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

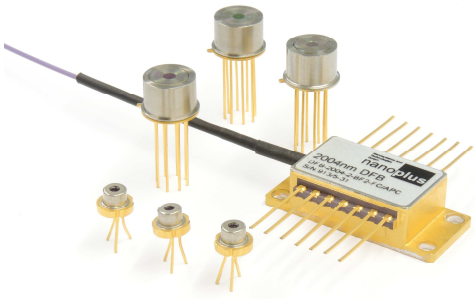
DFB laser diodes from 830 nm to 920 nm

Nanosystems and Technologies GmbH
nanoplus

nanoplus single mode laser diodes

nanoplus is the only manufacturer worldwide 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 830 nm to 920 nm. Overleaf data for lasers used for high performance Cs D2 spectroscopy as used for atomic clocks are given as an example.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	P_{out}	mW	10
reverse Voltage	V_r	V	1.8
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 and 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

nanoplus
Nanosystems and Technologies GmbH
Oberer Kirschberg 4
D-97218 Gerbrunn

phone: +49 (0) 931 90827-0
fax: +49 (0) 931 90827-19
email: sales@nanoplus.com
internet: www.nanoplus.com

REGISTERED COMPANY ISO 9001:2008

Rev. DFB852.05

Nanosystems and Technologies GmbH
nanoplus

nanoplus DFB laser diodes at 852 nm

A wide variety of gas molecules exhibit characteristic absorption lines in the near infrared. Near 852 nm for example, there is the Cs D2 transition, which can be used for high precision atomic clocks. 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 830 nm to 920 nm. For examples of performance data of nanoplus lasers in other wavelength ranges, please see www.nanoplus.com or contact sales@nanoplus.com

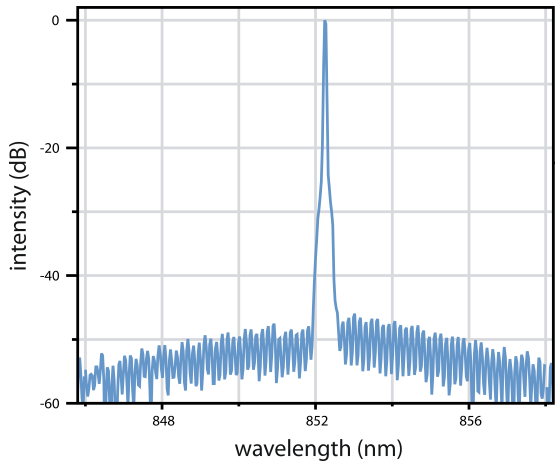


Fig. 1
Room temperature cw spectrum of a nanoplus DFB laser diode operating at 852 nm

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

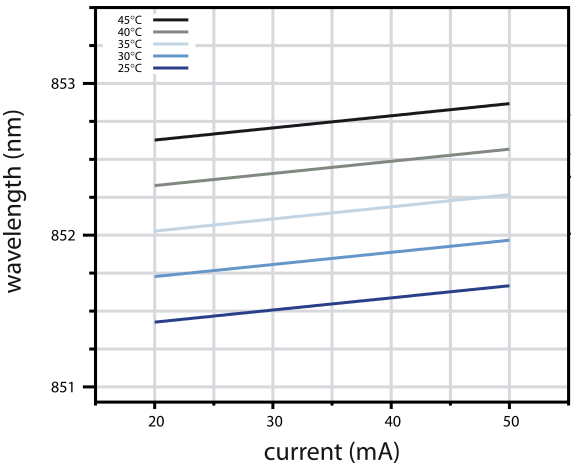
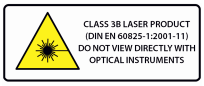


Fig. 2
Mode hop free tuning of 852 nm based DFBs by current variation at different temperatures

electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	λ	nm	851	852	853
threshold current	I_{th}	mA	15	20	30
slope efficiency	e	mW / mA	0.4	0.7	0.9
temperature tuning coefficient	C_T	nm / K	0.05	0.10	0.15
current tuning coefficient	C_I	nm / mA	0.003	0.005	0.008
slow axis (FWHM)		degrees	17	20	25
fast axis (FWHM)		degrees	25	30	40
emitting area	W x H	µm x µm	2 x 1	3 x 1.5	4 x 2
storage temperatures	T_S	°C	- 40	+ 20	+ 80
operational temperature at case	T_c	°C	+ 10	+ 25	+ 50



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

nanoplus
Nanosystems and Technologies GmbH
Oberer Kirschberg 4
D-97218 Gerbrunn

phone: +49 (0) 931 90827-0
fax: +49 (0) 931 90827-19
email: sales@nanoplus.com
internet: www.nanoplus.com

REGISTERED COMPANY ISO 9001: 2008