

MITSUBISHI LASER DIODES  
**ML1XX21 SERIES**  
 FOR OPTICAL INFORMATION SYSTEMS

**TYPE  
NAME**

**ML101J21**

**DESCRIPTION**

ML1XX21 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 160mW.

ML1XX21 has a real-index-waveguide which improves the slope efficiency (reduction of the operating current) and the astigmatic distance.

Also, ML1XX21 has a window-mirror-facet which improves the maximum output power. That leads to highly reliable and high-power operation.

**FEATURES**

- High Output Power: 160mW (Pulse)
- High Efficiency: 0.95 W/A (typ.)
- Visible Light: 658nm (typ.)
- Low Aspect Ratio ( $\theta_{\perp} / \theta_{//}$ ): 1.8 (typ.)
- Low Astigmatic Distance: 1 $\mu$ 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	<b>80</b>	mW
		Pulse(Note 2)	<b>160</b>	
VRL	Reverse voltage	-	<b>2</b>	V
Tc	Case temperature	-	<b>-10 ~ +75</b>	°C
Tstg	Storage temperature	-	<b>-40 ~ +100</b>	°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.

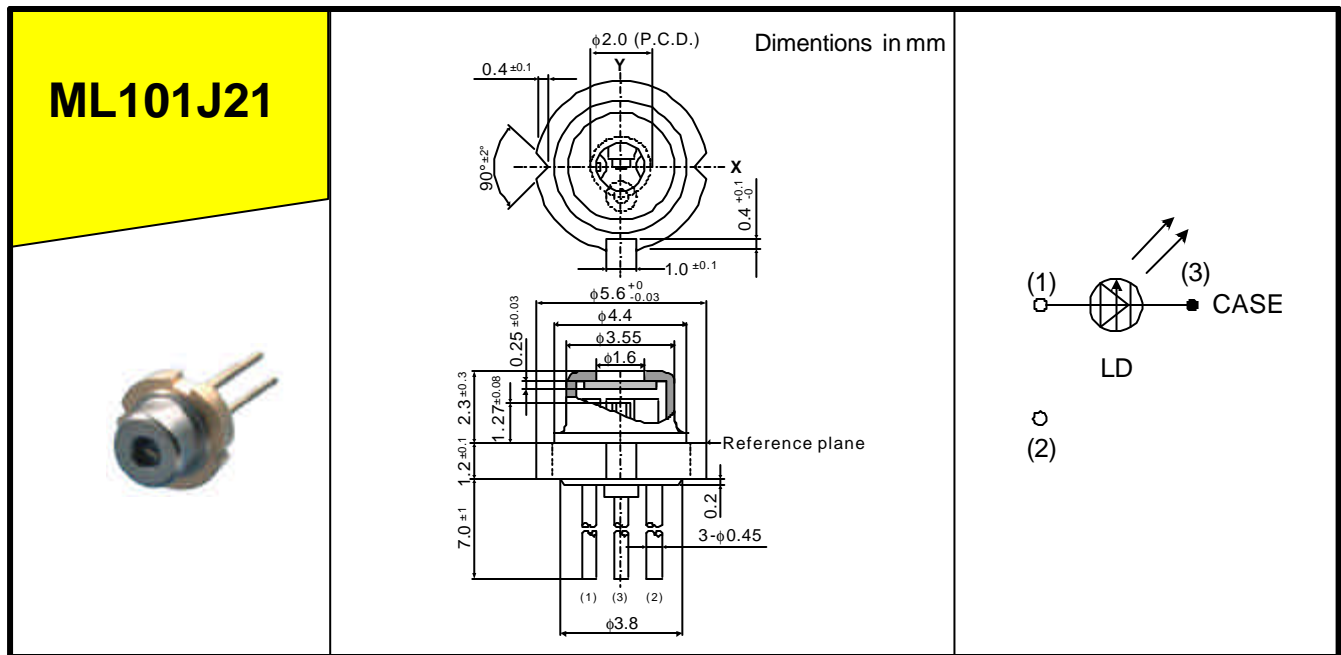
Note2: TARGET SPEC /Condition Duty Cycle: less than 50%, pulse width: less than 50ns

**ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25° C)**

Symbol	Parameter	Test conditions	Min.	Typ.	Max	Unit
I <sub>th</sub>	Threshold current	CW	-	<b>65</b>	-	mA
I <sub>op</sub>	Operating current	CW, Po=80mW	-	<b>150</b>	-	mA
V <sub>op</sub>	Operating voltage	CW, Po=80mW	-	<b>2.4</b>	<b>3.0</b>	V
$\eta$	Slope efficiency	CW, Po=80mW	-	<b>0.95</b>	-	mW/mA
$\lambda_p$	Peak wavelength	CW, Po=80mW	<b>654</b>	<b>658</b>	<b>662</b>	nm
$\theta_{//}$	Beam divergence angle (parallel)	CW, Po=80mW	<b>7</b>	<b>9.5</b>	<b>12</b>	°
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW, Po=80mW	<b>14</b>	<b>17</b>	<b>20</b>	°

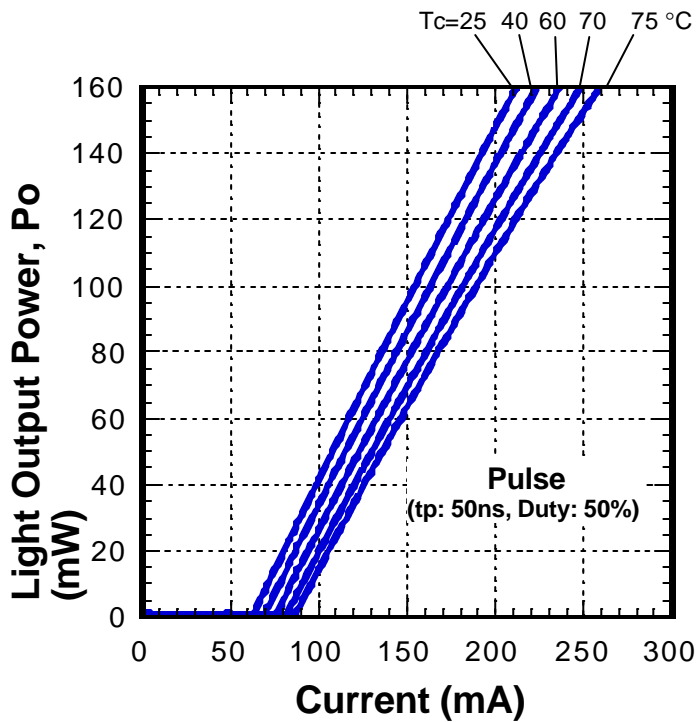
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**OUTLINE DRAWINGS**

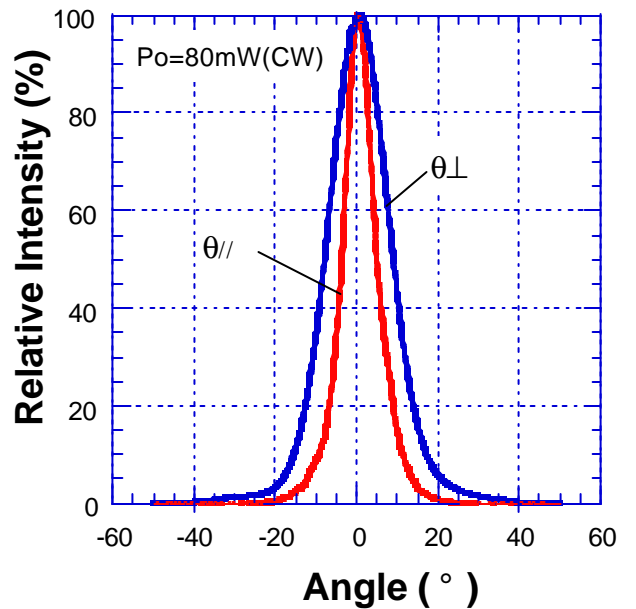


There is no model with a monitor photo diode in ML1XX21 series.

**Typical Characteristics**



Light Output Power vs. Current (Pulse)



Far-Field-Patterns

### **Requests Regarding Safety Designs**

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