

780 nm
852 nm 894 nm
935 nm
976 nm
1064 nm
1590 nm

Centurion Series

High power, narrow linewidth DFB lasers at 852 and 894 nm



nanoplus single mode laser diodes

nanoplus is the only manufacturer world-wide routinely providing single mode laser diodes at any wavelength from 750 nm to 2900 nm. Our patented distributed feedback laser diodes deliver single mode emission with well defined optical properties enabling a wide range of applications. At wavelengths from 7 to 12 μm , nanoplus manufactures quantum cascade lasers.

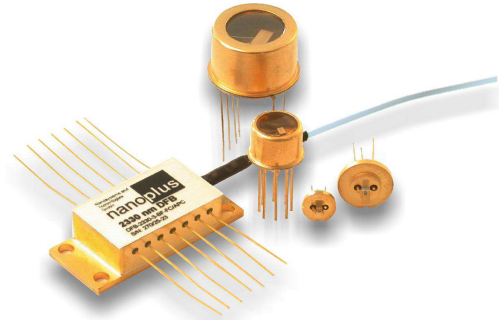
nanoplus lasers operate reliably in more than 5000 installations worldwide, including chemical and metallurgical industries, gas pipelines, power plants, medical systems, airborne and satellite applications.

key features

- ✓ very high spectral purity
- ✓ narrow linewidth typically < 1 MHz
- ✓ output power up to 100 mW
- ✓ small farfield angles
- ✓ excellent reliability
- ✓ wide variety of packaging options

application areas

- ✓ atomic clocks
- ✓ atom trapping and cooling
- ✓ spectroscopy
- ✓ space technology



nanoplus lasers with excellent performance are specifically designed and characterized to fit your needs. This data sheet summarizes typical properties of nanoplus DFB lasers in the range of Cesium D1 and D2 absorption line. Overleaf data for lasers used for high performance Cesium pumping are given as an example.

general ratings (T = 25 °C)	symbol	unit	typical
optical output power	P_{out}	mW	50-100
linewidth at FWHM	$\Delta\nu$	MHz	<1
fast axis farfield at FWHM	θ_{FA}	degrees	25
slow axis farfield at FWHM	θ_{SA}	degrees	15
side mode suppression ratio (SMSR)		dB	> 35

On request, lasers with specifically optimized properties, e.g. higher SMSR or adjusted farfield angles are available. Other wavelengths on request.

laser packaging options

- TO5.6 header with or without cap
- TO9 header with or without cap
- TO5 with TEC and NTC
- butterfly housing with FC/APC fibre

For dimensions and accessories, please see www.nanoplus.com Further packaging options available on request.

device protected by
US patent 6.671.306
US patent 6.846.689
EU patent EP0984535

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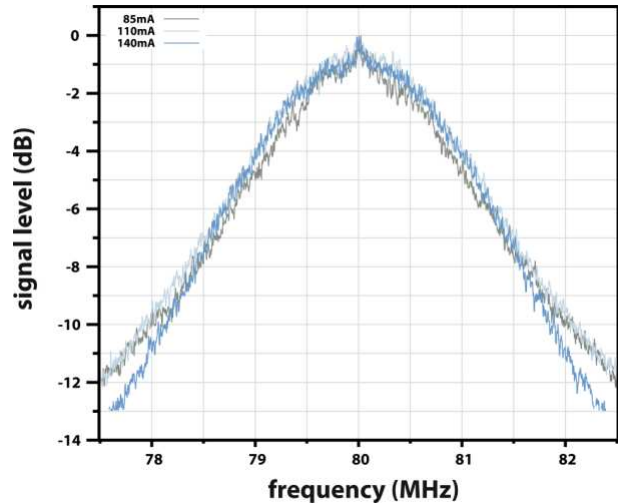


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nanoplus DFB laser diodes at 852 nm

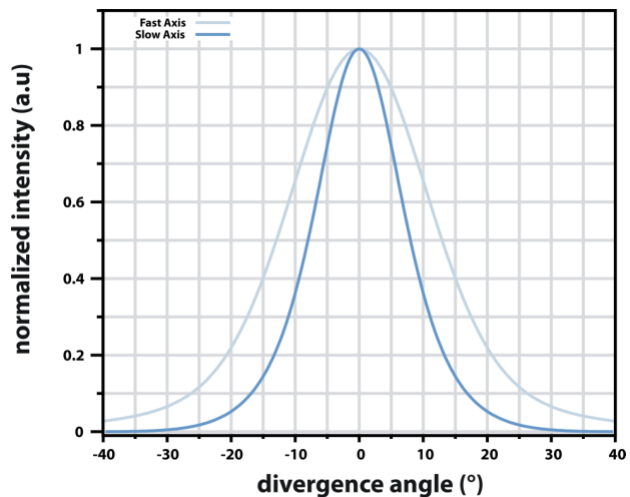
Efficient pumping and cooling of Cesium atoms can be realised by using narrow linewidth DFB laser diodes. Reliable nanoplus DFB laser diodes at Cesium D1 and D2 absorption lines provide sufficient power combined with the required narrow linewidth for your application. Similar performance data are obtained in the entire wavelength range from Cesium D1 to D2 absorption line. For examples of performance data of nanoplus lasers in other wavelength ranges, please see www.nanoplus.com or contact sales@nanoplus.com.

Fig. 1
 Linewidth of nanoplus 852 nm DFB diode at different cw currents, measured with a self heterodyne beat setup

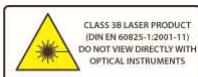


Optimum laser design results in small farfield angles with reduced astigmatism.

Fig. 2
 Divergence angle of fast and slow axis of nanoplus 852 nm DFB diode.



electrooptical characteristics (T = 25 °C)	symbol	unit	min	typ	max
peak wavelength	λ	nm	851	852	853
threshold current	I_{th}	mA	15	25	35
slope efficiency	e	mW / mA	0.3	0.5	0.7
temperature tuning coefficient	C_T	nm / K	0.05	0.07	0.09
current tuning coefficient	C_I	nm / mA	0.005	0.010	0.015
slow axis (FWHM)		degrees	10	15	17
fast axis (FWHM)		degrees	23	25	30
storage temperatures	T_S	°C	- 40	+ 20	+ 80
operational temperature at case	T_c	°C	- 20	+ 25	+ 50



We will be happy to answer further questions. Please contact us at sales@nanoplus.com

