CEL

NEC's InGaAsP MQW-DFB TOSA FOR 2.5 Gb/s CWDM APPLICATIONS

NX8510UD Series

FEATURES

- **INTERNAL OPTICAL ISOLATOR**
- **PEAK EMISSION WAVELENGTH**
  λ_p = 1 470 to 1 610 nm
  (Based on ITU-T recommendations)
- **OPTICAL OUTPUT POWER**
  P_f = 2.0 mW
- **OPERATING CASE TEMPERATURE RANGE**
  T_C = 0 to +70°C
- **LOW THRESHOLD CURRENT**
  Ith = 10 mA TYP. @ TC = 25°C
- **SIDE MODE SUPPRESSION RATIO**
  SMSR = 40 dB
- **InGaAs MONITOR PIN-PD**
- **SMALL PACKAGE**

DESCRIPTION

NEC's NX8510UD is a 1 470 to 1 610 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode TOSA (transmitter optical sub-assembly) with InGaAs monitor PIN-PD in a receptacle type package designed for SFF/SFP transceiver with LC duplex receptacle. This device is ideal for 2.5 Gb/s CWDM application.

ELECTRO-OPTICAL CHARACTERISTICS (TC = 0 to +70°C, unless otherwise specified)

	PART NUMBER			NX851OUD SERIES		
SYMBOLS	PARAMETER AND CONDITIONS		UNIT	MIN.	TYP.	MAX.
V_{op}	Operating Voltage, CW, P_f = 2.0 mW		V		1.1	1.6
I_{th}	Threshold Current	CW, T_C = 25°C	mA		10	20
		CW				40
P_f	Optical Output Power from Fiber, CW, T_C = 25°C, I_F = I_{th} + 20 mA		mW		2.0	
η_d	Differential Efficiency	CW, P_f = 2.0 mW, T_C = 25°C	W/A	0.07	0.1	
		CW, P_f = 2.0 mW		0.04		
λ_p	Peak Emission Wavelength, CW, P_f = 2.0 mW, RMS (–20 dB)		nm	λ_p–3	λ_p *1	λ_p+3
$\Delta\lambda/\Delta T$	Temperature Dependence of Peak Emission Wavelength, CW		nm/°C	0.08	0.10	0.12
SMSR	Side Mode Suppression Ratio, CW, P_f = 2.0 mW		dB	30	40	
t_r	Rise Time, I_b = I_{th}, 20-80%, P_f = 2.0 mW		ps			100
t_f	Fall Time, I_b = I_{th}, 80-20%, P_f = 2.0 mW		ps			150
I_m	Monitor Current, CW, V_R = 1.5 V, P_f = 1.0 mW		μA	100	500	1 000
I_D	Monitor Dark Current	V_R = 1.5 V, T_C = 25°C	nA		0.1	50
		V_R = 1.5 V			10	500
γ	Tracking Error*2, CW, I_m = Const. (@P_f = 2.0 mW)		dB	-1.0		1.0
–	Connector Repeatability, with master pigtail		dB	-1.0		1.0

***1** Available Available for CWDM Wavelengths based on ITU-T recommendations
λ_p = 1 470, 1 490, 1 510, 1 530, 1 550, 1 570, 1 590, 1 610 nm
Please refer to **Table A**.

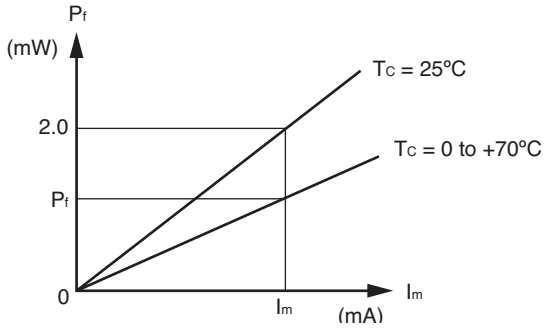
Notes continued on next page

Table A: CWDM wavelength code (@ T_C = 25°C)

WAVELENGTH CODE	MIN. (nm)	TYP. (nm)	MAX. (nm)
47	1 467	1 470	1 473
49	1 487	1 490	1 493
51	1 507	1 510	1 513
53	1 527	1 530	1 533
55	1 547	1 550	1 553
57	1 567	1 570	1 573
59	1 587	1 590	1 593
61	1 607	1 610	1 613

Remark ±2 nm to tolerance for optional

***2** Tracking Error: γ



$$\gamma = \left| 10 \log \frac{P_f}{2.0} \right| \text{[dB]}$$

ABSOLUTE MAXIMUM RATINGS[1]

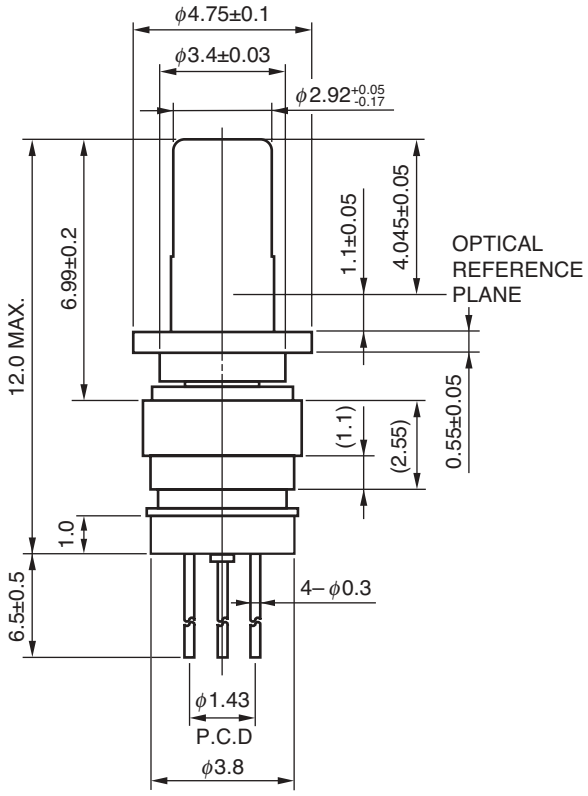
SYMBOL	PARAMETER	UNIT	RATINGS
P_f	Optical Output Power from Fiber	mW	5.0
I_F	Forward Current of LD	mA	150
V_R	Reverse Voltage of LD	V	2.0
I_F	Forward Current of PD	mA	2.0
V_R	Reverse Voltage of PD	V	15
T_C	Operating Case Temperature	°C	0 to +70
T_{stg}	Storage Temperature	°C	–40 to +85
T_{sld}	Lead Soldering Temperature	°C	350 (3 sec.)

ORDERING INFORMATION

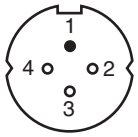
NX8510UD xx

Wavelength code : Refer to **Table A**

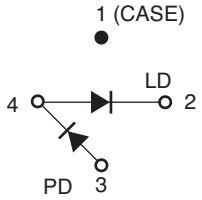
PACKAGE DIMENSIONS (Units in mm)



BOTTOM VIEW



PIN CONNECTIONS



Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.