Nanosystems and Technologies GmbH
nanoplus

OPTON LASER INTERNATIONAL

Mid-Infrared LED
(MIR LED): 2800 nm - 4000 nm

WAVELENGTH

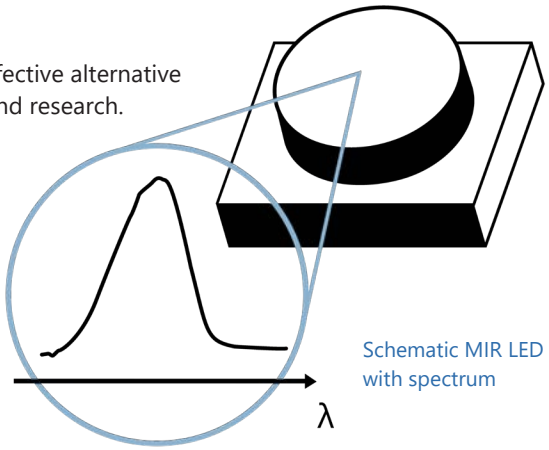
- **2800–4000 nm**
- 4000–5300 nm
- 5300–6500 nm

TOP WAVELENGTH

- 3400 nm
- 4300 nm
- 5200 nm

nanoplus Mid-Infrared LEDs **(MIR LED)** are specially designed and characterized to fit your requirements. For 25 years, nanoplus has been manufacturing Distributed Feedback and Fabry-Pérot Lasers with excellent performance. Our devices operate **reliably** in more than 50,000 installations worldwide.

nanoplus **MIR LED** are a broadband, incoherent and cost-effective alternative to lasers for e.g. many gas sensing applications in industry and research.



Schematic MIR LED with spectrum

Key features:

- LOW POWER CONSUMPTION
- CW OPERATION
- BROADBAND
- INCOHERENT

Any **custom wavelength** is possible: You tell us what you need and we deliver it. With our outstanding technology we design any wavelength **between 2800 nm and 6500 nm** within a spectral window where your desired emission wavelength reaches at least 95% of the maximum spectral intensity.

nanoplus MIR LED are the perfect light source **for mobile analyzers**, as they **consume little power**.

You can use our MIR LED in **true continuous wave operation** at **room temperature**.

The MIR LED's **output power** of **> 1 mW** leads to a strong signal and increases your measurement precision. Higher output power is available upon request.

We offer **various packaging options,** with or without TEC. You tell us what you need!

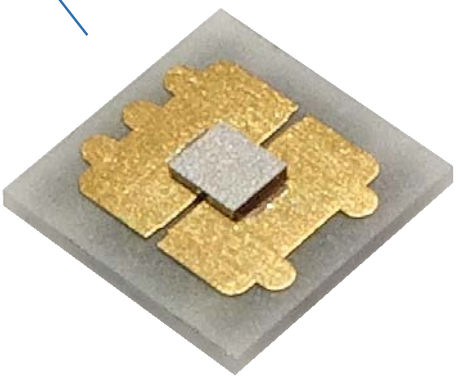
Long-term stability is what our customers really want! Even in **harsh environments** nanoplus devices perform excellently – low maintenance warranted.

"Do not change your ideas, let us deliver the MIR LED that fits your application."

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 whole 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!


nanoplus MIR LED on ceramic submount

REGISTERED COMPANY ISO 9001 14001

ATTENTION OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

OPTON LASER | WWW.OPTONLASER.COM
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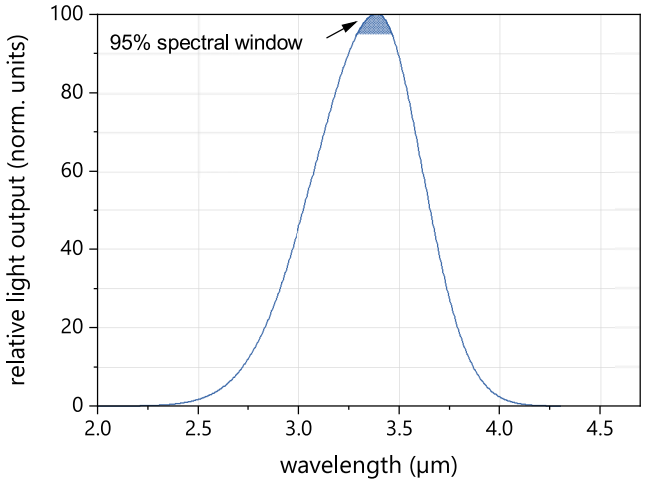
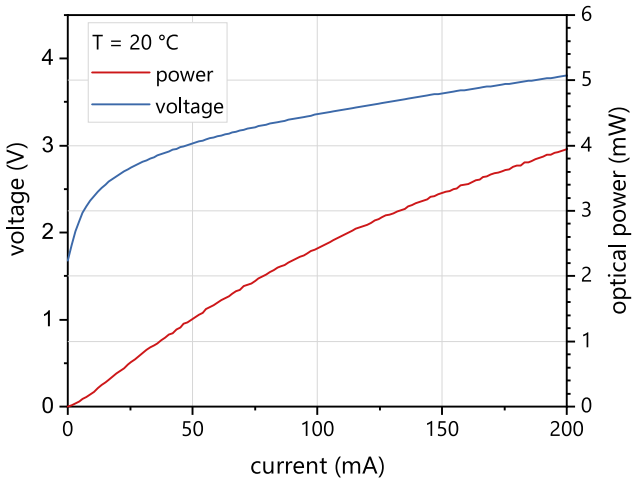
Typical Specifications: 2800 nm - 4000 nm

This data sheet reports performance data of a **sample MIR LED at 3.4 µm,** which is representative for the entire wavelength range.



Typical room temperature cw spectrum of a nanoplus MIR LED at 3.4 µm



Typical PI and VI curve of a nanoplus MIR LED at 3.4 µm

electro-optical characteristics	symbol	unit	min.	typical	max.
operating wavelength (at T_{op}, I_{op})[1, 2]	λ_{op}	µm	3.29	3.4	3.5
spectral bandwidth (FWHM)	$\Delta\lambda$	µm		0.8	
optical cw output power (at λ_{op})[3]	P_{op}	mW	2	3	
operating current	I_{op}	mA	150	200	
operating voltage	V_{op}	V		4	
operating case temperature[4]	T_{op}	°C	-10		50
storage temperature[4]	T_S	°C	-10		70

[1] ~ 20 nm peak-change per 10°C temperature-change
[2] spectral window defined as the range where the emission intensity reaches min. 95 % of max. spectral intensity
[3] power dissipation 1W [heatsink required]
[4] non condensing

Pulsed operation for low power consumption is possible.
Other operating temperatures are available on request.

packaging

ceramic submount

PCB mounted

Other packaging options may be discussed on request.

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

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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