

MITSUBISHI LASER DIODES
ML7XX8 SERIES
 InGaAsP – MQW – FP LASER DIODES

Notice: Some parametric limits are subject to change.

**TYPE
NAME**

**ML720J8S, ML720K8S
ML725B8F, ML725C8F, ML725J8F**

DESCRIPTION

ML7XX8 series are InGaAsP laser diodes which provide a stable, single transverse mode oscillation with emission wavelength of 1310nm and standard continuous light output of 5mW.

ML7XX8 are hermetically sealed devices having the photo diode for optical output monitoring. This is suitable for such applications as the light sources for optical communication systems.

FEATURES

- 1310nm typical emission wavelength, FP-LDs
- Low threshold current, low operating current
- Wide temperature range operation (-40 to 85°C)
- φ5.6mm TO-CAN package
 Flat window cap : ML720J8S, ML725B8F
 Ball lens cap : ML720K8S, ML725C8F
 Aspherical lens cap : ML725J8F

APPLICATION

- Optical communication system

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Conditions | Ratings | Unit |
|--------|-----------------------|------------|-------------|------|
| Po | Light output power | CW | 10[7] | mW |
| VRL | Laser reverse voltage | - | 2 | V |
| VRD | PD reverse voltage | - | 20 | V |
| IFD | PD forward current | - | 2 | mA |
| Tc | Operation temperature | - | -40 to +85 | °C |
| Tstg | Storage temperature | - | -40 to +125 | °C |

ELECTRICAL/OPTICAL CHARACTERISTICS(Tc=25°C)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------|--------------------------------------|-------------------------|-----------|-----------|-----------|-------|
| Ith | Threshold current | CW | 3 | 5 | 15 | mA |
| Iop | Operation current | CW, Po=5mW | 10 | 20 | 35 | mA |
| Vop | Operating voltage | CW, Po=5mW | --- | 1.1 | 1.5 | V |
| η | Slope efficiency | CW, Po=5mW | 0.3[0.2] | 0.5[0.35] | 0.7[0.5] | mW/mA |
| λc | Center wavelength | CW, Po=5mW | 1290 | 1310 | 1330 | nm |
| Δλ | Spectral Width | CW, Po=5mW,RMS(-20dB) | --- | 1.0 | 2.0 | nm |
| θ// | Beam divergence angle(parallel) | CW, Po=5mW | --- | 25[11] | --- | deg. |
| θ⊥ | Beam divergence angle(perpendicular) | CW, Po=5mW | --- | 30[11] | --- | deg. |
| tr,tf | Rise and Fall time (20%-80%) | Ib=Ith,Po=5mW,10-90% | --- | 0.3 | 0.7 | nsec |
| Im | Monitor Current (PD) | CW, Po=5mW, VRD=1V, | 0.1 | 0.5 | 0.9 | mA |
| Id | Dark Current (PD) | VRD=10V | --- | --- | 0.1 | μA |
| Ct | Capacitance (PD) | VRD=10V, f=1MHz | --- | 10 | 20 | pF |
| Pf <2> | Fiber coupled power | CW, PL=5mW,S110/125 | [0.4/1.5] | [0.8/2.0] | [---] | mW |
| Df <2> | Fiber coupled distance | CW, PL=5mW,S110/125 <3> | [5.0/6.0] | [5.8/7.5] | [6.2/9.0] | mm |

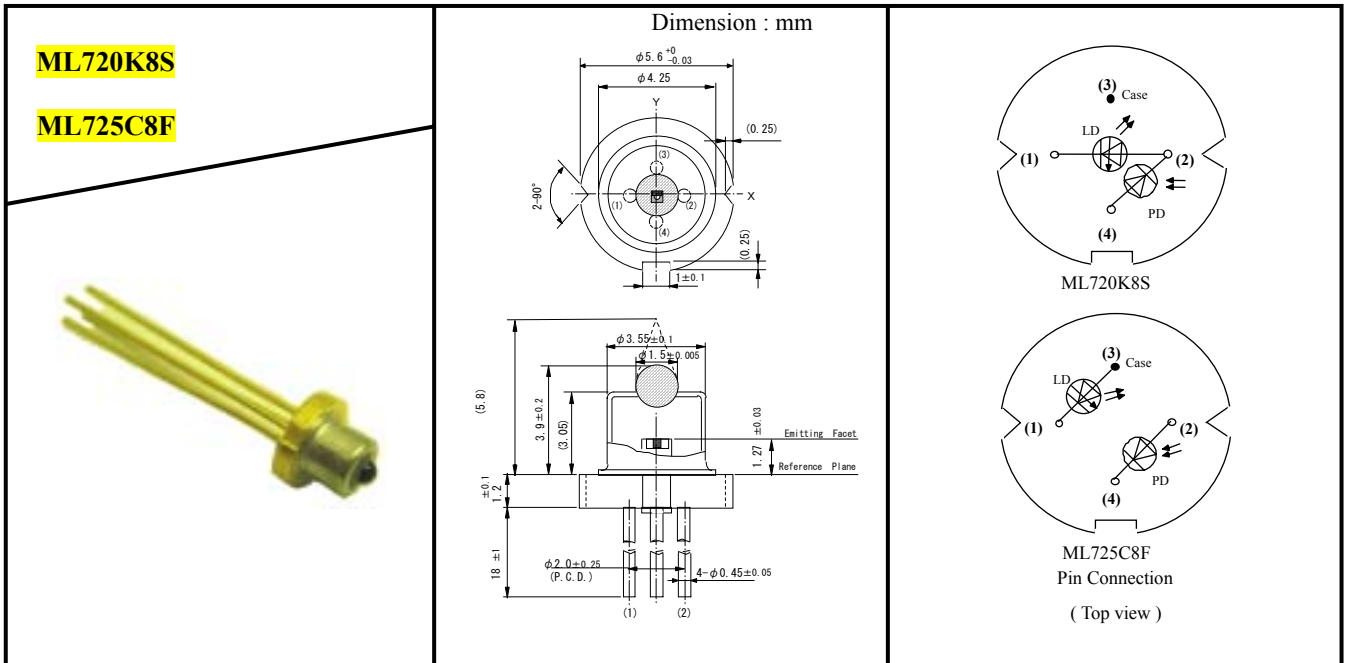
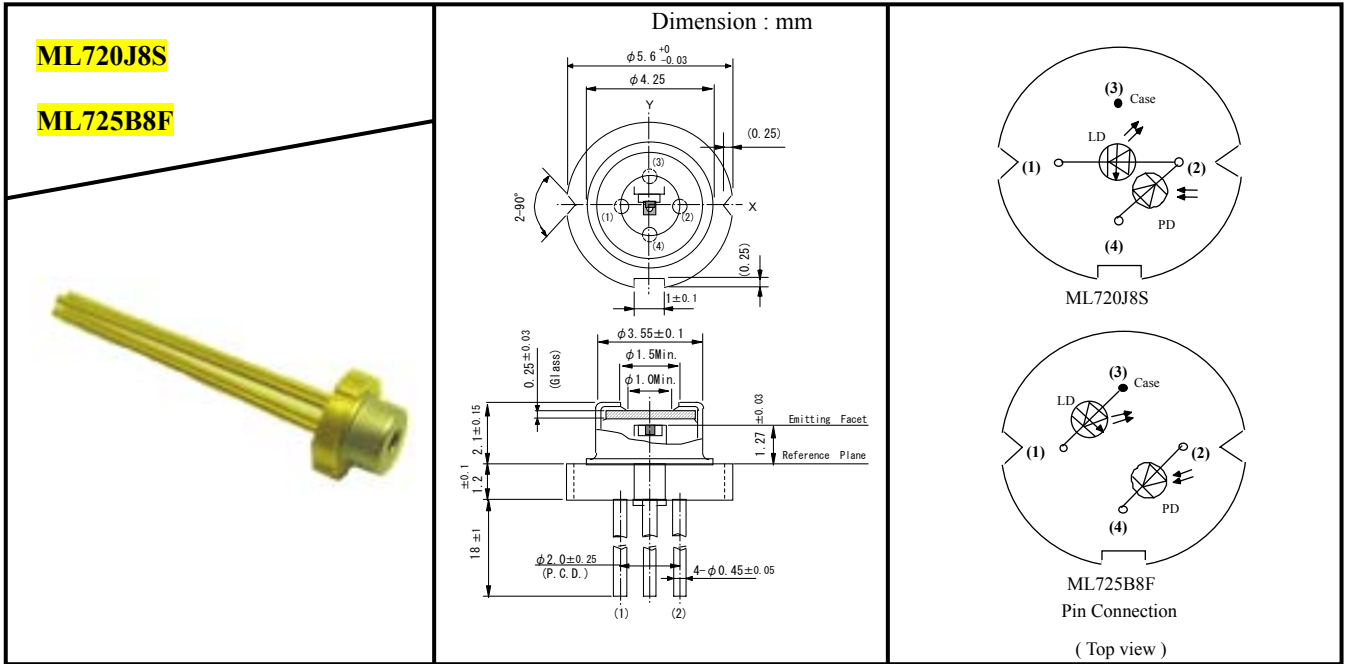
Note : <1> [] applied to the lens cap type.

Note : <2> Pf, Df are applied to the [ball lens type/aspherical lens type].

Note : <3> Df is a distance between reference plane of the base to the fiber.

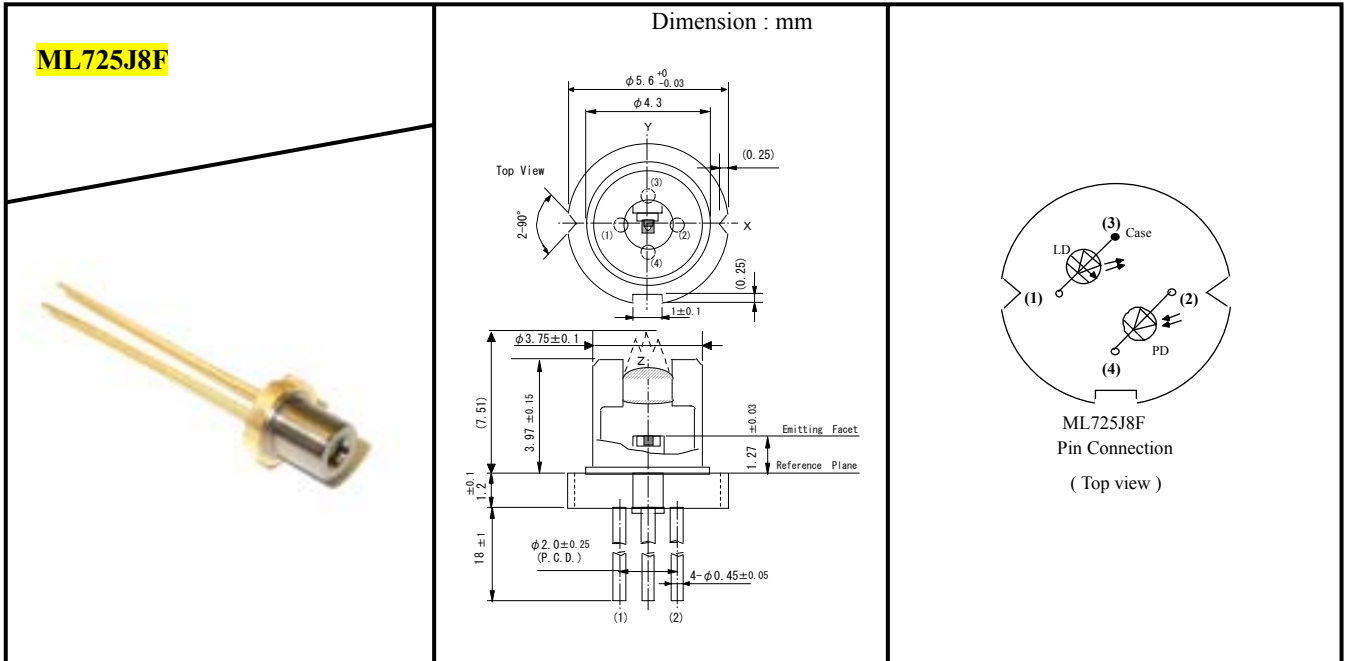
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OUTLINE DRAWINGS



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TYPICAL CHARACTERISTICS

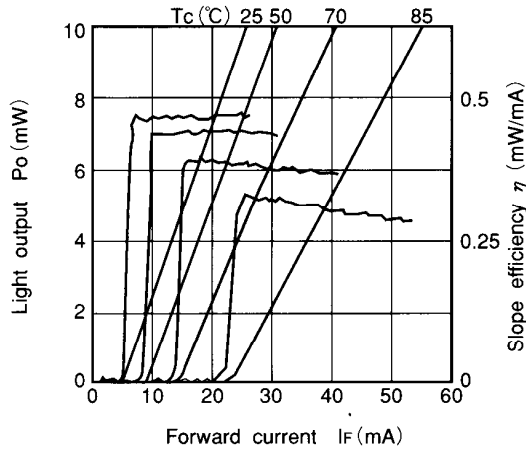


Fig.1 Light output vs. forward current

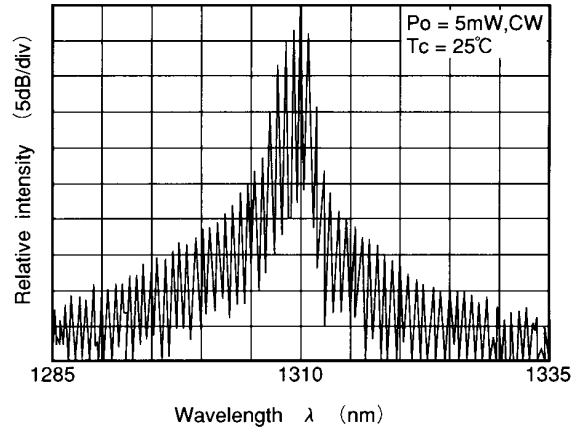


Fig.52 Spectrum

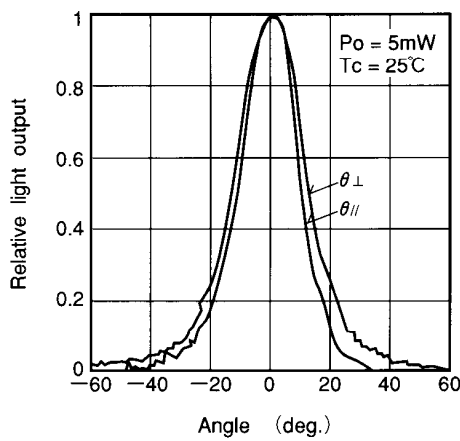


Fig.3 Far field pattern

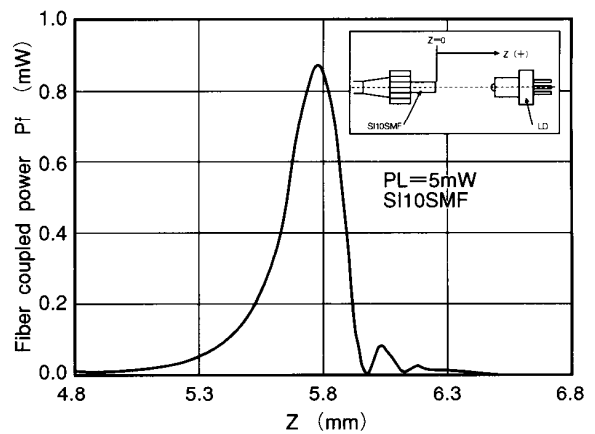
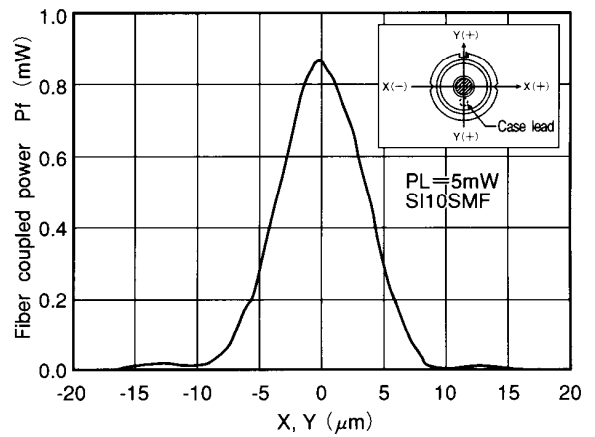


Fig.4 Fiber coupling characteristics
(ML725C8F, ML720K8S)