

MITSUBISHI LASER DIODES

# ML7XX19 SERIES

1310nm InGaAsP FP LASER DIODES

## TYPE NAME

**ML720J19S,ML720K19S**  
**ML725B19F,ML725C19F**

## DESCRIPTION

ML7xx19 are InGaAsP laser diode which provides a stable, single transverse mode oscillation with emission wavelength of 1310nm and standard continuous light output power of 5mW.

ML7xx19 are hermetically sealed devices having the photodiode for optical output monitoring. This high-performance, high reliability, and long-life laser diode is suitable for such applications as the light sources for optical communication systems up to 2.5Gbps transmission applications.

## FEATURES

- 1310nm, fabry-perot LDs
- High reliability, long operation life
- Have a lens-cap ( ML720K19S,ML725C19F)
- Wide tem. range operation ( Tc= - 40 ~ + 85 ° C)
- MQW\* active layer

\* Multiple Quantum Well

## APPLICATION

- Optical communication system

## ABSOLUTE MAXIMUM RATINGS

| Symbol           | Parameter           | Conditions | Ratings[Note1] | Unit |
|------------------|---------------------|------------|----------------|------|
| P <sub>o</sub>   | Light output power  | CW         | 10[7]          | mW   |
| V <sub>RL</sub>  | Reverse voltage(LD) | -          | 2              | V    |
| V <sub>RD</sub>  | Reverse voltage(PD) | -          | 20             | V    |
| I <sub>F</sub>   | Forward current(PD) | -          | 2              | mA   |
| T <sub>c</sub>   | Case temperature    | -          | - 40 ~ +85     | °C   |
| T <sub>stg</sub> | Storage temperature | -          | - 40 ~ +100    | °C   |

## ELECTRICAL/OPTICAL CHARACTERISTICS (T<sub>c</sub>=25 ° C) [ Note 1 ]

| Symbol                         | Parameter                             | Test conditions                                                   | Min.     | Typ.       | Max  | Unit  |
|--------------------------------|---------------------------------------|-------------------------------------------------------------------|----------|------------|------|-------|
| I <sub>th</sub>                | Threshold current                     | CW                                                                | -        | 5          | 15   | mA    |
| I <sub>op</sub>                | Operation current                     | CW,P <sub>o</sub> =5mW[3mW]                                       | -        | 20         | 30   | mA    |
| V <sub>op</sub>                | Operating voltage                     | CW,P <sub>o</sub> =5mW[3mW]                                       | -        | 1.1        | 1.5  | V     |
| η                              | Slope efficiency                      | CW,P <sub>o</sub> =5mW[3mW]                                       | 0.3[0.2] | 0.45[0.35] | -    | mW/mA |
| λ <sub>c</sub>                 | Center wavelength                     | CW,P <sub>o</sub> =5mW[3mW]                                       | 1290     | 1310       | 1330 | nm    |
| Δλ                             | Spectral width(RMS , -20dB)           | CW,P <sub>o</sub> =5mW[3mW], RMS                                  | -        | 1.0        | 2.0  | nm    |
| θ <sub>  </sub>                | Beam divergence angle (parallel)      | CW,P <sub>o</sub> =5mW[3mW]                                       | -        | 25[11]     | -    | °     |
| θ <sub>⊥</sub>                 | Beam divergence angle (perpendicular) | CW,P <sub>o</sub> =5mW[3mW]                                       | -        | 30[11]     | -    | °     |
| τ <sub>r</sub> ,τ <sub>f</sub> | Rise and fall times                   | I <sub>b</sub> =I <sub>th</sub> ,P <sub>o</sub> =5mW[3mW],20%-80% | -        | 0.08       | 0.15 | ns    |
| I <sub>m</sub>                 | Monitoring current                    | CW,P <sub>o</sub> =5mW[3mW],VRD=1V                                | 0.1      | 0.5        | 0.9  | mA    |

Note 1 : [ ] applied to the lens cap type



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ELECTRIC

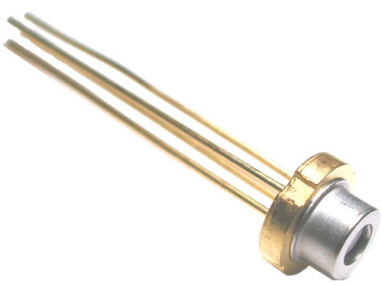
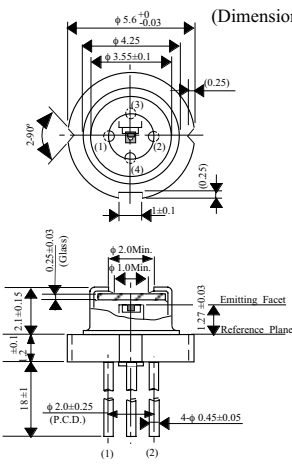
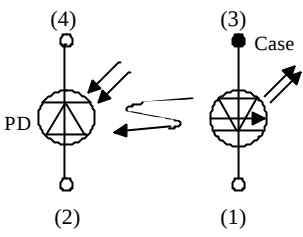
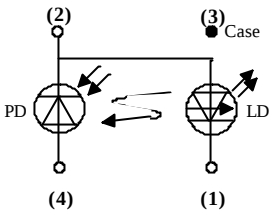
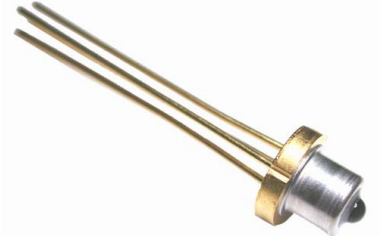
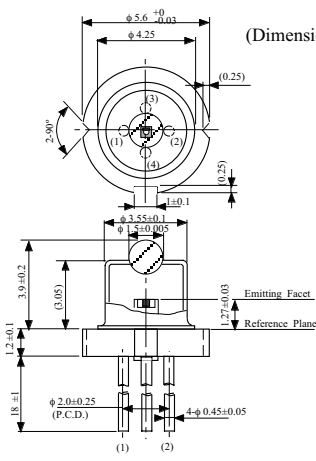
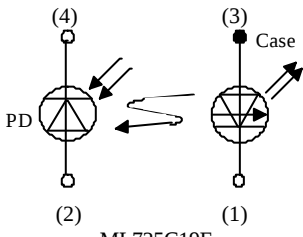
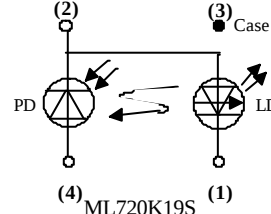
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1310nm InGaAsP FP LASER DIODE

OUTLINE DRAWINGS

|                                                                                                                                  |                                                                                                          |                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>ML720J19S</b><br/><b>ML725B19F</b></p>    | <p>(Dimension:mm)</p>   |  <p>ML725B19F</p>  <p>ML720J19S</p>    |
| <p><b>ML720K19S</b><br/><b>ML725C19F</b></p>  | <p>(Dimension:mm)</p>  |  <p>ML725C19F</p>  <p>ML720K19S</p> |

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1310nm InGaAsP FP LASER DIODE

TYPICAL CHARACTERISTICS

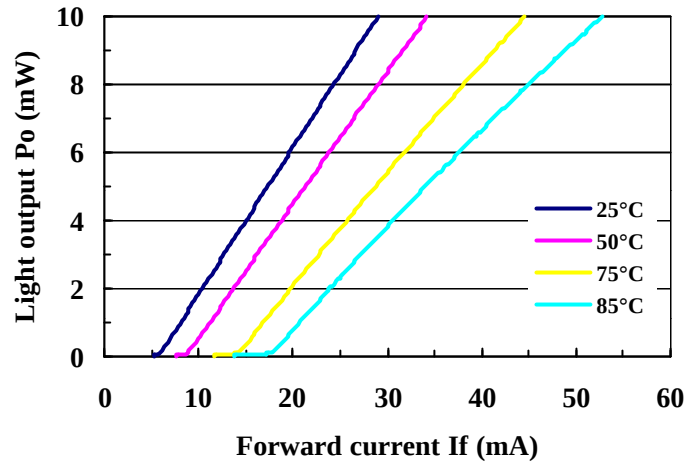


Fig. 1 Light output v.s. forward current

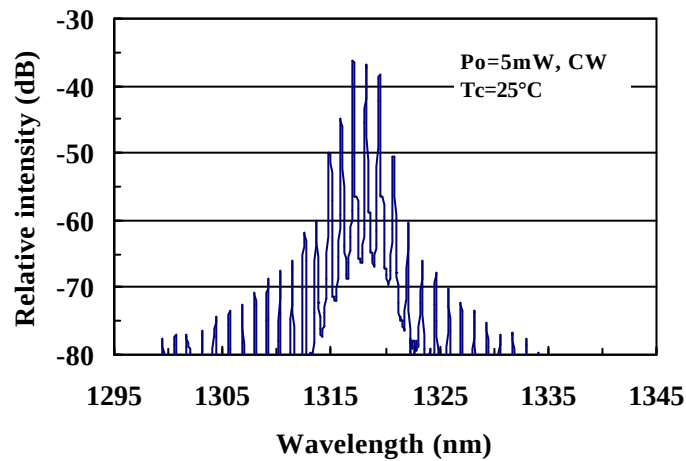


Fig. 2 Spectrum

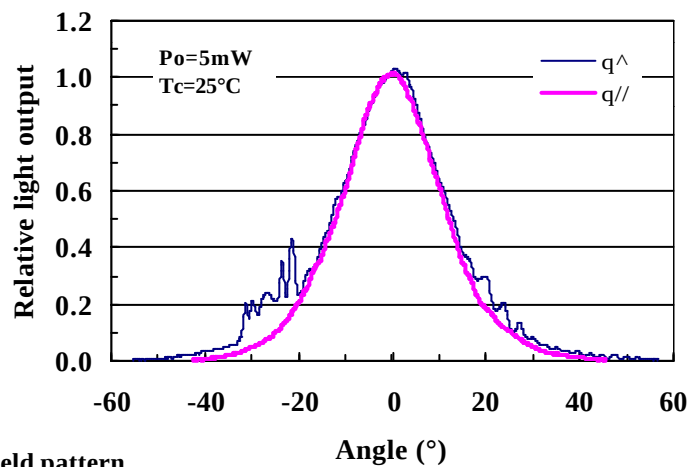


Fig. 3 Far field pattern