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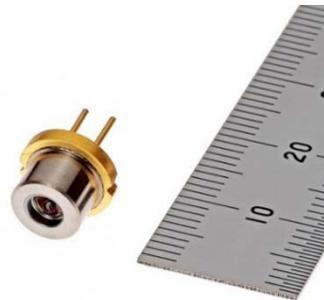
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Mitsubishi Electric to Launch High-Power 638-nm Red Laser Diode with Built-in Lens

Industry's first built-in meniscus lens helps to simplify projector designs, and more

TOKYO, July 5, 2017 – [Mitsubishi Electric Corporation](http://www.MitsubishiElectric.com) (TOKYO: 6503) announced today a high-power 638 nanometer (nm) wavelength red laser diode (LD) offering an industry-leading 2.5W output under pulse operation with what is believed to be the industry's first built-in meniscus lens, which will be launched on September 1. By eliminating the need for an external collimator lens, Mitsubishi Electric's new red LD is expected to lead to simpler optical designs, reduced sizes and lower costs for projectors.



High-power 638-nm-wavelength red laser diode with built-in lens (ML562H84)

The light sources for projectors, conventionally mercury lamps, are being replaced with solid-state light sources that offer higher energy efficiency, a wider range of color expression and longer life. LDs deliver especially high output power, low power consumption due to efficient power-conversion, an unmatched color range due to narrow spectrum, and superior picture quality with high contrast ratio.

In September 2015, Mitsubishi Electric released its ML562G84 high-power red LD, which achieved 2.5W output under pulse operation as a red light source in three colors for projectors. However, when the model incorporated in projectors, it is necessary to collimate the laser beam by an external lens or the like and efficiently irradiate the imaging device.

The new high power 638-nm red LD with built-in lens allows for the external collimator lens to be eliminated and contributes to simplification of the optical design, miniaturization and cost reduction for projectors.

Product Features

1) *Simplifies projector design, etc. thanks to industry's first built-in meniscus lens*

- Original built-in meniscus lens collimates the laser beam and reduces spread to about 1/700th
- Eliminates the need for an external collimator lens and contributes to simpler optical designs, reduced sizes and lower costs for projectors

2) *Industry-leading 2.5 W output power under pulse operation*

- Collimates 98 percent or more of the laser beam and achieves an unmatched 2.5 W output under pulse operation, equal to that of conventional products with built-in lenses
- High-luminosity 638-nm laser light and 2.5W output under pulse operation produce 120 lumens per LD
- Unmatched operating temperature range of 0 to 45 degrees Celsius at 2.5 W pulse operation, thanks to a large 9.0-mm-diameter transistor-outline can (TO-CAN) package with excellent heat dissipation

Main Specifications

	Specification
Model number	ML562H84
Lasing mode	Lateral multi-mode
Threshold current	780mA ($T_C = 25^\circ\text{C}$, Pulse duty ratio = 30%)
Pulse peak output power	2.5 W ($T_C = 25^\circ\text{C}$, $I_{op} = 2.8\text{ A}$, Pulse duty ratio = 30%)
Operating voltage	2.4 V ($T_C = 25^\circ\text{C}$, $I_{op} = 2.8\text{ A}$, Pulse duty ratio = 30%)
Divergence angle	3.6° (perpendicular), 0.5° (parallel) ($T_C = 25^\circ\text{C}$, $I_{op} = 2.8\text{ A}$, Pulse duty ratio = 30%)
Wavelength	638 nm ($T_C = 25^\circ\text{C}$, $I_{op} = 2.8\text{ A}$, Pulse duty ratio = 30%)
Operating case temperature	$T_C = 0^\circ\text{C}$ to 45°C ($P_o = 2.5\text{ W}$, Pulse duty ratio = 30%) $T_C = 45^\circ\text{C}$ to 55°C ($P_o \geq 1.9\text{ W}$, Pulse duty ratio = 30%)
Package	ϕ 9.0 mm TO-CAN with built-in lens

Notes:

T_C : case temperature

I_{op} : operation current (under pulse operation)

P_o : output power (under pulse operation)

Line-up of High-power Red LDs for Projector

Model number	Wavelength	Drive type	Peak output power	Built-in lens	Package
ML562H84	638nm	Pulse	2.5W	yes	ϕ9.0mm TO-CAN
ML562G84				none	
ML562G85	639nm	CW	2.1W		
ML501P73	638nm	Pulse	1.0W	none	ϕ 5.6mm TO-CAN
ML520G73	638nm	CW	0.42W		

CW: continuous wave

Environmental Awareness

This product is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU.

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About Mitsubishi Electric Corporation

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,238.6 billion yen (US\$ 37.8 billion*) in the fiscal year ended March 31, 2017. For more information visit:

<http://www.MitsubishiElectric.com>

*At an exchange rate of 112 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2017