

Under Development
Preliminary

MITSUBISHI LASER DIODES
ML1XX27 SERIES
FOR OPTICAL INFORMATION SYSTEMS

**TYPE
NAME**

ML101J27

This type is under development. Therefore, please note that this data sheet may be changed without any notice.

DESCRIPTION

ML1XX27 is a high-power, high-efficient AlGaInP semiconductor laser which provides a stable, single transverse mode oscillation with emission wavelength of 658nm and standard pulse light output of 350mW.

ML1XX27 has a real-index-waveguide which improves the slope efficiency (reduction of the operating current) and the astigmatic distance.

Also, ML1XX27 has a window-mirror-facet which improves the maximum output power. That leads to highly reliable and high-power operation at 75 °C.

FEATURES

- High Output Power: 350mW (Pulse)
- High Efficiency: 0.95W/A (typ.)
- Visible Light: 659nm (typ.)
- Low Aspect Ratio ($\theta_{\perp} / \theta_{//}$): 1.7 (typ.)
- Low Astigmatic Distance: 1 μ m (typ.)

APPLICATION

Portable High-Density Optical Disc Drives
Re-Writable DVD Drives

ABSOLUTE MAXIMUM RATINGS (Note 1)

Symbol	Parameter	Conditions	Ratings	Unit
Po	Light output power	CW	130	mW
		Pulse(Note 2)	350	
VRL	Reverse voltage	-	2	V
Tc	Case temperature	-	-10 ~ +75	°C
Tstg	Storage temperature	-	-40 ~ +100	°C

Note1: The maximum rating means the limitation over which the laser should not be operated even instant time. This does not mean the guarantee of its lifetime. As for the reliability, please refer to the reliability report issued by Quality Assurance Section, HF & Optical Semiconductor Division, Mitsubishi Electric Corporation.

Note2: TARGET SPEC /Condition Duty Cycle: less than 35%, pulse width: less than 30ns

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25° C)

Symbol	Parameter	Test conditions	Min.	Typ.	Max	Unit
Ith	Threshold current	CW	-	80	-	mA
Iop	Operating current	CW, Po=120mW	-	200	-	mA
Vop	Operating voltage	CW, Po=120mW	-	2.5	3.0	V
η	Slope efficiency	CW, Po=120mW	-	0.95	-	mW/mA
λ_p	Peak wavelength	CW, Po=120mW	654	659	664	nm
$\theta_{//}$	Beam divergence angle (parallel)	CW, Po=120mW	7	10	12	°
θ_{\perp}	Beam divergence angle (perpendicular)	CW, Po=120mW	14	17	20	°

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OUTLINE DRAWINGS

<p>ML101J27</p>	<p>Dimensions in mm</p> <p>Technical drawing of the ML101J27 laser diode. The top view shows a circular package with a diameter of $\phi 2.0$ (P.C.D.) and a central feature with a diameter of $\phi 1.6$. A $90^\circ \pm 2^\circ$ chamfer is indicated. The side view shows a package with a total height of 6.5 ± 0.1 mm and a diameter of $\phi 3.8$ mm. A reference plane is shown at a distance of 2.27 ± 0.08 mm from the bottom. Other dimensions include 0.4 ± 0.1, 1.0 ± 0.1, 0.25 ± 0.03, $\phi 5.6 \pm 0.03$, $\phi 4.4$, $\phi 3.55$, 0.2, and $3 - \phi 0.45$. The bottom view shows three pins labeled (1), (3), and (2).</p>	<p>Schematic diagram of the laser diode symbol. It shows a circle with a diagonal line and a dot, labeled LD. Pin (1) is on the left, pin (2) is at the bottom, and pin (3) is on the right. Pin (3) is labeled CASE. Arrows indicate light emission from the diode.</p>
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There is no model with a monitor photo diode in ML1XX27 series.

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