

TOP Wavelengths

DFB: 4524 nm & 4534 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

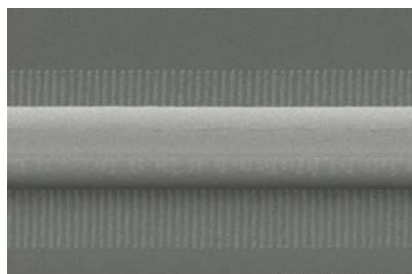
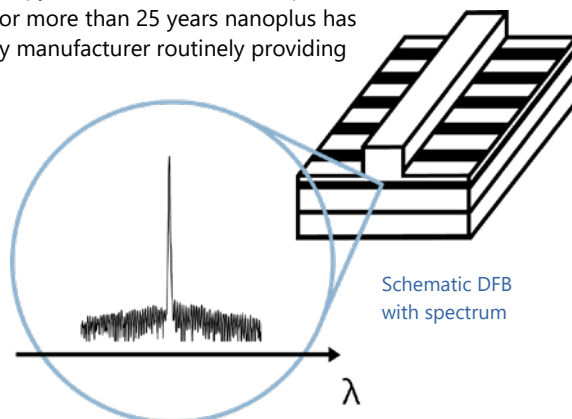
4524 & 4534 nm

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 more than 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



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.

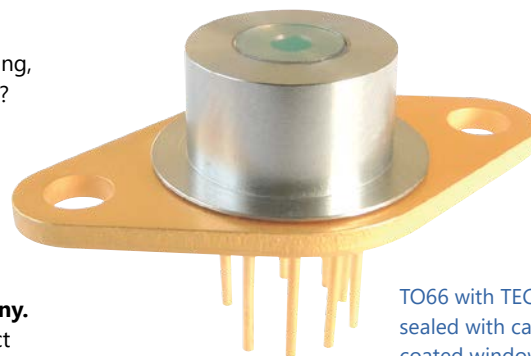
A **narrow linewidth** below **3 MHz** guarantees ultra-precise scanning of the absorption line feature. The **high output power** of **several mW** yields a stronger signal and increases your measurement precision.

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 a laser that fits your application."

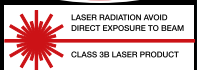
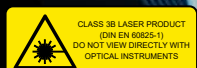
We offer **various packaging options**, e.g. several free space housings including TEC and NTC, fiber coupling, **collimation** and **custom designs**. What do you require?

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.



TO66 with TEC and NTC, sealed with cap and AR coated window

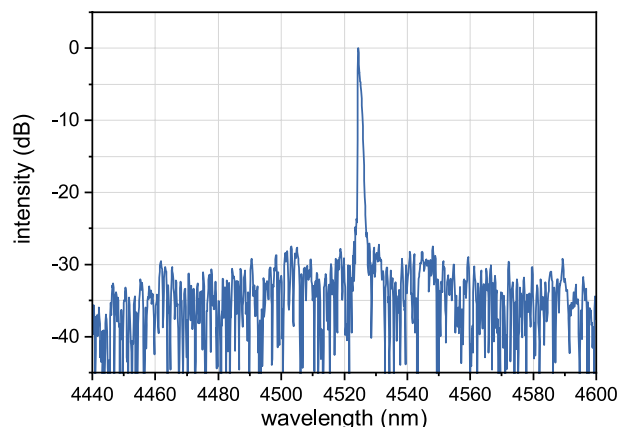
Our sales and R&D teams have long-standing experience in developing lasers. They will advise you in your design and realization phase as well as after-sales: **We make market leaders!**



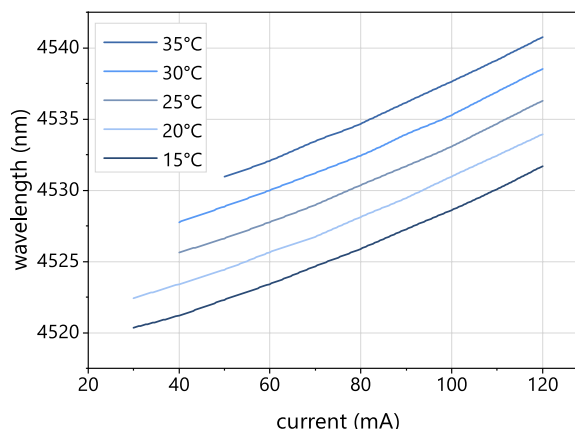
Superior Specifications: 4524 nm & 4534 nm



This data sheet reports performance data of a **sample nanoplus DFB laser at 4524 nm with enhanced specifications**. They are equally valid for 4534 nm. Standard specifications are available at: <http://nanoplus-usa.com/products/dfb-laser>. These lasers are particularly suitable for nitrous oxide (N₂O) detection.



Typical room temperature cw spectrum of
a nanoplus DFB laser at 4524 nm



Typical mode hop free tuning of a nanoplus
DFB laser at 4524 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op} , I_{op})	λ_{op}	nm		4524	
optical output power (at λ_{op})	P_{op}	mW		8	
operating current	I_{op}	mA			120
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	20	30	40
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA		0.12	
temperature tuning coefficient	C_T	nm / K		0.45	
beam divergency slow/fast-axis	FWHM	°		45/65	
operating chip temperature	T_{op}	°C	+15	+20	+40
operating case temperature*	T_c	°C	-20	+25	+55
storage temperature*	T_s	°C	-30	+20	+70

* non-condensing

laser packaging options

TO66 with TEC and NTC, black cap, AR coated window

Other packaging options may be discussed on request.

Technical drawings & accessories are available at: <https://www.nanoplus-usa.com/products/packaging>

Please contact victor.perez@nanoplus.com for customized specifications, quotes and further questions. Visit the [nanoplus website](http://nanoplus.com) for technical notes, application samples or literature referrals.