

PRELIMINARY DATA SHEET

NEC

**1550 nm CW LIGHT
SOURCE InGaAsP MQW-DFB
LASER DIODE MODULE
WITH WAVELENGTH MONITOR**

**NX8571SA
NX8571SC**

FEATURES

- **WAVELENGTH MONITOR FUNCTION**
(Etalon Filter, Wavelength monitor PD)
- **OUTPUT POWER:**
Pr = 10 mW MIN
- **WAVELENGTH SELECTABLE FOR ITU-T STANDARDS**
(50 GHz Grid)
- **INTERNAL THERMOELECTRIC COOLER AND ISOLATOR**
- **INDUSTRY STANDARD HERMETICALLY SEALED 14-PIN BUTTERFLY PACKAGE**
- **POLARIZATION MAINTAIN FIBER PIGTAIL**

DESCRIPTION

The NX8571SA and NX8571SC is a 1550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back laser diode with wavelength monitor function. This device is designed as a CW light source and is ideal for transmission systems in which external modulators are used.

ELECTRO-OPTICAL CHARACTERISTICS (TLD = 25°C, Tc = -5 to +70°C, unless otherwise specified)

PART NUMBER			NX8571SA, NX8571SC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
TSET	Laser Set Temperature	°C	20		35
VF	Forward Voltage, Pr = 10 mW	V	0.9		2.5
ITH	Threshold Current	mA		20	40
Pr	Optical Output Power from Fiber, IF = 167 mA, TLD = TSET	mW	10		
PTH	Threshold Output Power from Fiber, IF = ITH	μW			100
λp	Peak Emission Wavelength, Pr = 10 mW, CW, TLD = TSET	nm	1530	ITU-T ¹	1566
	Wavelength Stability, TLD = Tset, applicable to wavelength monitor, E.O.L.	pm	-20		+20
Δv	Spectral Line Width, Pr = 10 mW, CW, 3 dB down	MHz			20
SMSR	Side mode Suppression Ratio, Pr = 10 mW, CW	dB	33	45	
RIN	Relative Intensity Noise, Pr = 10 mW, 20 MHz to 3 GHz	dB/Hz			-145
ext	Polarization Extinction Ratio ² , Pr = 10 mW, CW	dB	15		
ISOL	Isolation	dB	30		

Notes:

1. Wavelength selectable for ITU-T standards (50 GHz grid). Please refer to ordering information.
2. Polarization state of LD is aligned parallel to the slow axis.

NX8571SA, NX8571SC

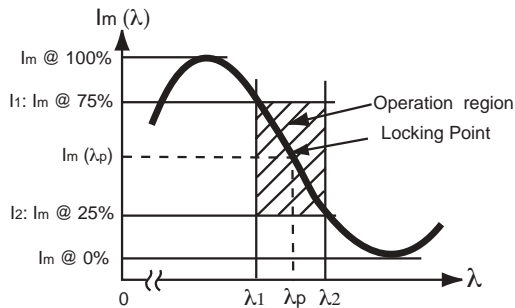
ELECTRO-OPTICAL CHARACTERISTICS (Applicable to Monitor PD: T_{LD} = 25°C, T_c = -5 to +70°C)

PART NUMBER			NX8571SA, NX8571SC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I _m (P _f)	Monitor Current (P _f Monitor), P _f = 20 mW, V _R = 5 V	μA	20		200
I _m (λ _p)	Monitor Current (λ _p Monitor), P _f = 20 mW, V _R = 5 V, Peak value	μA	10		100
I _m (λ)	Operation region ¹	%	25		75
λ ₁ -λ ₂		pm	90		
ηλ	Discrimination Slope ¹	μA/pm	0.1		
I _D	Dark Current, V _R = 5 V	nA		2	10
γ ¹	Tracking Error, I _m = const.	dB			0.5

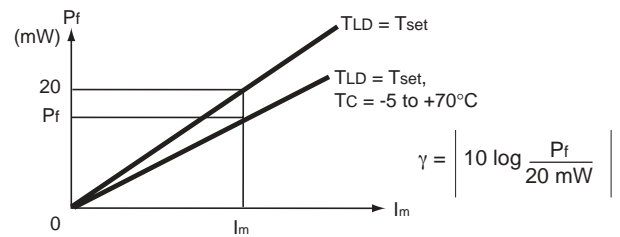
Notes:

1. Operation region, Discrimination slope

2. Tracking error: γ



$$\eta\lambda = \left| \frac{I_1 - I_2}{\lambda_1 - \lambda_2} \right| [\mu\text{A/pm}]$$



ELECTRO-OPTICAL CHARACTERISTICS (Applicable to Thermistor and TEC: T_{LD} = 25°C, T_c = -5 to +70°C)

PART NUMBER			NX8571SA, NX8571SC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
R	Thermistor Resistance	kΩ	9.5	10.0	10.5
B	B Constant	K	3350	3450	3550
I _c	Cooler Current, ΔT = 70 - T _{SET} , P _f = 10 mW	A			1.5
V _c	Cooler Voltage, ΔT = 70 - T _{SET} , P _f = 10 mW	V			4.5

ABSOLUTE MAXIMUM RATINGS¹

(T_A = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
I _F	Forward Current of LD	mA	300
V _R	Reverse Voltage of LD	V	2.0
I _F	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	20
T _C	Operating Case Temperature	°C	-20 to +70
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	260

Note:

1. Operation in excess of any one of these parameters may result in permanent damage.

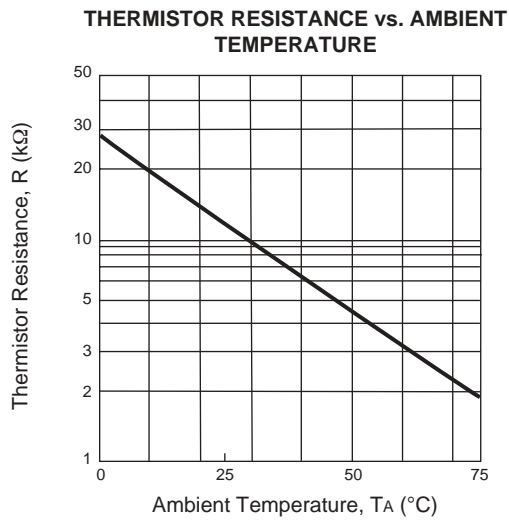
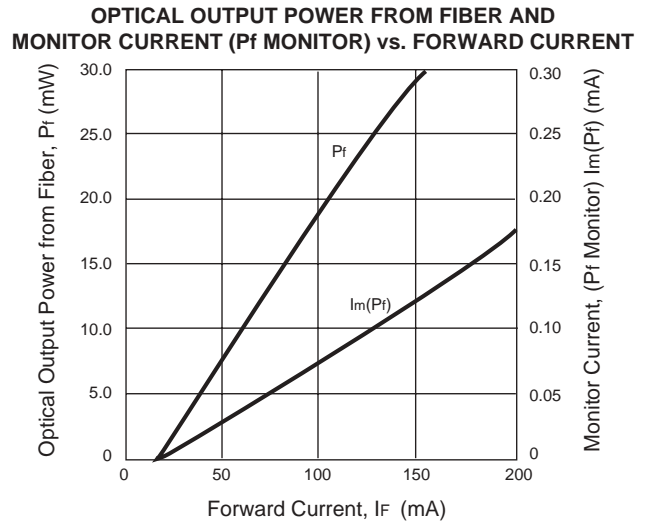
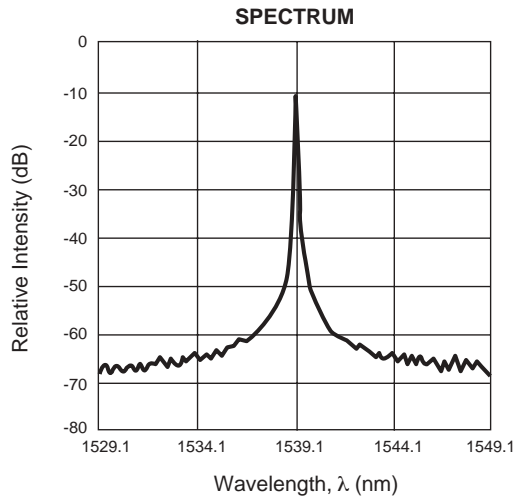
ORDERING INFORMATION

Part Number				ITU-T Wavelength ¹ (THz)	Frequency
With FC-PC Connector (Standard)	With SC-PC Connector (Option)	With FC-PC Connector (Standard)	With SC-PC Connector (Option)		
NX8571SA303-BA	NX8571SA303-CA	NX8571SC303-BA	NX8571SC303-CA	1530.33	195.90
NX8571SA311-BA	NX8571SA311-CA	NX8571SC311-BA	NX8571SC311-CA	1531.11	195.80
NX8571SA318-BA	NX8571SA318-CA	NX8571SC318-BA	NX8571SC318-CA	1531.89	195.70
NX8571SA326-BA	NX8571SA326-CA	NX8571SC326-BA	NX8571SC326-CA	1532.68	195.60
NX8571SA334-BA	NX8571SA334-CA	NX8571SC334-BA	NX8571SC334-CA	1533.46	195.50
NX8571SA342-BA	NX8571SA342-CA	NX8571SC342-BA	NX8571SC342-CA	1534.25	195.40
NX8571SA350-BA	NX8571SA350-CA	NX8571SC350-BA	NX8571SC350-CA	1535.03	195.30
NX8571SA358-BA	NX8571SA358-CA	NX8571SC358-BA	NX8571SC358-CA	1535.82	195.20
NX8571SA366-BA	NX8571SA366-CA	NX8571SC366-BA	NX8571SC366-CA	1536.60	195.10
NX8571SA373-BA	NX8571SA373-CA	NX8571SC373-BA	NX8571SC373-CA	1537.39	195.00
NX8571SA381-BA	NX8571SA381-CA	NX8571SC381-BA	NX8571SC381-CA	1538.18	194.90
NX8571SA389-BA	NX8571SA389-CA	NX8571SC389-BA	NX8571SC389-CA	1538.97	194.80
NX8571SA397-BA	NX8571SA397-CA	NX8571SC397-BA	NX8571SC397-CA	1539.76	194.70
NX8571SA405-BA	NX8571SA405-CA	NX8571SC405-BA	NX8571SC405-CA	1540.55	194.60
NX8571SA413-BA	NX8571SA413-CA	NX8571SC413-BA	NX8571SC413-CA	1541.34	194.50
NX8571SA421-BA	NX8571SA421-CA	NX8571SC421-BA	NX8571SC421-CA	1542.14	194.40
NX8571SA429-BA	NX8571SA429-CA	NX8571SC429-BA	NX8571SC429-CA	1542.93	194.30
NX8571SA437-BA	NX8571SA437-CA	NX8571SC437-BA	NX8571SC437-CA	1543.73	194.20
NX8571SA445-BA	NX8571SA445-CA	NX8571SC445-BA	NX8571SC445-CA	1544.52	194.10
NX8571SA453-BA	NX8571SA453-CA	NX8571SC453-BA	NX8571SC453-CA	1545.32	194.00
NX8571SA461-BA	NX8571SA461-CA	NX8571SC461-BA	NX8571SC461-CA	1546.11	193.90
NX8571SA469-BA	NX8571SA469-CA	NX8571SC469-BA	NX8571SC469-CA	1546.91	193.80
NX8571SA477-BA	NX8571SA477-CA	NX8571SC477-BA	NX8571SC477-CA	1547.71	193.70
NX8571SA485-BA	NX8571SA485-CA	NX8571SC485-BA	NX8571SC485-CA	1548.51	193.60
NX8571SA493-BA	NX8571SA493-CA	NX8571SC493-BA	NX8571SC493-CA	1549.31	193.50
NX8571SA501-BA	NX8571SA501-CA	NX8571SC501-BA	NX8571SC501-CA	1550.11	193.40
NX8571SA509-BA	NX8571SA509-CA	NX8571SC509-BA	NX8571SC509-CA	1550.91	193.30
NX8571SA517-BA	NX8571SA517-CA	NX8571SC517-BA	NX8571SC517-CA	1551.72	193.20
NX8571SA525-BA	NX8571SA525-CA	NX8571SC525-BA	NX8571SC525-CA	1552.52	193.10
NX8571SA533-BA	NX8571SA533-CA	NX8571SC533-BA	NX8571SC533-CA	1553.32	193.00
NX8571SA541-BA	NX8571SA541-CA	NX8571SC541-BA	NX8571SC541-CA	1554.13	192.90
NX8571SA549-BA	NX8571SA549-CA	NX8571SC549-BA	NX8571SC549-CA	1554.94	192.80
NX8571SA557-BA	NX8571SA557-CA	NX8571SC557-BA	NX8571SC557-CA	1555.74	192.70
NX8571SA565-BA	NX8571SA565-CA	NX8571SC565-BA	NX8571SC565-CA	1556.55	192.60
NX8571SA573-BA	NX8571SA573-CA	NX8571SC573-BA	NX8571SC573-CA	1557.36	192.50
NX8571SA581-BA	NX8571SA581-CA	NX8571SC581-BA	NX8571SC581-CA	1558.17	192.40
NX8571SA589-BA	NX8571SA589-CA	NX8571SC589-BA	NX8571SC589-CA	1558.98	192.30
NX8571SA597-BA	NX8571SA597-CA	NX8571SC597-BA	NX8571SC597-CA	1559.79	192.20
NX8571SA606-BA	NX8571SA606-CA	NX8571SC606-BA	NX8571SC606-CA	1560.60	192.10
NX85701A614-BA	NX8571SA614-CA	NX85701SC614-BA	NX8571SC614-CA	1561.41	192.00
NX8571SA622-BA	NX8571SA622-CA	NX8571SC622-BA	NX8571SC622-CA	1562.23	191.90
NX8571SA630-BA	NX8571SA630-CA	NX8571SC630-BA	NX8571SC630-CA	1563.04	191.80
NX8571SA638-BA	NX8571SA638-CA	NX8571SC638-BA	NX8571SC638-CA	1563.86	191.70
NX8571SA646-BA	NX8571SA646-CA	NX8571SC646-BA	NX8571SC646-CA	1564.67	191.60
NX8571SA654-BA	NX8571SA654-CA	NX8571SC654-BA	NX8571SC654-CA	1565.49	191.50

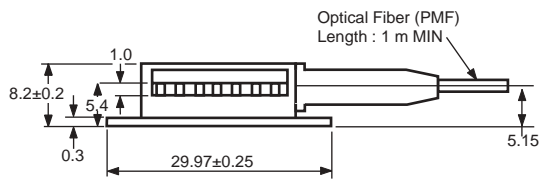
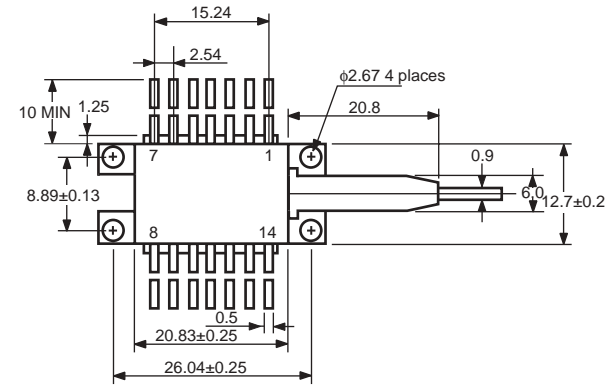
Note:

1. The third digit after the decimal point is deleted.

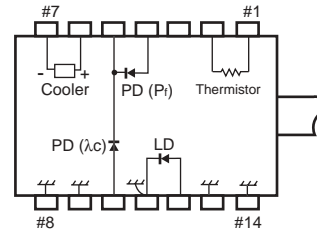
TYPICAL PERFORMANCE CURVES ($T_{LD} = 25^{\circ}\text{C}$, unless otherwise specified)



OUTLINE DIMENSIONS (Units in mm)

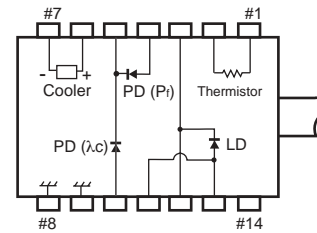


NX8571SA PIN CONNECTIONS



PIN No.	FUNCTION	PIN No.	FUNCTION
1	THERMISTOR	8	GND
2	THERMISTOR	9	GND
3	NC	10	PD (λ _p) ANODE
4	PD (P _f) ANODE	11	LD CATHODE, GND
5	PD CATHODE	12	LD ANODE
6	COOLER ANODE	13	GND
7	PD CATHODE	14	GND

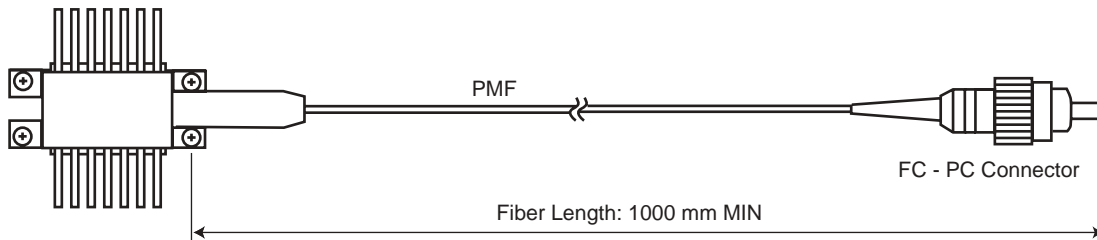
NX8571SC PIN CONNECTIONS



PIN No.	FUNCTION	PIN No.	FUNCTION
1	THERMISTOR	8	GND
2	THERMISTOR	9	GND
3	LD CATHODE	10	PD (λ _p) ANODE
4	PD (P _f) ANODE	11	LD ANODE
5	PD CATHODE	12	LD CATHODE
6	COOLER ANODE	13	LD ANODE
7	COOLER CATHODE	14	NC

OPTICAL FIBER CHARACTERISTICS (Units in mm)

PARAMETERS	SPECIFICATIONS
Outer Diameter	0.9±0.1
Minimum Fiber Bending Radius	40
Fiber Length	1000 MIN



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