

Distributed Feedback Lasers (DFB): Top Wavelengths

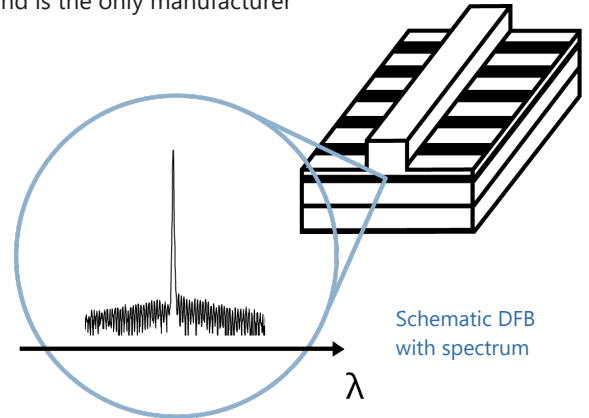
TOP WAVELENGTH

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 & 3375 nm
4524 & 4534 nm
5184 & 5263 nm

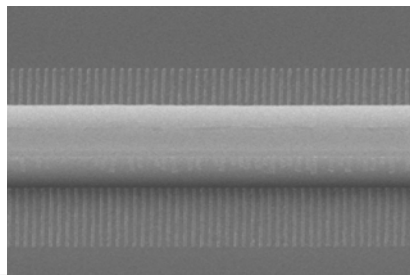
nanoplus Distributed Feedback Lasers (**DFB**) are specifically designed for high-precision gas detection using tunable diode laser absorption spectroscopy (**TDLAS**). Our devices operate **reliably** in more than 50,000 installations worldwide. For more than 20 years nanoplus has set the standard for 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.

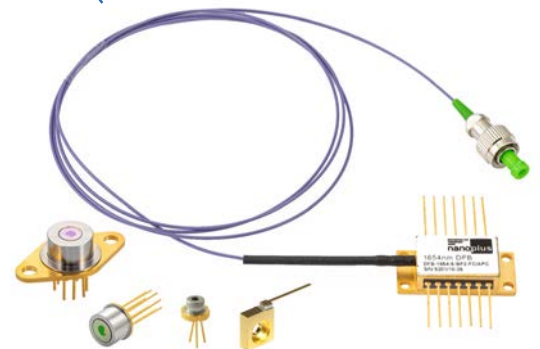
A **narrow linewidth below 3 MHz** guarantees ultra-precise scanning of the absorption line feature. The **high output power** of **several mW** yields a stronger signal and increases your measurement precision.

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

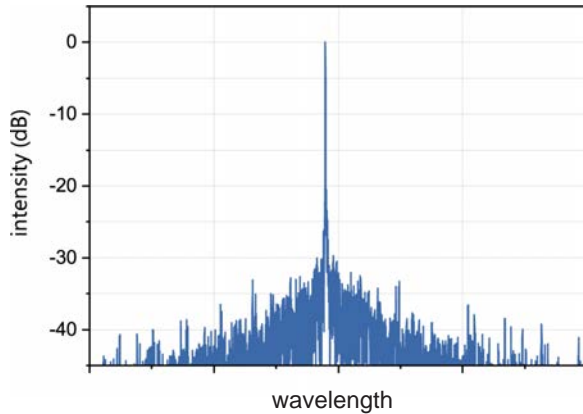
Our sales and R&D teams have long-standing experience in developing lasers. They will advise you in your design and realization phase as well as after-sales:

We make market leaders!

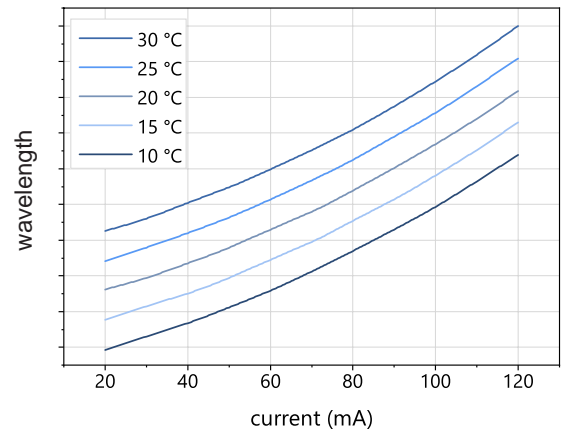


Superior Specifications: Top Wavelengths

This data sheet reports the performance data of a **nanoplus Top Wavelength**, which is a **Distributed Feedback laser with superior specifications**. Our **Top Wavelengths** are designed for the detection of major industrial trace gases.



Typical room temperature cw spectrum of a nanoplus Top Wavelength DFB laser



Typical mode hop free tuning of a nanoplus Top Wavelength DFB laser by current and temperature

The table below outlines major specifications of our Top Wavelengths. Detailed specifications and packaging options are available on our website at nanoplus.com/products/distributed-feedback-laser.

*typical values

Define your center wavelength to 0.1 nm	Application by gas	optical output power P_{op} (mW)*	operating current I_{op} (mA)*	threshold current I_{th} (mA)*	current tuning coefficient C_i (nm/mA)*	temperature tuning coefficient C_T (nm/K)*
760.8 nm	oxygen (O ₂)	6	30	10	0.018	0.054
1278.8 nm	hydrogen fluoride (HF)	20	70	15	0.01	0.09
1392.0 nm	water vapour (H ₂ O)	8	70	25	0.02	0.10
1512.2 nm	ammonium (NH ₃)	8	70	25	0.015	0.10
1560/70/80/90 nm	hydrogen sulfide (H ₂ S)	8	70	15	0.012	0.11
1651 & 1654 nm	methane (CH ₄)	8	70	20	0.012	0.11
1742 nm	hydrogen chloride (HCl)	5	70	25	0.02	0.10
1854 & 1877 nm	water vapour (H ₂ O)	5	100	18	0.025	0.19
2004 nm	carbon dioxide (CO ₂)	5	100	10	0.025	0.19
2330 & 2334 nm	carbon monoxide (CO)	6	100	10	0.04	0.20
3240 & 3270 nm	methane (CH ₄)	15	120	25	0.10	0.35
3345 & 3375 nm	ethane (C ₂ H ₆)	15	120	25	0.10	0.35
4524 & 4534 nm	nitrous oxide (N ₂ O)	8	120	30	0.12	0.45
5184 & 5263 nm	nitric oxide (NO)	6	120	35	0.14	0.48