

Φ 4mm 650nm Laser Module**Power set by user****Features**

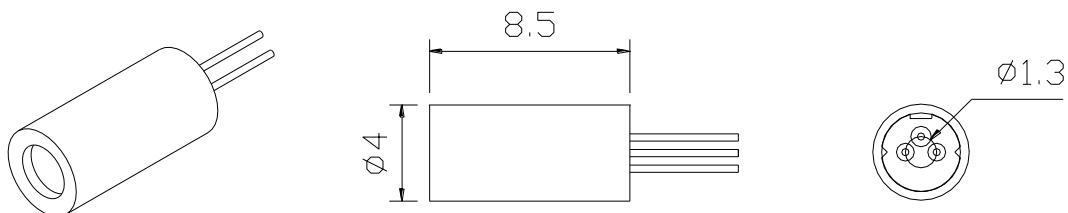
1. APC (auto power control) IC inside
2. Low current consumption of the APC circuit
3. Much smaller LD module
4. Surge current protection
5. High quality lens for output beam

**Absolute maximum ratings**

Item	Symbol	Rating	Unit
Power supply voltage	V_{cc}	3.3	V
Laser Module optical output power	P_o	<3	mW
Operation temperature	T_{opr}	0~40	°C
Storage temperature	T_{stg}	0~60	°C

Electrical and optical characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Min.	Typ.	Max	Unit	Condition
Wavelength	λ	-	655	-	nm	$P_o=3\text{mW}$
Operation current	I_{op}	-	-	30	mA	$P_o=3\text{mW } V_{cc}=3\text{V}$
Operation voltage	V_{op}	2.5	-	3.3	Volt	
Laser Beam spot size at 10m					<20mm	
Divergence angle					2 mrad	
Mean time to failure (MTTF) 25°C					>10000 hrs	

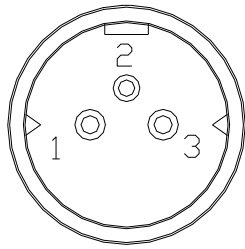
Outline dimensions (Units: mm)

Aperture Size : 2mm

Laser Safety Precautions

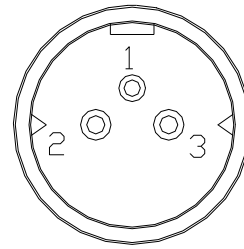
1. Do not look into the laser beam directly by eyes. The laser beam may cause severe damage to human eyes.
2. Optical Lens is made of plastic or glass. Do not contaminate lens by soiling, oil or chemical.

PIN Assignment:



A type : Heat sink stand (-)

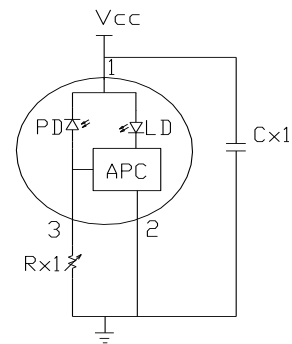
- Pin 1 :** Vcc
- Pin 2 :** GND
- Pin 3 :** PD



B type : Heat sink stand (+)

Laser power Adjustment Procedure

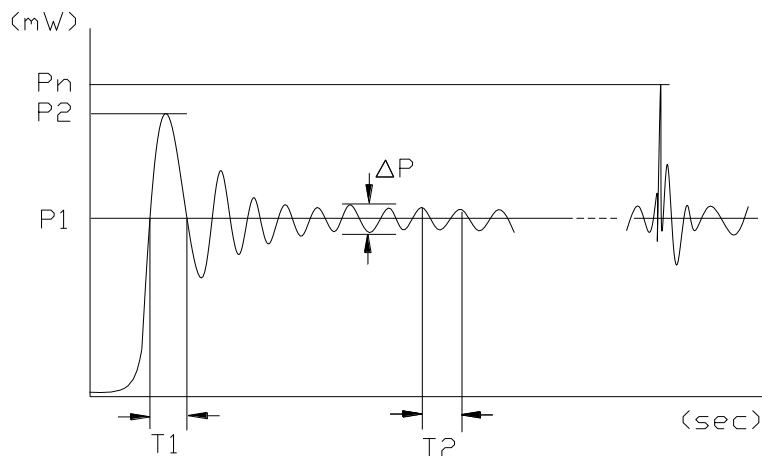
1. Connect 1 uF capacitor (Cx1) between Pin1 and Pin2.
2. Connect 20~50K ohm variable resistor (Rx1) between Pin2 and Pin3.
3. Set Vcc to the designed value.
4. Adjust Rx1 to obtain the desired output power.
5. Laser Safety Precautions



- (1) Do not increase Vcc value when the laser module is working near the maximum power . That is to protect laser from overdriving condition and make sure power is under 3 mW.
- (2) Do not operate the device above the maximum rating condition, even momentarily. It may cause unexpected permanent damage to the device.

Laser power stability

- P1 : 2.5mW
- P2 : < 3mW
- Pn : <3mW
- ΔP : < 0.5mW
- T1 : < 0.1us
- $f2=(1/T2)$: 3MHz



- NOTE:**
- P1 : Mean power
 - P2 : Max power from turning on power
 - Pn : Max power from Vcc noise
 - ΔP : Power Amplitude of vibration
 - T1 : Time between trigger and convergence
 - $f2=(1/T2)$: Frequency of output power