time	t_f	90-10%		0.15	0.3	ns
Lateral Beam Angle	$\theta_{//}$	P_o = 5.0 mW		11		deg.
Vertical Beam Angle	$\theta_{\perp}$	P_o = 5.0 mW		11		deg.
Monitor Current	I_m	V_R = 1.5 V, P_o = 5.0 mW	100	500	900	μA
Monitor Dark Current	I_D	V_R = 10 V			100	nA
Monitor PD Terminal Capacitance	C_t	V_R = 10 V, f = 1 MHz			20	pF
Focal Distance	D_f	P_o = 5.0 mW	5.0	5.8	6.2	mm
Optical Output Power from Fiber	P_f	P_o = 5.0 mW, 8 degree angled fiber, Optimized X, Y, θ. Z = 5.8 ± 0.05 mm.	400	800		μW

<R> **TYPICAL CHARACTERISTICS (T_C = –40 to +85°C, unless otherwise specified)**

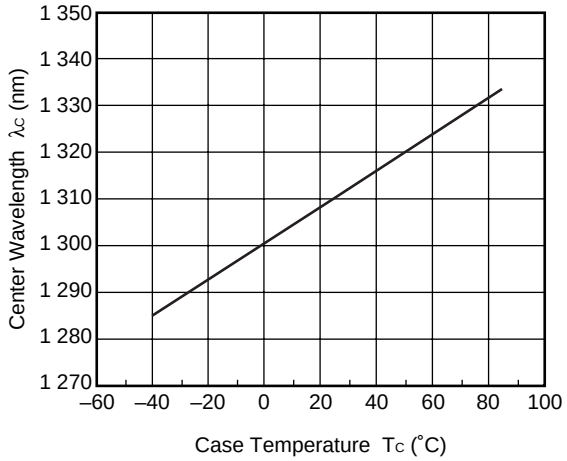
OPTICAL OUTPUT POWER vs. FORWARD CURRENT



OPERATING CURRENT AND THRESHOLD CURRENT vs. CASE TEMPERATURE



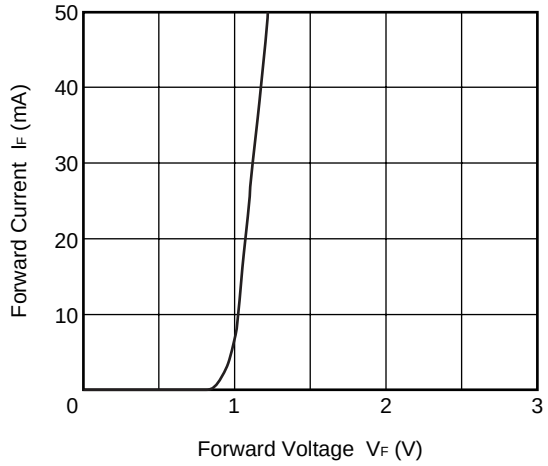
TEMPERATURE DEPENDENCE OF CENTER WAVELENGTH



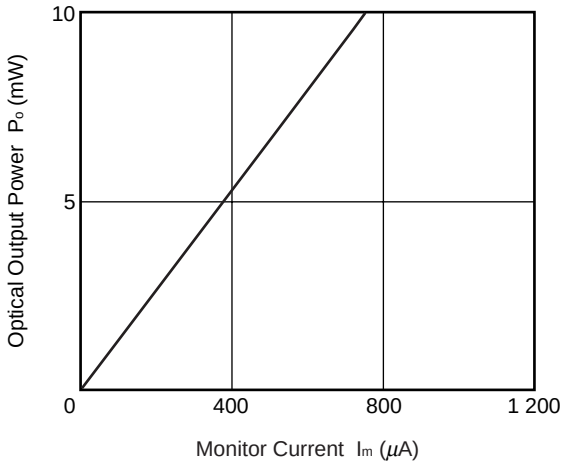
Remark The graphs indicate nominal characteristics.

<R> **TYPICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)**

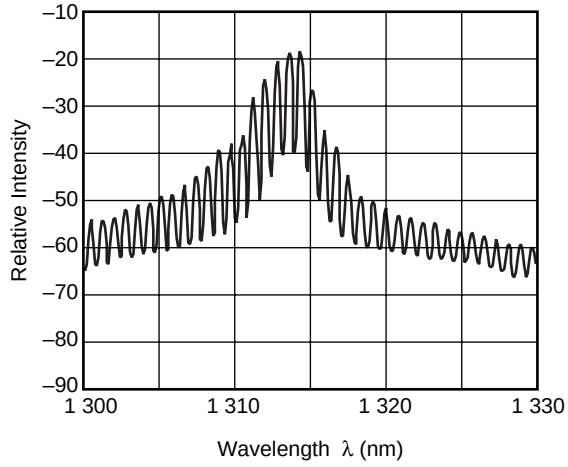
FORWARD CURRENT vs. FORWARD VOLTAGE



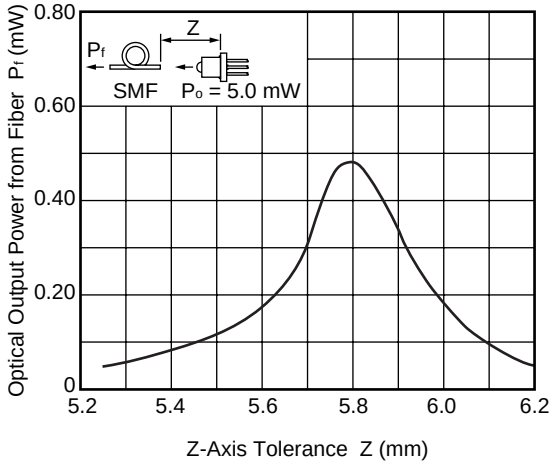
OPTICAL OUTPUT POWER vs. MONITOR CURRENT



SPECTRUM



TOLERANCE OF FIBER COUPLING DISTANCE (Z)



Remark The graphs indicate nominal characteristics.

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Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL's understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
Lead (Pb)	< 1000 PPM	-A	-AZ
		Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.

Important Information and Disclaimer: Information provided by CEL on its website or in other communications concerting the substance content of its products represents knowledge and belief as of the date that it is provided. CEL bases its knowledge and belief on information provided by third parties and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. CEL has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. CEL and CEL suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.
In no event shall CEL's liability arising out of such information exceed the total purchase price of the CEL part(s) at issue sold by CEL to customer on an annual basis.
See CEL Terms and Conditions for additional clarification of warranties and liability.