

Mid-Infrared LEDs (MIR LED): 4000 nm - 5300 nm

WAVELENGTH

2000–2500 nm

2800–4000 nm

4000–5300 nm

5300–6500 nm

TOP WAVELENGTH

3400 nm

4300 nm

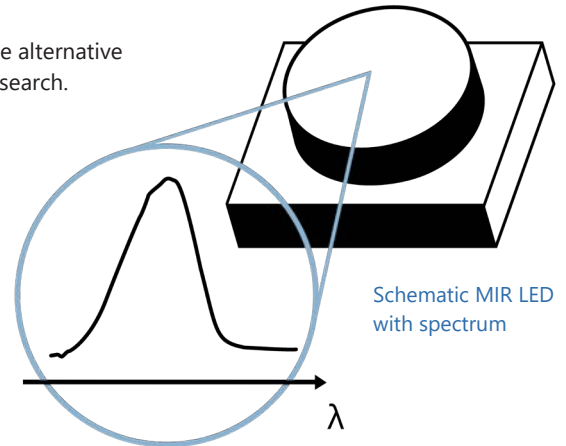
5200 nm

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.

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 2000 nm and 6500 nm** where your desired emission wavelength reaches at least 95% of the maximum spectral intensity.

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.

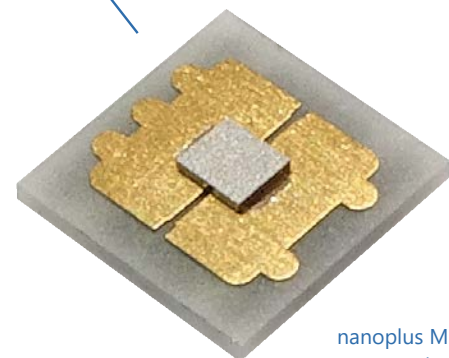
“Do not change your ideas, let us deliver a MIR LED that fits your application.”

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 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!

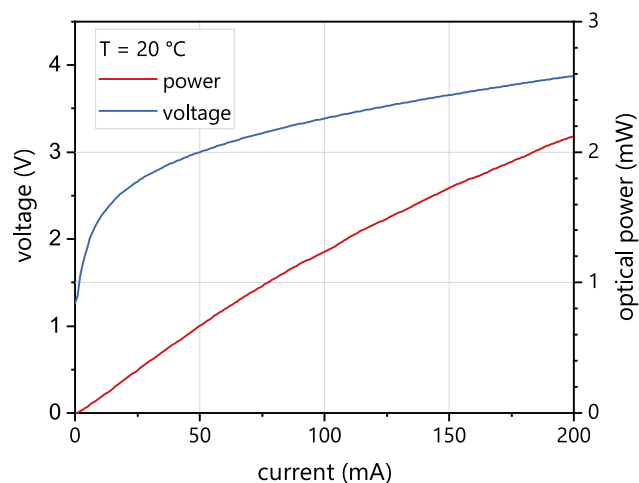
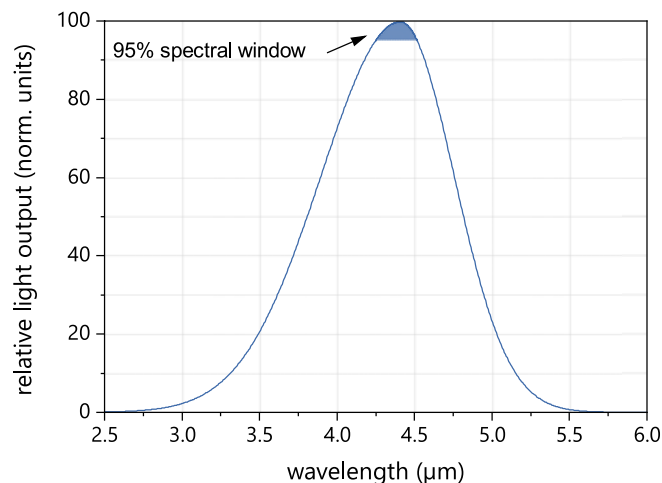


nanoplus MIR LED on ceramic submount



Typical Specifications: 4000 nm - 5300 nm

This data sheet reports performance data of a **sample MIR LED at 4.3 μm** , which is representative for the entire wavelength range.



Typical room temperature cw spectrum of
a nanoplus MIR LED at 4.3 μm

Typical PI and VI curve
of a nanoplus MIR LED at 4.3 μm

| electro-optical characteristics | symbol | unit | min. | typ | max. |
|---|------------------|--------------------|------|-----|------|
| operating wavelength (at T_{op} , I_{op}) ^{1,2} | λ_{op} | μm | 4.11 | 4.3 | 4.46 |
| spectral bandwidth (FWHM) | $\Delta \lambda$ | μm | | 1.0 | |
| optical cw output power (at λ_{op}) ³ | P_{op} | mW | 1 | 1.5 | |
| operating current | I_{op} | mA | 150 | 200 | |
| operating voltage | V_{op} | V | | 4 | |
| operating case temperature ⁴ | T_{op} | $^{\circ}\text{C}$ | -10 | | 50 |
| storage temperature ⁴ | T_s | $^{\circ}\text{C}$ | -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 options

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