

# Distributed Feedback Lasers (DFB): Standard DFB Lasers

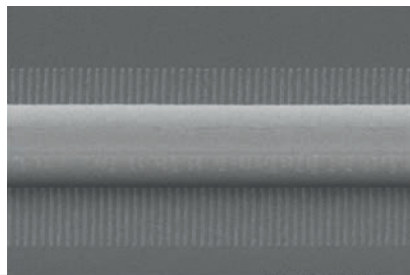
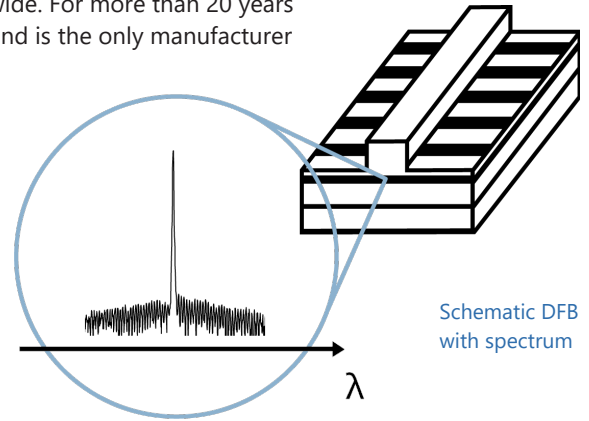
## WAVELENGTH

760–830 nm  
830–920 nm  
920–1100 nm  
1100–1300 nm  
1300–1650 nm  
1650–1850 nm  
1850–2200 nm  
2200–2600 nm  
2600–2900 nm  
2800–4000 nm  
4000–4600 nm  
4600–5300 nm  
5300–5800 nm  
5800–6500 nm  
6000–14000 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



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.

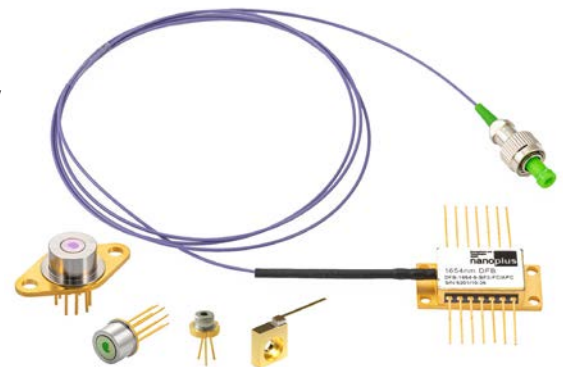
A **narrow linewidth below 3 MHz** guarantees ultra-precise scanning of the absorption line feature. The **high output power** of **several mW** yields a stronger signal and increases your measurement precision.

**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.



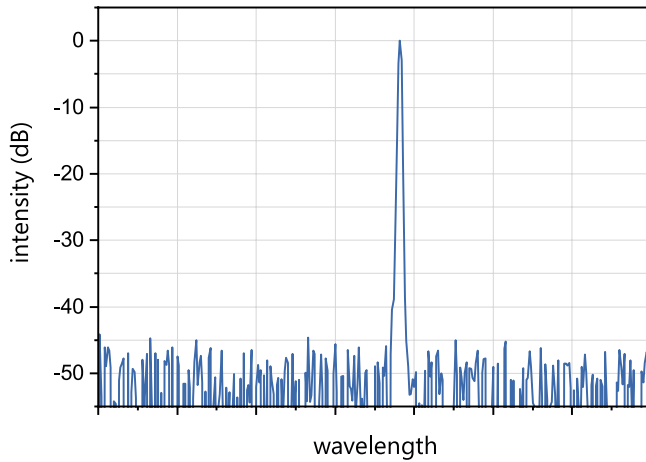
nanoplus DFB lasers on TO66, TO5, TO5.6, c-mount and SM-BTF

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!**

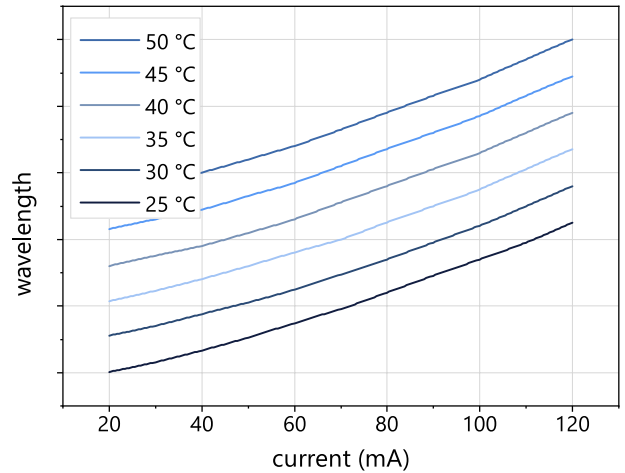


# Typical Specifications: Standard DFB Lasers

This data sheet reports typical performance data of **nanoplus Distributed Feedback Lasers**. Please select your wavelength range below for further specifications.



Typical room temperature cw spectrum of a nanoplus Distributed Feedback Laser

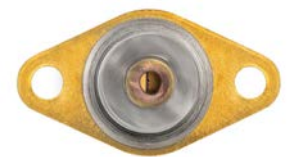


Typical mode-hop-free tuning of a nanoplus Distributed Feedback Laser by current and temperature

The table below outlines major specifications of our Distributed Feedback Lasers. Detailed specifications and packaging options are available on our website at <https://nanoplus.com/products/distributed-feedback-laser>.

| Define your center wavelength to 0.1 nm | 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 - 830 nm                            | 5                                   | 30                               | 15                               | 0.02                                      | 0.05   |
| 830 - 920 nm                            | 10                                  | 30                               | 20                               | 0.007                                     | 0.07   |
| 920 - 1100 nm                           | 20                                  | 50                               | 20                               | 0.02                                      | 0.08   |
| 1100 - 1300 nm                          | 20                                  | 70                               | 15                               | 0.01                                      | 0.09   |
| 1300 - 1650 nm                          | 5                                   | 70                               | 30                               | 0.02                                      | 0.10   |
| 1650 - 1850 nm                          | 5                                   | 70                               | 35                               | 0.02                                      | 0.10   |
| 1850 - 2200 nm                          | 3                                   | 100                              | 25                               | 0.02                                      | 0.20   |
| 2200 - 2600 nm                          | 3                                   | 100                              | 30                               | 0.02                                      | 0.22   |
| 2600 - 2900 nm                          | 2                                   | 100                              | 50                               | 0.02                                      | 0.20   |
| 2800 - 4000 nm                          | 10                                  | 120                              | 30                               | 0.10                                      | 0.35   |
| 4000 - 4600 nm                          | 5                                   | 120                              | 40                               | 0.12                                      | 0.45   |
| 4600 - 5300 nm                          | 3                                   | 120                              | 40                               | 0.14                                      | 0.48   |
| 5300 - 5800 nm                          | 1                                   | 120                              | 40                               | 0.15                                      | 0.5  |
| 5800 - 6500 nm                          | 1                                   | 120                              | 40                               | 0.15                                      | 0.5  |
| 7000 - 11000 nm                         | 1                                   | 40                               | 450                              | 0.07                                      | 0.7  |

\*typical values



Visit [nanoplus.com/products/distributed-feedback-laser](https://nanoplus.com/products/distributed-feedback-laser) or scan below QR code to download your datasheet.



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