

760 - 830 nm
830 - 920 nm
<b>920 - 1100 nm</b>
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 920 nm to 1100 nm

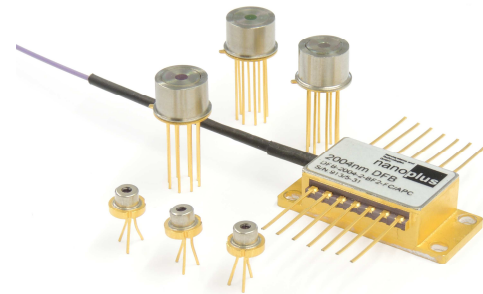
## nanoplus single mode laser diodes

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  $\mu\text{m}$ , 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 920 nm to 1100 nm. Overleaf data for lasers used for injection seeding of Nd:YAG lasers is given as an example. These lasers have applications in e.g. remote sensing of wind speeds, profiling of atmospheric molecules and aerosols and topographic mapping.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	$P_{\text{out}}$	mW	20
reverse Voltage	$V_r$	V	2
forward Current	$I_f$	mA	50
side mode suppression ratio (SMSR)		dB	> 35

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](http://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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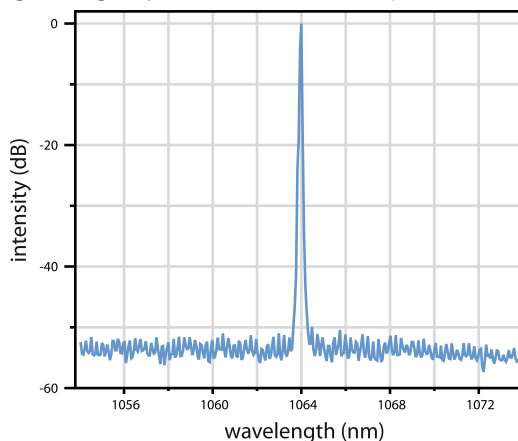
Rev. DFB1064.05

## nanoplus DFB laser diodes at 1064 nm

A wide variety of gas molecules exhibit characteristic absorption lines in the near infrared. The wavelength of the main Nd:YAG laser transition is at 1064 nm.

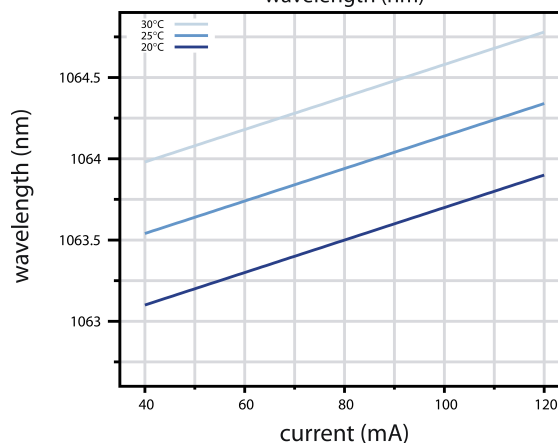
The 1064 nm DFB laser diodes are used for injection seeding of Nd:YAG lasers, which have applications in remote sensing of wind speeds, profiling of atmospheric molecules and aerosols and topographical mapping. Applications of this type rely on Nd:YAG lasers, which are seeded with highly stable laterally and longitudinally single mode lasers. This data sheet reports performance data of nanoplus DFB lasers at this wavelength. Similar performance data are obtained in the entire wavelength range from 920 nm to 1100 nm. For examples of performance data of nanoplus lasers in other wavelength ranges, please see [www.nanoplus.com](http://www.nanoplus.com) or contact [sales@nanoplus.com](mailto:sales@nanoplus.com)

*Fig. 1  
Room temperature cw spectrum of a nanoplus DFB laser diode operating at 1064 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 1064 nm based DFBs by current variation at different temperatures*



electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	$\lambda$	nm	1063	1064	1065
threshold current	$I_{th}$	mA	15	20	25
slope efficiency	e	mW / mA	0.35	0.4	0.5
temperature tuning coefficient	$C_T$	nm / K	0.07	0.08	0.09
current tuning coefficient	$C_I$	nm / mA	0.015	0.02	0.025
slow axis (FWHM)		degrees	12	15	20
fast axis (FWHM)		degrees	35	40	45
emitting area	W x H	$\mu\text{m} \times \mu\text{m}$	2.3 x 1.4	2.5 x 1.5	2.5 x 1.7
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](mailto:sales@nanoplus.com)

