Nanosystems and Technologies GmbH
nanoplus

TOP Wavelengths
DFB: 1651 nm & 1654 nm

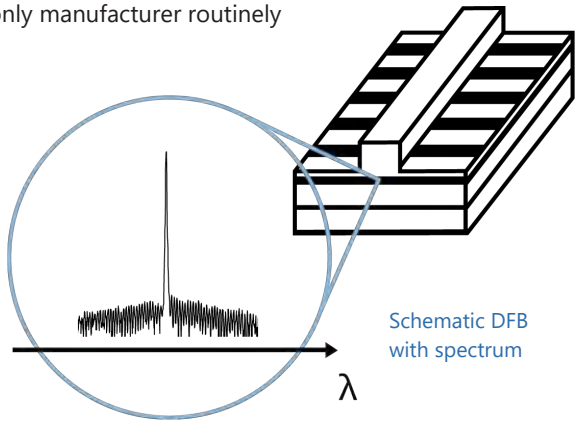
TOP WAVELENGTH

- 760.8 nm
- 1278.8 nm
- 1392.0 nm
- 1512.2 nm
- 1560 - 1590 nm
- **1651 & 1654 nm**
- 1742.0 nm
- 1854 & 1877 nm
- 2004.0 nm
- 2330 & 2334 nm
- 3240 & 3270 nm
- 3345 nm HP
- 3345 & 3375 nm
- 4524 & 4534 nm
- 4565 nm HP
- 5184 & 5263 nm

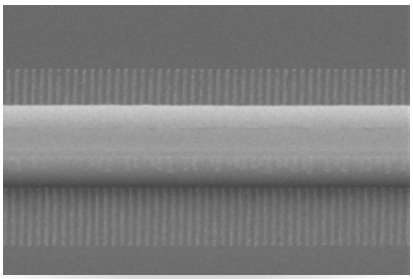
nanoplus Distributed Feedback Lasers **(DFB)** are specifically designed for high-precision gas detection using tunable diode laser absorption spectroscopy **(TDLAS)**. Our devices operate **reliably** in more than 100,000 installations worldwide. For 25 years nanoplus has set the standard for DFB laser technology and is the only manufacturer routinely providing DFB lasers at **any wavelength.**

Key features:

- MONOMODE
- CONTINUOUS WAVE
- ROOM TEMPERATURE
- MODE HOP FREE TUNING



Schematic DFB with spectrum


Overgrowth-free DFB device processing

Any **custom wavelength** is possible: You tell us what you need and we deliver it. With our patented DFB technology we design any wavelength **between 760 nm and 14 µm.**

Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

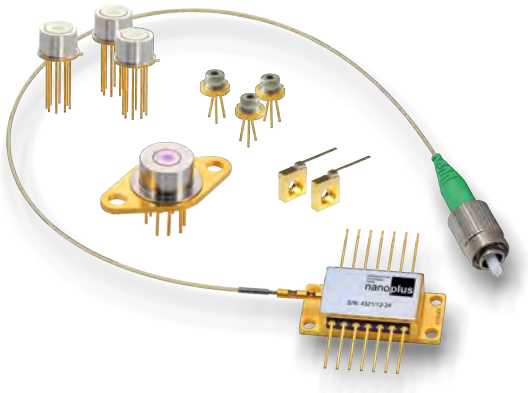
A **narrow linewidth** **below 3 MHz** guarantees ultra-precise scanning of the absorption line feature. The **high output power** of **several mW** yields a stronger signal and increases your measurement precision.

Fast and wide wavelength tuning is required for in situ systems. Most customers use a scan rate of 10 kHz and benefit from our very **large tuning coefficient.**

"Do not change your ideas, let us deliver the laser that fits your application."

We offer **various** **packaging options,** e.g. several free space housings including TEC and NTC, fiber coupling, **collimation** and **custom designs.** What do you require?

If you require **custom specifications,** please contact us. Nearly 80 % of our devices are more or less customer-specific. As nanoplus is a **fully vertically integrated company,** we control the entire process chain from design to packaging. Both nanoplus production facilities are based in **Germany.** To guarantee consistent product quality we apply a strict and **ISO certified quality management system** at all levels.


nanoplus DFB lasers on TO66, TO5, TO5.6, c-mount and SM-BTF

Our sales and R&D teams have long-standing experience in developing lasers. They will advise you in your design and realization phase as well as after-sales: **We make market leaders!**

REGISTERED COMPANY ISO 9001 14001

CLASS 3B LASER PRODUCT (DIN EN 60825-1) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

DANGER LASER RADIATION AVOID DIRECT EXPOSURE TO BEAM CLASS 3B LASER PRODUCT

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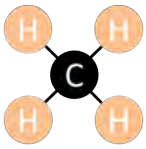
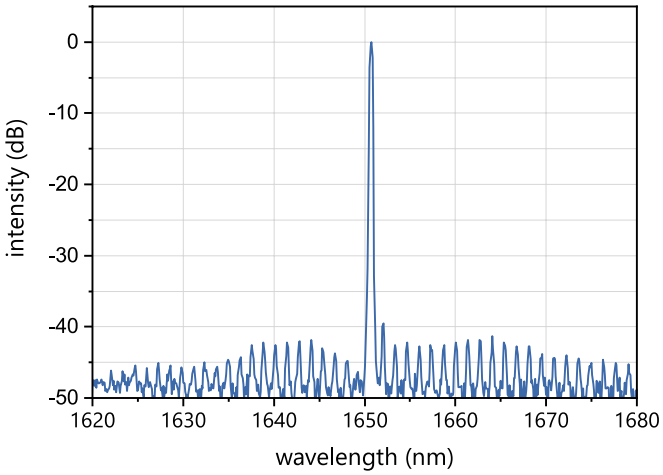
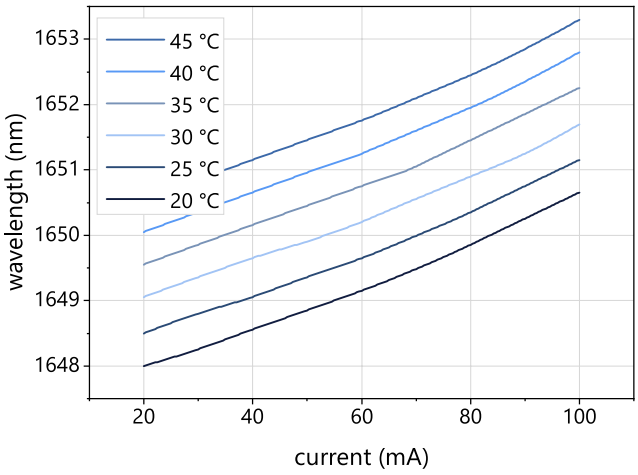
Superior Specifications: 1651 nm & 1654 nm



This data sheet reports performance data of a **sample nanoplus DFB laser at 1651 nm with enhanced specifications.** They are equally valid for 1654 nm. Standard specifications are available at: nanoplus.com/DFB/1650nm-1850nm.
These lasers are particularly suitable for methane (CH_4) detection.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1651 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1651 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typical	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		1651	
optical output power (at λ_{op})	P_{op}	mW		8	
operating current	I_{op}	mA		70	
operating voltage	V_{op}	V		2	
threshold current	I_{th}	mA	10	20	30
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.008	0.012	0.015
temperature tuning coefficient	C_T	nm / K	0.10	0.11	0.14
operating chip temperature	T_{op}	°C	+20	+25	+45
operating case temperature*	T_c	°C	-20	+25	+55
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

packaging

TO5 with TEC and NTC, black cap, AR coated window

TO56 without TEC or NTC, sealed, window

c-mount without TEC or NTC

butterfly package with TEC and NTC, SM or PM fiber, FC/APC connector

chip on carrier without TEC, with NTC

Technical drawings & accessories are available at: nanoplus.com/packaging

Please contact sales@nanoplus.com for customized specifications, quotes and further questions.
Visit our website for technical notes, application samples or literature referrals.

nanoplus Nanosystems and Technologies GmbH, www.nanoplus.com, phone: +49 (0) 3693 50 5000-0, email: sales@nanoplus.com
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