MonaLIGHT B01

Modular Narrow Angle Light Source

MonaLIGHT is a unique modular type of laser-based light source with a directional optical beam that offers an opportunity to design compact and high efficiency outdoor, scientific and industrial applications

KEY FEATURES

Narrow beam

An outstanding level of peak luminous intensity and a narrow beam can be used in the design of compact and highly efficient subsequent optical elements.

All in one, modularity, integrability

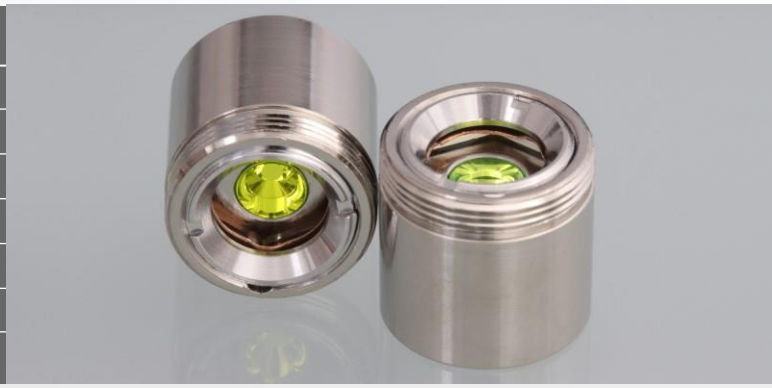
Modules can integrate additional optical functions such as short-pass or long-pass spectral filters, light guides, or lenses.

Compact dimensions

Modules are designed to provide stable and superior performance with minimal size and weight.

PRODUCT CHARACTERISTICS

Spectral Coverage	500-650 nm * continuous
Spectral Bandwidth (FWHM)	95-110 nm *
Beam Divergence Angle (full angle)	34°
Viewing Angle (50%)	8°
Luminous Output	800 - 1000 lm *
WPE (high power)	> 80 lm/W
Peak Luminous Intensity	5000 - 8000 cd *
Weight	17.6 g



* depending on module version

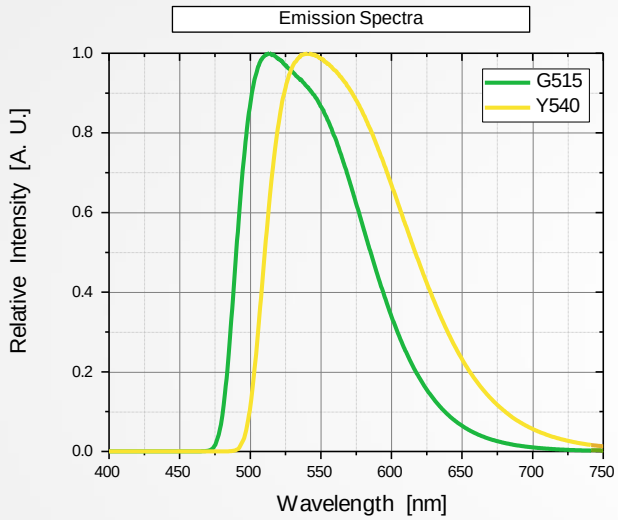
OPTICAL OUTPUT

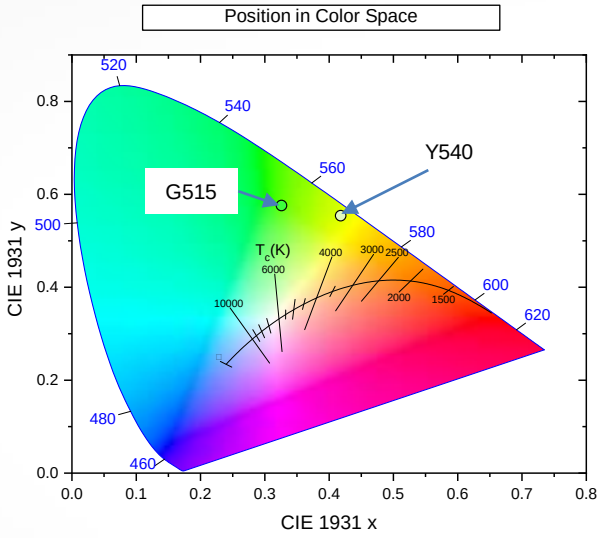
CHARACTERISTICS (T_{Case} = 25°C)

Type ID		G515	Y540	
Product number		23091	23093	
Chromacity Coordinates	CIE x	0.331	0.422	
	CIE y	0.597	0.559	
Typical Peak Wavelength	[nm]	515	542	*
Dominant Wavelength (ref x,y = 0.333, 0.333)	[nm]	555	568	*
Spectral Bandwidth (FWHM)	[nm]	95	105	*
Viewing Angle (at 50% Intensity) X / Y Axis	[°]	8	8	*
Max. Luminous Flux	[lm]	1000	800	
Optical Power	[W]	2.2	1.8	*
Typical forward current	[A]	3.0 A	2.5 A	*

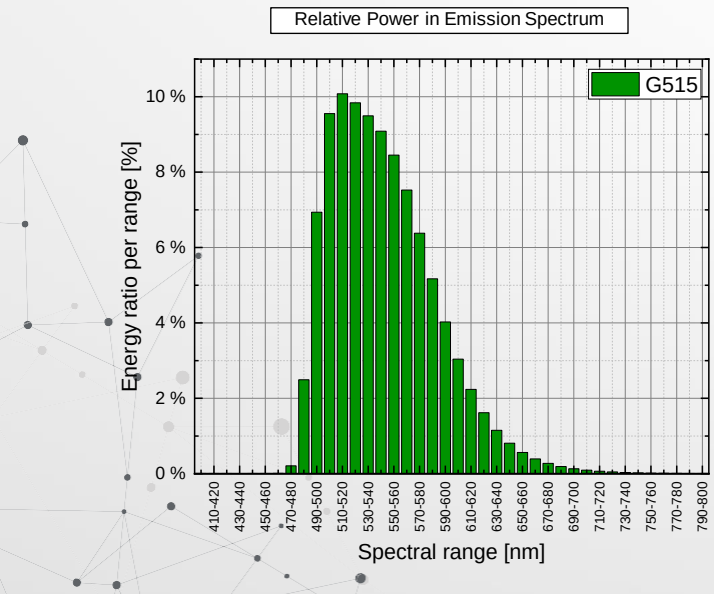
* Characteristics are dependent on forwad current (I_F) and/or temperature

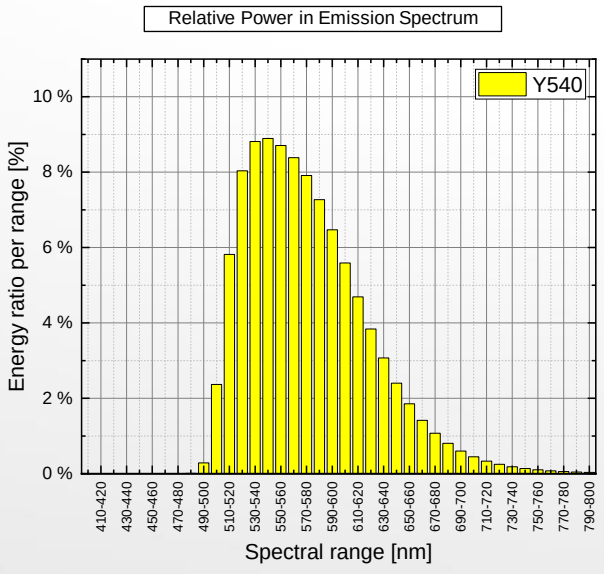
SPECTRAL CHARACTERISTICS





ENERGY RATIO PER SPECTRAL RANGE



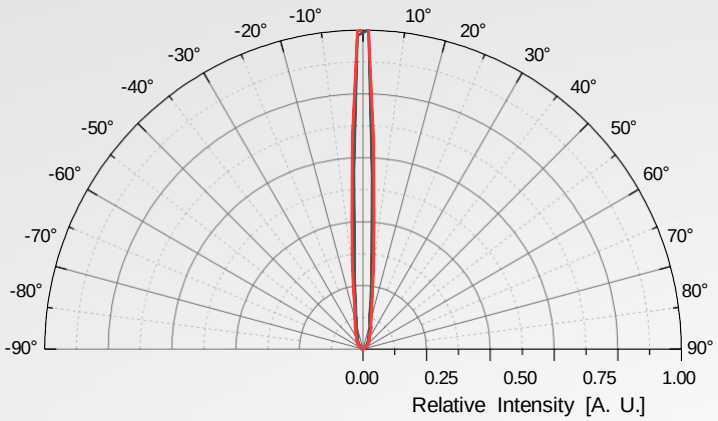


GRAPHS TYPICAL OPTICAL OUTPUT

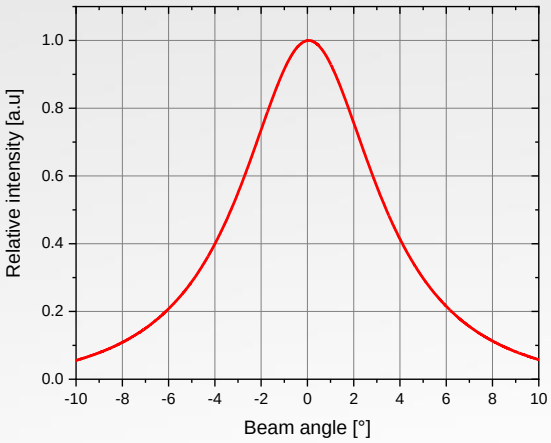
ANGULAR CHARACTERISTICS

(T_{Case} = 25°C)

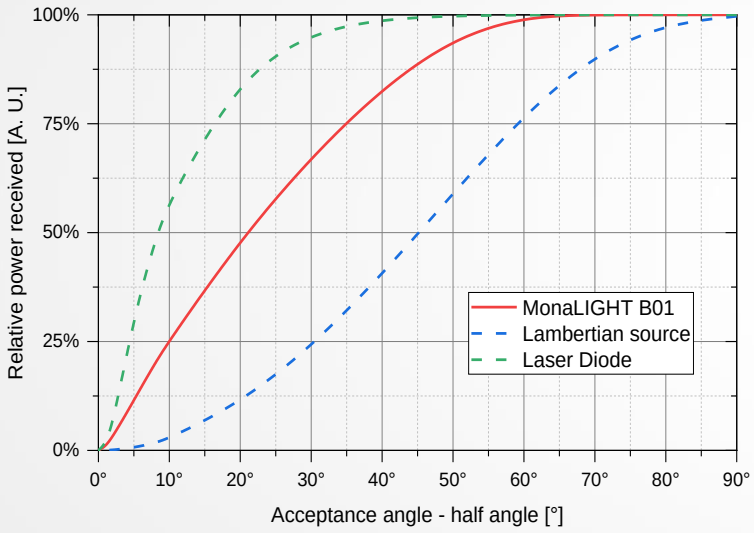
Polar radiation diagram - angular dependent radiant intensity



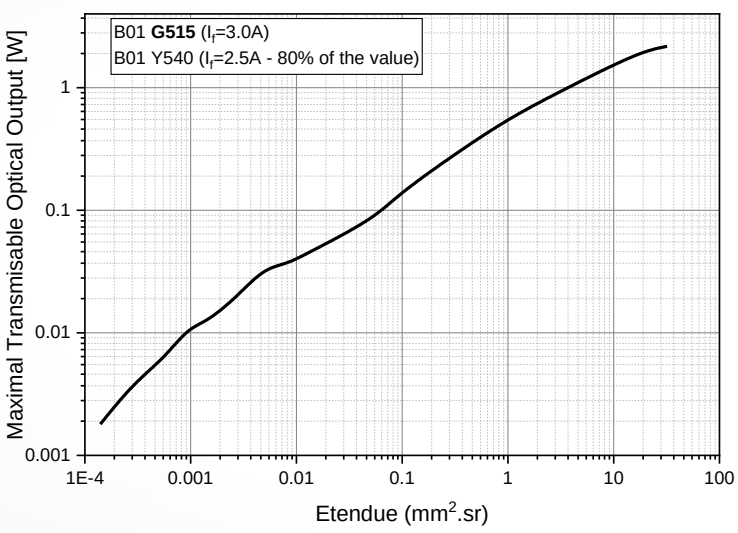
Detailed angular dependance



Level of energy received on acceptance angle of optics



Maximal energy received for Etendue (G) limited target

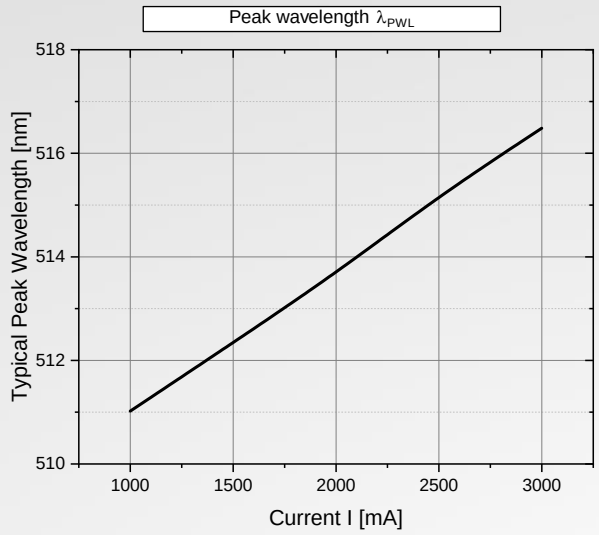


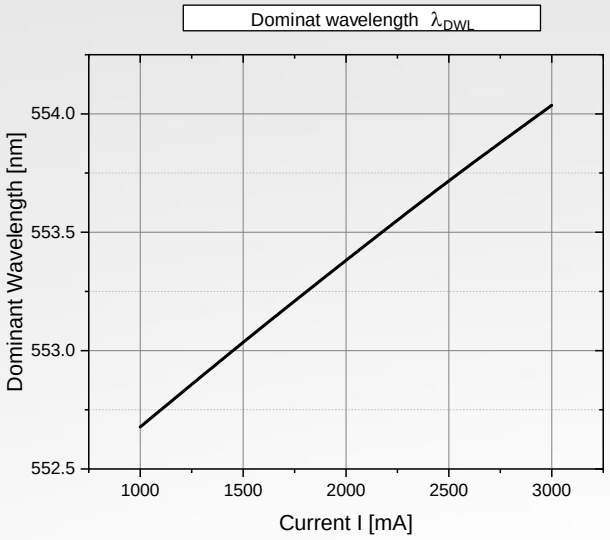
- The ray file is available upon the request.

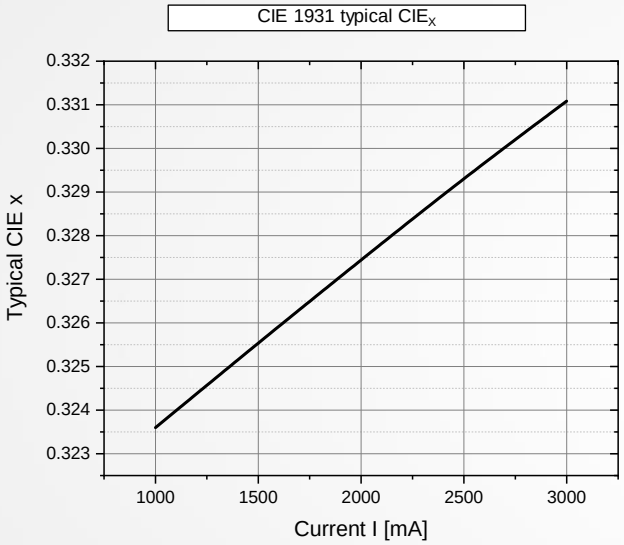
GRAPHS TYPICAL OPTICAL OUTPUT

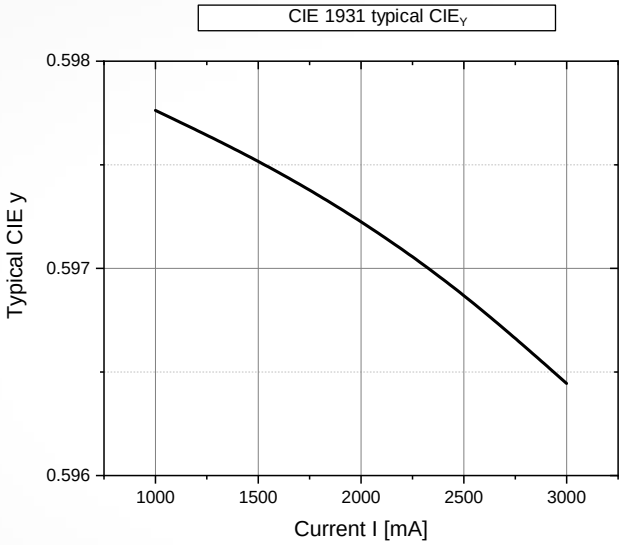
SPECTRAL CHARACTERISTICS (B01 G515)

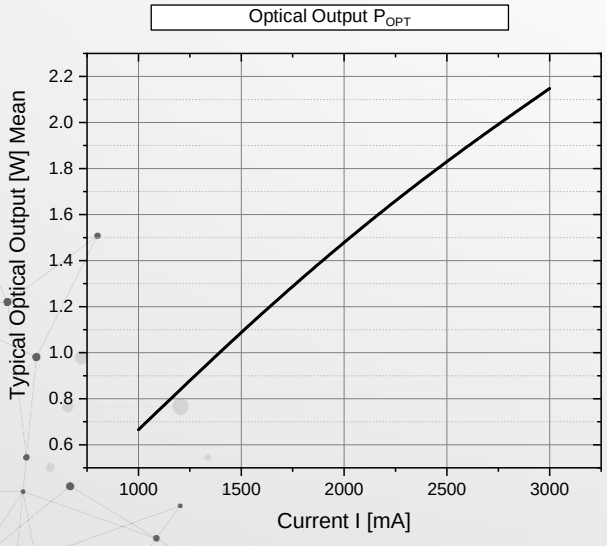
(T_{Case} = 25°C)

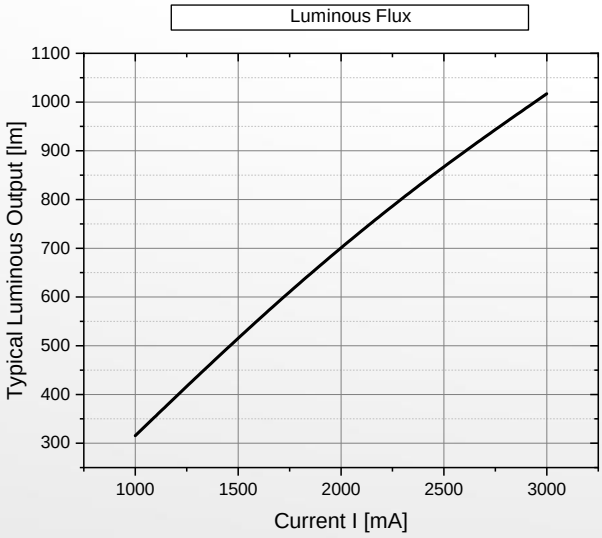








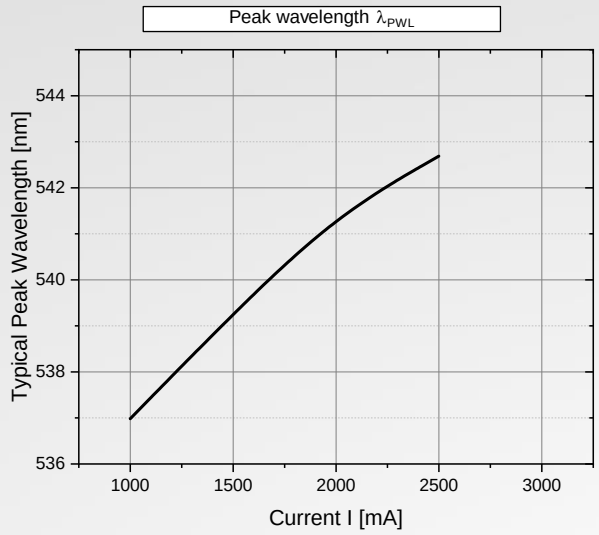


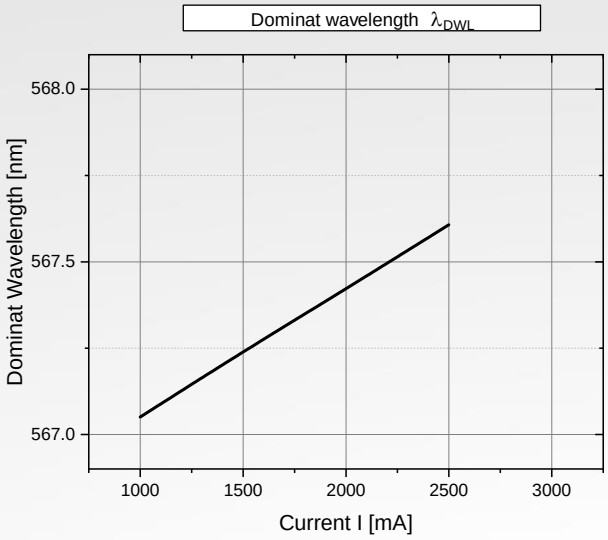


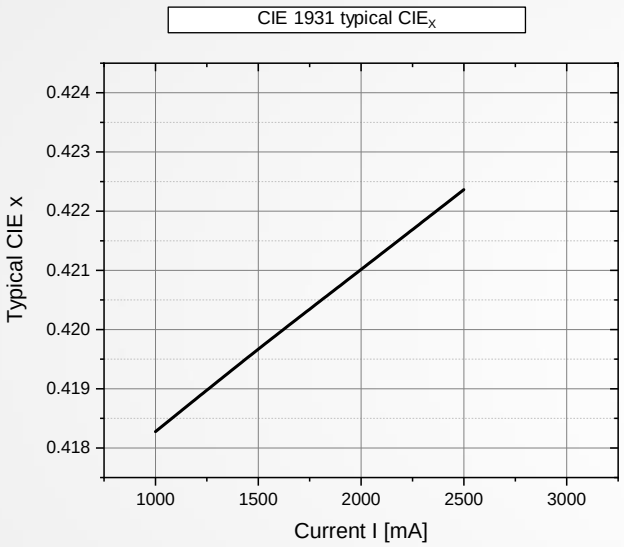
GRAPHS TYPICAL OPTICAL OUTPUT

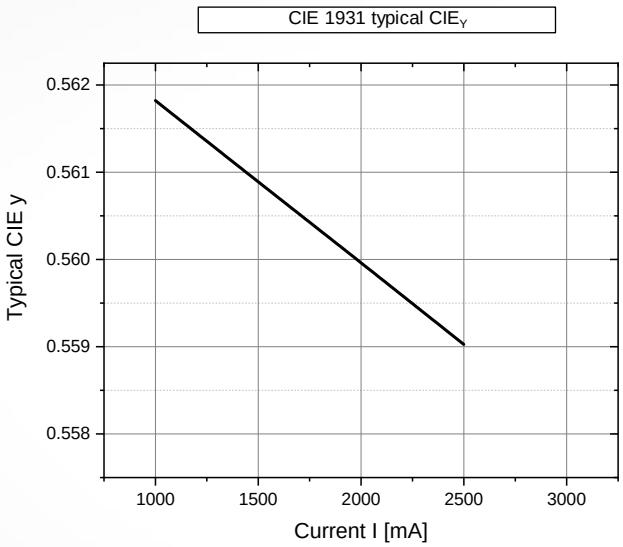
SPECTRAL CHARACTERISTICS (B01 Y540)

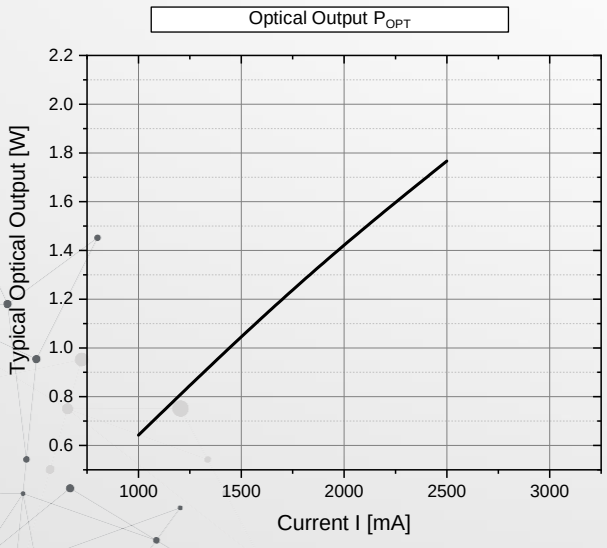
(T_{Case} = 25°C)

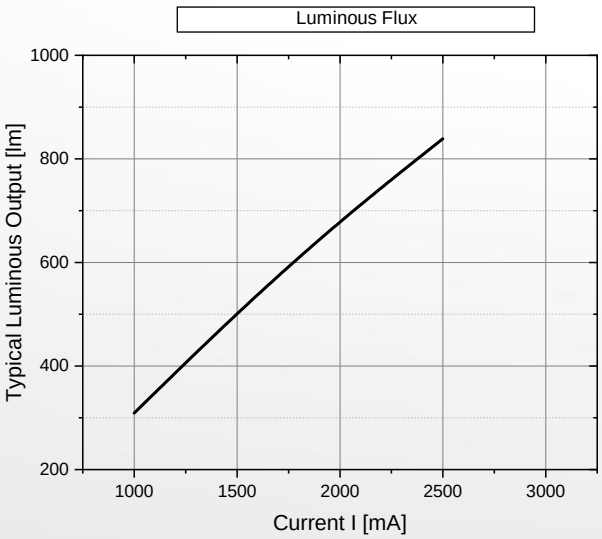












SAFETY INSTRUCTIONS

Caution: The product incorporates a high-power blue laser diode. Depending on the mode of operation, these devices could emit highly concentrated visible light, which can be hazardous to the human eye. Products that incorporate these devices have to follow the safety precautions found in IEC 60825 “Safety of laser products”.

Risk of eye injury. Do not look straight at the light source during operation. The intense light beam may damage your eyes.

Do not view the light output with optical instruments or with any device that may concentrate the beam.

Immediately stop operating the module if there is a visible blue component of light in any beam direction.

Do not operate the module in case of any visible damage to the front part as protective glass or integrated phosphor!

When using the bare module during development activities, it is recommended to wear laser protective glasses designed for blue laser light (440 – 480 nm).

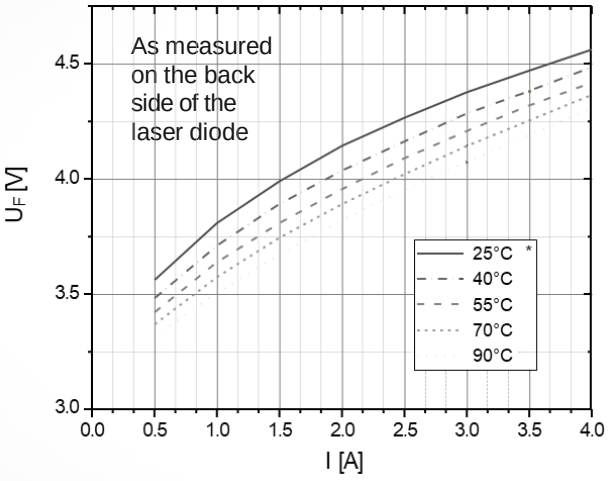
Warning: DO NOT DISASSEMBLE THE MODULE!

ELECTRICAL REQUIREMENTS

Characteristics (T_{Case} = 25°C)

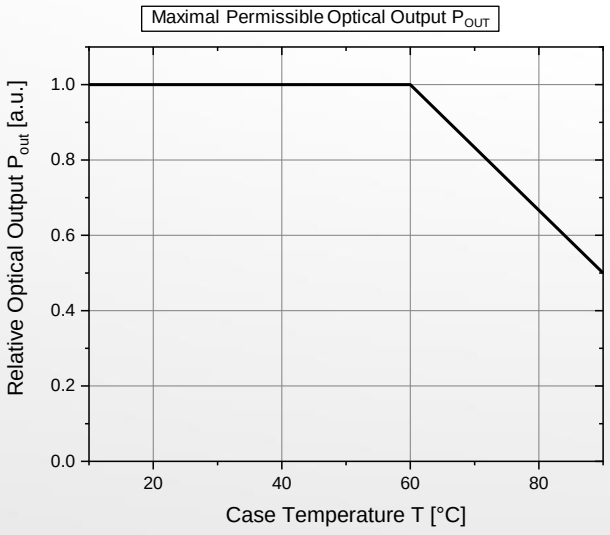
	Min.	Typ.	Max.
Forward Current G515	0.45 A	3.0 A	3.5 A
Forward Current Y540	0.45 A	2.5 A	2.5 A
Forward Voltage		4.3 V	5.0 V

The module can be used in both continuous and pulsed operations.

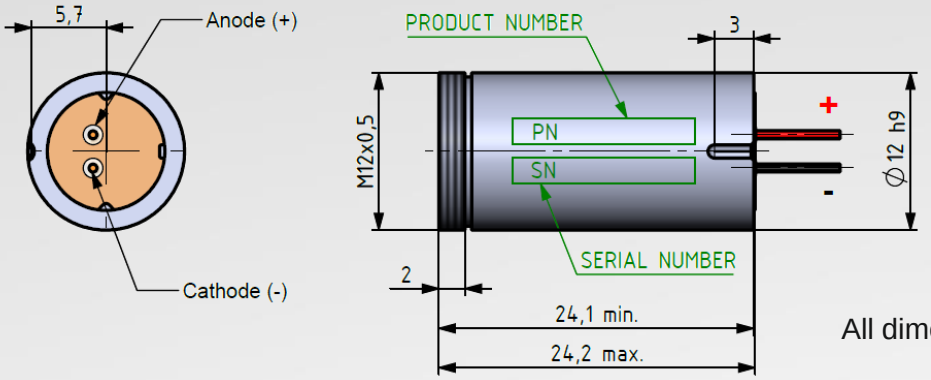


ENVIRONMENTAL HANDLING

	Min.	Max.
Temperature (Back side of LD)	-20 °C	90 °C
Storage Temperature	-40 °C	120 °C



DRAWING



All dimensions are in mm.

HEAT MANAGEMENT

Using the light module without an external heatsink for extended periods of time can significantly shorten its lifetime and is not recommended.

	Min.	Typ.	Max.
Total Power Dissipation		10 W	12 W
Temperature (Back side of LD)	-20 °C	25 °C	90 °C

We recommend clamping the heatsink to ensure good thermal contact.

Without an additional heatsink, at the lowest input power, it takes approx. 1 minute to reach 50°C on the case from room temperature.

Please see the Application Note for detailed information to thermo-management