

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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NX5313 Series

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

DESCRIPTION

The NX5313 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.

APPLICATION

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

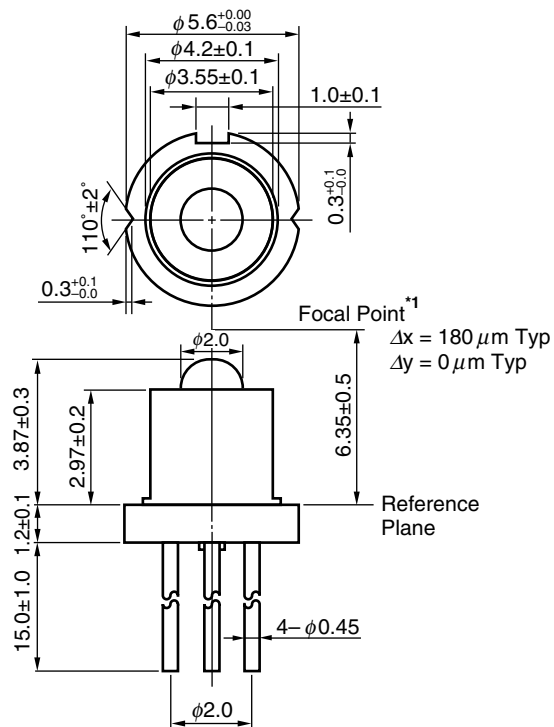
FEATURES

- Optical output power $P_o = 13.0 \text{ mW}$
- Low threshold current $I_{th} = 6 \text{ mA}$
- 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
- CAN package $\phi 5.6 \text{ mm}$
- Focal point 6.35 mm
- LD beam angle optimized for 8 degree angled SMF

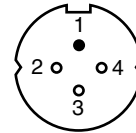


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Not all devices/types available in every country. Please check with local NEC Compound Semiconductor Devices representative for availability and additional information.

PACKAGE DIMENSIONS (UNIT: mm)

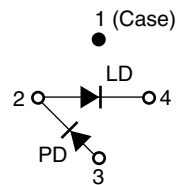


BOTTOM VIEW

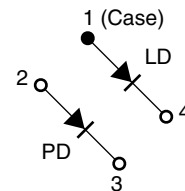


PIN CONNECTIONS

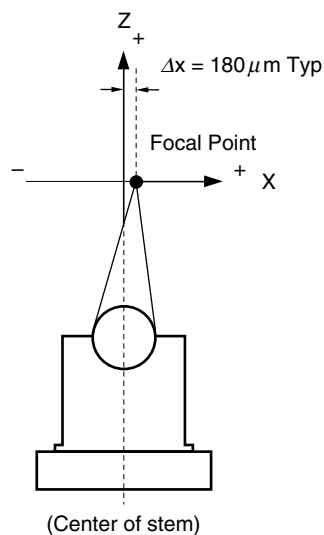
NX5313EH



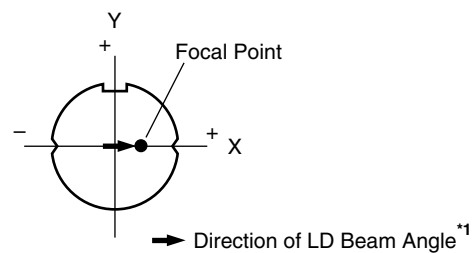
NX5313EK



*1 Focal Point: A point to get maximum optical output power from fiber.

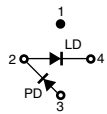


TOP VIEW



*1 LD Beam angle is optimized for coupling with 8 degree angled SMF.

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX5313EH	4-pin CAN with ball lens cap	
NX5313EK		

- Remarks**
- 1. The color of ball lens cap might be observed differently from our can package products.
 - 2. The hermetic test will be performed as AQL 1.0%.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	20	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 ($T_C = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	$P_o = 13.0 \text{ mW}$		1.1	1.5	V
Threshold Current	I_{th}			6	15	mA
Differential Efficiency	η_d		0.40	0.50		W/A
Center Wavelength	λ_C	$P_o = 13.0 \text{ mW, RMS } (-20 \text{ dB})$ $T_C = -40 \text{ to } +85^\circ\text{C}$	1 276	1 310	1 352	nm
Spectral Width	σ	$P_o = 13.0 \text{ mW, RMS } (-20 \text{ dB})$ $T_C = -40 \text{ to } +85^\circ\text{C}$		1.5	2.8	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	$V_R = 1.5 \text{ V, } P_o = 13.0 \text{ mW}$	50	100		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	$P_o = 13.0 \text{ mW, Optimized Coupling with } 8 \text{ degree angled SMF}$		2.6		mW
Focal Distance	D_f		5.85	6.35	6.85	mm

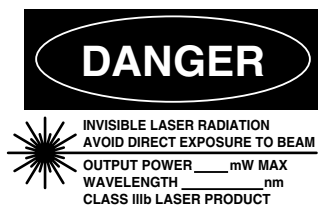
REFERENCE

Document Name	Document No.
OPTICAL SEMICONDUCTOR DEVICES FOR FIBEROPTIC COMMUNICATIONS SELECTION GUIDE	PL10161E
Opto-Electronics Devices Pamphlet	PX10160E

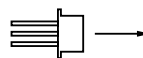
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M8E 00.4-0110

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

Warning Laser Beam	<p>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.</p> <ul style="list-style-type: none"> • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	<p>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.</p> <ul style="list-style-type: none"> • 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. <ol style="list-style-type: none"> 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.

► For further information, please contact

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