

Φ4mm 850nm 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



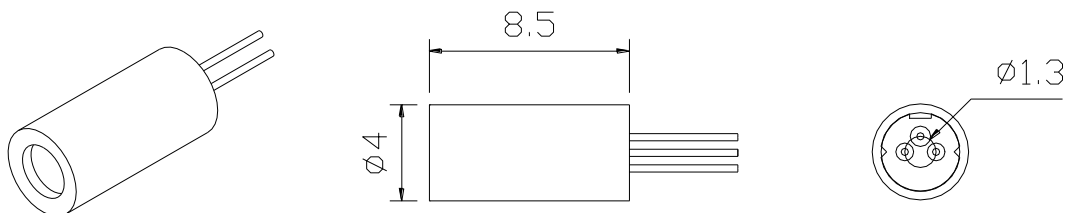
Absolute maximum ratings

| 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 °C)

| Item | Symbol | Min. | Typ. | Max | Unit | Condition |
|----------------------------------|-----------------|------------|------|-----|------|--|
| Wavelength | λ | - | 845 | - | nm | P _o = 3mW |
| Operation current | I _{op} | - | - | 40 | mA | P _o = 3mW V _{cc} =3V |
| 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)

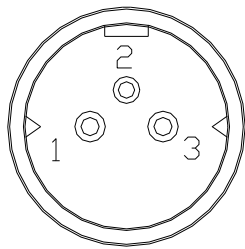


Aperture Size : 1.3mm

Laser Safety Precautions

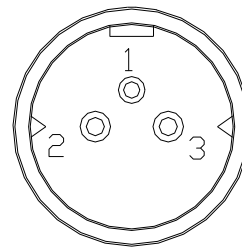
1. Do not look into the laser beam directly by eyes. The laser beam may cause severe damage to human eyes.
2. Optical Lens is made of plastic or glass. Do not contaminate lens by soiling, oil or chemical.

PIN Assignment:



A type : Heat sink stand (-)

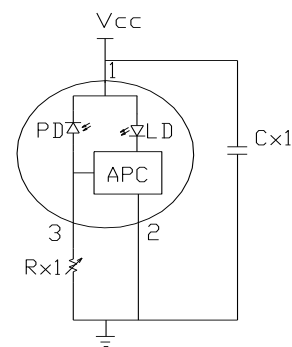
Pin 1 : Vcc
Pin 2 : GND
Pin 3 : PD



B type : Heat sink stand (+)

Laser power Adjustment Procedure

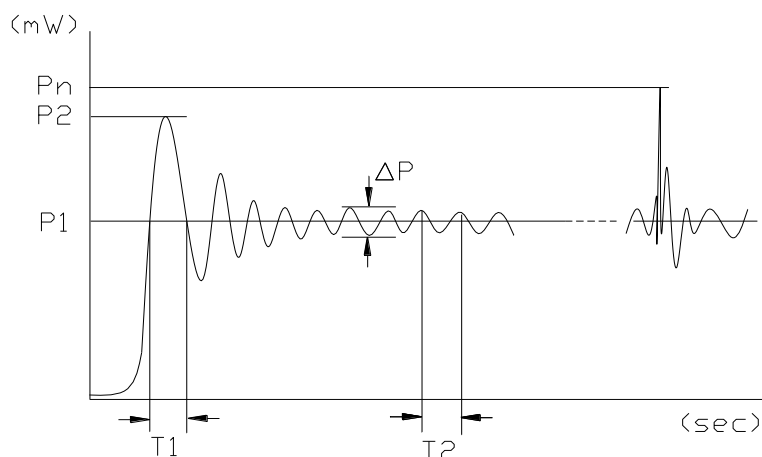
1. Connect 1 uF capacitor (Cx1) between Pin1 and Pin2.
2. Connect 20~50K ohm variable resistor (Rx1) between Pin2 and Pin3.
3. Set Vcc to the designed value.
4. Adjust Rx1 to obtain the desired output power.
5. Laser Safety Precautions



- (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