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ADL-65055TA4

- **Red Laser Diode**
- **655 nm, 5 mW**
- **Integrated APC circuit board**
- **Supply voltage 2.5 …6.0V**
- **TO56 package, Flat Window**

RoHS COMPLIANT Pb Pb-Free

Description

ADL-65055TA4 is a **voltage driven** red laser diode, typically emitting at 655 nm, with a nominal output power of 5 mW, designed to be operated from a 2.5 to 6.0 VDC supply voltage. It features an integrated APC driving circuit with strong reverse bias protection, ESD sustainability of ~10kV, and high maximum operating temperature of 50°C. It is an efficient radiation source for many industrial applications. **ADL-65055TA4** comes in a standard 5.6 mm TO-Can package.

Maximum Rating* (T_{CASE} = 25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Optical Output Power*1	$P_{O(CW)}$		7	mW
Power supply voltage	V_{CC}	**2.5**	**6.0**	**V**
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)

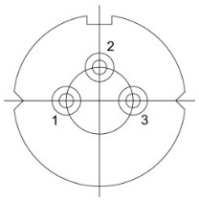
Parameter		Symbol	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength		λ_P	**645**	**655**	**660**	**nm**
Variable Resistor		VR	**2.0**	**3.5**	**15**	**KΩ**
Operating Current (P_O = 5 mW)		I_F		**26**	**35**	**mA**
Monitor Current (V_{RD} = 5 V)		I_M	0.1	0.2	0.3	mA
Power – .Temp. stab (25-50°C, V_{CC}=3.0V)		ΔP_O^T	-20	-10	0	%
Power – VCC stability (2.5-3.0V)		ΔP_O^V	-15	-10	0	%
Power – VCC stability (3.0-6.0V)		ΔP_O^V	-15	-10	0	%
Beam Divergence (FWHM)	parallel	$\Theta\parallel$	6	9	12	deg.
	perpendicular	$\Theta\perp$	24	28	38	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	-80		+80	µm

Electrical Connection

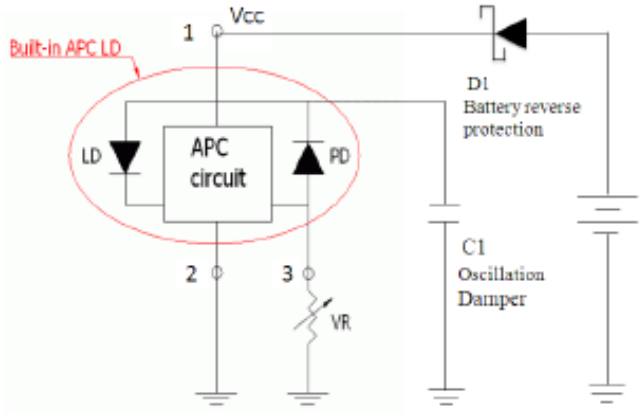
Pin Configuration

Pin #	Function
Pin 1	Vcc
Pin 2	GND
Pin 3	VR

Bottom View



Circuit



Operating Considerations

1.) **The variable resistor (VR) is used to adjust the laser output power**
To protect the laser from damage due to over current, it is advised to set VR to maximum value before turning on VCC. Operating the laser diode above maximum ratings, even momentarily, can cause permanent damage to the device

2.) Oscillation damping is recommended for stabilizing the optical output

3.) Battery reverse protection is recommended for protecting the APC circuit

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**

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.

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

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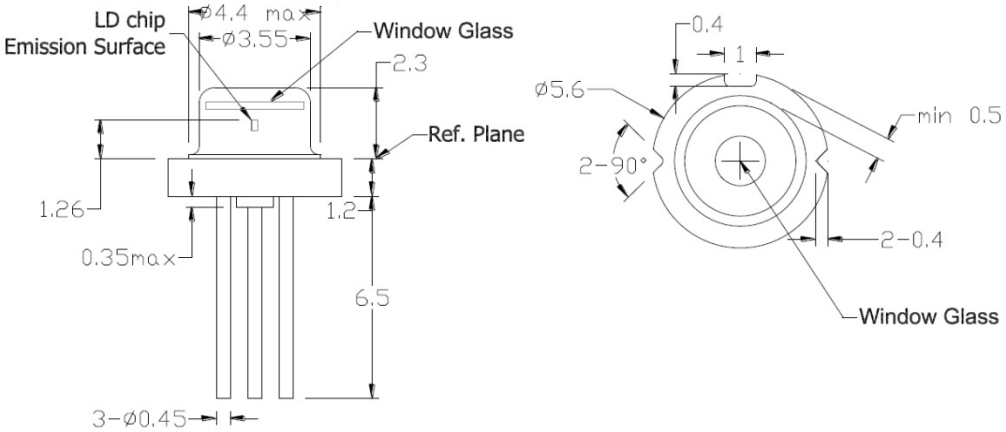
Outline Dimensions



All dimensions in mm