

# Mid-Infrared LEDs

## (MIR LED): 2800 nm - 4000 nm

### WAVELENGTH

2800–4000 nm

4000–5300 nm

5300–6500 nm

### TOP WAVELENGTH

3400 nm

4300 nm

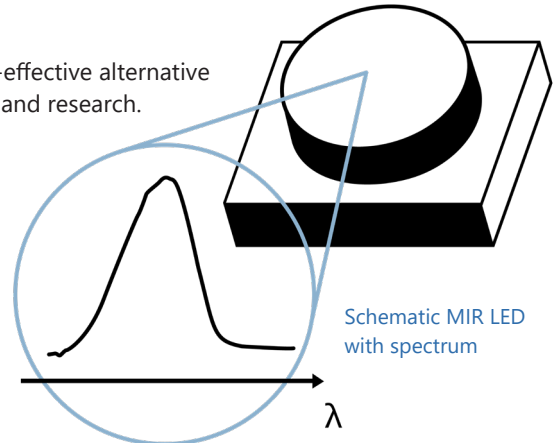
5200 nm

nanoplus **MIR LEDs** are specially designed and characterized to fit your requirements. For more than 20 years, nanoplus has been manufacturing Distributed Feedback and Fabry-Pérot Lasers with excellent performance. Our devices operate **reliably** in more than 30,000 installations worldwide.

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

### Key features:

- LOW POWER CONSUMPTION
- CW OPERATION
- BROADBAND
- INCOHERENT



Schematic MIR LED with spectrum

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** with an accuracy of +/- 100 nm.

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

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

The MIR LEDs' **output power** of > **1 mW** leads to a strong signal and increases your measurement precision.

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

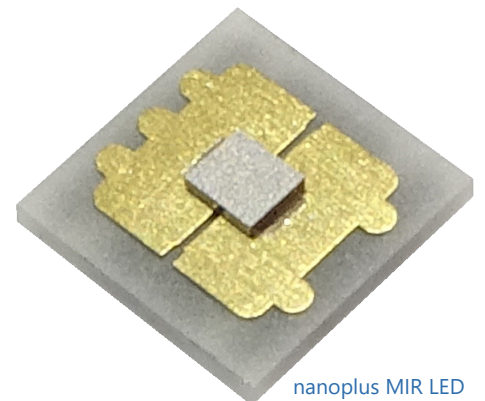
**Long-term stability** is what our customers really want! Even in **harsh environments** nanoplus devices perform excellently – low maintenance warranted.

**“Do not change your ideas, let us deliver a 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!**

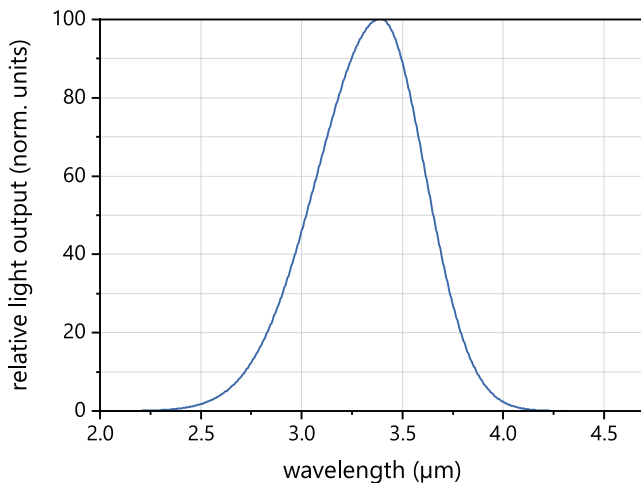


nanoplus MIR LED on ceramic submount

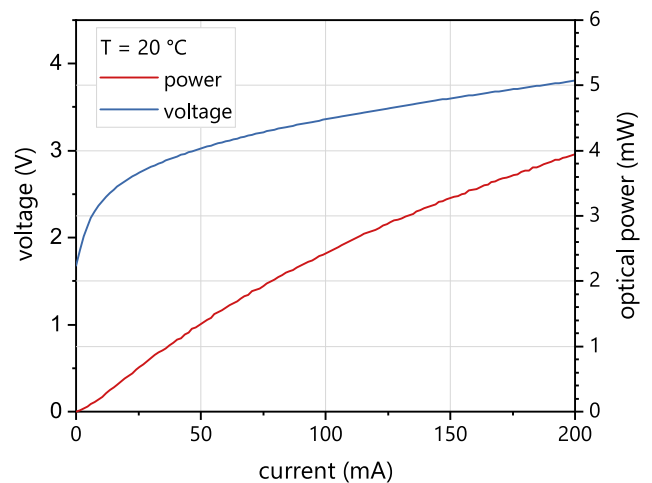


# Typical Specifications: 2800 nm - 4000 nm

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.	typ	max.
operating wavelength (at $T_{op}$ , $I_{op}$ ) <sup>*</sup>	$\lambda_{op}$	μm	3.3	3.4	3.5
spectral bandwidth (FWHM)	$\Delta \lambda$	μm		0.8	
optical cw output power <sup>**</sup> (at $\lambda_{op}$ )	$P_{op}$	mW	2	3	
operating current	$I_{op}$	mA	150	200	
operating voltage	$V_{op}$	V		4	
operating case temperature <sup>***</sup>	$T_{op}$	°C	-10		50
storage temperature <sup>****</sup>	$T_s$	°C	-10		70

\* ~ 20 nm peak-change per 10°C temperature-change

\*\* power dissipation 1W [heatsink required]

\*\*\* non condensing

**Pulsed operation for low power consumption is possible.**

**Other operating temperatures are available on request.**

## packaging options

**ceramic submount**

**PCB mounted**

**Other packaging options may be discussed on request.**

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

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