DFB laser diodes from 2600 nm to 2900 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 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 range from 2600 nm to 2900 nm. In this wavelength regime e. g. H_2O, HF, CO_2 can be detected with particularly high sensitivity, since the detection sensitivity typically increases at long wavelengths. Overleaf data for DFB lasers optimized for H_2O detection is shown as an example.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	P_{out}	mW	2
typical maximum operating voltage	V_{op}	V	2
forward current	I_f	mA	100
side mode suppression ratio (SMSR)		dB	> 35

laser packaging options
TO5.6 header with or without cap
TO5 with TEC and NTC

On request, lasers with specifically optimized properties, such as higher output power, are available.

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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REGISTERED COMPANY ISO 9001:2008

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nanoplus DFB laser diodes at 2740 nm

A wide variety of gas molecules exhibit characteristic absorption lines in the near infrared. DFB lasers emitting at 2740 nm are perfectly suited for highly sensitive detection of small H_2O 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 2600 nm to 2900 nm. For examples of performance data of nanoplus lasers in other wavelength ranges, please see www.nanoplus.com or contact sales@nanoplus.com

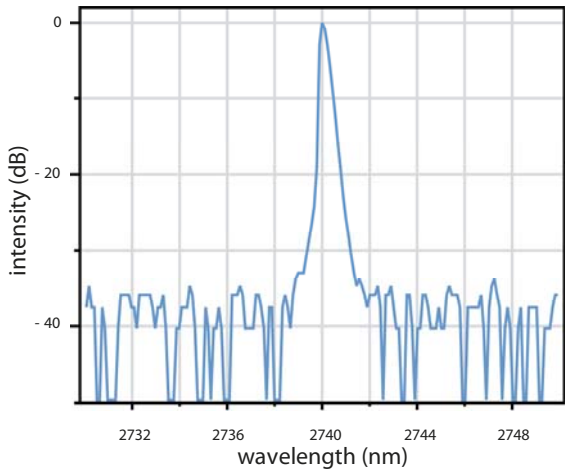

Fig. 1
Room temperature cw spectrum of a nanoplus DFB laser diode operating at 2740 nm

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

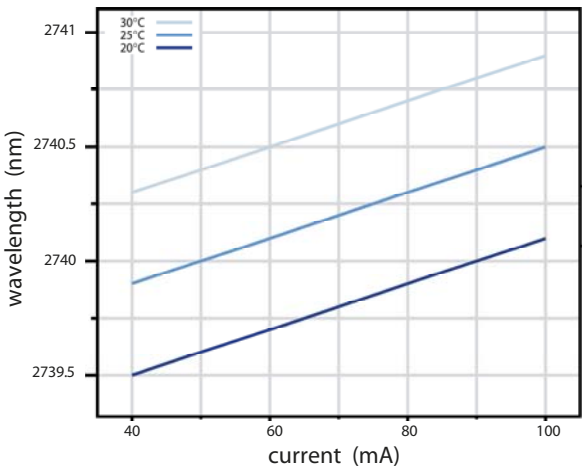

Fig. 2
Mode hop free tuning of a nanoplus 2740 nm DFB laser diode by current variation at different temperatures

electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	λ	nm	2739	2740	2741
threshold current	I_{th}	mA	30	50	80
temperature tuning coefficient	C_T	nm / K	0.15	0.20	0.28
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.05
slow axis (FWHM)		degrees	20	30	40
fast axis (FWHM)		degrees	40	50	60
emitting area	W x H	µm x µm	3 x 1	4.5 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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