



## ADL-52051SM

- Green APC Laser Diode
- **Automatic Power Control (APC)**
- 520 nm, 5 mW
- Modulation Bandwidth < 2 MHz
- Supply Voltage 6 VDC
- TO33 Package, Flat Window



### Description

**ADL-52051SM** is a green laser diode, typically emitting at 520 nm with an output power of <5 mW, and a modulation bandwidth of up to 2 Mhz (PWM). It features an **integrated automatic power control (APC) driver** and can be operated through a 6 VDC voltage source. **ADL-52051SM** comes in 3.3 mm TO-Can package with flat glass window.

### Maximum Ratings\*

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Supply Voltage	$U_{CC}$	5.8	7.0	V
Optical Output Power	$P_O$		5.0	mW
Operating Temperature*	$T_{OPR}$	- 10	+ 50	°C
Storage Temperature*	$T_{STG}$	- 40	+ 85	°C
Soldering Temperature ( $t_{max}$ 3s)	$T_{SOL}$		+ 260	°C

\* operation close to or outside these parameters may damage the device

### Electro-Optical Characteristics ( $T_C = 25^\circ\text{C}$ , $P_O = 5$ mW, $U_{CC} = 6$ V)

Parameter	Symbol	Values			Unit	
		Min.	Typ.	Max.		
<b>Peak Wavelength</b>	$\lambda_P$	<b>510</b>	<b>520</b>	<b>530</b>	<b>nm</b>	
Power Variation	$\Delta P_O$	-10		+10	%	
Power/Temperature Variation (-10 ...50 °C)	$\Delta P_{OT}$	-15		+10	%	
Power/Supply Voltage Variation (5.8...7.0 V)	$\Delta P_{OU}$	-15		+10	%	
Current Draw	$I_{CC}$		50	80	mA	
Chip Positioning Accuracy	$\Delta X, \Delta Y, \Delta Z$	-80		+80	$\mu\text{m}$	
Beam Divergence (FWHM)	parallel	$\Theta_{  }$	3	7	12	deg.
	perpendicular	$\Theta_{\perp}$	15	23	30	deg.
Beam Deviation	parallel	$\Delta\Theta_{  }$	-5		+5	deg.
	perpendicular	$\Delta\Theta_{\perp}$	-5		+5	deg.
Bandwidth (PWM, duty cycle = 50%)	$f_M$	100		2000	KHz	

### Safety Advice

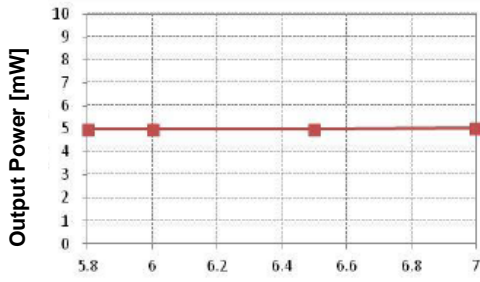
Laser light emitted from any laser diode may be harmful to the human eye. **Avoid looking directly into the laser diode's aperture.** The use of optical lenses will increase eye hazard





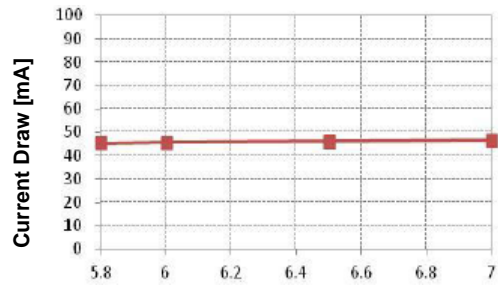
## Typical Performance Curves

Output Power vs. Supply Voltage



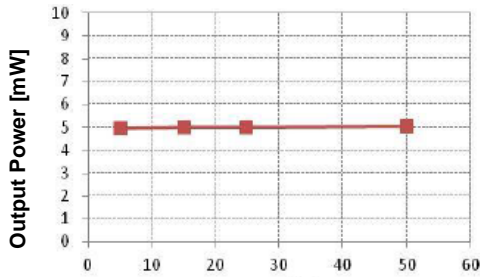
Supply Voltage [V]

Current Draw vs. Supply Voltage



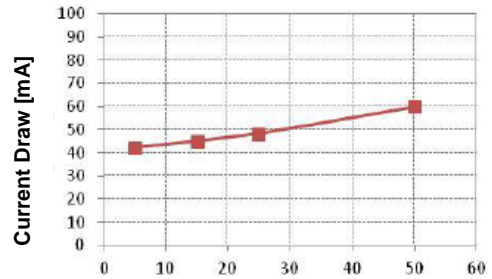
Supply Voltage [V]

Output Power vs. Temperature



Temperature [°C]

Current Draw vs. Temperature



Temperature [°C]



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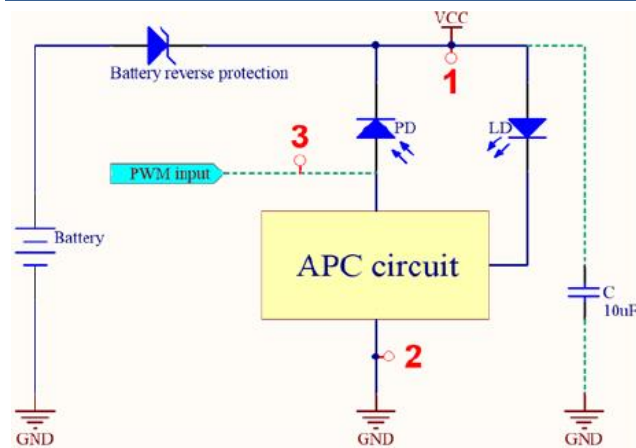
AUSTRIA



## Electrical Connection

Pin Configuration		Bottom View	CW	PWM
Pin #	Function			
Pin 1	U <sub>CC</sub>			
Pin 2	GND			
Pin 3	PWM			

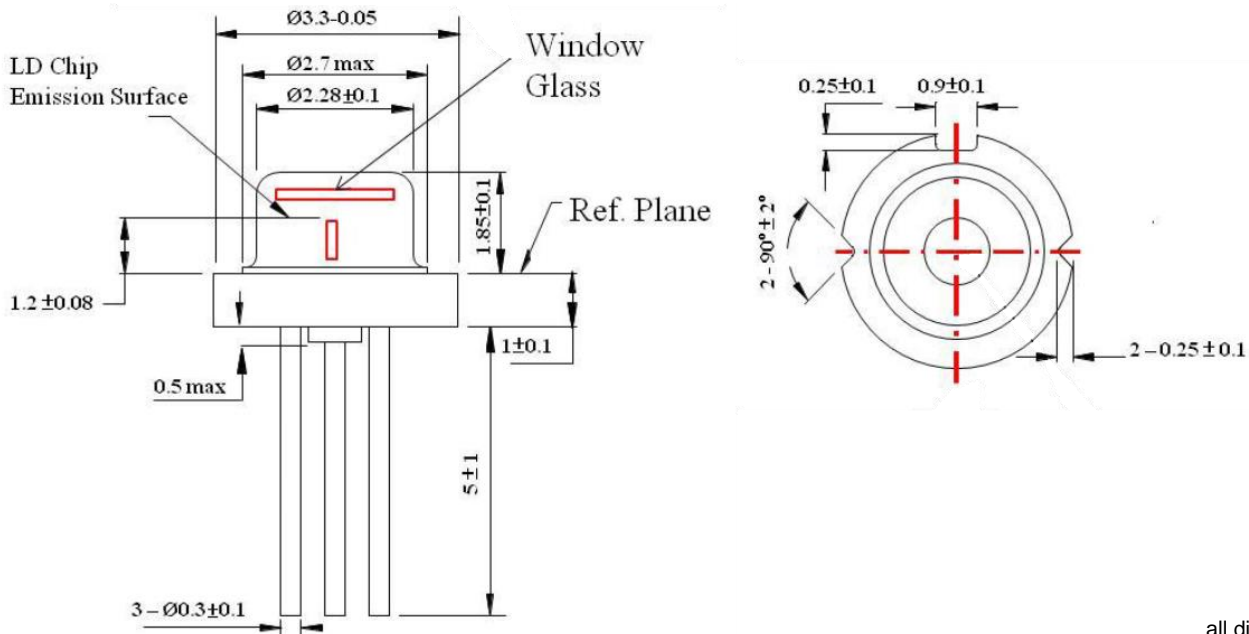
## Schematics



- No external driver required
- APC driver IC integrated into the TO-Can
- 10 µF capacitor recommended for PWM operation
- Battery reverse protection recommended
- 1 µF capacitor recommended for low power operation (<50%)

## Outline Dimensions

### TO33



all dimensions in mm