

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

## WAVELENGTH

1750–2000 nm

2000–2500 nm

2000–2500 nm

**2800–4000 nm**

4000–5300 nm

5300–6500 nm

## TOP WAVELENGTH

3400 nm

4300 nm

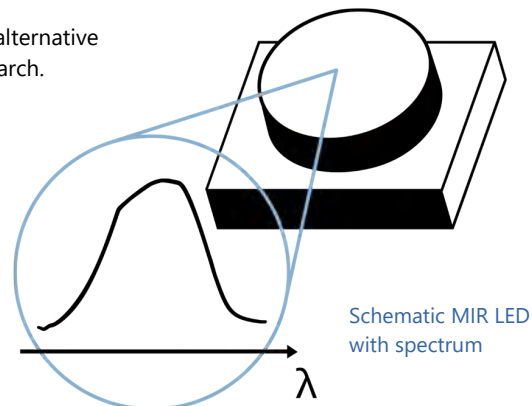
5200 nm

nanoplus Mid-Infrared LED (**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 100,000 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.

## 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 1750 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 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.

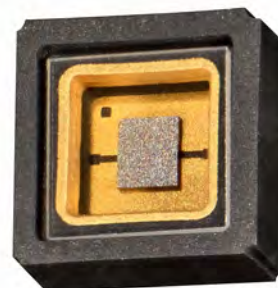
**“Do not change your ideas, let us deliver a MIR LED that fits your application.”**

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 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 be pleased to provide advice at any time - rely on us from design stage to product realization as well as after-sales:

**We make market leaders!**

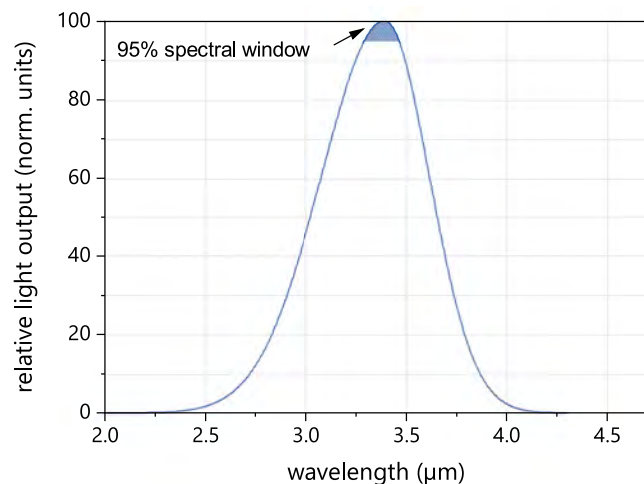


nanoplus MIR LED on SMD submount

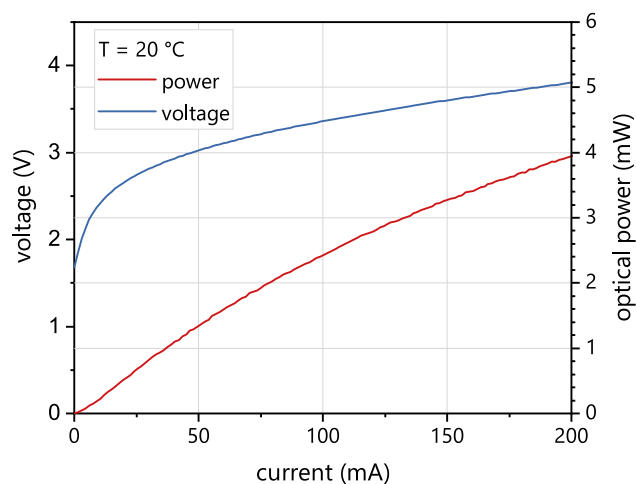


# Typical Specifications: 2800 nm - 4000 nm

This data sheet reports performance data of a **sample MIR LED at 3.4  $\mu\text{m}$** , which is representative for the entire wavelength range.



Typical room temperature cw spectrum of a nanoplus MIR LED at 3.4  $\mu\text{m}$



Typical PI and VI curve of a nanoplus MIR LED at 3.4  $\mu\text{m}$

electro-optical characteristics	symbol	unit	min.	typ	max.
peak wavelength (at $T_{op}$ , $I_{op}$ ) <sup>1,2</sup>	$\lambda_{op}$	$\mu\text{m}$	3.29	3.4	3.5
spectral bandwidth (FWHM)	$\Delta \lambda$	$\mu\text{m}$		0.8	
optical cw output power (at typical $I_{op}$ ) <sup>3</sup>	$P_{op}$	mW	2	3	
operating current	$I_{op}$	mA	150	200	
operating voltage	$V_{op}$	V		4	
operating case temperature <sup>4</sup>	$T_{op}$	$^{\circ}\text{C}$	-10		50
storage temperature <sup>4</sup>	$T_s$	$^{\circ}\text{C}$	-10		70

<sup>1</sup>  $\sim 20$  nm peak-change per  $10^{\circ}\text{C}$  temperature-change

<sup>2</sup> spectral window defined as the range where the emission intensity reaches min. 95 % of max. spectral intensity

<sup>3</sup> power dissipation 1W [heatsink required]

<sup>4</sup> non condensing

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

## packaging options

**SMD submount**

**ceramic submount**

**PCB mounted**

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