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ADL-85051TL

- **Infrared Laser Diode**
- **845 nm, 5 mW**
- **Low operating current**
- **TO56 package, Flat Window**

RoHS COMPLIANT Pb Pb-Free

Description

ADL-85051TL is an infrared laser diode, typically emitting at 845 nm, with a nominal output power of 5 mW. It features low operating current and high maximum operating temperature of 50°C. It is an efficient radiation source for many industrial applications. **ADL-85051TL** 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]	$P_{O(CW)}$		5	mW
LD Reverse Voltage	V_{RLD}		3.5	V
PD Reverse Voltage	V_{RPD}		30	V
PD Forward Current	I_{FPD}		10	mA
Operating Temperature*[1]	T_{OPR}	- 10	+ 50	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

* operating outside these conditions may damage the device
*[1] operating at or close to maximum ratings may influence the life time

Electro-Optical Characteristics (T_{CASE} = 25°C, P_O=5 mW)

Parameter		Symbol	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength		**λ_P**	**840**	**845**	**850**	**nm**
Optical Output Power		P_O		**5**		mW
Operating Voltage		V_F		1.8	2.0	V
Threshold Current		I_{th}		19	25	mA
Operating Current		**I_F**		**26**	**35**	**mA**
Monitor Current (V_{RD} = 5 V)		I_M	0.4	0.6	0.8	mA
Slope Efficiency		η	0.5	0.9	1.1	W/A
Beam Divergence (FWHM)	parallel	$\Theta_{\parallel}$	6	9	14	deg.
	perpendicular	$\Theta_{\perp}$	27	32	36	deg.
Beam Divergence accuracy (FWHM)	parallel	$\Delta\Theta_{\parallel}$	-3		+3	deg.
	perpendicular	$\Delta\Theta_{\perp}$	-3		+3	deg.
Emission Point Accuracy		$\Delta x, \Delta y$	-80		+80	µm
		Δz	-40		+ 40	µm

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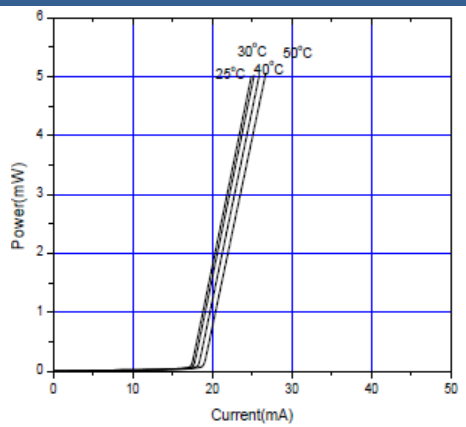
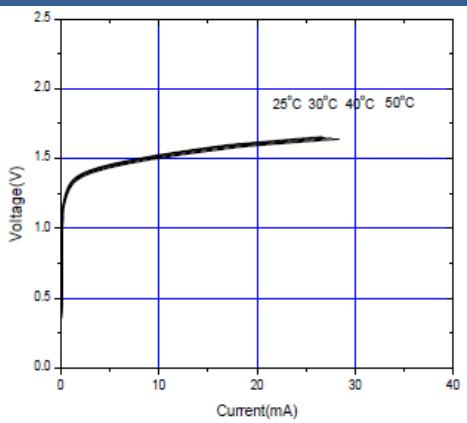
Performance Characteristics

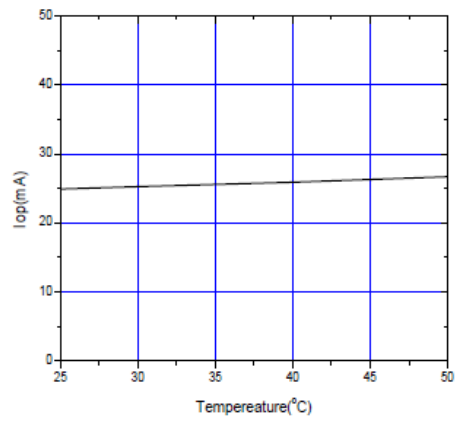
Output Power vs. Operating Current



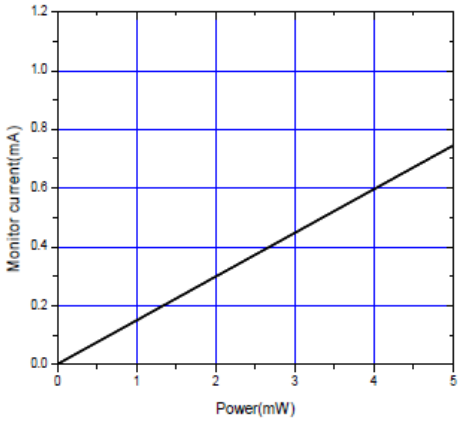
Operating Voltage vs. Operating Current



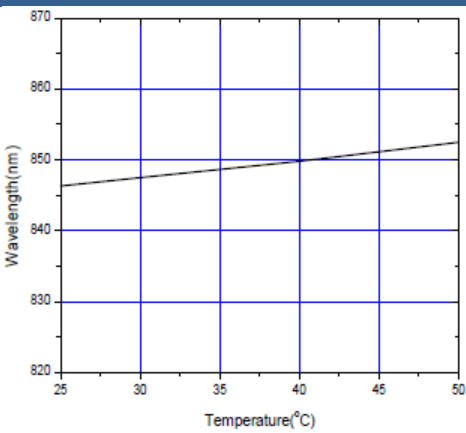
Operating Current vs. Temperature



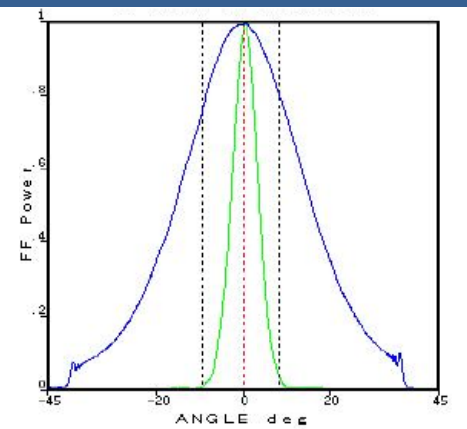
Monitor Current vs. Output Power



Wavelength vs. Temperature



ΘII / Θ⊥ Beam Divergence



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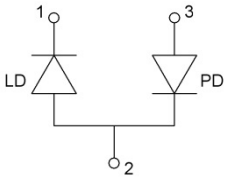
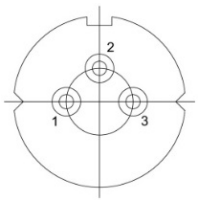
Electrical Connection

Pin Configuration

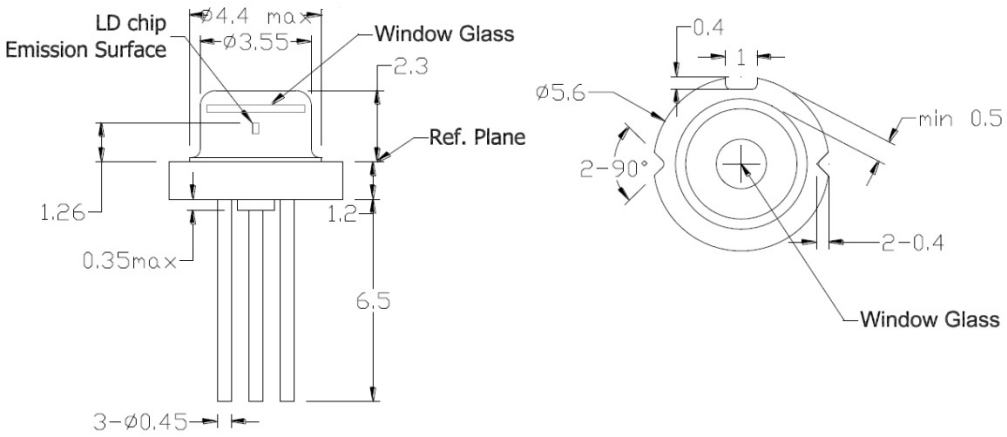
Pin #	Function
Pin 1	LD Cathode
Pin 2	LD Anode, PD Cathode
Pin 3	PD Anode



Bottom View



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**