DATA SHEET

NEC

LASER DIODE
NX5320EH

1 310 nm AlGaInAs MQW-FP LASER DIODE FOR 4 Gb/s FIBER CHANNEL APPLICATION

DESCRIPTION

The NX5320EH is a 1 310 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode with InGaAs monitor PIN-PD.

APPLICATION

- 4 G fiber channel

FEATURES

- Optical output power P_o = 7.0 mW
- Low threshold current I_{th} = 8 mA
- Differential efficiency η_d = 0.35 W/A
- Wide operating temperature range T_C = –30 to +85°C
- InGaAs monitor PIN-PD
- CAN package ϕ5.6 mm
- Focal point 5.8 mm

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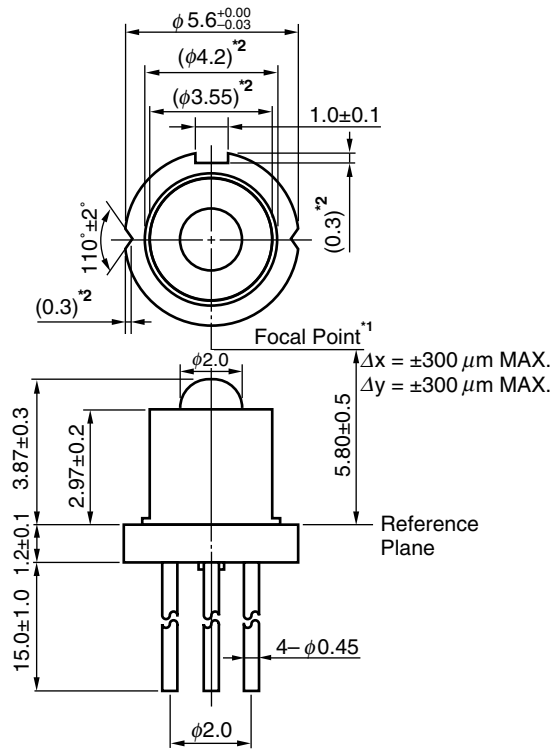
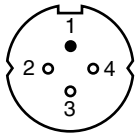
Printed in Japan

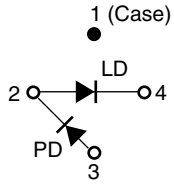
PACKAGE DIMENSIONS (UNIT: mm)



BOTTOM VIEW

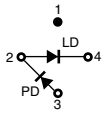


PIN CONNECTIONS



***1** Focal Point: A point to get maximum optical output power from fiber.
***2** ( ) indicates nominal dimension.

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX5320EH	4-pin CAN with ball lens cap	

Remarks 1. The color of ball lens cap might be observed differently.

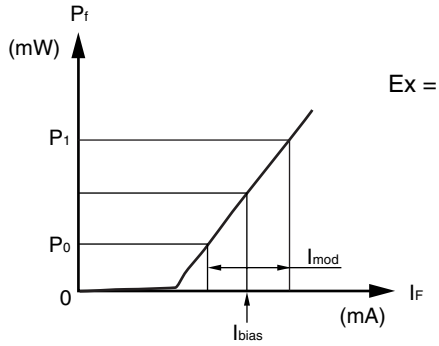
2. The hermetic test will be performed as AQL 1.0%.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	15	mW
Forward Current of LD	I_F	120	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	−30 to +85	°C
Storage Temperature	T_{stg}	−40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Bias Current	I_{bias}	T_C = 25°C, refer to below		I_{th} +12.5		mA



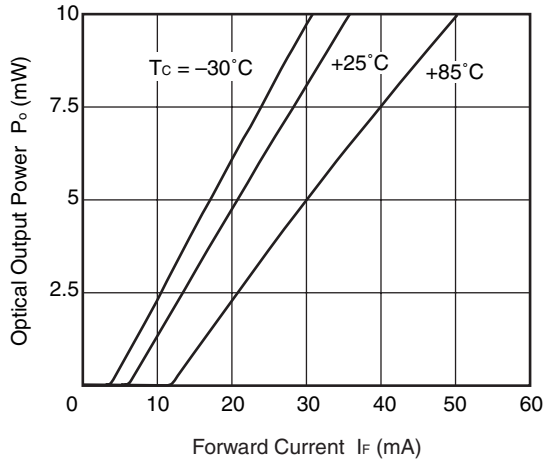
$$Ex = 10 \log \frac{P_1}{P_0} \text{ [dB]}$$

ELECTRO-OPTICAL CHARACTERISTICS (T_C = –30 to +85°C, unless otherwise specified)

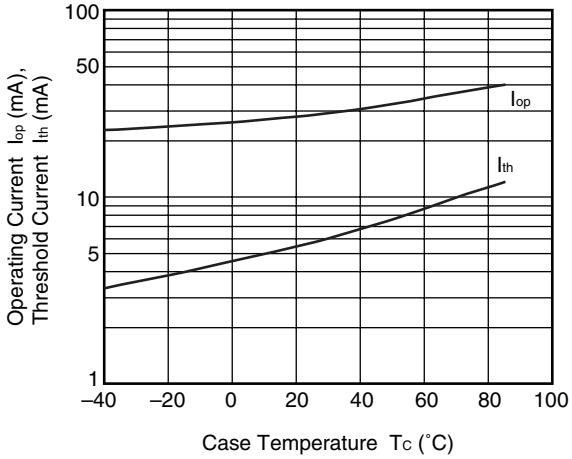
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	CW, P_o = 7.0 mW, T_C = +25°C		1.3	1.6	V
		CW, P_o = 7.0 mW			2.0	
Threshold Current	I_{th}	CW, T_C = +25°C		8	20	mA
		CW	2		40	
Differential Efficiency	η_d	CW, T_C = +25°C	0.25	0.35	0.50	W/A
		CW	0.12		0.65	
Center Wavelength	λ_C	P_o = 7.0 mW, RMS (–20 dB)	1 278		1 350	nm
Temperature Dependence of Slope Efficiency	$\Delta\eta$	$\Delta\eta = 10 \log \frac{\eta_d\ (@\ 85°C)}{\eta_d\ (@\ 25°C)}$	–3.0		1.5	dB
Spectral Width	σ	P_o = 7.0 mW, RMS (–20 dB)			2	nm
Rise Time	t_r	20-80%			90	ps
Fall Time	t_f	80-20%			90	ps
Relative Intensity Noise	RIN	Under modulation			–120	dB/Hz
Monitor Current	I_m	V_R = 1.5 V, P_o = 7.0 mW	200		2 000	μA
Monitor Dark Current	I_D	V_R = 5 V			500	nA
Monitor PD Terminal Capacitance	C_t	V_R = 5 V, f = 1 MHz		6	20	pF

TYPICAL CHARACTERISTICS (T_C = –30 to +85°C, unless otherwise specified)

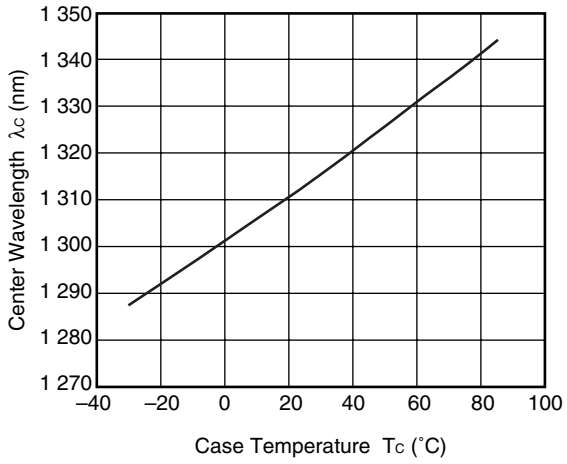
OPTICAL OUTPUT POWER vs. FORWARD CURRENT



OPERATING CURRENT AND THRESHOLD CURRENT vs. CASE TEMPERATURE



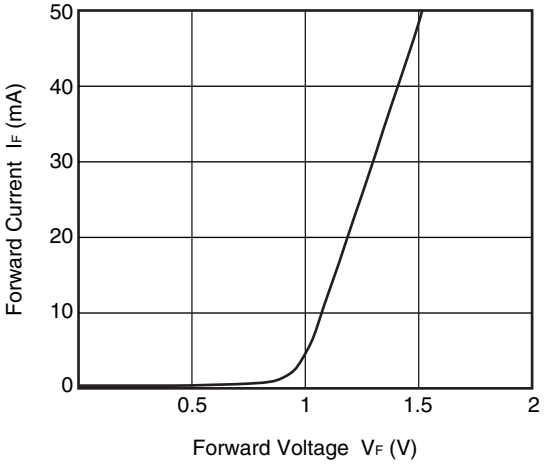
TEMPERATURE DEPENDENCE OF CENTER WAVELENGTH



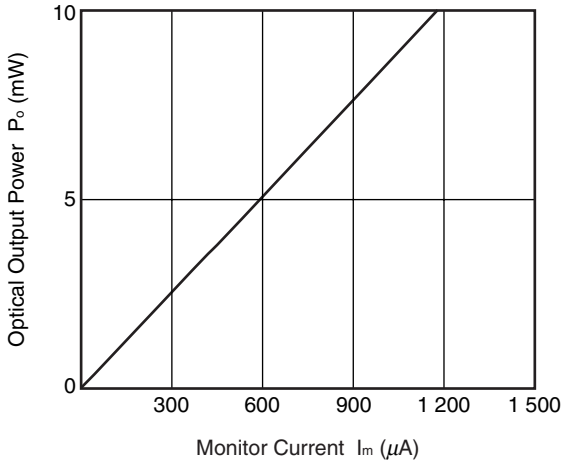
Remark The graphs indicate nominal characteristics.

TYPICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

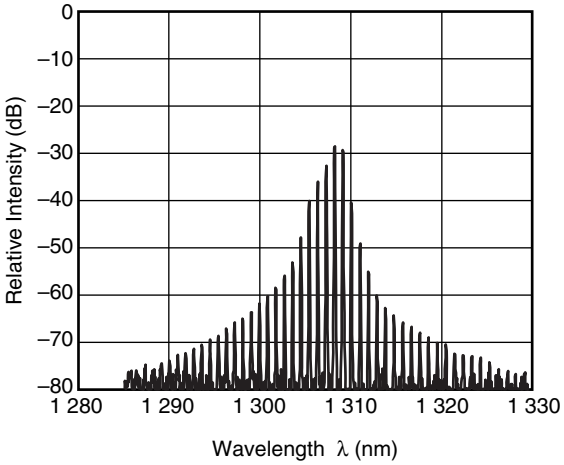
FORWARD CURRENT vs.
FORWARD VOLTAGE



OPTICAL OUTPUT POWER
vs. MONITOR CURRENT



SPECTRUM



Remark The graphs indicate nominal characteristics.

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet	PX10160E

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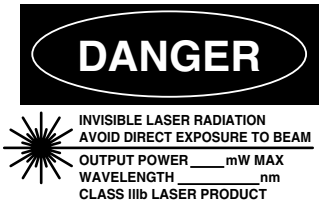
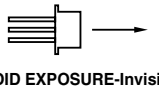


SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture

Warning Laser Beam	A laser beam is emitted from this diode during operation. The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight. • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points. • Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below. 1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials. 2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal. • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth.