Light is excellence

Visible Laser Diodes

High performance in a compact package

Light is OSRAM

OSRAM
Opto Semiconductors

Visible InGaN laser diodes

OSRAM Opto Semiconductors is a key player in the field of visible InGaN (Indium Gallium Nitride) lasers.

High temperature range and great optical output power of blue and green InGaN lasers
Compared to frequency-doubled lasers, direct green lasers have a high operating temperature range of up to 85 °C without active cooling, whereas single mode blue and green laser diodes deliver up to 110 mW.

High efficiency and long lifetime
Due to their excellent efficiency (ratio of light produced compared to electric power consumed), the temperature increase experienced by blue and green InGaN lasers during operation is kept to an absolute minimum, allowing them to deliver a long life – up to 10,000 hours at 40 °C.

Leading product performance and innovative packaging
Thanks to their excellent beam quality, our lasers are ideally suited for the optical imaging of light. Not only that, but their small package size is particularly beneficial to highly compact systems, such as pico projectors.

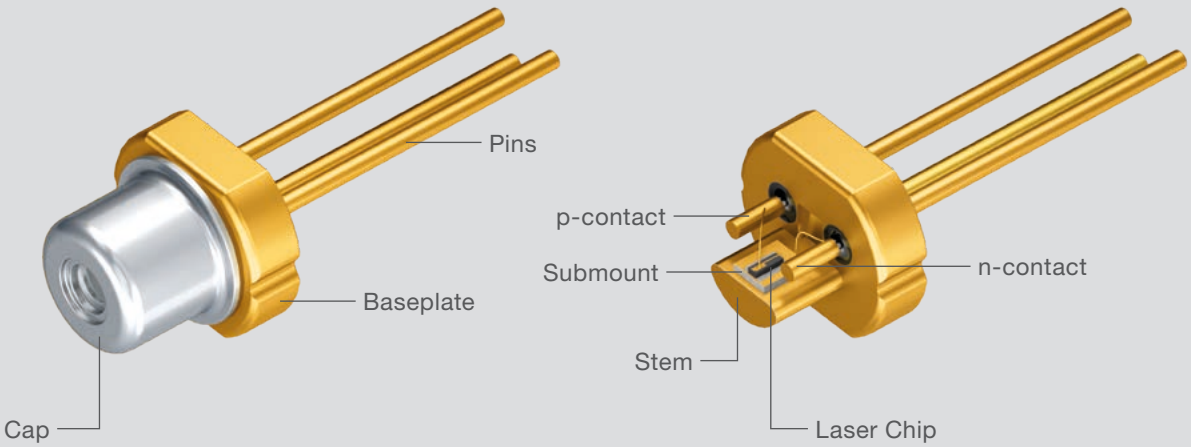
High power performance with multi-mode laser diodes
Blue multi-mode laser diodes complete our broad InGaN portfolio. We offer various versions from 1.6 to 3.5 Watt for industry and automotive applications with a typical wavelength of 447 nm.

With the help of appropriate optics, the laser light is focused at a point only a few micrometers in diameter. The laser can be directly used as a blue light source or in combination with a special phosphor for white conversion.

High-power 3.5 W blue lasers in TO90 have demonstrated life times of greater than 40,000 hours based on 5kh test data.

Laser diode package – TO Can

OSRAM Opto Semiconductors laser diodes are edge emitters, mounted in a hermetically sealed TO metal can package (obtainable in different sizes). Reference surface for mounting and positioning the laser diode is the front and the circumference of the baseplate. The lasers are available in tiny TO38icut and TO56 packages equipped with an integrated photodiode. They possess an optical output power from 10 to 80 mW. Thus, they combine an unbeatable form factor with excellent beam quality, which makes them particularly suitable as light sources for projectors, show lasers as well as for point and line lasers.



Visible InGaN laser diodes applications

OSRAM Opto Semiconductors offers visible laser diodes based on InGaN that suit the following applications:

Projections
- Pico projection
- Business and cinema projection
- Head up display

High luminance illuminations
- Automotive auxiliary high beam
- Spot illumination

Laser illuminations
- Show laser and stage lighting
- Line and dot laser
- Biotechnology
- Spectroscopy
- Light-Diffusing Fiber
- Endoscopy

Single mode laser diodes for pico projection

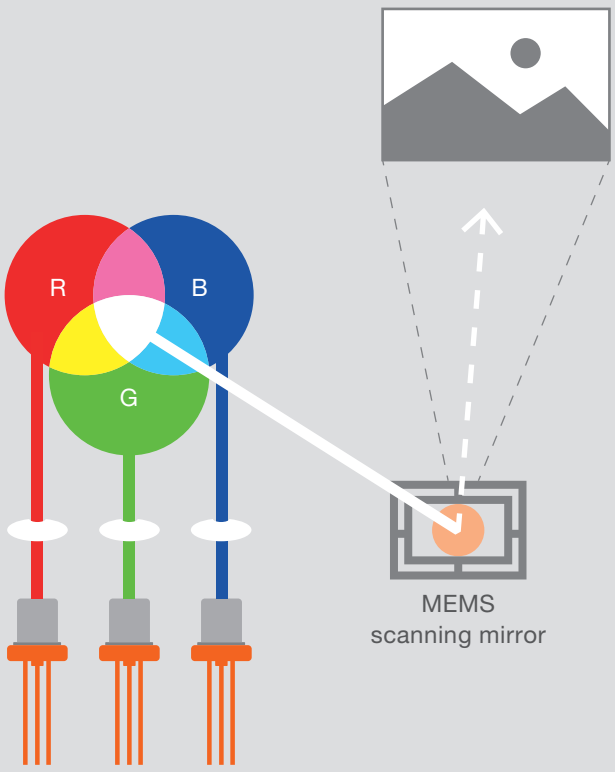
Projection technologies
Imaging panels/microdisplays
- LCoS (Liquid-Crystal on Silicon)
- DMD (Digital Micromirror Device)

Scanning beam
- MEMS mirror (1D or 2D)

Scanning beam projection
High speed modulated lasers with MEMS scanner

Features
- Image is built sequentially pixel by pixel
- Colors are generated by intensity mixing modulated RGB-beams
- Lasers are intensity modulated at pixel frequency to achieve “grey level”

Benefits
- High contrast
- Brilliant colors (200 % NTSC)
- High efficiency, low power consumption
- Extremely small form factor (h < 6 mm)
- Image always remains in focus



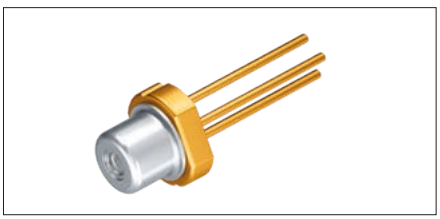
Visible InGaN laser diodes product overview

Technical data

Description	Part number	Photo-diode	Typ. Wave-length [nm]	Optical Power [mW]	Typ. Threshold Current [mA]	Typ. Current [mA]	Typ. Voltage [V]	Typ. Far Field (FWHM) [°]	Package
20 mW Single Mode Blue Laser	PLT3 450C	–	450	20	10	45	5.0	6.5 × 22	TO38icut
80 mW Single Mode Blue Laser	PL 450B	–	450	80	17	75	5.2	6.5 × 22	TO38icut
80 mW Single Mode Blue Laser	PLT5 450B	–	450	80	17	75	5.2	6.5 × 22	TO56
60 mW Single Mode Cyan Laser	PLT5 488	✓	488	60	25	85	6.0	6 × 23	TO56
10 mW Single Mode Green Laser	PLT3 510	–	520	10	30	60	5.2	6.6 × 21.4	TO38icut
10 mW Single Mode Green Laser	PLT5 510	✓	520	10	30	60	5.4	6.6 × 21.4	TO56
20 mW Single Mode Green Laser	PLT5 520EA_P	✓	520	20	35	65	6.2	6.6 × 21.4	TO56
30 mW Single Mode Green Laser	PL 520_B1_2*	–	520	30	50	100	6.5	7 × 22	TO38icut
30 mW Single Mode Green Laser	PLT5 520_B1-6*	✓	520	30	50	100	6.5	7 × 22	TO56
50 mW Single Mode Green Laser	PL 520_B1*	–	520	50	45	125	6.9	7 × 22	TO38icut
50 mW Single Mode Green Laser	PLT5 520_B1-3*	✓	520	50	45	125	6.9	7 × 22	TO56
80 mW Single Mode Green Laser	PL 520B	–	520	80	40	200	6.4	6.3 × 22.5	TO38icut
80 mW Single Mode Green Laser	PLT5 520B	✓	520	80	40	200	6.8	6.3 × 22.5	TO56
110 mW Single Mode Green Laser	PLT3 520D	–	520	110	50	260	6.0	6.2 × 22.5	TO38icut
1.6 W Multi Mode Blue Laser	PLPT5 447KA	–	447	1,6 W	0.19 A	1.2 A	4.9	10 × 44 (1/e²)	TO56
2.2 W Multi Mode Blue Laser	PLPT5 450KA	–	447	2,2 W	0.27 A	1.5 A	4.1	8.5 × 48 (1/e²)	TO56
3.5 W Multi Mode Blue Laser**	PLPT9 450D_E A01*	–	447	3,5 W	0.25 A	2.2 A	4.3	9 × 49 (1/e²)	TO90
3.0 W Multi Mode Blue Laser	PLPT9 450LA_E	–	447	3,0 W	0.25 A	2.2 A	4.3	8.5 × 48 (1/e²)	TO90

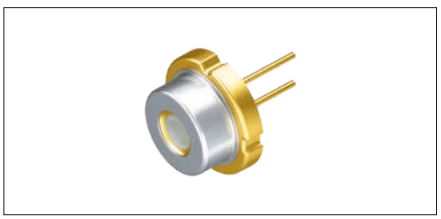
* wavelength binning available | ** Based on automotive qualification IEC 60810

TO38icut



TO56

TO90



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