Description: Blue superluminescent light emitting diode

Optical output power: 10 mW typical

Package: TO-56 ***Product number:*** SLD450T

Speckle-free light source with low etendue. Ideal for pumping micro- or head-up displays, for holography, metrology or spectroscopy. Can be used as tunable laser when fit to external cavities.

EXALOS VISIBLES RGB

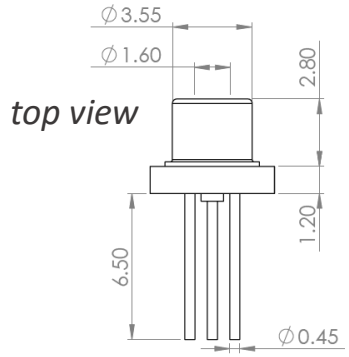
Maximum ratings

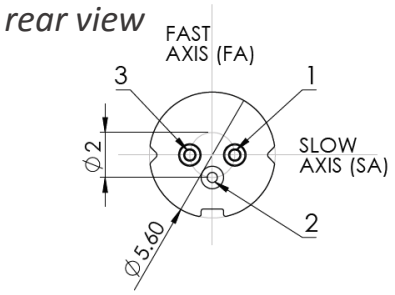
Parameter	Symbol	Min	Max	Unit
Output power	P	-	20	mW
Forward current	I_F		200	mA
Reverse voltage	V_R		-2	V
Forward voltage	V_F		7.0	V
Storage temperature	T_{stg}	-40	85	°C

Operating characteristics (Tcase: 25 °C)

Parameter	Symbol	Min	Typ	Max	Unit
Output power	P	5	10	-	mW
Forward current	I_F		150	180	mA
Forward voltage	V_F	-	5.5	7.0	V
Centre wavelength	λ	440	450	460	nm
3dB bandwidth	$\Delta\lambda$	3	5	-	nm
SA farfield (FWHM)	$\theta_{//}$	6	9	12	deg
FA farfield (FWHM)	$\theta_{\perp}$	15	22	30	deg

TO-56 package





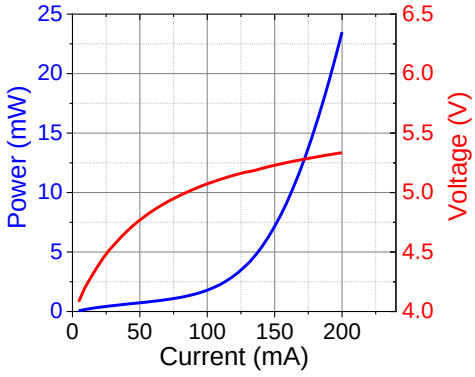
Pin	Function
1	SLED ANODE (+)
2	SLED CATHODE (-), CASE
3	not connected

EXALOS AG
Wagistrasse 21 CH-8952 Schlieren, Switzerland
Tel. +41 43 444 60 90 Fax +41 43 444 60 99
sales@exalos.com
www.exalos.com

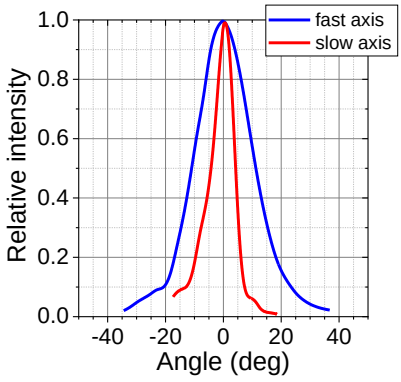
Typical characteristics:

These characteristics are relative to a particular device under test.
Device to device variations may occur on a different set of samples.

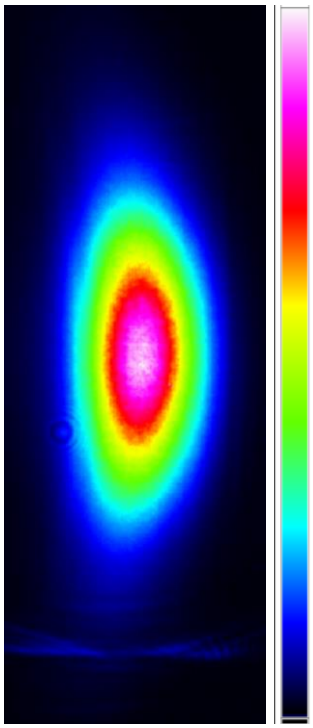
optical power and operating voltage



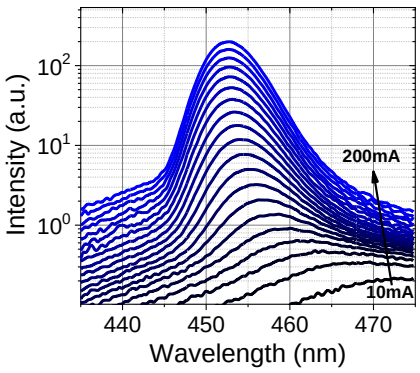
far-field light divergence



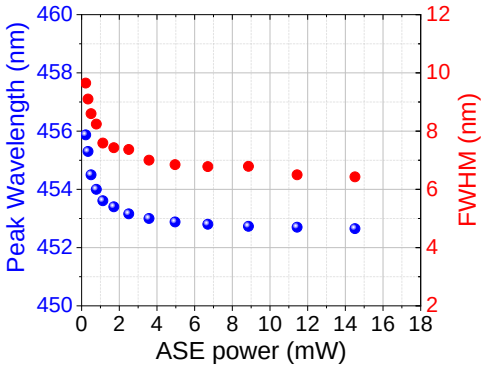
single-mode light pattern



typical spectrum



3 dB bandwidth

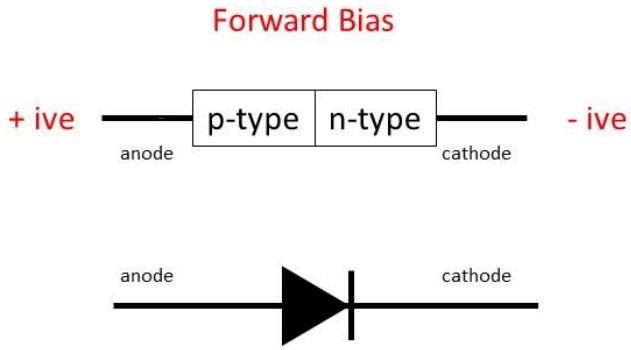


EXALOS AG
Wagistrasse 21 CH-8952 Schlieren, Switzerland
Tel. +41 43 444 60 90 Fax +41 43 444 60 99
sales@exalos.com
www.exalos.com

Electrical Connections to SLDs

SLDs are pn junctions which need to be driven in forward bias. The p-side (SLD anode) must have a positive voltage with respect to the n-side (SLD cathode). Although the SLD is capable of withstanding a reverse bias, this is not the correct operating mode and should be avoided.

Always ensure driver circuits are connected with the correct polarity. Positive polarity must be connected to the SLED anode. Negative polarity must be connected to the SLED cathode.



Pin/lead soldering

To prevent potential chip damage inside the module or reduced package hermeticity, it's advised that soldering time on the pins should be less than 10 s and the temperature below 200 °C.

Heatsinking

The modules must be mounted on a heat sink with low thermal resistance (<0.5K/W) and a good module/heatsink joint must be ensured. Simple pressure/contact over a smooth heatsink surface can be enough in most cases. However, a better thermal joint may include the use of thermal fillers. Insufficient module heatsinking will result in a temperature rise and may lead to a reduction of the performance or even permanent damage or total failure.
Please note that the individual specifications of the devices are given at a chip operating temperature T_{SLD} of 25°C. Even though the modules can be operated under passive heatsinking, much better power stability and reliable operation will be achieved when using a temperature-controlled heatsinking scheme.

Drive conditions

pn junctions in forward bias are very sensitive to small voltage changes. That means small voltage changes can give rise to high current changes and it is very easy to exceed absolute maximum current and/or output power ratings if the SLD is driven simply from a source with a constant controlled voltage.

The absolute maximum ratings reported in the data sheets must be carefully observed. Any value in excess of the parameters specified should be avoided, otherwise permanent damage may result. Independent of operating temperature, never exceed maximum allowed SLD current, voltage or output power.

EXALOS offers driver board products designed specifically to operate SLDs. Please contact EXALOS to discuss these products. Alternatively, most 3rd party drivers designed for semiconductor lasers will work with EXALOS SLDs. Always take great care to ensure that 3rd party or custom designed circuits match the required maximum drive currents for the purchased products and have appropriate protections against electrostatic discharge or fast current/voltage transients.

It is strongly advised that the modules are driven with a current source. Constant controlled voltage mode exposes the module to the risk of exceeding the maximum current and output power limits. Take all precautions needed if voltage drive mode is strictly required ***(e.g. start operation at ½ of max. voltage ratings, then increase voltage in steps < 50mV while carefully monitoring the drive current).***

Electrostatic Discharge (ESD) and Surge Current

SLDs are sensitive to electrostatic shock/discharge. Ensure you are working in an ESD certified zone with appropriate ESD protection in place before you handle the modules. Tools such as soldering irons used during assembly must be appropriately protected against ESD.

Surge current or over current in the forward or reverse direction may permanently damage the diode. Use only laser-diode power supplies or constant current power supplies that can guarantee controlled current levels and prevent the SLD to be overdriven even for very short periods of time. Make sure that all the wiring and electrical connections around the module are stable and functional. Remember, SLDs are pn junctions and only a small forward voltage change is required to generate a large current change which may be beyond the absolute maximum rating of the device.