

DFB Interband Cascade Lasers (ICL): 2800 nm - 4000 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

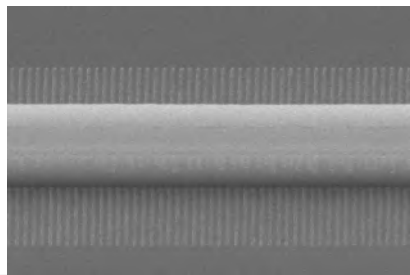
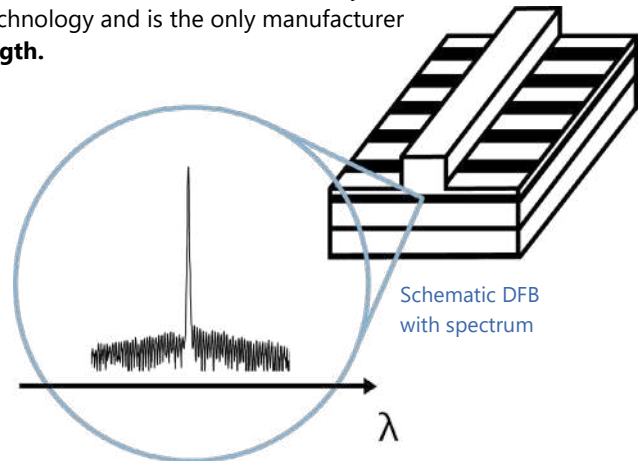
5800–6500 nm

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**.

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.

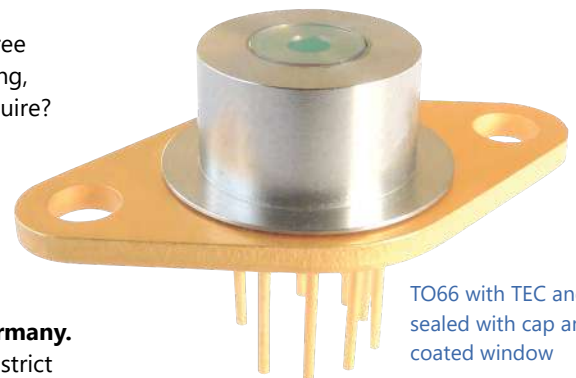
A **narrow linewidth below 3 MHz** guarantees ultra-precise scanning of the absorption line feature. The **high output power** of **several mW** yields a stronger signal and increases your measurement precision.

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.”

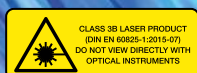
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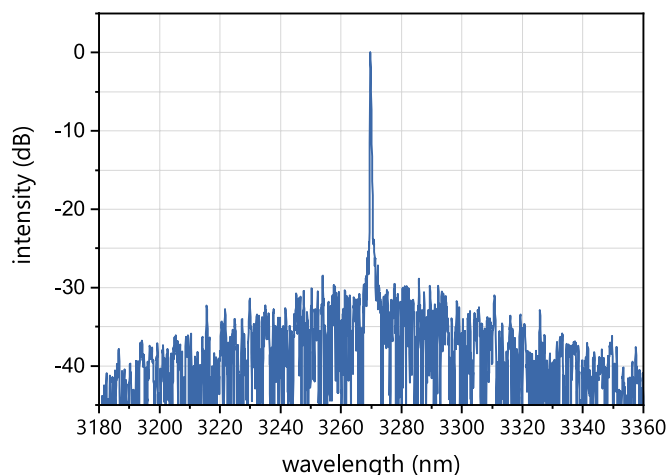
TO66 with TEC and NTC, sealed with cap and AR coated window

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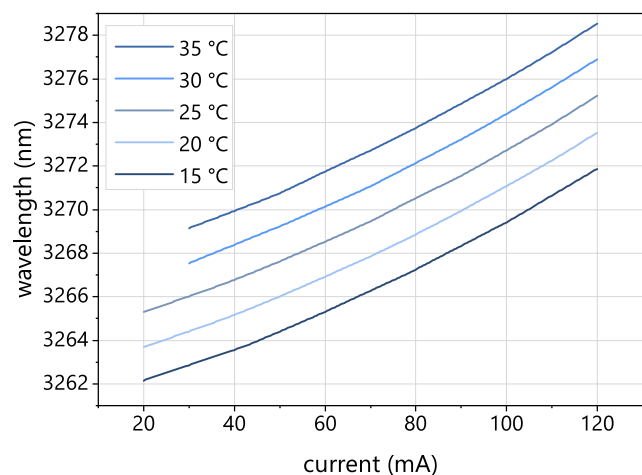


Typical Specifications: 2800 nm - 4000 nm

This data sheet reports performance data of a **sample DFB ICL at 3270 nm**, which is representative for the entire wavelength range. We offer enhanced specifications for 3270 nm, 3345 nm and 3375 nm. Please refer to our [TOP Wavelengths](https://nanoplus.com/top-wavelengths) for further details: <https://nanoplus.com/top-wavelengths>.



Typical room temperature cw spectrum
of a nanoplus DFB ICL at 3270 nm



Typical mode hop free tuning of a nanoplus
DFB ICL at 3270 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		120	
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	15	30	50
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA		0.10	
temperature tuning coefficient	C_T	nm / K		0.35	
operating chip temperature	T_{op}	°C	+10	+20	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_s	°C	-30	+20	+70

* non-condensing

laser packaging options

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

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DFB Interband Cascade Lasers (ICL): 4000 nm - 4600 nm

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760–830 nm

830–920 nm

920–1100 nm

1100–1300 nm

1300–1650 nm

1650–1850 nm

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2200–2600 nm

2600–2900 nm

2800–4000 nm

4000–4600 nm

4600–5300 nm

5300–5800 nm

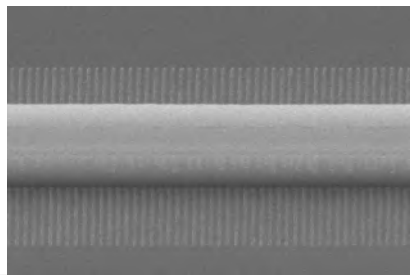
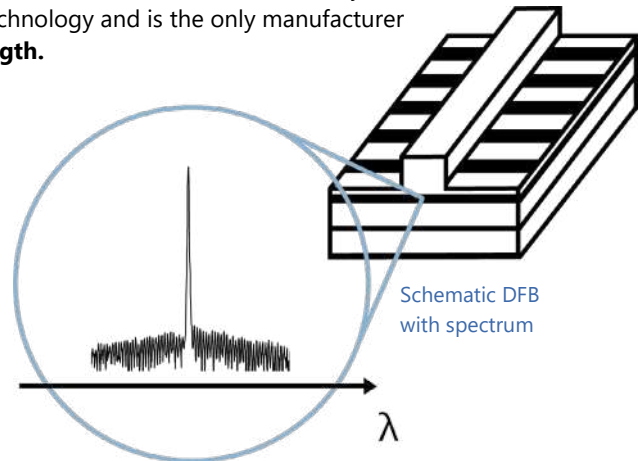
5800–6500 nm

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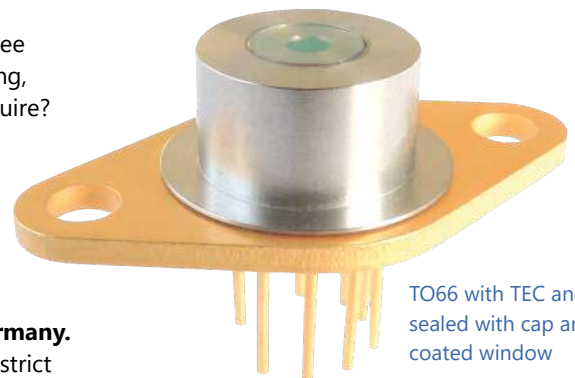
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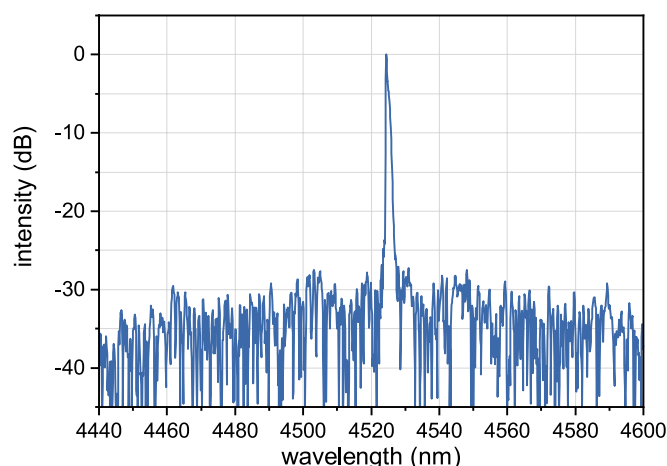
TO66 with TEC and NTC, sealed with cap and AR coated window

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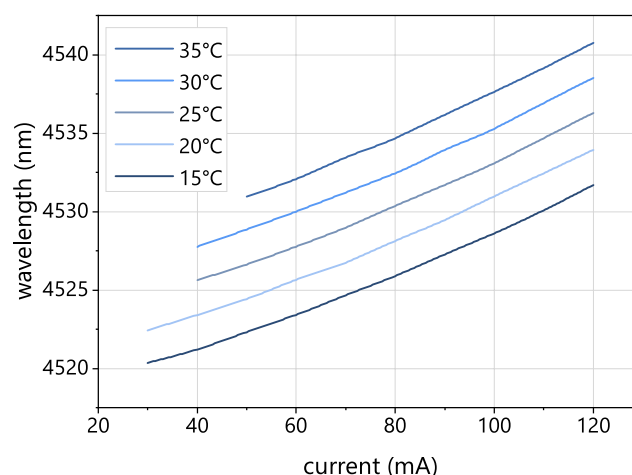


Typical Specifications: 4000 nm - 4600 nm

This data sheet reports performance data of a **sample DFB ICL at 4524 nm**, which is representative for the entire wavelength range. We offer enhanced specifications for 4524 nm and 4534 nm. Please refer to our [TOP Wavelengths](https://nanoplus.com/top-wavelengths/4524nm) for further details: <https://nanoplus.com/top-wavelengths/4524nm>.



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



Typical mode hop free tuning of a nanoplus
DFB ICL 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	Please specify to 0.1 nm.		
optical output power (at λ_{op})	P_{op}	mW		5	
operating current	I_{op}	mA		120	
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	20	40	60
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	
operating chip temperature	T_{op}	°C	+10	+20	+50
operating case temperature*	T_c	°C	-20	+25	+50
storage temperature*	T_s	°C	-30	+20	+70

* non-condensing

laser packaging options

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

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DFB Interband Cascade Lasers (ICL): 4600 nm - 5300 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

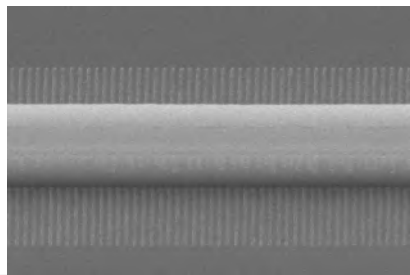
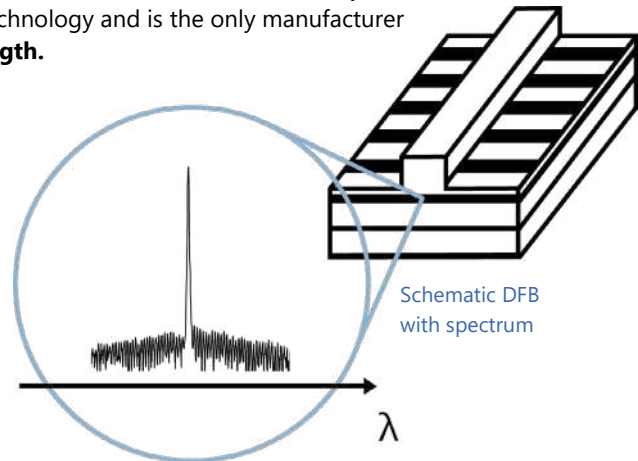
5800–6500 nm

6000–14000 nm

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Key features:

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- ROOM TEMPERATURE
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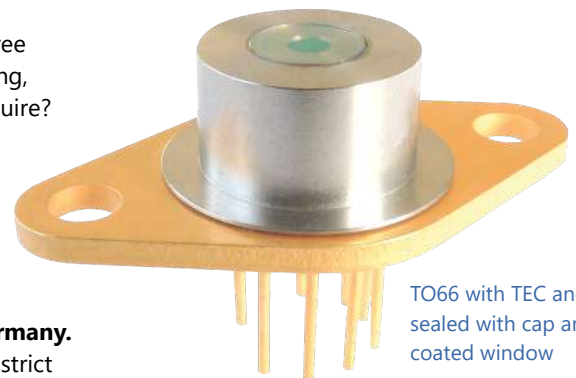
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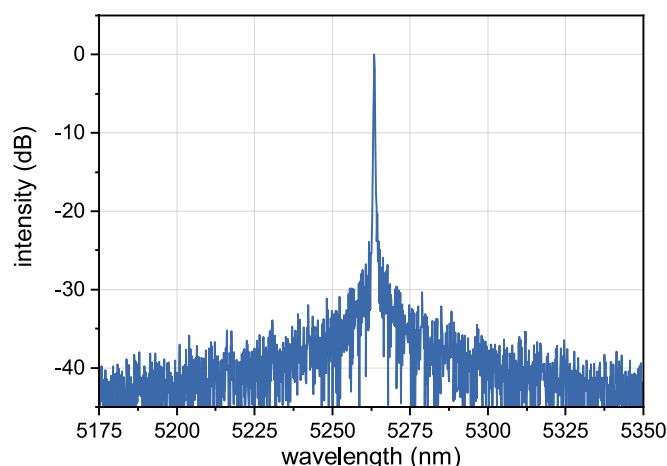
TO66 with TEC and NTC, sealed with cap and AR coated window

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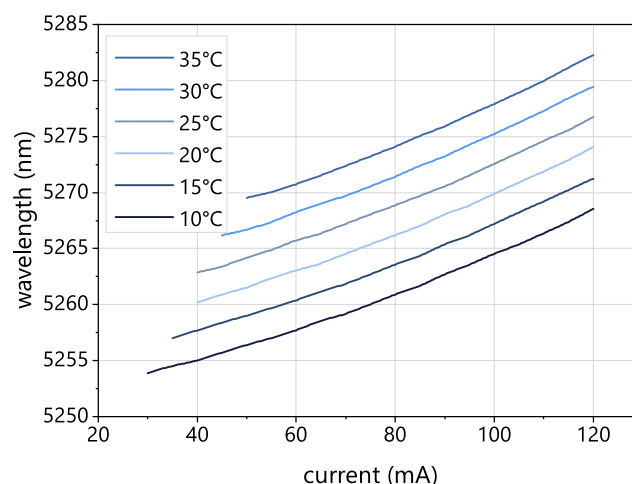


Typical Specifications: 4600 nm - 5300 nm

This data sheet reports performance data of a **sample DFB ICL at 5263 nm**, which is representative for the entire wavelength range. We offer enhanced specifications for 5184nm and 5263 nm. Please refer to our [TOP Wavelengths](https://nanoplus.com/top-wavelengths/5263nm) for further details: <https://nanoplus.com/top-wavelengths/5263nm>.



Typical room temperature cw spectrum
of a nanoplus DFB ICL at 5263 nm



Typical mode hop free tuning of a nanoplus
DFB ICL at 5263 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		120	
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	30	40	70
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA		0.14	
temperature tuning coefficient	C_T	nm / K		0.48	
operating chip temperature	T_{op}	°C	+10	+20	+50
operating case temperature*	T_c	°C	-20	+25	+50

* non-condensing

laser packaging options

TO66 with TEC and NTC, sealed, AR coated window

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DFB Interband Cascade Lasers (ICL): 5300 nm - 5800 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

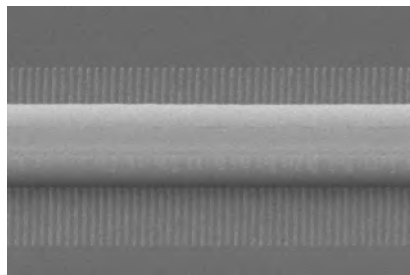
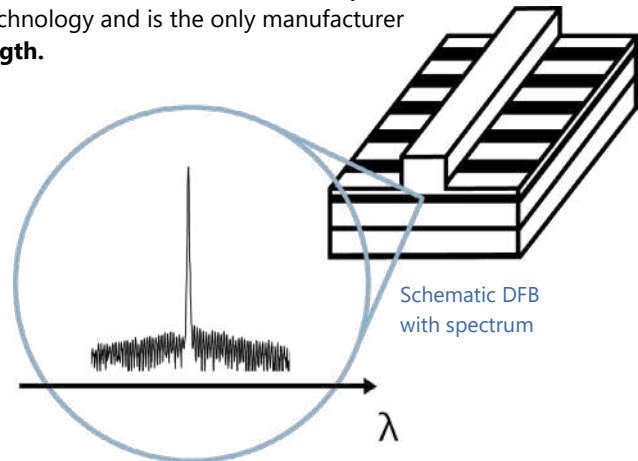
5800–6500 nm

6000–14000 nm

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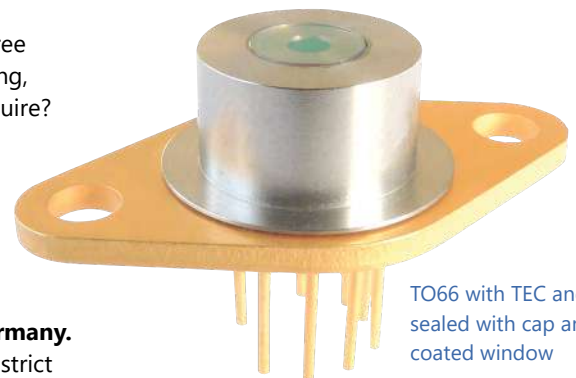
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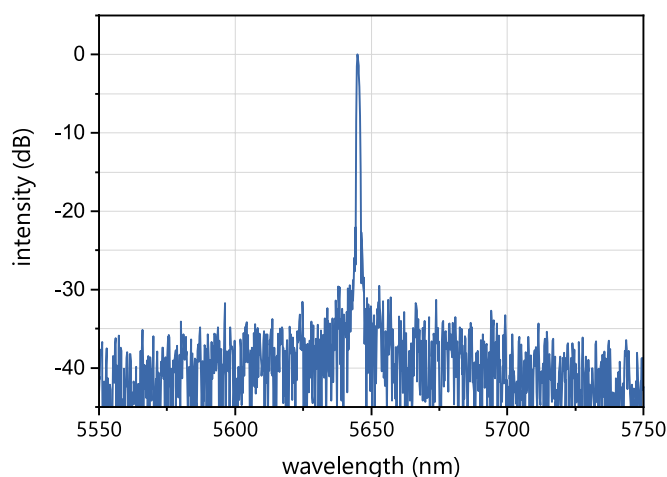
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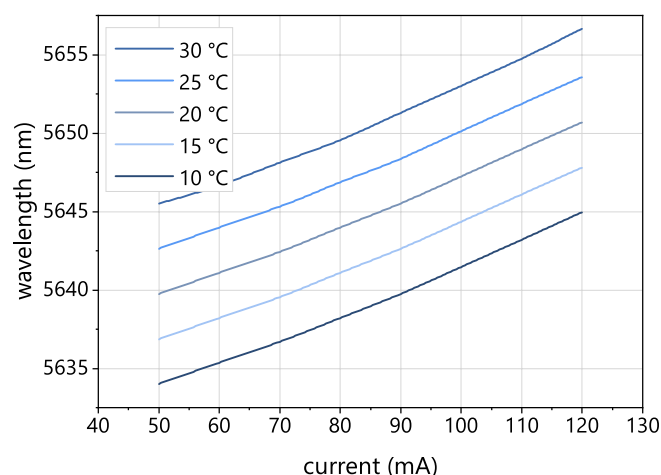


Typical Specifications: 5300 nm - 5800 nm

This data sheet reports performance data of a **sample DFB ICL at 5645 nm**, which is representative for the entire wavelength range.



Typical room temperature cw spectrum
of a nanoplus DFB ICL at 5645 nm



Typical mode hop free tuning of a nanoplus
DFB ICL at 5645 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		1	
operating current	I_{op}	mA		120	
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	30	40	70
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA		0.15	
temperature tuning coefficient	C_T	nm / K		0.5	
operating chip temperature	T_{op}	°C	+5	+20	+50
operating case temperature*	T_c	°C	-20	+25	+45
storage temperature*	T_s	°C	-30	+20	+70

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laser packaging options

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

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920–1100 nm

1100–1300 nm

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4000–4600 nm

4600–5300 nm

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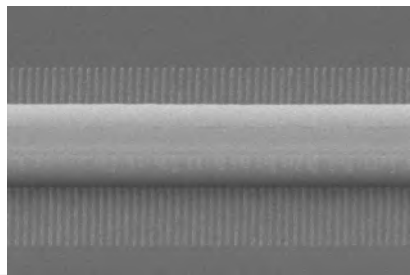
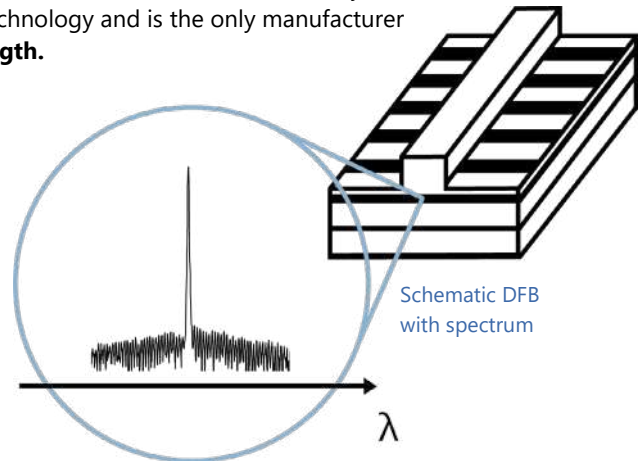
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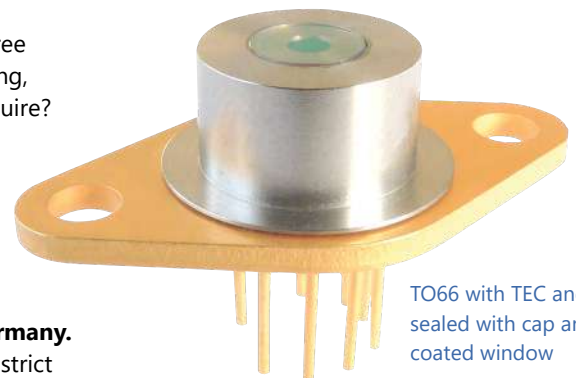
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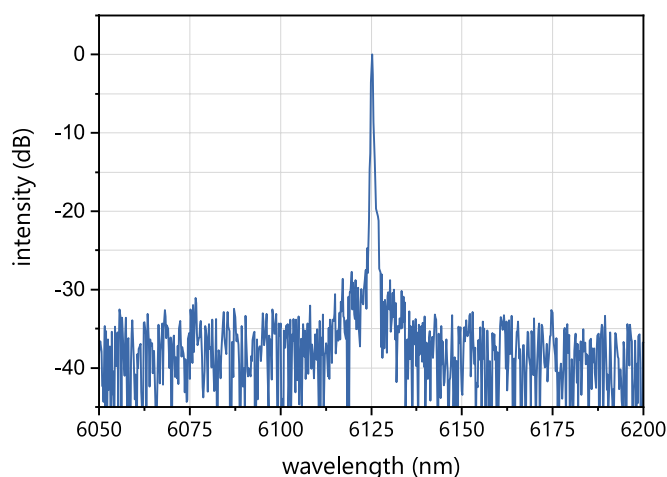
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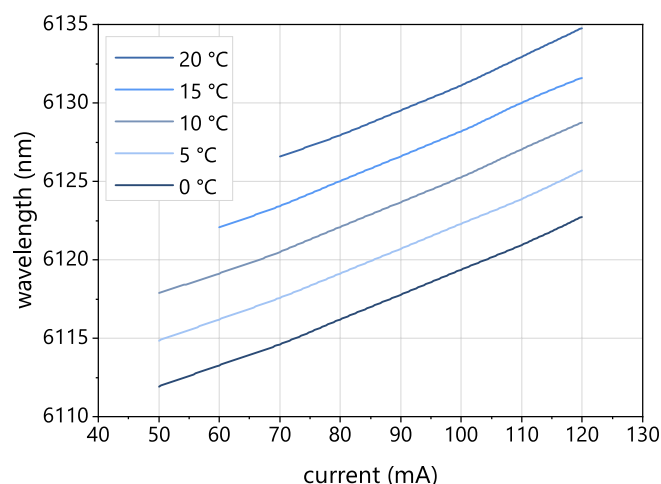


Typical Specifications: 5800 nm - 6500 nm

This data sheet reports performance data of a **sample DFB ICL at 6125 nm**, which is representative for the entire wavelength range.



Typical room temperature cw spectrum
of a nanoplus DFB ICL at 6125 nm



Typical mode hop free tuning of a nanoplus
DFB ICL at 6125 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		1	
operating current	I_{op}	mA		120	
operating voltage	V_{op}	V		5	
threshold current	I_{th}	mA	30	40	70
side mode suppression ratio	SMSR	dB		> 35	
current tuning coefficient	C_I	nm / mA		0.15	
temperature tuning coefficient	C_T	nm / K		0.5	
operating chip temperature	T_{op}	°C	-10	+5	+15
operating case temperature*	T_c	°C	-20	+25	+40
storage temperature*	T_s	°C	-30	+20	+70

* non-condensing

laser packaging options

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

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