"MARU" Laser Diode Modules

Technical Specification – 300-0501-01

Wavelength (nm @ 25°C)	635
Output Power (mW ± 10%)	4.0
Power Stability (%)	< 5
Beam Size (mm)	2.2
Beam Output	Circular
Circularity (beam axis ratio at aperture)	<1.5:1
Beam Divergence (mrad)	<0.6
Pointing Stability (mrad/°C)	< 0.2
Bore Sighting (°)	< 1.5
Operating Voltage (V)	2.7 – 6.0
Operating Current (mA)	30
Operating Temperature (°C)	-10 to +50
Storage Temperature (°C)	-40 to +85

Physical Specification

Length (mm)	43
Diameter (mm)	12 (mounting flange 25mm)
Weight (g)	12
Material	Aluminium
Finish	Anodised
Flying Lead Length (mm)	300

Note: Specifications subject to change without notice. Electrical & optical characteristics at 25°C.

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General
The “MARU” range of CIRCULAR beam laser diode modules have been designed as complete laser diode systems for OEM use. The modules emit visible radiation in the 635nm wavelength 0.9mW to 8mW range. While the output powers of these modules have been set in accordance with EN60825, being designed for OEM use they are not certified devices as defined in the specification. The manufacturer of the complete laser product is responsible for complying with the requirements of this standard. Manufacturers of products using laser diode modules should be fully familiarised with this standard before using such devices.

Product Description
A “MARU” laser diode module, consists of an aluminium or brass housing (type dependant), Hitachi MARU laser diode, drive circuit and collimating lens. Electrical connections are made via external flying leads. The lens may be adjusted to produce either a collimated beam or focused spot (can be factory locked for collimation on request). The standard lens may be replaced by other optical systems such as line generators.

Laser Safety
The light emitted from these devices has been set in accordance with EN60825, however, starring into the beam whether directly or indirectly must be avoided. EN60825 classifies laser products into three different categories depending on light emitted, wavelength and eye safety.

CLASS II
"Caution" visible laser light less than 1.0mW. Considered eye safe, normal exposure to this type of beam will not cause permanent damage to the retina.
CLASS IIIa
"Danger" visible laser light between 1.0mW and 5.0mW. Considered eye safe with caution. Focusing of this light into the eye could cause some damage.
CLASS IIIb
"Danger" infrared (IR) & high power visible lasers considered dangerous to the retina if exposed.

It important to note that while complying with the above classifications “MARU” laser diode modules are not certified and are designed solely for use in OEM products. The way in which the device is used in the final product may alter its original design classification and it the responsibility of OEM to ensure compliance with the relevant standards.

Heat Sinking
If the case temperature of the laser diode exceeds its maximum specification, premature or catastrophic failure may occur. To ensure the maximum life of the laser diode it is recommended that an additional electrically insulated heatsink be used. The use of thermal transfer cream can be used to improve contact and heat dissipation. Do not restrict air circulation around the device.

Power Connections
The “MARU” laser diode modules require a regulated input voltage of 2.7 to 6 volts. Connections are made via the 2 pre-tinned external flying leads (red is positive, black negative). WARNING: The housing is internally connected to the positive supply rail but isolated via the hard anodising.





