ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44 OFFICE@ROITHNER-LASER.COM

S9850MG

- **IR Laser Diode**
- **980 nm, 50 mW, CW**
- **Single mode**
- **TO56 package, Flat Window**

RoHS COMPLIANT Pb Pb-Free

Description

S9850MG is an IR laser diode, typically emitting at 980 nm, with an operating temperature range of up to 40°C. **S9850MG** comes in 5.6 mm TO-Can package **with integrated PD.**

Maximum Rating* (T_{CASE} = 25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Optical Output Power*1	P_{MAX}		50	mW
Reverse Voltage	V_R		2	V
Operating Temperature*1	T_{OPR}	- 10	+ 40	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

*1 operating at maximum ratings may influence the life time

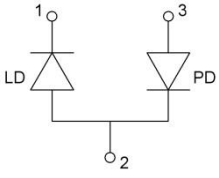
Electro-Optical Characteristics (T_{CASE} = 25°C)

Parameter		Symbol	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength		**λ_P**	**965**	**980**	**990**	**nm**
Optical Output Power		P_O		**50**		mW
Operating Voltage		V_F		1.6	2.0	V
Threshold Current		I_{th}		12	20	mA
Operating Current		I_F		72	85	mA
Slope Efficiency		η	0.5	0.8		W/A
PD Current		I_{PD}	0.1	0.25	0.4	mA
Beam Divergence (FWHM)	parallel	Θ_{II}	8	14	18	deg.
	perpendicular	$\Theta_{\perp}$	30	35	40	deg.

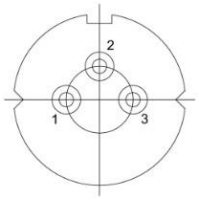
Electrical Connection

Pin Configuration

Pin #	Function
Pin 1	LD Cathode
Pin 2	LD Anode, PD Cathode
Pin 3	PD Anode



Bottom View



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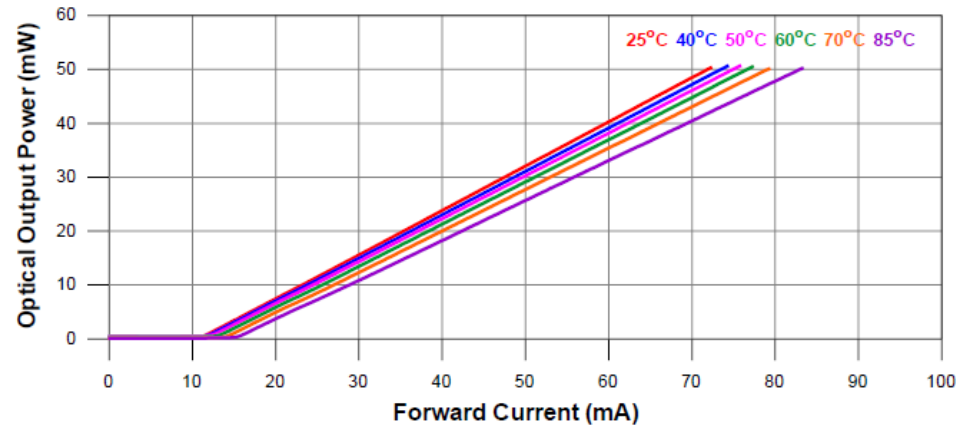
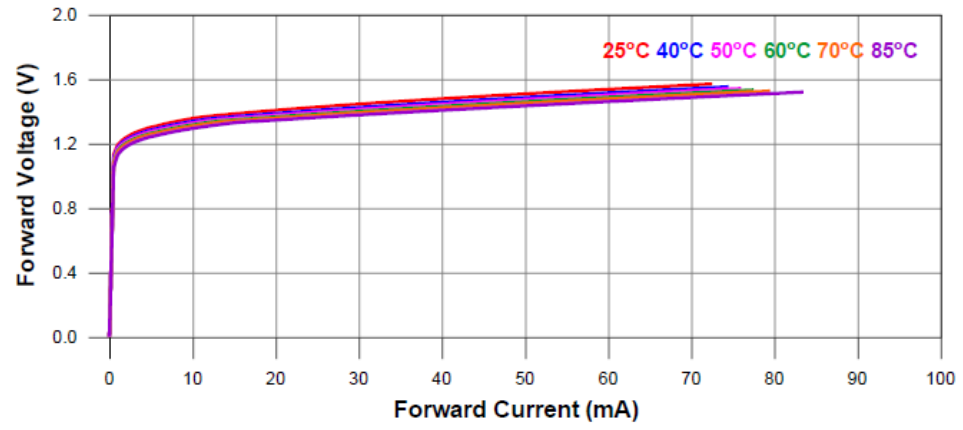
Performance Characteristics

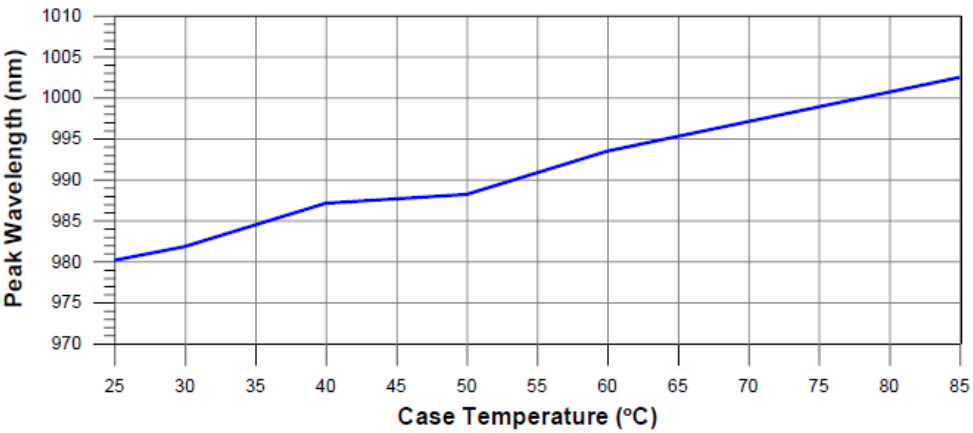
Optical Output Power vs. Forward Current



Forward Voltage vs. Forward Current



Peak Wavelength vs. Case Temperature



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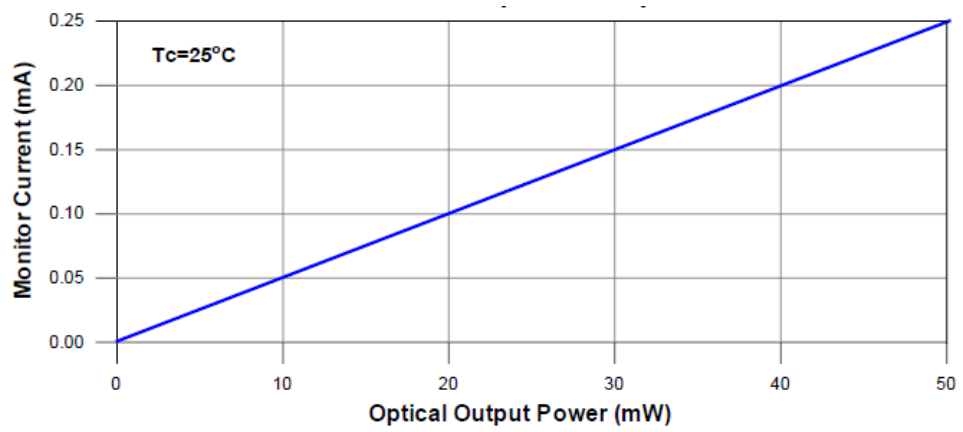
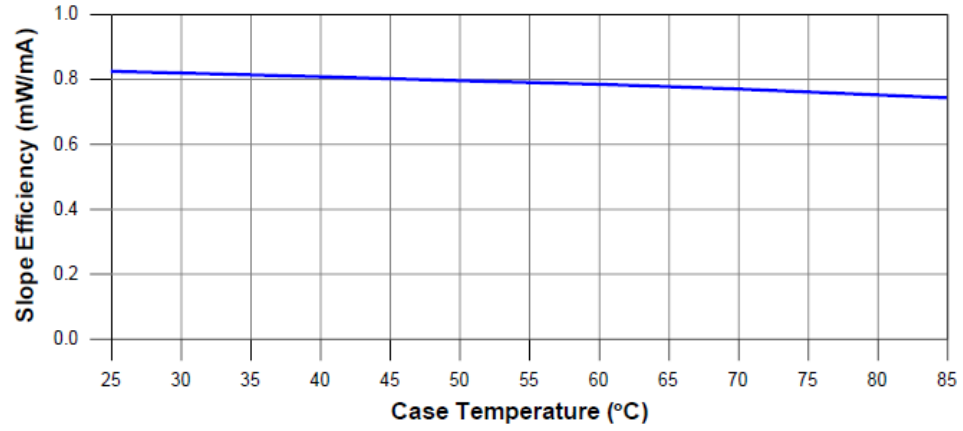
Performance Characteristics

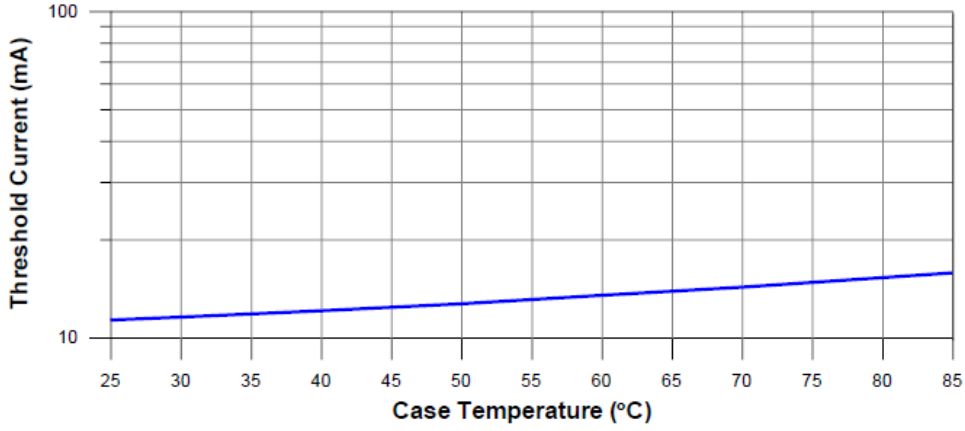
Monitor Current vs. Optical Output Power



Slope Efficiency vs. Case Temperature



Threshold Current vs. Case Temperature



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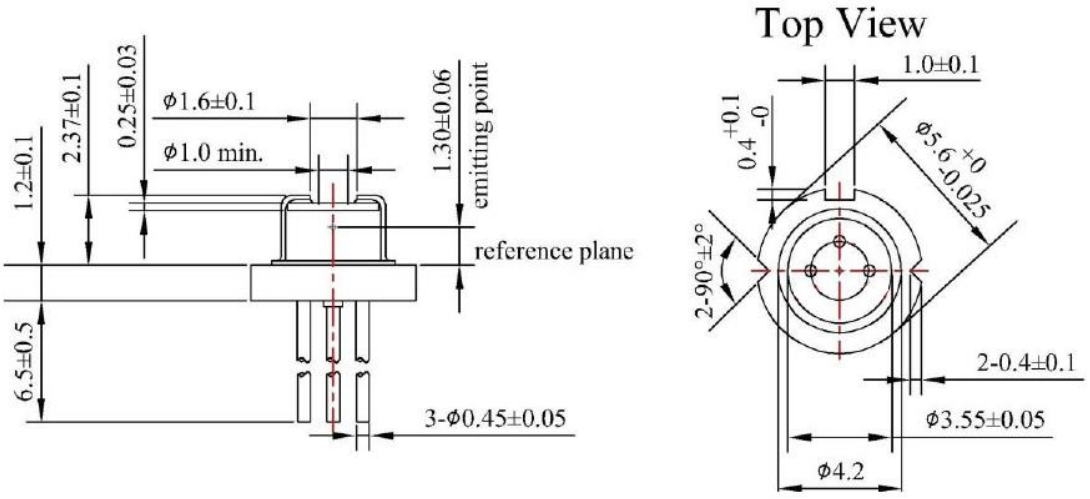
Outline Dimensions



All dimensions in mm

Precautions

Safety

Caution: Laser light emitted from any laser diode may be **harmful to the human eye**. Avoid looking directly into the laser diode's aperture when the diode is in operation.

Note: The use of optical lenses with this laser diode will increase eye hazard

ESD caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life time of the laser diode**

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