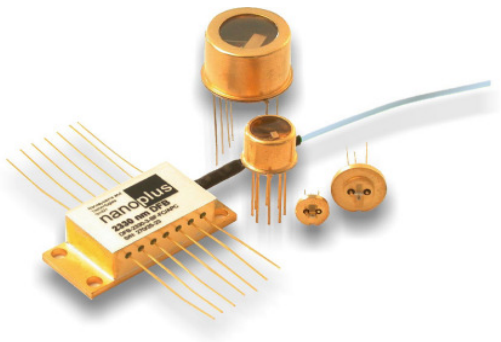
DFB laser diodes from 1650 nm to 1850 nm

Nanosystems and Technologies GmbH
nanoplus

nanoplus single mode laser diodes

nanoplus is the only manufacturer worldwide routinely providing single mode laser diodes at any wavelength from 750 nm to 2900 nm. Our patented distributed feedback laser diodes deliver single mode emission with well defined optical properties enabling a wide range of applications. At wavelengths from 7 to 12 µm, nanoplus manufactures quantum cascade lasers.

nanoplus lasers operate reliably in more than 5000 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 typically < 3 MHz
- ✓ 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 1650 nm to 1850 nm range. In this wavelength range e.g. methane, nitric oxide and hydrogen chloride can be detected with high sensitivity. Overleaf data is given as an example for DFB lasers used for high sensitivity HCl sensing.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	P_{out}	mW	5
reverse Voltage	V_r	V	2
forward Current	I_f	mA	70
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
TO9 header with or without cap
TO5 with TEC and NTC
butterfly housing with FC/APC fibre

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

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Rev. DFB1742.02

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nanoplus DFB laser diodes at 1742 nm

A wide variety of gas molecules, defects in solids etc. exhibit characteristic absorption lines in the near infrared. DFB lasers emitting at 1742 nm are highly suited for sensitive detection of small HCl concentrations. For this application, highly stable laterally and longitudinally single mode lasers are required.
This data sheet reports performance data of nanoplus DFB lasers at this wavelength. Similar performance data are obtained in the entire wavelength range from 1650 nm to 1850 nm. For examples of performance data of nanoplus lasers in other wavelength ranges, please see www.nanoplus.com or contact sales@nanoplus.com.

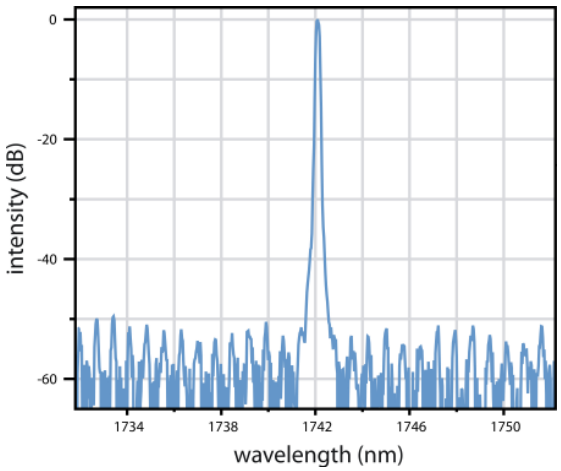


Fig. 1
Room temperature cw spectrum of a nanoplus DFB laser diode operating at 1742 nm

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

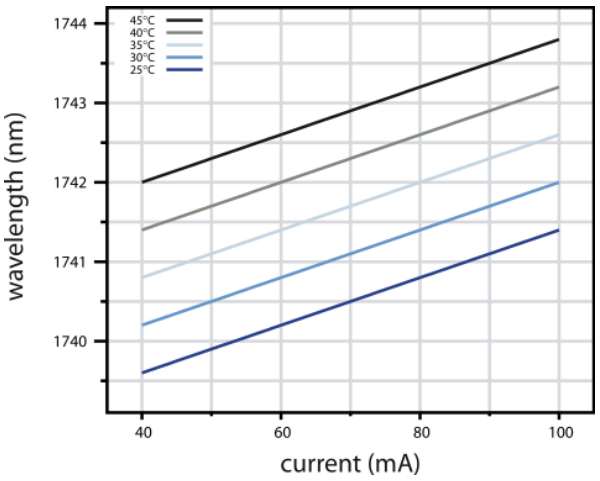
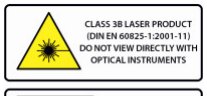


Fig. 2
Mode hop free tuning of 1512 nm based DFBs by current variation at different temperatures

electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	λ	nm	1741	1742	1743
threshold current	I_{th}	mA	20	35	65
slope efficiency	e	mW / mA	0.05	0.10	0.25
temperature tuning coefficient	C_T	nm / K	0.07	0.10	0.14
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.03
slow axis (FWHM)		degrees	20	30	40
fast axis (FWHM)		degrees	40	50	60
emitting area	W x H	µm x µm	2 x 1	3 x 1.5	5 x 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

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