ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
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RLT700-50MGS

- **Laser Diode**
- **700 nm, 50 mW**
- **Single Mode**
- **5.6 mm TO-Can, Flat Window**

Description

RLT700-50MGS is an IR Fabry Perot laser diode, typically emitting at 700 nm. It features an emitter with **single transverse mode** emission and wide operating temperature range.

RLT700-50MGS is supplied in a 5.6 mm TO-Can package with an **integrated PD**.

Maximum Rating (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Reverse Voltage	V_R			V
Operating Temperature	T_{OPR}	- 10	+ 60	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

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

Parameter		Symbol	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength		λ_P	695	705	715	nm
Spectral Width (FWHM)		$\Delta\lambda$		0.8	2.0	nm
Output Power		P_O	40	50		mW
Emitter Size		A		3.0 x 1.5		µm
Threshold Current		I_{th}		30	40	mA
Operating Current		I_F		75	100	mA
Operating Voltage		V_F		2.5	2.8	V
PD Current		I_{PD}	0.05		1	mA
PD Reverse Voltage		V_{PDR}				V
Slope Efficiency		η	0.5	1.0	1.3	mW/mA
Beam Divergence (FWHM)	parallel	$\Theta\perp$	14	18	25	deg
	perpendicular	$\Theta\parallel$	7	9	14	deg
Off Axis Angle		$\Delta\alpha\parallel x\Delta\alpha\perp$			<±3	deg.
Position Accuracy		$\Delta X,\Delta Y,\Delta Z$			±100	µm
Rise Time		tr		1		ns

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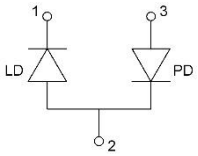
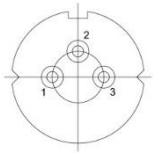
Electrical Connection

Pin Configuration*

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

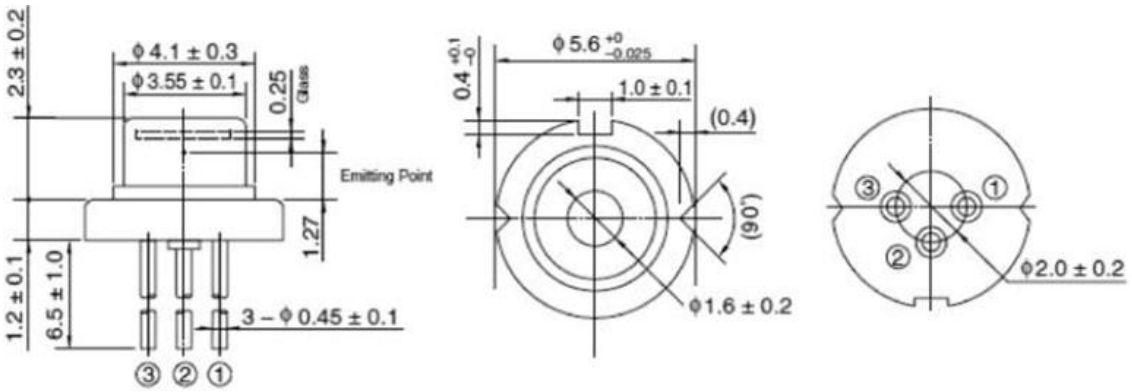


Bottom View



* subject to change

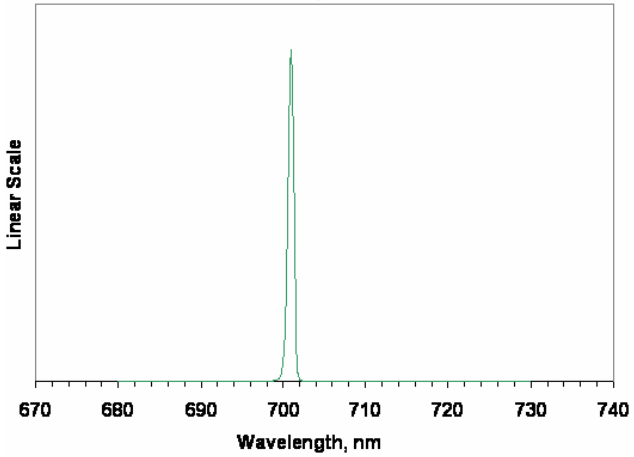
Outline Dimension



All dimensions in mm

Performance Characteristics

Spectrum *



* sample

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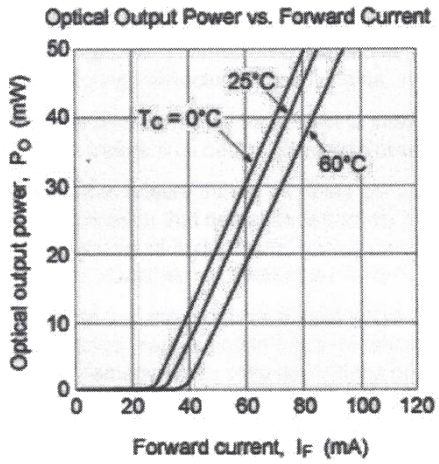
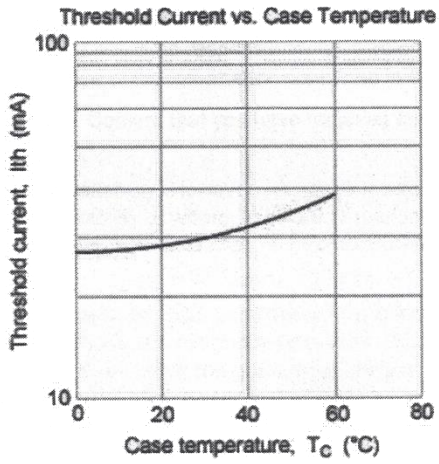
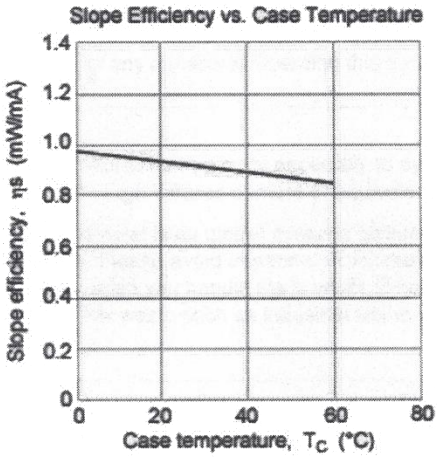
Output Power vs. Forward Current



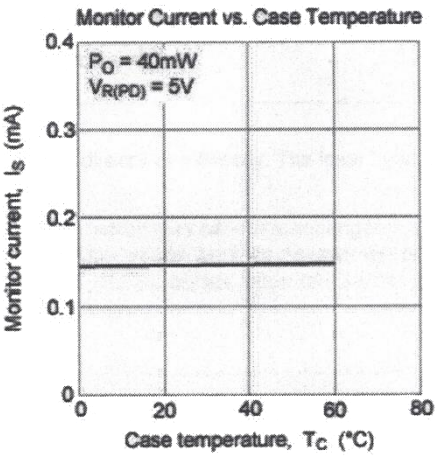
Threshold Current vs. Case Temperature



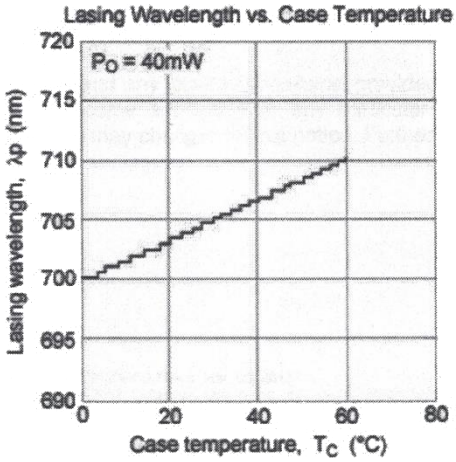
Slope Efficiency vs. Case Temperature



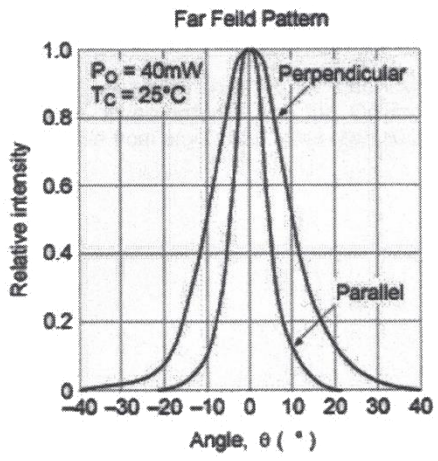
Monitor Current vs. Case Temperature



Wavelength vs. Case Temperature



Far Field Pattern



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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 we strongly advise to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

We strongly advise 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.**