

760 - 830 nm

830 - 920 nm

920 - 1100 nm

1100 - 1300 nm

1300 - 1450 nm

1450 - 1650 nm

1650 - 1850 nm

1850 - 1900 nm

1900 - 2200 nm

2200 - 2600 nm

2600 - 3000 nm

3000 - 6000 nm

DFB laser diodes from 760 nm to 830 nm

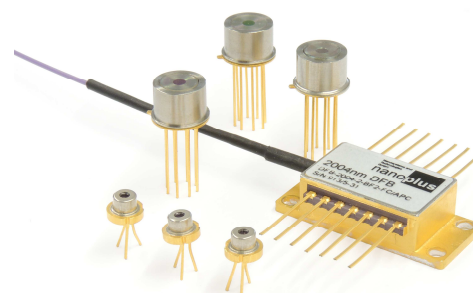
nanoplus single mode laser diodes

nanoplus is the only manufacturer world-wide routinely providing single and multi mode lasers at any wavelength from 760 to 6000 nm. At wavelengths up to 14 μm , QCLs complete nanoplus' laser portfolio. Our patented distributed feedback laser diodes deliver single mode emission with well defined optical properties enabling a wide range of applications.

nanoplus lasers operate reliably in tens of thousands of installations worldwide, including chemical and metallurgical industries, gas pipelines, power plants, medical systems, airborne and satellite applications.

key features

- ✓ very high spectral purity
- ✓ narrow linewidth
- ✓ excellent reliability
- ✓ wide variety of packaging options
- ✓ customer-specific designs available



application areas

- ✓ high performance gas sensing for process and environmental control
- ✓ precision metrology
- ✓ atomic clocks
- ✓ spectroscopy
- ✓ space technology

nanoplus lasers with excellent performance are specifically designed and characterized to fit your needs. This data sheet summarizes typical properties of nanoplus DFB lasers in the range from 760 nm to 830 nm. Overleaf data for lasers used for high performance O_2 sensing are given as an example.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	P_{out}	mW	5
reverse voltage	V_r	V	3
forward current	I_f	mA	30
side mode suppression ratio (SMSR)		dB	> 32

On request, lasers with specifically optimized properties, e. g. higher output power, are available.

laser packaging options

TO5.6 header with or without cap

TO5 header with TEC and NTC

butterfly housing with SM or PM fiber

For dimensions and accessories, please see www.nanoplus.com
Further packaging options available on request.

device protected by
US patent 6.671.306
US patent 6.846.689
EU patent EP0984535

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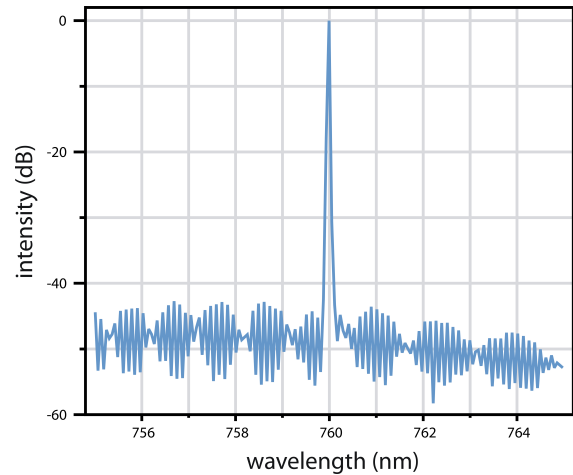


Rev. DFB760.05

nanoplus DFB laser diodes at 760 nm

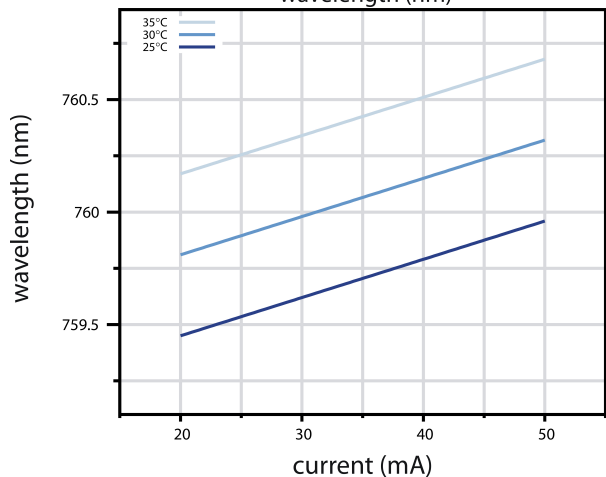
A wide variety of gas molecules exhibit characteristic absorption lines in the near infrared. At about 760 nm for example, there is a strong absorption line of O₂, which can be used for laser based sensing with very high sensitivity. This data sheet reports performance data of laterally and longitudinally single mode nanoplus DFB lasers at this wavelength. Similar performance data are obtained in the entire wavelength range from 760 nm to 830 nm. For examples of performance data of nanoplus lasers in other wavelength ranges, please see www.nanoplus.com or contact sales@nanoplus.com

Fig. 1
Room temperature cw spectrum of a nanoplus DFB laser diode operating at 760 nm



In many applications, temperature and / or current variations are used to adjust the laser emission precisely to the target wavelength, here on and off the O₂ absorption.

Fig. 2
Mode hop free tuning of a nanoplus 760 nm DFB laser diode by current variation at different temperatures



electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	λ	nm	759	760	761
threshold current	I_{th}	mA	10	15	30
slope efficiency	e	mW / mA	0.2	0.5	0.6
temperature tuning coefficient	C_T	nm / K	0.03	0.04	0.05
current tuning coefficient	C_I	nm / mA	0.010	0.020	0.025
slow axis (FWHM)		degrees	30	35	40
fast axis (FWHM)		degrees	50	60	65
emitting area	W x H	$\mu\text{m} \times \mu\text{m}$	1.2 x 1.3	1.5 x 2	2 x 2.2
storage temperatures	T_S	°C	- 40	+ 20	+ 80
operational temperature at case	T_c	°C	- 20	+ 25	+ 50

We will be happy to answer further questions. Please contact us at sales@nanoplus.com

