ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
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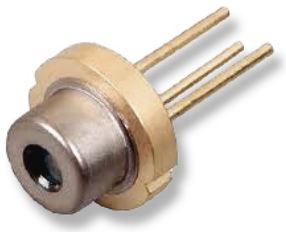
rev.1.0 13.07.2016

S810500MG

- Infrared Laser Diode
- 810 nm, 500 mW
- Multi Mode
- 5.6mm TO-Can with PD
- Flat window cap



Description

S810500MG is an infrared laser diode emitting at typically 810 nm with rated output power of 500 mW cw, in a standard 5.6 mm TO package with integrated monitor photodiode and flat window cap.

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Output power	Po		500	mW
LD Reverse Voltage	V_R		2	V
PD Reverse Voltage	V_{RPD}		-	V
Operating Temperature	T_{CASE}	- 10	+ 50	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C

Laser Characteristics (T_{CASE} = 25°C, Po=500mW)

Parameter		Symbol	Values Min.	Values Typ.	Values Max.	Unit
Emission Wavelength		λ_{peak}	807	810	813	nm
Threshold Current		I_{th}		70		mA
Operating Current		I_F		560		mA
Operating Voltage		V_F		1.9		V
Beam Divergence (FWHM)	Parallel	$\Theta_{\parallel}$		10		deg.
	Perpendicular	$\Theta_{\perp}$		31		deg.
Slope Efficiency (375mW-125mW)		η	0.8	1.1		mW/mA
Chip size				300*600		µm
PD Monitor Current		I_m		0.6	2.5	mA

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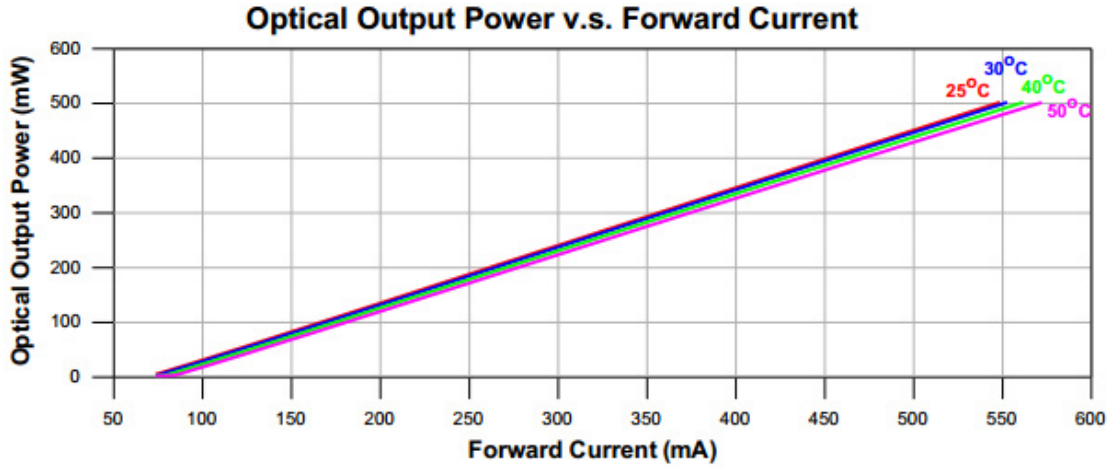
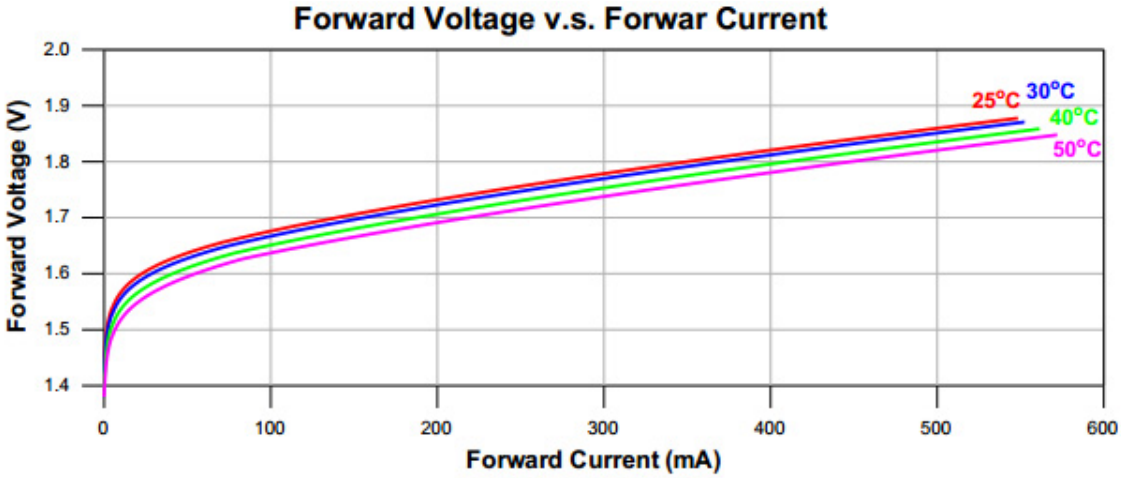
Performance Characteristics

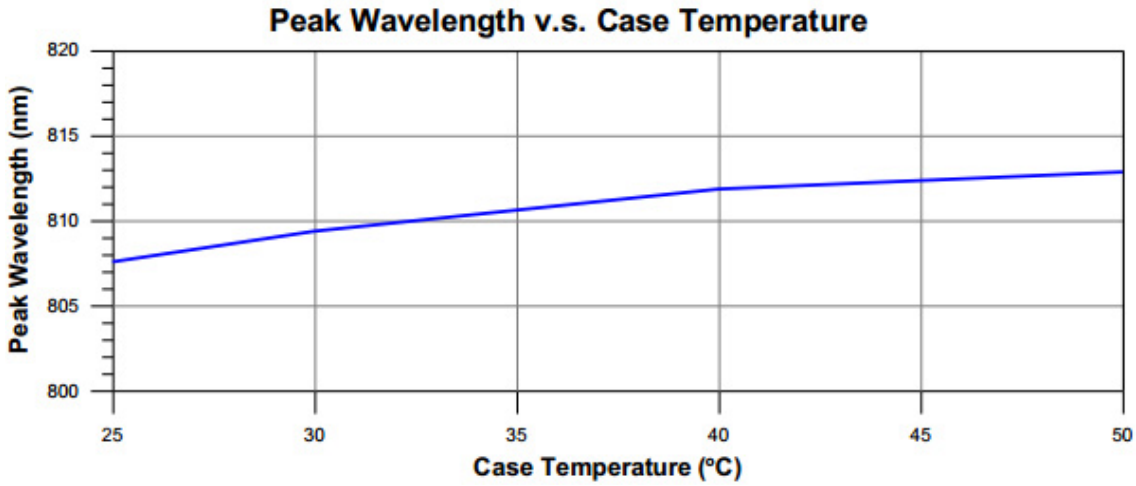
Optical Output Power vs Forward Current



Forward Voltage vs. forward Current



Peak Wavelength vs. Case Temperature



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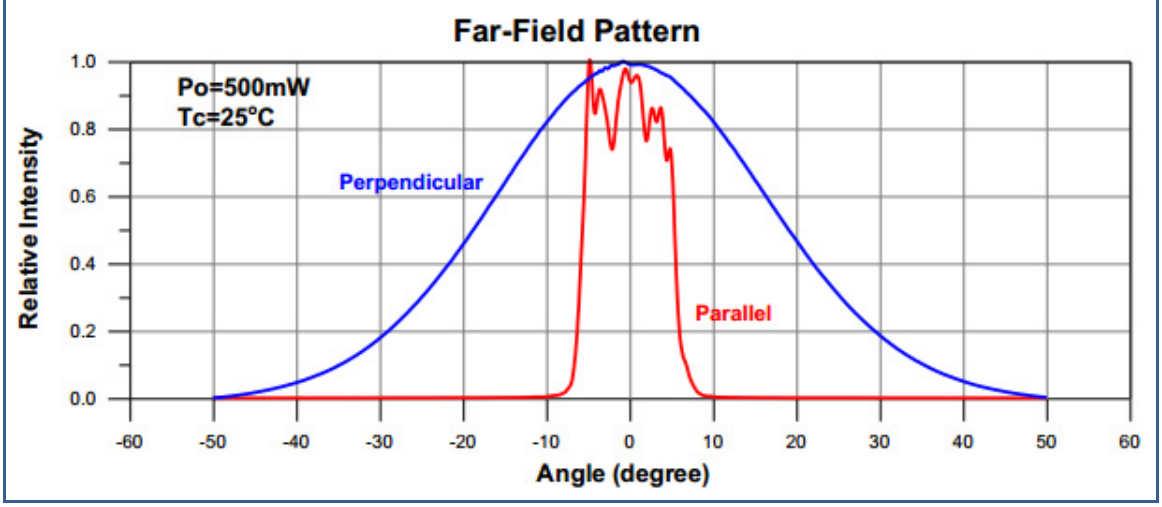
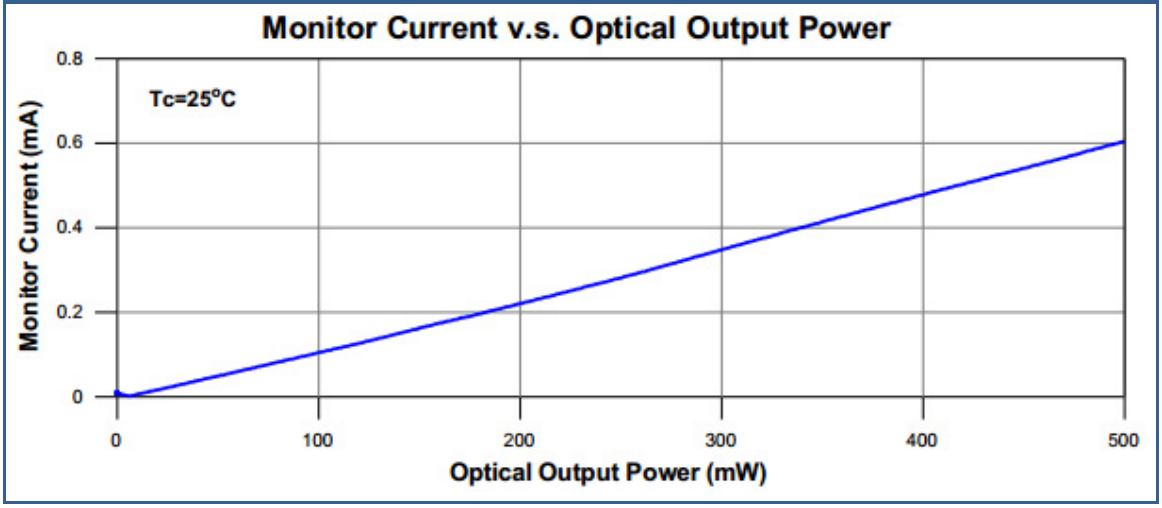
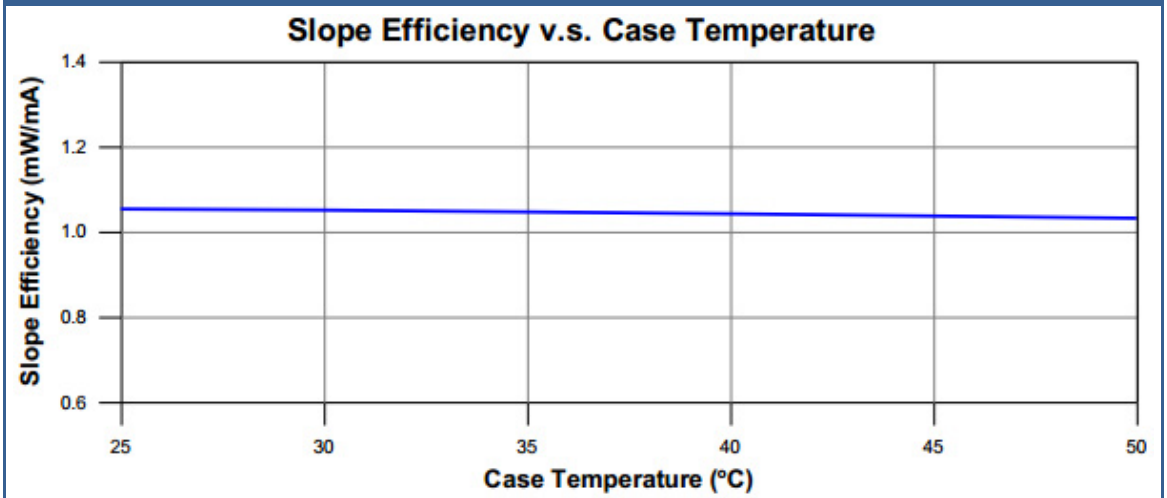
Far-Field Pattern



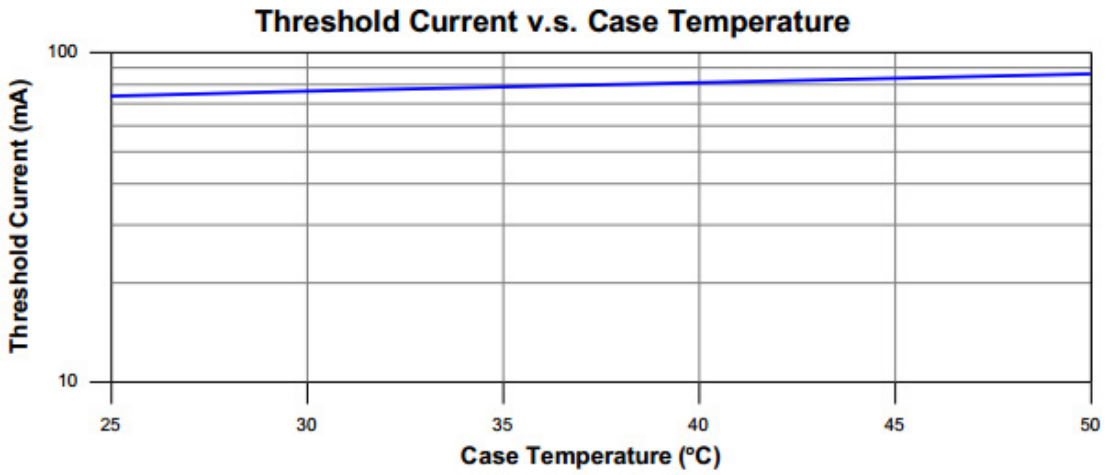
Monitor Current vs. Optical Output Power



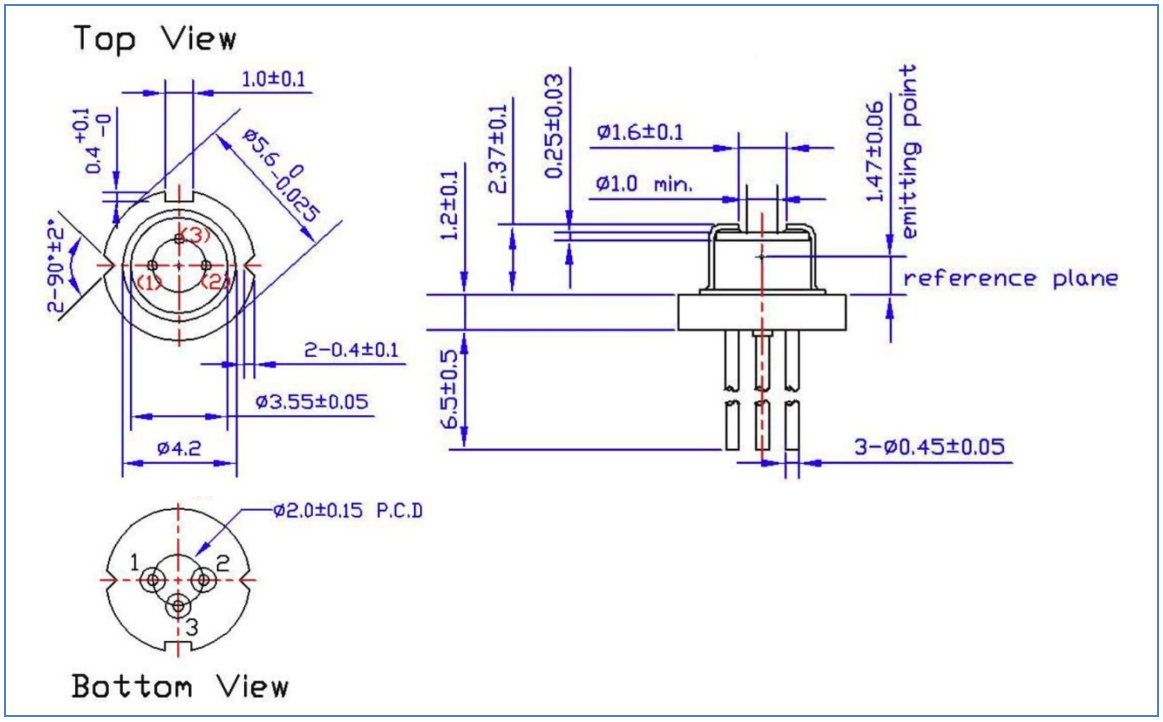
Slope Efficiency vs. Case Temperature



Threshold Current vs. Case Temperature



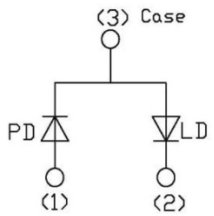
Drawing



All dimensions in mm

Electrical Connection

Lead	Description
Pin 1	PD Anode
Pin 2	LD Cathode
Pin 3	LD Anode, PD Cathode, Ground



ESD Caution

Always do handle laser diodes with extreme caution to prevent electrostatic discharge, the primary cause of unexpected diode failure. ESD failures can be prevented by always wearing wrist straps, only using a grounding workplace, and following strict anti-static guidelines when handling the laser diode

Safety Advice

This laser diode emits highly concentrated IR light which can be **hazardous to the human eye and skin**. This diode is classified as **CLASS 4 laser product** according to **IEC 60825-1** and **21 CFR Part 1040.10 Safety Standards**.

This product is comply with 21 CFR Part 1040.10

Operating Considerations

Operating the laser diode outside of its maximum ratings may cause failure or a safety hazard.
The diode may be damaged by excessive drive currents or switching transients. If the diode is operated using a power supply, it is strongly recommended to connect the diode with the output voltage set to zero. The voltage should then be increased slowly and with great caution, while at the same time carefully monitoring the laser diodes output power and drive current. The laser diode will show accelerated degradation with increased temperature, and it is advised to keep the case temperature low therefor, by means of heat sinking the device.

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