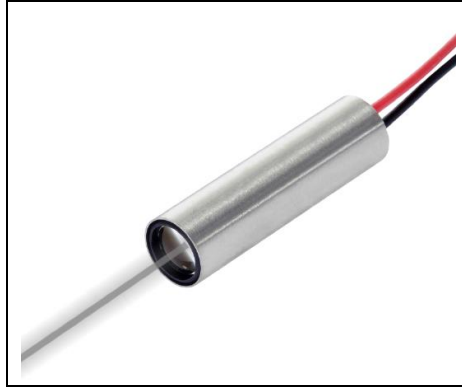


IR Dot Laser

VLM-1050-52 Series



FEATURES:

- Designed and manufactured in Taiwan, ensuring exceptional quality and durability.
- This module is an industrial-grade product that integrates an aspherical glass collimating lens, an IR laser diode, and an ACC driver circuit into a compact and durable stainless steel housing.
- Delivers a high-quality laser spot, supports a wide operating temperature range, and offers a 10,000-hours lifespan for reliable performance in diverse environments
- Operating Voltage: 3~6 VDC
- Wavelength: 1050~1075 nm
- Laser power output : LPO - Class 1 - $1.2 \pm 0.3 \text{ mW}$.
LPA - Class 3R - $8 \pm 1 \text{ mW}$.
- Beam Divergence (Full Angle): Less than 0.4 mRad
- Dimensions: $\varnothing 8.5 \times 30.5 \text{ mm}$ ($\varnothing 0.334" \times 1.2"$)
- Compact design with an integrated Auto-Current-Control (ACC) driver circuit for safe and consistent laser output.
- Connection Type: Lead wire

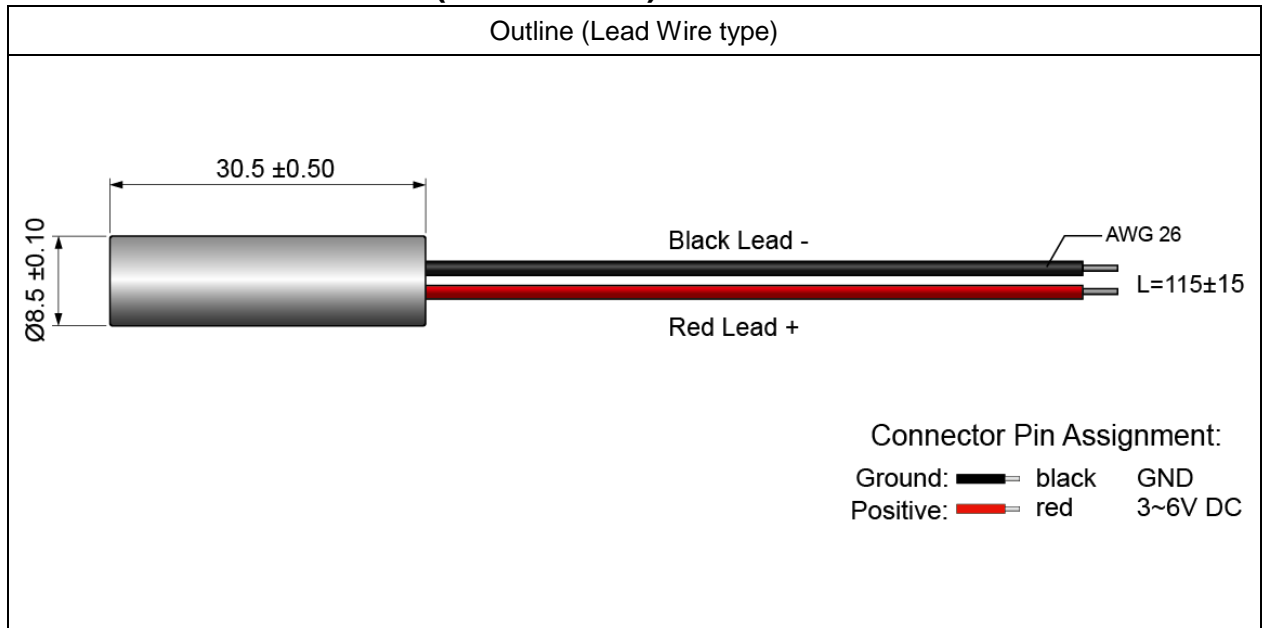
A 1050 nm laser module emits light in the near-infrared (NIR) range, and it's typically invisible to the human eye. This wavelength has several specialized industrial, scientific, and medical applications.

APPLICATIONS:

- **Optical Coherence Tomography (OCT):**
Widely used in medical imaging, especially retinal scans and corneal imaging. 1050 nm penetrates deeper into biological tissues than shorter wavelengths, providing better imaging of deeper layers.
- **Material Processing & Micromachining:**
Suitable for non-metallic materials and semiconductors that absorb NIR light. Used in cutting, engraving, or welding delicate materials where minimal heat-affected zones are critical.
- **LIDAR & Range finding:**
Applied in long-range LIDAR systems, especially for autonomous vehicles and geospatial mapping. 1050 nm is less prone to solar interference than visible wavelengths.
- **Fiber Laser Pumping:**
Often used as a pump source for ytterbium-doped fiber lasers, which operate around 1064 nm. Efficient energy transfer due to close wavelength matching.
- **Scientific Research:**
Employed in spectroscopy, fluorescence excitation, and nonlinear optics. Useful in labs for studies involving NIR absorption or tissue penetration characteristics.

VLM-1050-52 Series

OUTLINE DIMENSIONS (UNITS: mm)



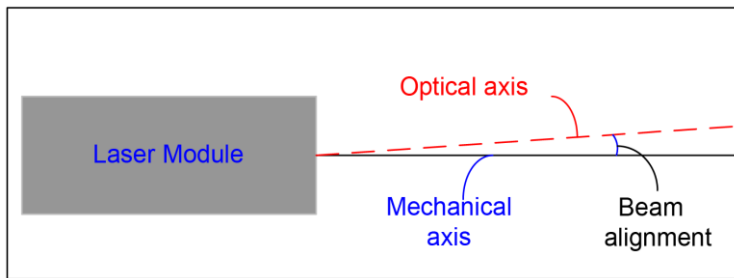
SPECIFICATIONS

SPECIFICATIONS		VLM-1050-52	
		LPO	LPA
1	Dimensions	$\varnothing 8.5 \times 30.5$ mm ($\varnothing 0.334" \times 1.2"$)	
2	Weight	4.3g	
3	Operating voltage (Vop)	3~6 VDC	
4	Operating current (Iop)	Less than 55mA	
5	Laser power output	1.2 ± 0.3 mW	8 ± 1 mW
6	Laser class	Class 1	Class 3R
7	Wavelength at peak emission (λ_p)	1050~1075nm	
8	Collimating lens	Aspherical Glass lens	
9	Output aperture	5mm	
10	Beam shape	Ellipse	
11	Spot size at 10M	5 ± 1 mm	
12	Divergence (Full Angle)	Less than 0.4 mRad	
13	Beam alignment*	Less than 3°	
14	Operating temp. range	-20°C ~+60°C	
15	Storage temp. range	-20°C ~+85°C	
16	Housing material	Stainless steel	
17	Potential of housing	Insulated	

VLM-1050-52 Series

18	Electrostatic discharge (ESD)	30KV
19	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
20	Protection circuit	Reversed supply circuit protection, over-current protection, surge protection
21	Vibration resistance	10 to 55Hz, 1.5mm amplitude for 2 hours each in X, Y and Z direction
22	Standard	IEC60825:2014
23	Wire type	1007-26AWG
24	Cable length	115±15mm
25	Mean time to failure (MTTF) 25°C	10000hrs
26	Application	Industrial application
27	Suggestion work distance	1~30 meters / 3~100 feet

* Beam alignment:



ORDER CODE

Order Code	Wavelength	Laser power output	Laser class	Connection Type
VLM-1050-52 LPO	1050 nm	1.2±0.3mW	Class 1	Lead Wire
VLM-1050-52 LPA	1050 nm	8±1mW	Class 3R	Lead Wire

SAFETY LABEL

CLASS I LASER PRODUCT

