

1 310 nm FOR FTTH PON APPLICATION
InGaAsP MQW-FP LASER DIODE**DESCRIPTION**

The NX5317 Series is a 1 310 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode. These devices are designed for application up to 1.25 Gb/s.

APPLICATION

- FTTH PON (B-PON, GE-PON 10 km) system

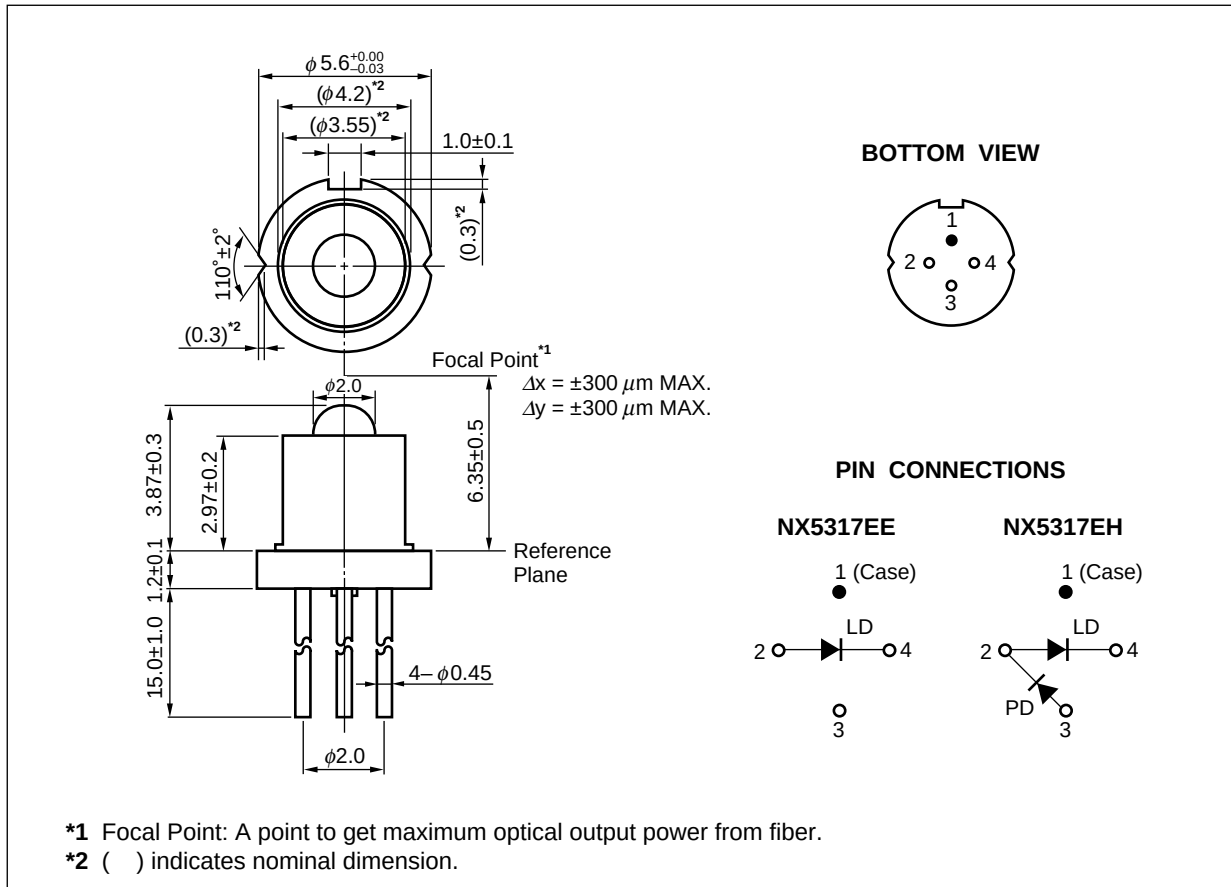
FEATURES

- Optical output power $P_o = 15.0 \text{ mW}$
- Low threshold current $I_{th} = 7 \text{ mA}$
- Differential Efficiency $\eta_d = 0.5 \text{ W/A}$
- Wide operating temperature range $T_c = -40 \text{ to } +85^\circ\text{C}$
- InGaAs monitor PIN-PD (NX5317EH)
- CAN package $\phi 5.6 \text{ mm}$
- Focal point 6.35 mm

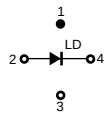
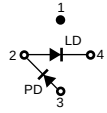


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PACKAGE DIMENSIONS (UNIT: mm)



ORDERING INFORMATION

Part Number	Package	Pin Connections
NX5317EE-AZ*	4-pin CAN with ball lens cap	
NX5317EH-AZ*		

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

- 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 – NX5317EE –

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	23	mW
Forward Current of LD	I_F	150	mA
Reverse Voltage of LD	V_R	2.0	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 ($T_C = 25^\circ\text{C}$, CW, unless otherwise specified) – NX5317EE –

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	$P_o = 15.0 \text{ mW}$		1.1	1.5	V
Threshold Current	I_{th}			7	15	mA
Differential Efficiency	η_d		0.46	0.50		W/A
Center Wavelength	λ_C	$P_o = 15.0 \text{ mW}$, RMS (–20 dB)	1 297	1 308	1 319	nm
Spectral Width	σ	$P_o = 15.0 \text{ mW}$, RMS (–20 dB)		1.2	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
Fiber Coupling Power	P_f	$P_o = 15.0 \text{ mW}$, optimized coupling with 8 degree angled SMF		2.3		mW
Focal Distance	D_f		5.85	6.35	6.85	mm

ABSOLUTE MAXIMUM RATINGS – NX5317EH –

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	23	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 ($T_c = 25^\circ\text{C}$, CW, unless otherwise specified) – NX5317EH –

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	$P_o = 15.0 \text{ mW}$		1.1	1.5	V
Threshold Current	I_{th}			7	15	mA
Differential Efficiency	η_d		0.46	0.50		W/A
Center Wavelength	λ_c	$P_o = 15.0 \text{ mW}$, RMS (–20 dB)	1 297	1 308	1 319	nm
Spectral Width	σ	$P_o = 15.0 \text{ mW}$, RMS (–20 dB)		1.2	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
Monitor Current	I_m	$V_R = 1.5 \text{ V}$, $P_o = 15.0 \text{ mW}$	100	150	500	μA
Monitor Dark Current	I_D	$V_R = 10 \text{ V}$			100	nA
Monitor PD Terminal Capacitance	C_t	$V_R = 10 \text{ V}$, $f = 1 \text{ MHz}$		5	20	pF
Fiber Coupling Power	P_f	$P_o = 15.0 \text{ mW}$, optimized coupling with 8 degree angled SMF		2.3		mW
Focal Distance	D_f		5.85	6.35	6.85	mm

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet	PX10160E

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"Special": Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support).

"Specific": Aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems and medical equipment for life support, etc.

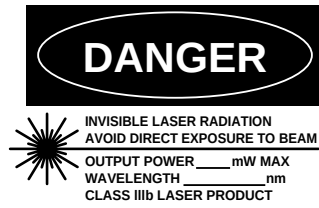
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(Note)

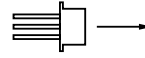
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M8E 02.11-1

SAFETY INFORMATION ON THIS PRODUCT



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.

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	
		-A	-AZ
Lead (Pb)	< 1000 PPM	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.

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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.