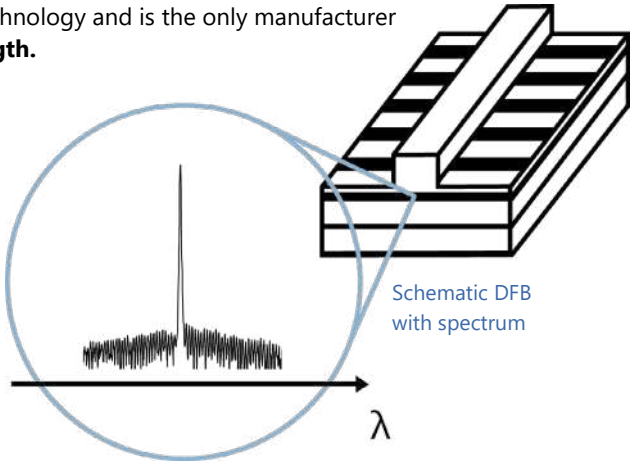
Nanosystems and Technologies GmbH
nanoplus

Distributed Feedback Lasers
760 nm - 830 nm

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

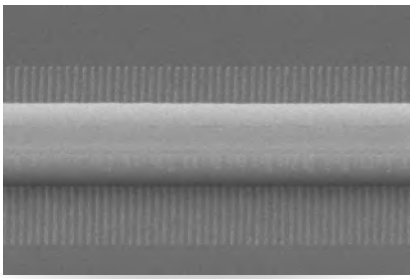
nanoplus Distributed Feedback Lasers **(DFB)** are specifically designed for high-precision gas detection using tunable diode laser absorption spectroscopy **(TDLAS)**. Our devices operate **reliably** in more than 30,000 installations worldwide. For more than 20 years nanoplus has set the standard for DFB laser technology and is the only manufacturer routinely providing DFB lasers at **any wavelength.**



Schematic DFB with spectrum

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.**

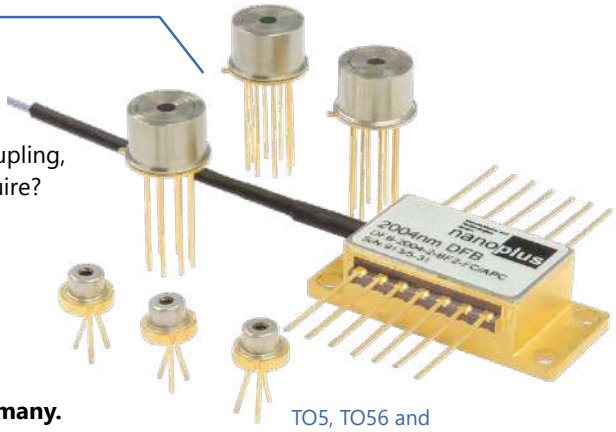
Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

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?



TO5, TO56 and fiber coupled butterfly package

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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 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

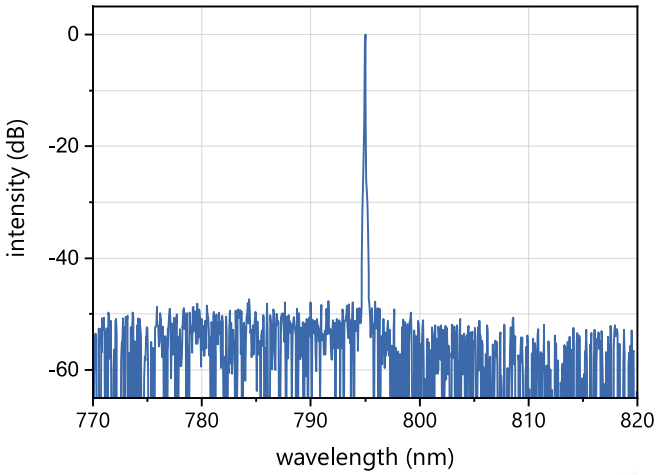
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

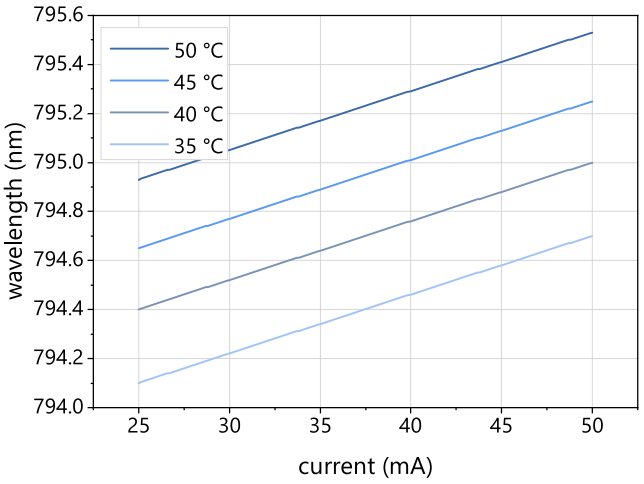
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 760 nm - 830 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 795 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 760.8 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths/760nm.



Typical room temperature cw spectrum of a nanoplus DFB laser at 795 nm



Typical mode hop free tuning of a nanoplus DFB laser at 795 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		5	
operating current	I_{op}	mA		30	
operating voltage	V_{op}	V		3	
threshold current	I_{th}	mA	5	15	30
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.010	0.020	0.025
temperature tuning coefficient	C_T	nm / K	0.04	0.05	0.07
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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 fiber, FC/APC connector

chip on carrier without TEC, with NTC

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

Please contact sales@nanoplus.com for customized specifications, quotes and further questions.
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Rev.DFB760.11

Nanosystems and Technologies GmbH
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Distributed Feedback Lasers
830 nm - 920 nm

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

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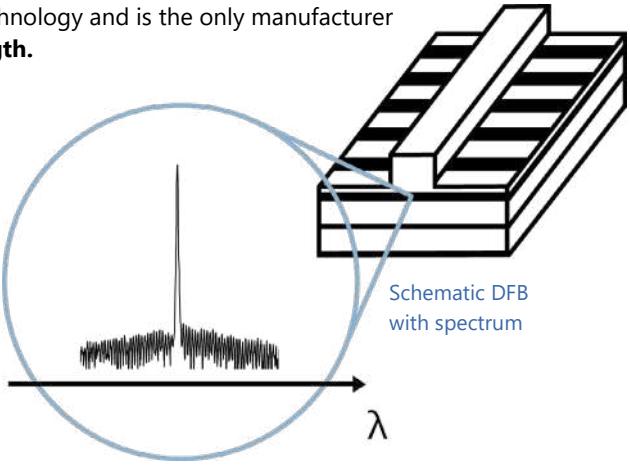
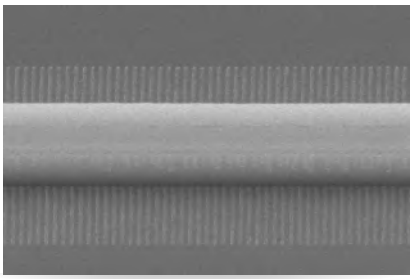
Key features:

- 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.**

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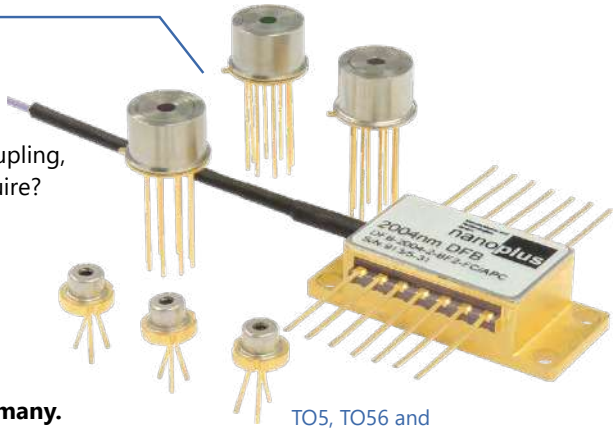

TO5, TO56 and fiber coupled butterfly package

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REGISTERED COMPANY ISO 9001 14001

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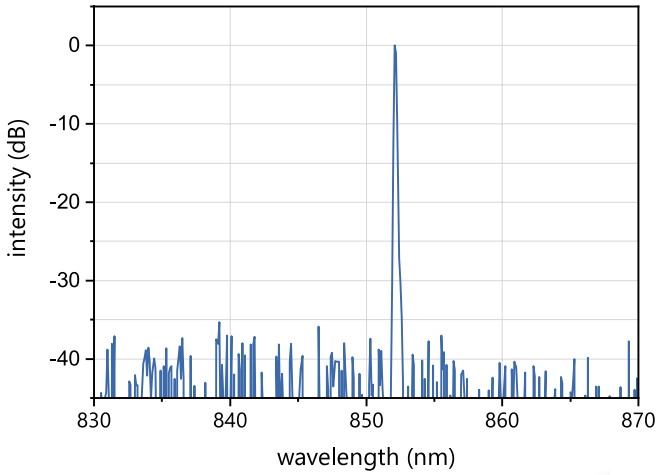
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

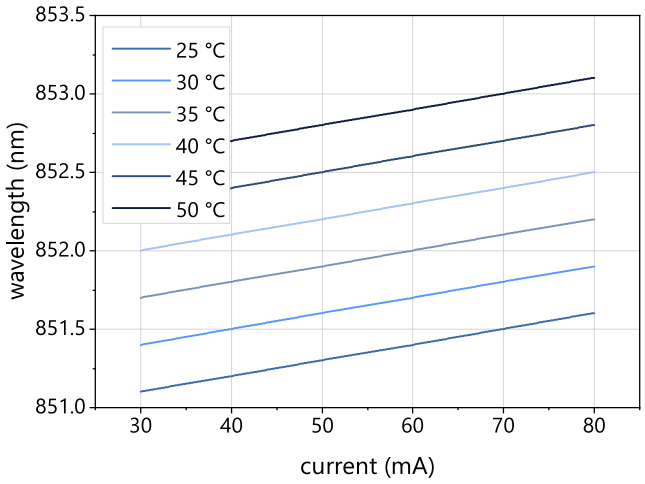
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 830 nm - 920 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 852 nm,** which is representative for the entire wavelength range.



Typical room temperature cw spectrum of a nanoplus DFB laser at 852 nm



Typical mode hop free tuning of a nanoplus DFB laser at 852 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		10	
operating current	I_{op}	mA		30	
operating voltage	V_{op}	V		3	
threshold current	I_{th}	mA	15	20	30
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.004	0.007	0.015
temperature tuning coefficient	C_T	nm / K	0.05	0.07	0.15
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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 fiber, FC/APC connector

chip on carrier without TEC, with NTC

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

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Nanosystems and Technologies GmbH
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Distributed Feedback Lasers
920 nm - 1100 nm

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

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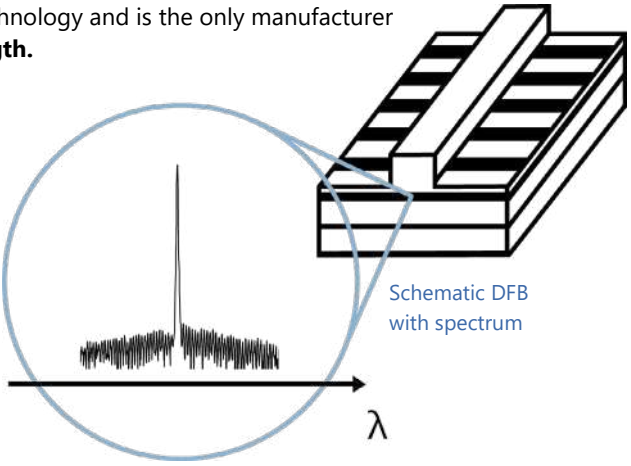
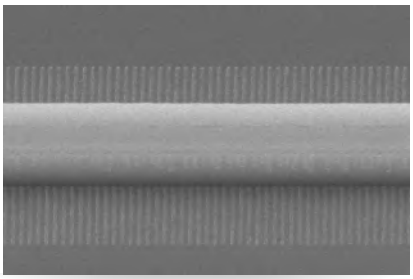
Key features:

- 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.

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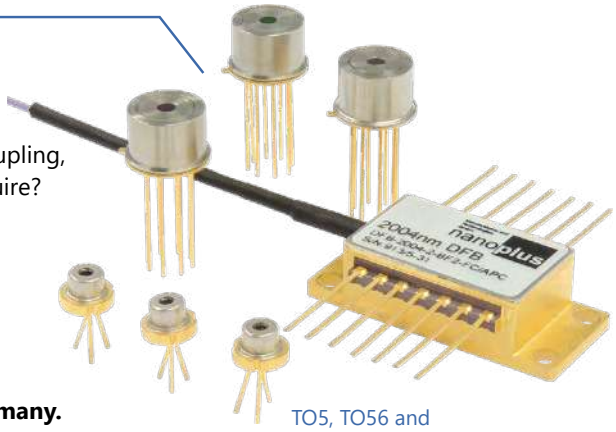

TO5, TO56 and fiber coupled butterfly package

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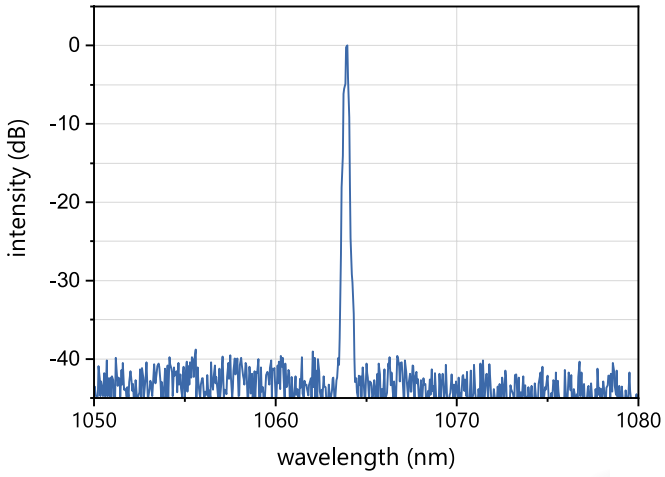
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

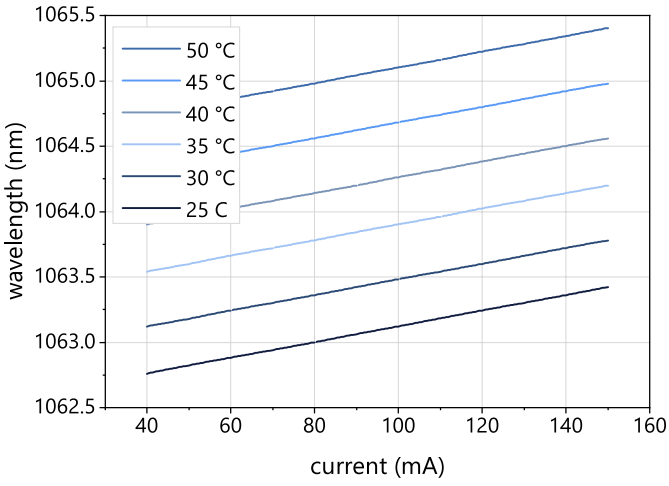
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 920 nm - 1100 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 1064 nm,** which is representative for the entire wavelength range.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1064 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1064 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		20	
operating current	I_{op}	mA		50	
operating voltage	V_{op}	V		3	
threshold current	I_{th}	mA	15	20	25
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.025
temperature tuning coefficient	C_T	nm / K	0.07	0.08	0.09
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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

TO56 without TEC or NTC, sealed, window

c-mount without TEC or NTC

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chip on carrier without TEC, with NTC

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Rev.DFB1064.11

Nanosystems and Technologies GmbH
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Distributed Feedback Lasers
1100 nm - 1300 nm

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
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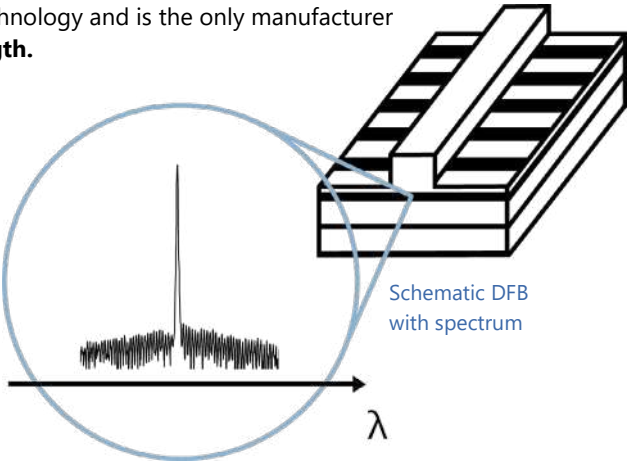
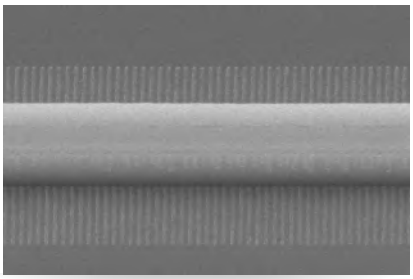


Schematic DFB with spectrum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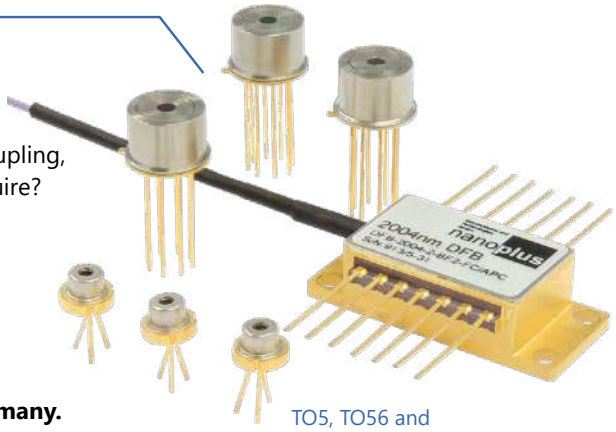

TO5, TO56 and fiber coupled butterfly package

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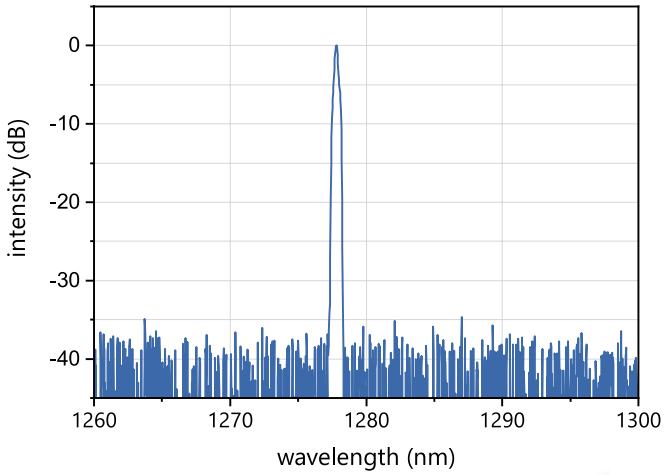
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

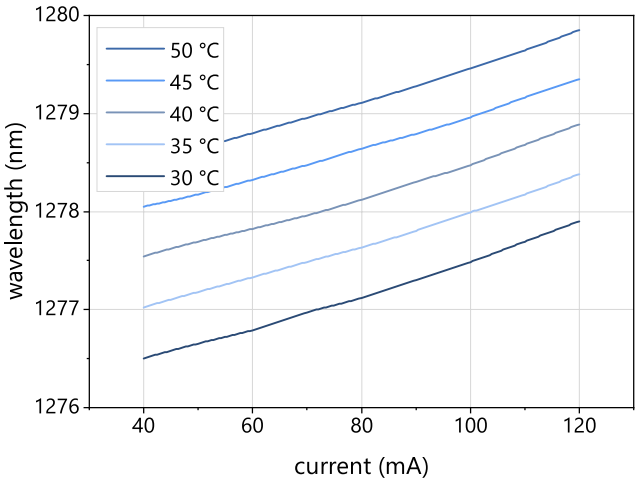
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 1100 nm - 1300 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 1178 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 1278.8 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths/1278nm.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1278 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1278 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		20	
operating current	I_{op}	mA		70	
operating voltage	V_{op}	V		2	
threshold current	I_{th}	mA	12	15	25
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.007	0.01	0.02
temperature tuning coefficient	C_T	nm / K	0.07	0.09	0.1
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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: https://nanoplus.com/packaging-options

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Rev.DFB1178.11

Nanosystems and Technologies GmbH
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Distributed Feedback Lasers
1300 nm - 1650 nm

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

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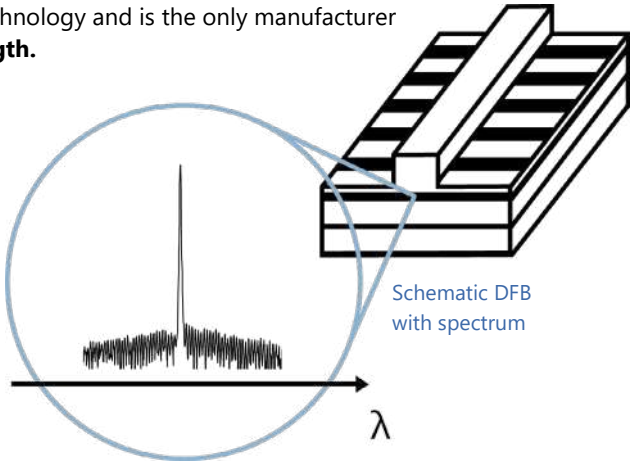
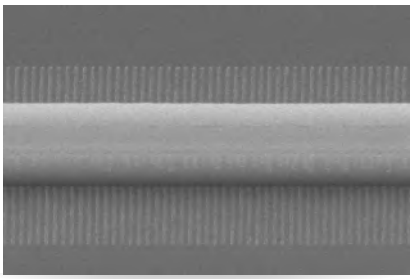


Schematic DFB with spectrum

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.**

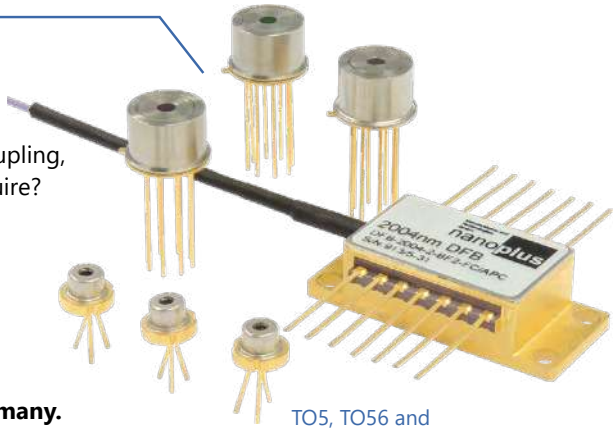
Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

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?



TO5, TO56 and fiber coupled butterfly package

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.

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 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

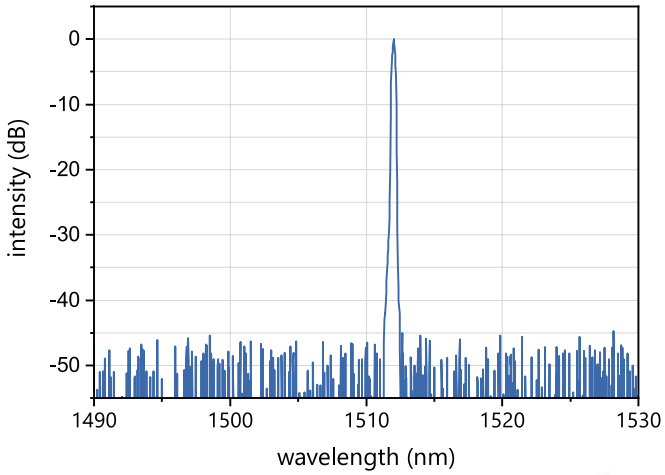
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

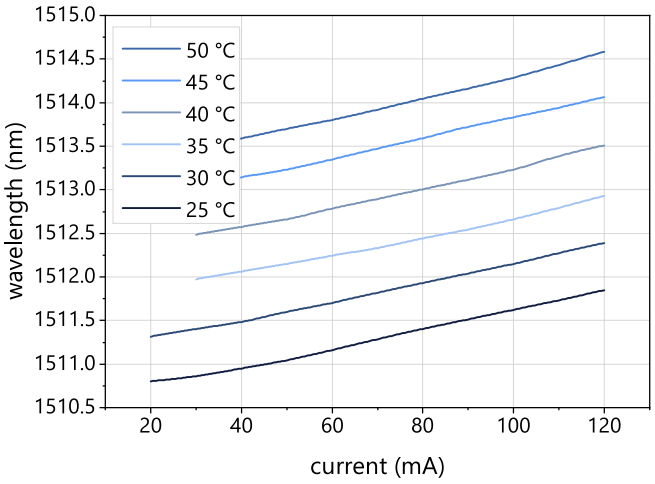
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 1300 nm - 1650 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 1512 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 1392.0 nm, 1512.2 nm, 1560 nm, 1570 nm, 1580 nm and 1590 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1512 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1512 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		5	
operating current	I_{op}	mA		70	
operating voltage	V_{op}	V		2	
threshold current	I_{th}	mA	10	30	55
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.03
temperature tuning coefficient	C_T	nm / K	0.07	0.10	0.14
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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: https://nanoplus.com/packaging-options

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

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Rev.DFB1512.11

Nanosystems and Technologies GmbH
nanoplus

Distributed Feedback Lasers
1650 nm - 1850 nm

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

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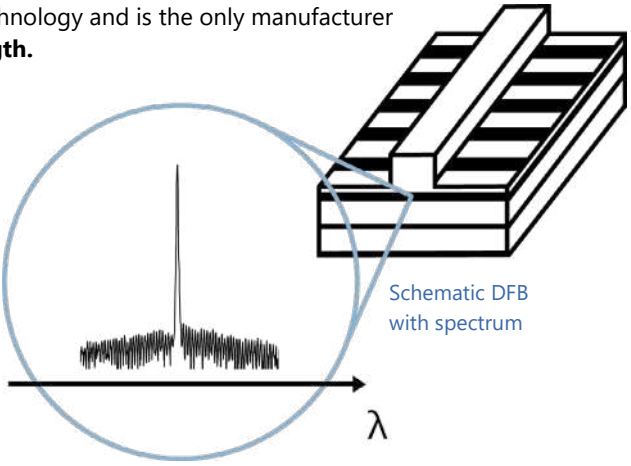
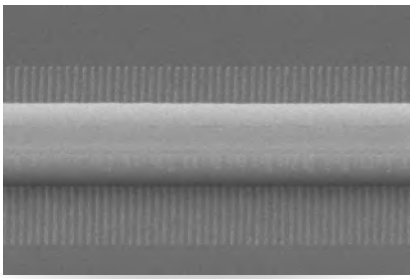
Key features:

- 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.**

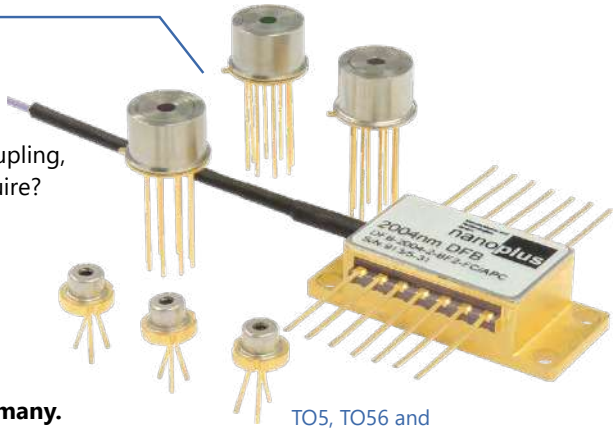
Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

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 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?



TO5, TO56 and fiber coupled butterfly package

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REGISTERED COMPANY ISO 9001 14001

CLASS 3B LASER PRODUCT (DIN EN 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

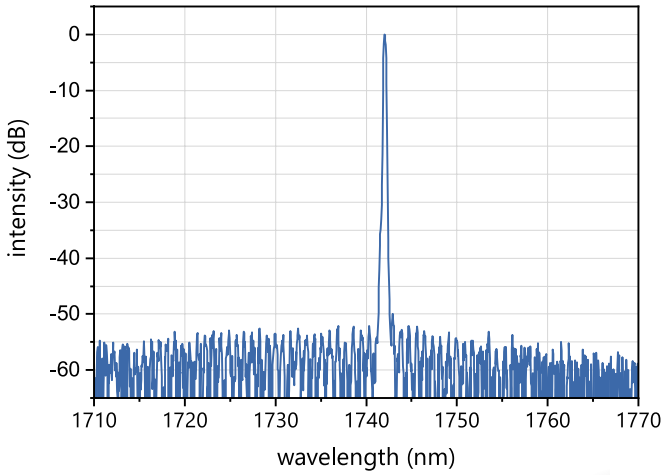
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

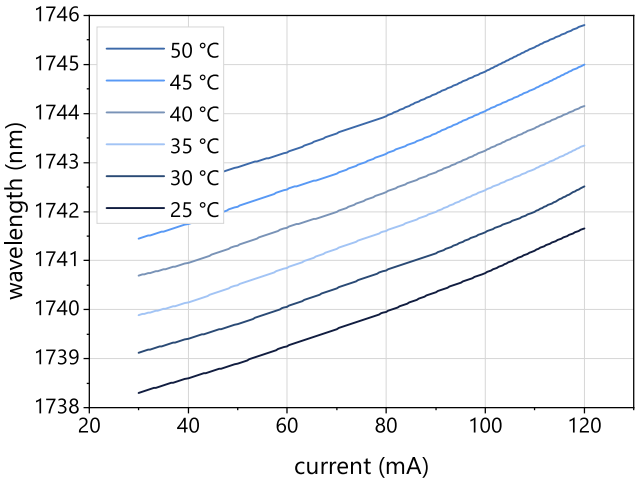
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 1650 nm - 1850 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 1742 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 1651 nm, 1654 nm and 1742 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1742 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1742 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		5	
operating current	I_{op}	mA		70	
operating voltage	V_{op}	V		2	
threshold current	I_{th}	mA	10	35	65
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.008	0.02	0.03
temperature tuning coefficient	C_T	nm / K	0.07	0.10	0.14
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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: https://nanoplus.com/packaging-options

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

Rev.DFB1742.12

Nanosystems and Technologies GmbH
nanoplus

Distributed Feedback Lasers
1850 nm - 2200 nm

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

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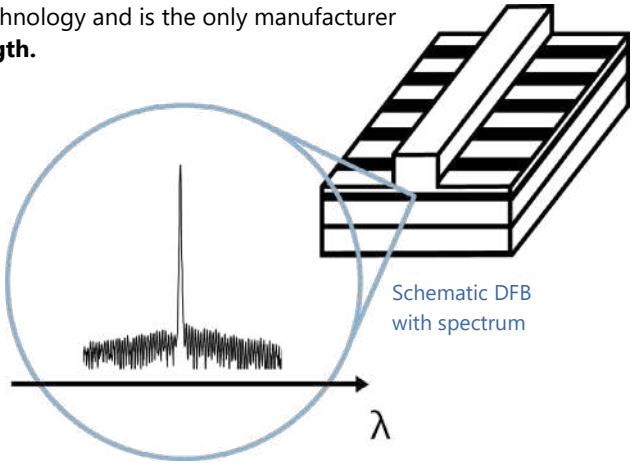
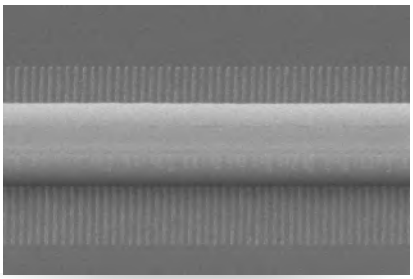


Schematic DFB with spectrum

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.**

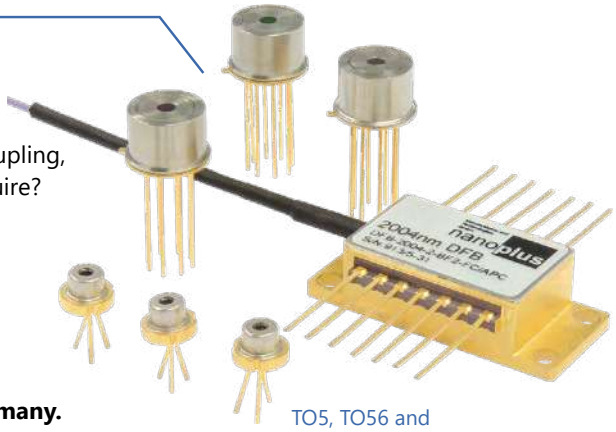
Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

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?



TO5, TO56 and fiber coupled butterfly package

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REGISTERED COMPANY ISO 9001 14001

CLASS 3B LASER PRODUCT (DIN EN 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

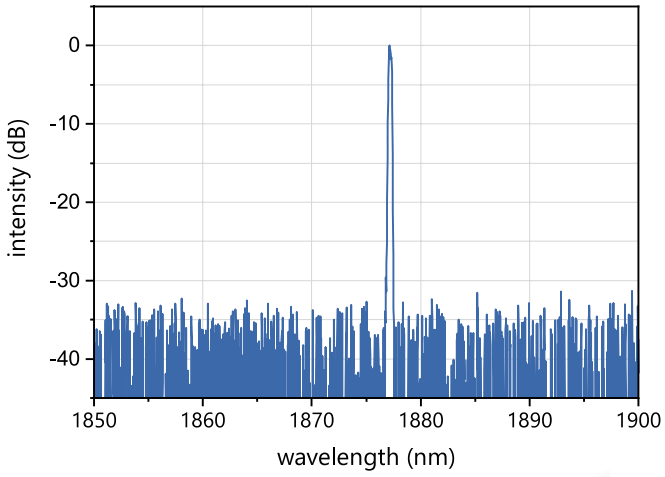
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

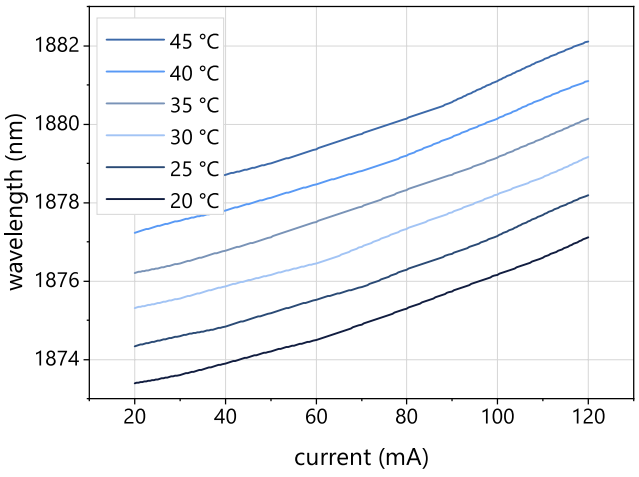
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 1850 nm - 2200 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 1877 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 1854 nm, 1877 nm and 2004.0 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths.



Typical room temperature cw spectrum of a nanoplus DFB laser at 1877 nm



Typical mode hop free tuning of a nanoplus DFB laser at 1877 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		3	
operating current	I_{op}	mA		100	
operating voltage	V_{op}	V		2	
threshold current	I_{th}	mA	5	25	65
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.05
temperature tuning coefficient	C_T	nm / K	0.16	0.20	0.23
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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 fiber, FC/APC connector; PM fiber up to 2050 nm

chip on carrier without TEC, with NTC

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

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

Rev.DFB1877.11

Nanosystems and Technologies GmbH
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Distributed Feedback Lasers
2200 nm - 2600 nm

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

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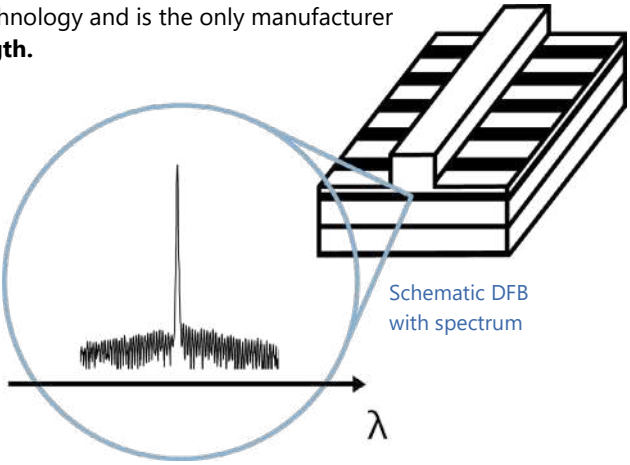
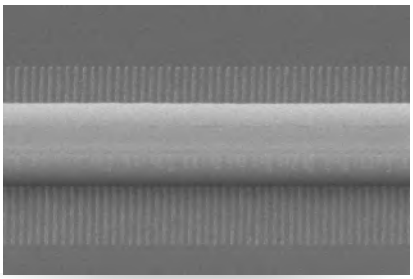
Key features:

- 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.**

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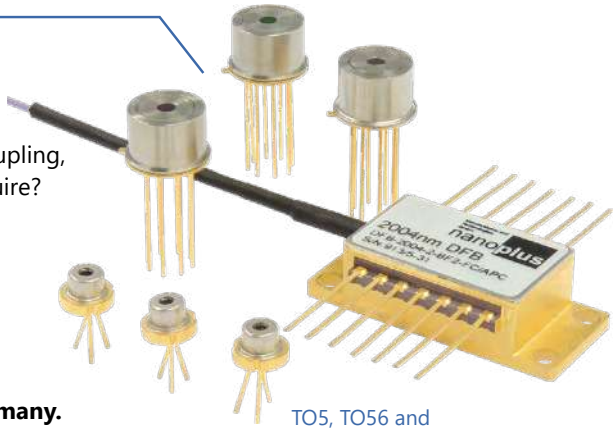
"Do not change your ideas, let us deliver a laser that fits your application."

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?



TO5, TO56 and fiber coupled butterfly package

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REGISTERED COMPANY ISO 9001 14001

CLASS 3B LASER PRODUCT (DIN EN 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

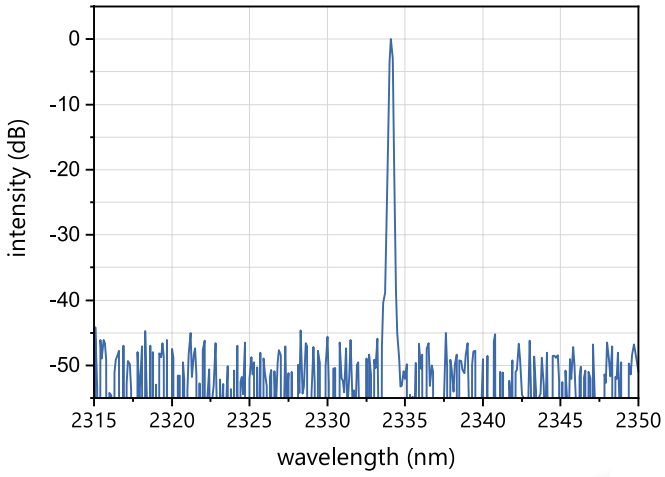
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

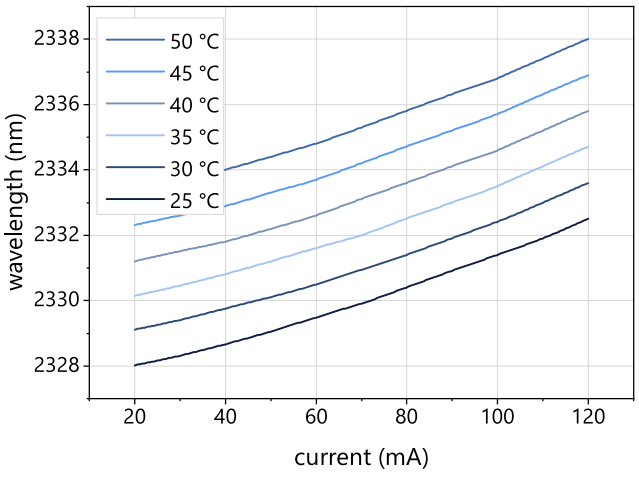
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 2200 nm - 2600 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 2334 nm,** which is representative for the entire wavelength range. We offer enhanced specifications for 2334 nm. Please refer to our TOP Wavelengths for further details: https://nanoplus.com/top-wavelengths/2334nm.



Typical room temperature cw spectrum of a nanoplus DFB laser at 2334 nm



Typical mode hop free tuning of a nanoplus DFB laser at 2334 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		3	
operating current	I_{op}	mA		100	
operating voltage	V_{op}	V		2.3	
threshold current	I_{th}	mA	5	30	50
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.05
temperature tuning coefficient	C_T	nm / K	0.18	0.22	0.25
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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 fiber, FC/APC connector; up to 2360 nm

chip on carrier without TEC, with NTC

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

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

Rev.DFB2334.12

Nanosystems and Technologies GmbH
nanoplus

Distributed Feedback Lasers
2600 nm - 2900 nm

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

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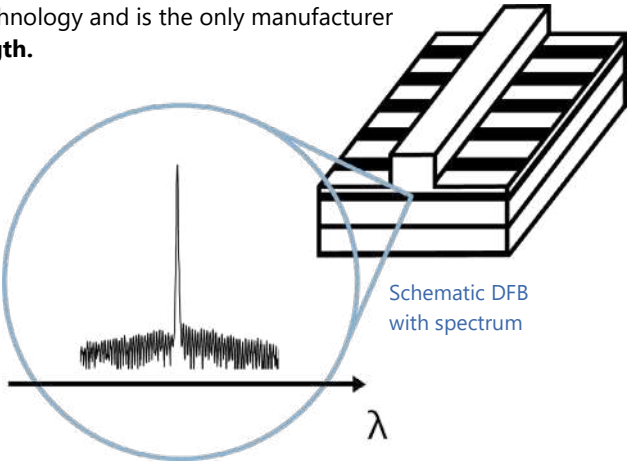
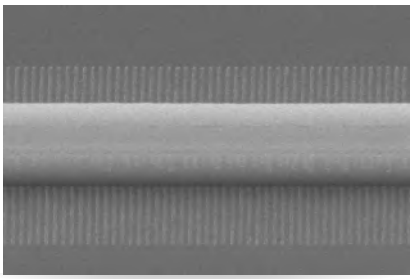
Key features:

- 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.**

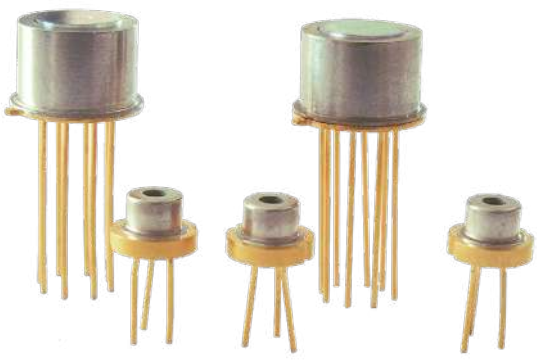
Our excellent **spectral purity** is characterized by a large side mode suppression ratio **(SMSR)** of **> 35 dB,** giving your system a low signal to noise ratio against crossinterference.

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 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?


TO5 and TO56 packages

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.

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 60825-1:2015-07) DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

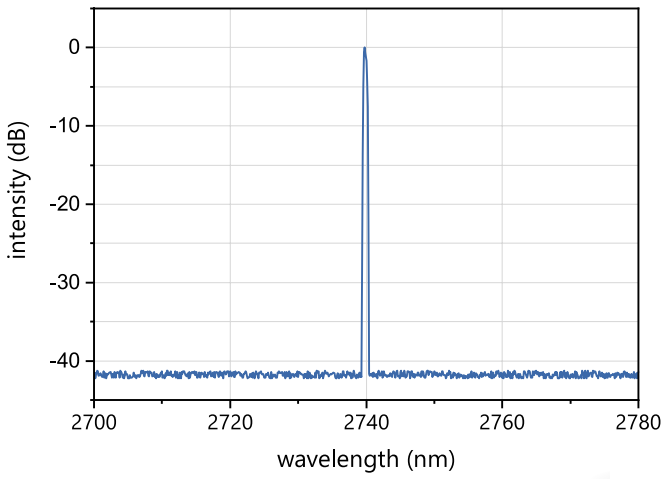
ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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

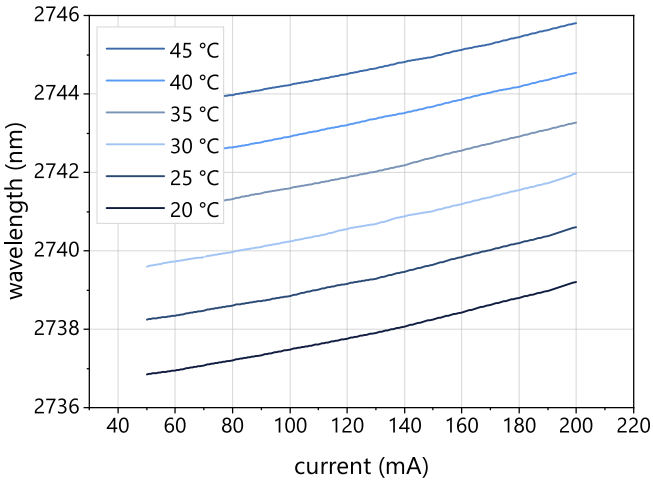
Nanosystems and Technologies GmbH
nanoplus

Typical Specifications: 2600 nm - 2900 nm

This data sheet reports performance data of a **sample nanoplus DFB laser at 2740 nm,** which is representative for the entire wavelength range.



Typical room temperature cw spectrum of a nanoplus DFB laser at 2740 nm



Typical mode hop free tuning of a nanoplus DFB laser at 2740 nm by current and temperature

electro-optical characteristics	symbol	unit	min.	typ	max.
operating wavelength (at T_{op}, I_{op})	λ_{op}	nm		Please specify to 0.1 nm.	
optical output power (at λ_{op})	P_{op}	mW		2	
operating current	I_{op}	mA		100	
operating voltage	V_{op}	V		2.3	
threshold current	I_{th}	mA	30	50	80
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA	0.01	0.02	0.05
temperature tuning coefficient	C_T	nm / K	0.15	0.20	0.28
operating chip temperature	T_{op}	°C	+20	+25	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_S	°C	-40	+20	+80

* non-condensing

laser packaging options

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

TO56 without TEC or NTC, sealed, window

c-mount without TEC or NTC

chip on carrier without TEC, with NTC

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

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

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