

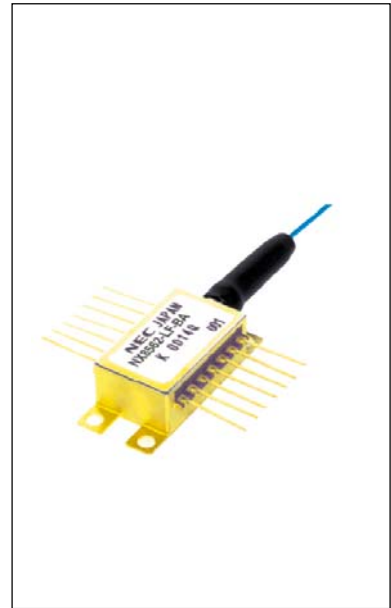
**1 550 nm InGaAsP MQW-DFB LASER DIODE MODULE
CW LIGHT SOURCE FOR DWDM APPLICATIONS****DESCRIPTION**

The NX8562LF is a 1 550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode module with Polarization Maintain Fiber (PMF).

It is designed as Continuous Wave (CW) light source and ideal for optical transmission systems with external modulators. The device is available for Dense Wavelength Division Multiplexing (DWDM) wavelengths based on ITU-T recommendations, enabling a wide range of applications.

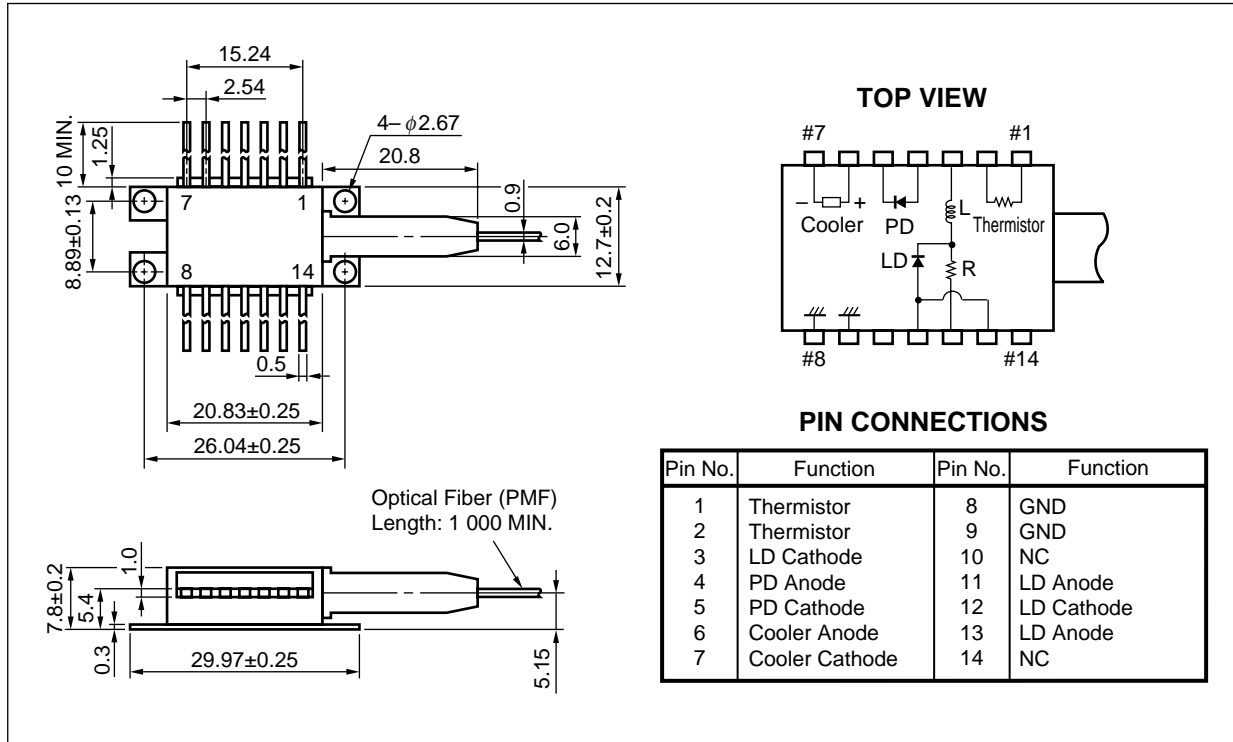
FEATURES

- Output power $P_r = 20 \text{ mW MIN.}$
- Available for DWDM wavelengths based on ITU-T recommendations (100 GHz grid, please refer to the **ORDERING INFORMATION**)
- Internal thermo-electric cooler and isolator
- Hermetically sealed 14-pin butterfly package
- Polarization maintain fiber pigtail



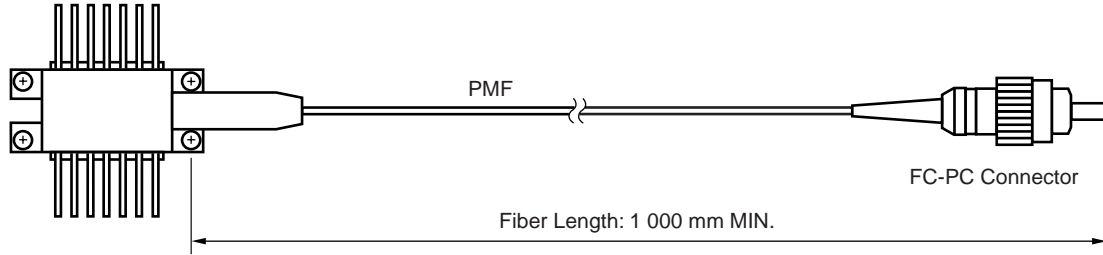
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★ PACKAGE DIMENSIONS (UNIT: mm)



OPTICAL FIBER DIMENSIONS (UNIT: mm)

| Parameter | Specification | Unit |
|------------------------------|---------------|------|
| Outer Diameter | 0.9±0.1 | mm |
| Minimum Fiber Bending Radius | 30 | mm |
| Fiber Length | 1 000 MIN. | mm |



★ **ORDERING INFORMATION**

NX8562LF -BA

With FC-PC Connector

Wavelength Code : Refer to **Table A**

Table A: DWDM wavelength based on ITU-T recommendations (@T_{LD} = T_{set}) (1/2)

| Wavelength Code | ITU-T Wavelength* ¹ (nm) | Frequency (THz) | Wavelength Code | ITU-T Wavelength* ¹ (nm) | Frequency (THz) |
|-----------------|----------------------------------------|--------------------|-----------------|----------------------------------------|--------------------|
| 279 | 1 527.99 | 196.20 | 485 | 1 548.51 | 193.60 |
| 287 | 1 528.77 | 196.10 | 493 | 1 549.31 | 193.50 |
| 295 | 1 529.55 | 196.00 | 501 | 1 550.11 | 193.40 |
| 303 | 1 530.33 | 195.90 | 509 | 1 550.91 | 193.30 |
| 311 | 1 531.11 | 195.80 | 517 | 1 551.72 | 193.20 |
| 318 | 1 531.89 | 195.70 | 525 | 1 552.52 | 193.10 |
| 326 | 1 532.68 | 195.60 | 533 | 1 553.32 | 193.00 |
| 334 | 1 533.46 | 195.50 | 541 | 1 554.13 | 192.90 |
| 342 | 1 534.25 | 195.40 | 549 | 1 554.94 | 192.80 |
| 350 | 1 535.03 | 195.30 | 557 | 1 555.74 | 192.70 |
| 358 | 1 535.82 | 195.20 | 565 | 1 556.55 | 192.60 |
| 366 | 1 536.60 | 195.10 | 573 | 1 557.36 | 192.50 |
| 373 | 1 537.39 | 195.00 | 581 | 1 558.17 | 192.40 |
| 381 | 1 538.18 | 194.90 | 589 | 1 558.98 | 192.30 |
| 389 | 1 538.97 | 194.80 | 597 | 1 559.79 | 192.20 |
| 397 | 1 539.76 | 194.70 | 606 | 1 560.60 | 192.10 |
| 405 | 1 540.55 | 194.60 | 614 | 1 561.41 | 192.00 |
| 413 | 1 541.34 | 194.50 | 622 | 1 562.23 | 191.90 |
| 421 | 1 542.14 | 194.40 | 630 | 1 563.04 | 191.80 |
| 429 | 1 542.93 | 194.30 | 638 | 1 563.86 | 191.70 |
| 437 | 1 543.73 | 194.20 | 646 | 1 564.67 | 191.60 |
| 445 | 1 544.52 | 194.10 | 654 | 1 565.49 | 191.50 |
| 453 | 1 545.32 | 194.00 | 663 | 1 566.31 | 191.40 |
| 461 | 1 546.11 | 193.90 | 671 | 1 567.13 | 191.30 |
| 469 | 1 546.91 | 193.80 | 679 | 1 567.95 | 191.20 |
| 477 | 1 547.71 | 193.70 | 687 | 1 568.77 | 191.10 |

*1 The value which omitted and computed the 3rd place below the decimal point

Table A: DWDM wavelength based on ITU-T recommendations (@T_{LD} = T_{set}) (2/2)

| Wavelength Code | ITU-T Wavelength* ¹ (nm) | Frequency (THz) | Wavelength Code | ITU-T Wavelength* ¹ (nm) | Frequency (THz) |
|-----------------|----------------------------------------|--------------------|-----------------|----------------------------------------|--------------------|
| 695 | 1 569.59 | 191.00 | 912 | 1 591.25 | 188.40 |
| 704 | 1 570.41 | 190.90 | 921 | 1 592.10 | 188.30 |
| 712 | 1 571.23 | 190.80 | 929 | 1 592.94 | 188.20 |
| 720 | 1 572.06 | 190.70 | 937 | 1 593.79 | 188.10 |
| 728 | 1 572.88 | 190.60 | 946 | 1 594.64 | 188.00 |
| 737 | 1 573.71 | 190.50 | 954 | 1 595.48 | 187.90 |
| 745 | 1 574.54 | 190.40 | 963 | 1 596.33 | 187.80 |
| 753 | 1 575.36 | 190.30 | 971 | 1 597.18 | 187.70 |
| 761 | 1 576.19 | 190.20 | 980 | 1 598.04 | 187.60 |
| 770 | 1 577.02 | 190.10 | 988 | 1 598.89 | 187.50 |
| 778 | 1 577.85 | 190.00 | 997 | 1 599.74 | 187.40 |
| 786 | 1 578.68 | 189.90 | 6006 | 1 600.60 | 187.30 |
| 795 | 1 579.51 | 189.80 | 6014 | 1 601.45 | 187.20 |
| 803 | 1 580.35 | 189.70 | 6023 | 1 602.31 | 187.10 |
| 811 | 1 581.18 | 189.60 | 6031 | 1 603.16 | 187.00 |
| 820 | 1 582.01 | 189.50 | 6040 | 1 604.02 | 186.90 |
| 828 | 1 582.85 | 189.40 | 6048 | 1 604.88 | 186.80 |
| 836 | 1 583.69 | 189.30 | 6057 | 1 605.74 | 186.70 |
| 845 | 1 584.52 | 189.20 | 6066 | 1 606.60 | 186.60 |
| 853 | 1 585.36 | 189.10 | 6074 | 1 607.46 | 186.50 |
| 862 | 1 586.20 | 189.00 | 6083 | 1 608.32 | 186.40 |
| 870 | 1 587.04 | 188.90 | 6091 | 1 609.19 | 186.30 |
| 878 | 1 587.88 | 188.80 | 6100 | 1 610.05 | 186.20 |
| 887 | 1 588.72 | 188.70 | 6109 | 1 610.92 | 186.10 |
| 895 | 1 589.56 | 188.60 | 6117 | 1 611.78 | 186.00 |
| 904 | 1 590.41 | 188.50 | | | |

*1 The value which omitted and computed the 3rd place below the decimal point

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Ratings | Unit |
|----------------------------|-------------------|---------------|------|
| Forward Current of LD | I _F | 300 | 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 | -20 to +70 | °C |
| Storage Temperature | T _{stg} | -40 to +85 | °C |
| Lead Soldering Temperature | T _{slid} | 260 (10 sec.) | °C |

ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = T_{set}, T_C = -20 to +70°C)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------------------|------------------|----------------------------------------------------------------|----------|---------------------|----------|-------|
| Laser Set Temperature | T _{set} | | 20 | | 35 | °C |
| Forward Voltage | V _F | P _f = 20 mW | | 1.2 | 1.5 | V |
| Forward Current | I _F | P _f = 20 mW | | 120 | 167 | mA |
| Threshold Current | I _{th} | | | 20 | 40 | mA |
| Optical Output Power from Fiber | P _f | I _F = 167 mA | 20 | | | mW |
| Peak Emission Wavelength | λ _p | P _f = 20 mW, CW, T _{LD} = T _{set} | 1 527.99 | ITU-T ^{*1} | 1 611.78 | nm |
| Spectral Line Width | Δν | P _f = 20 mW, CW, 3 dB down | | 1 | 2 | MHz |
| Side Mode Suppression Ratio | SMSR | P _f = 20 mW, CW | 33 | 45 | | dB |
| Relative Intensity Noise | RIN | P _f = 20 mW, 20 MHz to 3 GHz | | | -150 | dB/Hz |
| Polarization Extinction Ratio ^{*2} | ext | P _f = 20 mW, CW | 20 | | | dB |

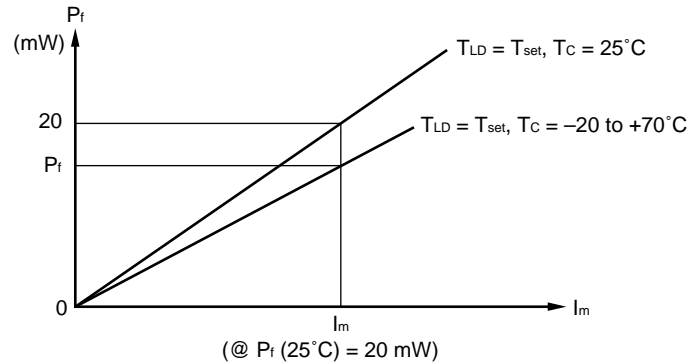
*1 Available for DWDM wavelengths based on ITU-T recommendations (100 GHz grid, please refer to the **ORDERING INFORMATION**)

*2 Polarization state of LD is aligned parallel to the slow axis.

ELECTRO-OPTICAL CHARACTERISTICS
 (Applicable to Monitor PD: $T_{LD} = T_{set}$, $T_C = -20$ to $+70^\circ\text{C}$)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|-----------------|---------------|---------------------------------------------|------|------|-------|---------------|
| Monitor Current | I_m | $P_f = 20 \text{ mW}$, $V_R = 5 \text{ V}$ | 100 | | 2 000 | μA |
| Dark Current | I_D | $V_R = 5 \text{ V}$ | | | 10 | nA |
| Tracking Error | γ^{*1} | $I_m = \text{const.}$ | | | 0.5 | dB |

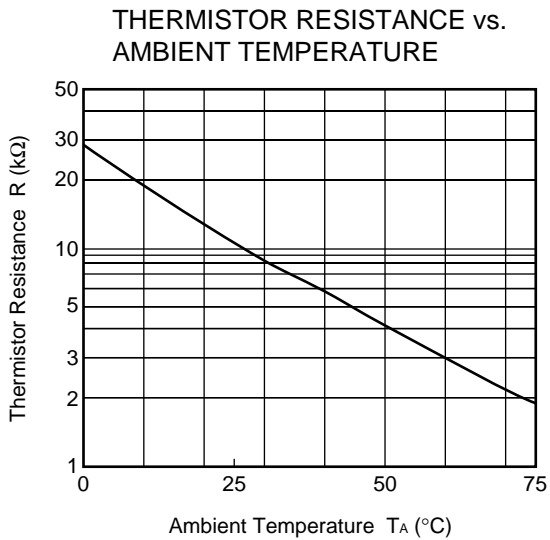
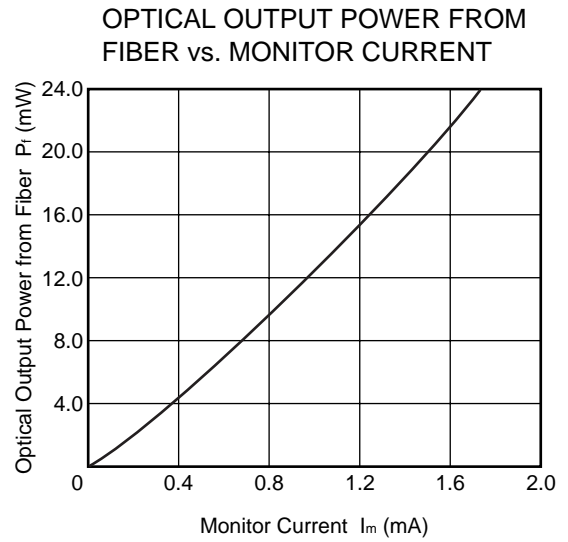
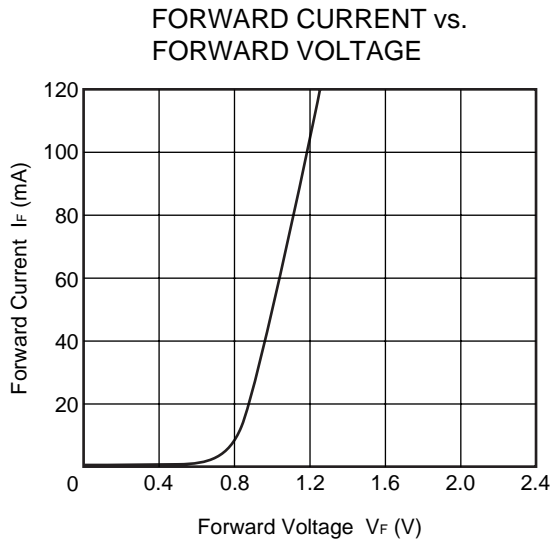
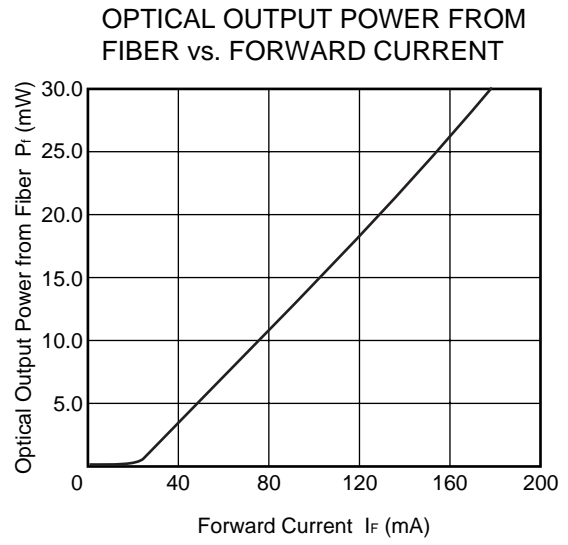
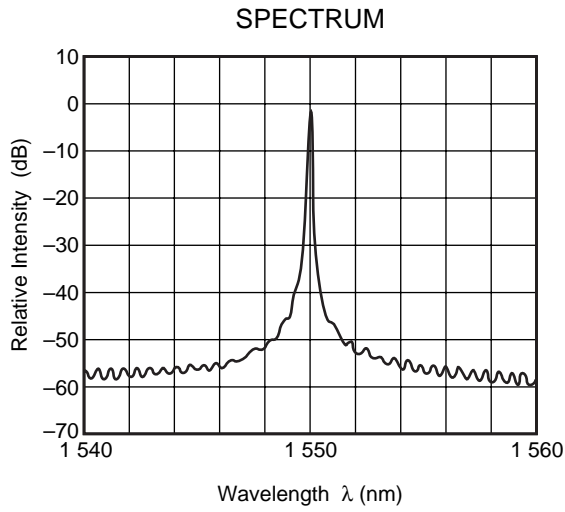
$$*1 \gamma = \left| 10 \log \frac{P_f}{20 \text{ mW}} \right|$$



ELECTRO-OPTICAL CHARACTERISTICS
 (Applicable to Thermistor and TEC: $T_{LD} = T_{set}$, $T_C = -20$ to $+70^\circ\text{C}$)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|-----------------------|--------|---------------------------------------------------|-------|-------|-------|------------------|
| Thermistor Resistance | R | $T_{LD} = 25^\circ\text{C}$ | 9.5 | 10.0 | 10.5 | $\text{k}\Omega$ |
| B Constant | B | | 3 350 | 3 450 | 3 550 | K |
| Cooler Current | I_C | $\Delta T = 70 - T_{set}$, $P_f = 20 \text{ mW}$ | | | 1.0 | A |
| Cooler Voltage | V_C | $\Delta T = 70 - T_{set}$, $P_f = 20 \text{ mW}$ | | | 2.0 | V |

TYPICAL CHARACTERISTICS ($T_c = T_{set}$, unless otherwise specified)



Remark The graphs indicate nominal characteristics.

REFERENCE

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

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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