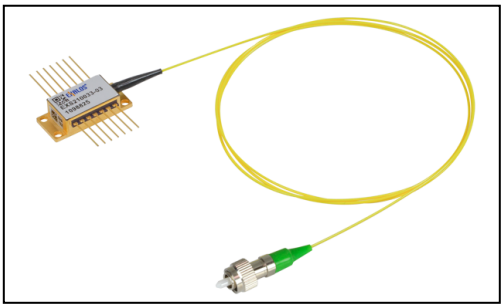
Description: SM-fiber pigtailed Red SLD

Optical output power: 3 mW typical

Package: Butterfly ***Product number:*** SLD650B



EXALOS VISIBLES RGB

Speckle-free light source coupled in single lateral mode fiber. Ideal for pumping micro- or head-up displays, for holography, metrology or spectroscopy.

Electro-optical performance (T_{SLD}= 25 °C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating current	I_{op}	-	-	-	100	mA
Power ex-fiber	P_O	$I_{op,max}$	2	3	-	mW
Centre wavelength	λ_c	$I_{op,max}$	640	650	660	nm
3dB bandwidth	$\Delta\lambda$	$I_{op,max}$	4	6	-	nm
Spectral ripple		$I_{op,max}$	-	0.1	0.2	dB
Monitor PD current	I_{MPD}	$I_{op,max}$	50	-	-	µA
MPD reverse bias	V_b		0	-	-12	V

Absolute maximum ratings

Parameter	Symbol	Cond.	Min	Max	Unit
Forward current	I_F			120	mA
Reverse voltage	V_R			-2.0	V
Forward voltage	V_F	$I_{F,max}$		3.0	V
Storage temperature	T_{stg}		-40	85	°C
Operating temperature	T_{op}	$I_{F,max}$	-20	65	°C
Thermoelectric cooler voltage	V_{tec}	*		4.0	V
Thermoelectric cooler current	I_{tec}	*		1.8	A
Thermistor resistance	R_{th}	25C	10		KΩ

* Performance values with hot side temperatures 50°C

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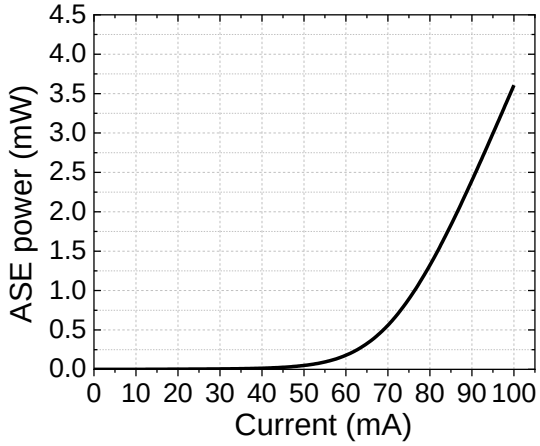
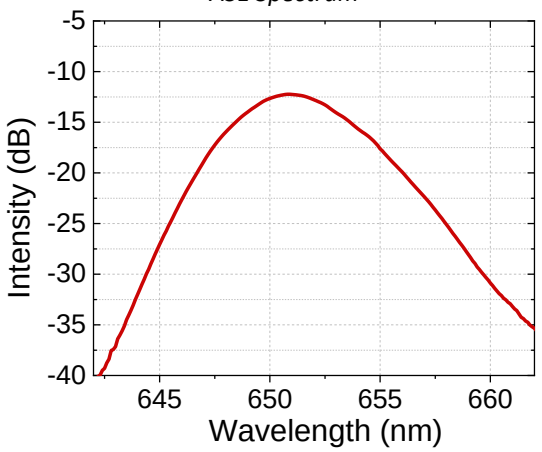
Typical characteristics:

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

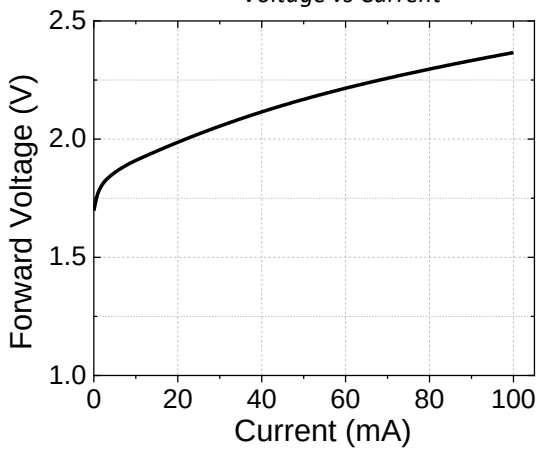
ASE Power vs Current



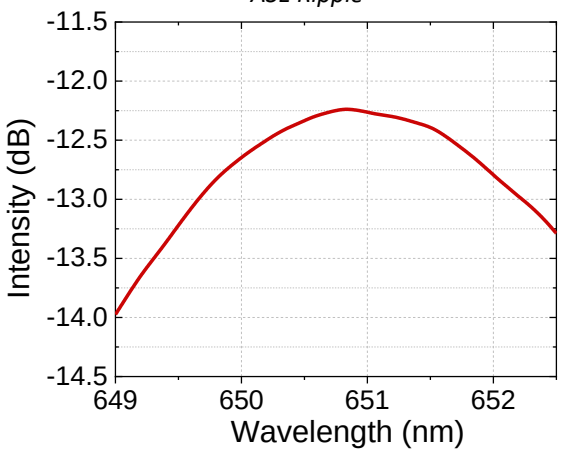
ASE Spectrum



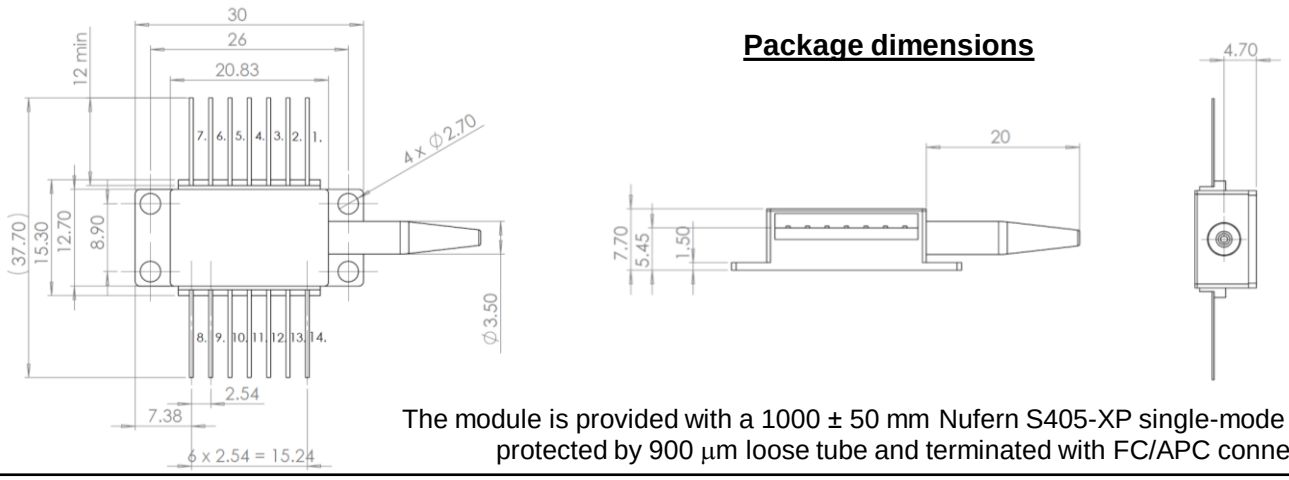
Voltage vs Current



ASE Ripple



Package dimensions



The module is provided with a 1000 ± 50 mm Nufern S405-XP single-mode fiber protected by 900 µm loose tube and terminated with FC/APC connector.

Pin description

Pin #	Function	Pin #	Function
1	TEC (+)	8	NOT CONNECTED
2	THERMISTOR	9	NOT CONNECTED
3	MONITOR DIODE ANODE	10	SLD ANODE (+)
4	MONITOR DIODE CATHODE	11	SLD CATHODE (-)
5	THERMISTOR	12	NC
6	NOT CONNECTED	13	CASE GROUND
7	NOT CONNECTED	14	TEC (-)

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 260 °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 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.

Drive conditions

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 or reduction of module reliability may result. Independent of the operating temperature, never exceed maximum allowed SLD current, voltage or output power.

It is strongly advised that the modules are driven with a current source. Small voltage changes can give rise to high current changes and maximum current and/or output power ratings may be exceeded if the SLD is driven with a voltage source.

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.

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.