

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 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 | 80 | mW |
| | | Pulse(Note 2) | 160 | |
| 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.

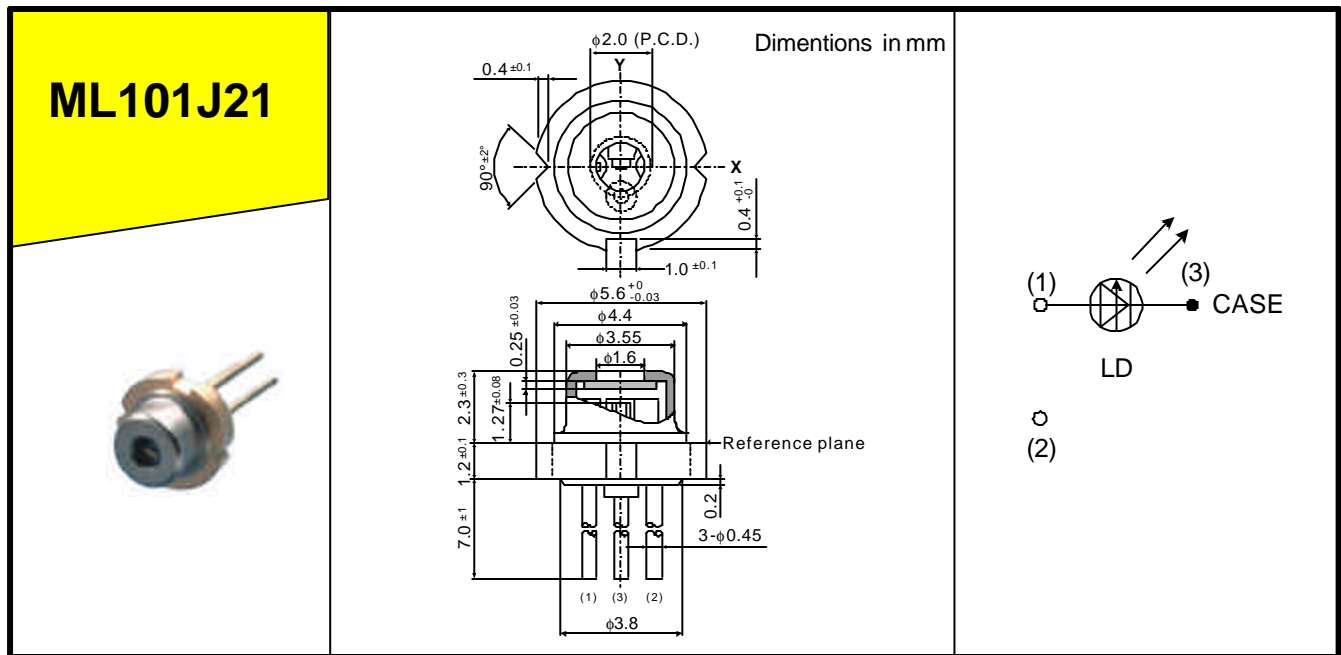
Note2: TARGET SPEC /Condition Duty Cycle: less than 50%, pulse width: less than 50ns

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25° C)

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

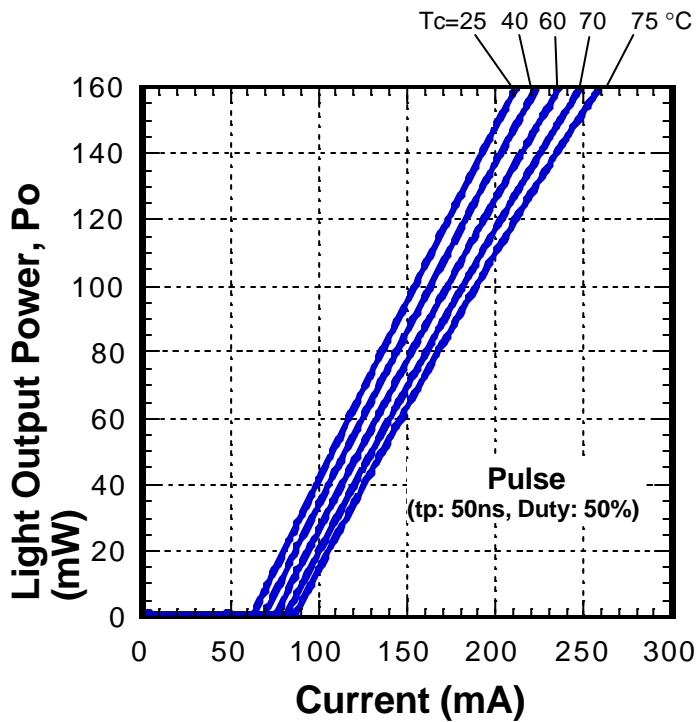
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OUTLINE DRAWINGS

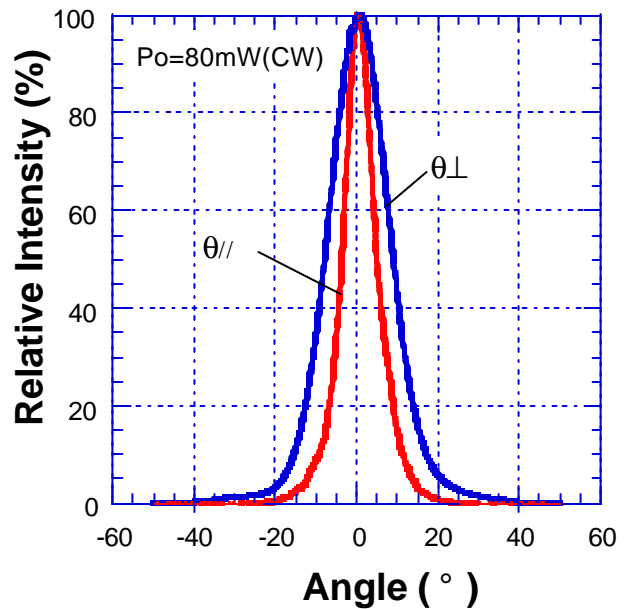


There is no model with a monitor photo diode in ML1XX21 series.

Typical Characteristics



Light Output Power vs. Current (Pulse)



Far-Field-Patterns

Requests Regarding Safety Designs

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