

MITSUBISHI LASER DIODES

ML7XX8 SERIES

InGaAsP - MQW - FP LASER DIODES

**TYPE
NAME**

ML701B8R , ML725B8F , ML725C8F
ML720J8S , ML720K8S , ML725J8F

DESCRIPTION

ML7XX8 series are InGaAsP laser diodes which provides a stable, single transverse mode oscillation with emission wavelength of 1310nm and standard continuous light output of 10mW.

ML7XX8 are hermetically sealed devices having the photo diode for optical output monitoring. This high-performance, high reliability, and long-life laser diode is suitable for such applications as the light sources for long distance optical communication systems.

FEATURES

- 1310nm typical emission wavelength
- Low threshold current, low operating current
- High-power, wide temp. range operation
(Po=10mW, Tc=-40 to +85 deg.C)
- Have a lens-cap
ML725C35F, ML720K35S = ball lens
ML725J8F = Aspherical lens
- MQW* active layer
* Multiple Quantum Well

APPLICATION

Optical communication system

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings[Note 1]	Unit
Po	Light output power	-	10[7]	mW
VRL	Reverse voltage (laser diode)	-	2	V
VRD	Reverse voltage (Photodiode)	-	20	V
IFD	Forward current (Photodiode)	-	2	mA
Tc	Case temperature	-	-40 ~ +85	deg.C
Tstg	Storage temperature	-	-40 ~ +100	deg.C

ELECTRICAL/OPTICAL CHARACTERISTICS(Tc=25deg.C) [Note 1]

Symbol	Parameter	Test conditions	Min.	Typ.	Max	Unit
I _{th}	Threshold current	CW	-	5	15	mA
I _{op}	Operating current	CW, Po=5mW	-	20	35	mA
V _{op}	Operating voltage	CW, Po=5mW	-	1.1	1.5	V
η	Slope efficiency	CW, Po=5mW	0.3[0.2]	0.4[0.3]	-	mW/mA
λ _p	Peak wavelength	CW, Po=5mW	1290	1310	1330	nm
Δλ	Spectral width (RMS)	CW, Po=5mW	-	1	2	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	If=I _{th} , Po=5mW, 10 - 90%	-	0.3	0.7	ns
I _m	Monitoring output current	CW, Po=5mW, V _{RD} =1V	0.1	0.5	-	mA
I _D	Dark current (Photodiode)	V _{RD} =10V	-	0.01	0.1	μA
C _t	Capacitance (Photodiode)	V _{RD} =10V, f=1MHz	-	10	20	pF
P _f (Note 2)	Fiber coupled power	CW, Po=5mW, S _{10/125}	[0.4/1.5]	[0.8/2.0]	[---]	mW
D _f (Note 2)	Fiber coupled distance	CW, Po=5mW, S _{10/125} (Note 3)	[5.0/6.0]	[5.8/7.5]	[6.2/9.0]	mm

Note 1 : [] applied to the lens cap type

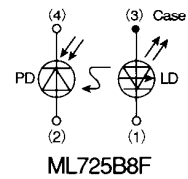
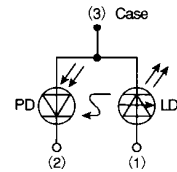
Note 2 : P_f, D_f are applied to the [ball lens type/aspherical lens type]

Note 3 : D_f is a distance from the reference plane to the fiber.

ML7XX8 SERIES

OUTLINE DRAWINGS

Technical drawing of the rear view of a lamp, showing a cross-section of the glass envelope and internal components. The drawing includes dimensions for the glass envelope, internal structure, and mounting base. Key dimensions include: overall diameter $\phi 20.0 \pm 0.25$ (P.C.D.), glass thickness 0.4, internal diameter $\phi 5.6 \pm 0.03$, internal diameter 4.4 Max, internal diameter $\phi 3.55 \pm 0.1$, internal diameter $\phi 1.6 \pm 0.2$, and mounting base diameter $3 - \phi 0.45 \pm 0.05$. The drawing also shows a $90^\circ \pm 5^\circ$ angle, a 1.0 mm dimension, a 1.27 ± 0.1 mm dimension, and a 15 ± 1 mm dimension. The drawing is labeled "Reference plane" and "Luminous point".



Technical drawing of a mechanical part, likely a valve or plug, showing dimensions and labels. The drawing includes a top view and a side view.

Top View Dimensions:

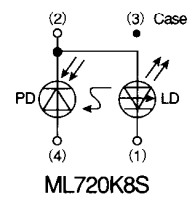
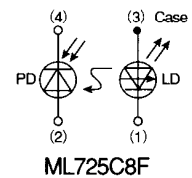
- Outer diameter: $\phi 5.6 \pm 0.03$
- Inner diameter (hole): $\phi 4.25$
- Inner diameter (hole): $\phi 3.55 \pm 0.1$
- Angle: $2-90^\circ \pm 5'$
- Radius: $R(0.25)$
- Feature labels: (1), (2), (3), (4)

Side View Dimensions:

- Top section diameter: $\phi 1.5$
- Top section length: 1 ± 0.1
- Reference plane
- Bottom section diameter: $\phi 2.0 \pm 0.25$
- Bottom section length: $4-\phi 0.45 \pm 0.05$
- Bottom section length: 18 ± 1
- Bottom section length: 1.2 ± 0.1
- Bottom section length: 3.9 ± 0.2
- Bottom section length: (3.1)
- Feature labels: (1), (2)

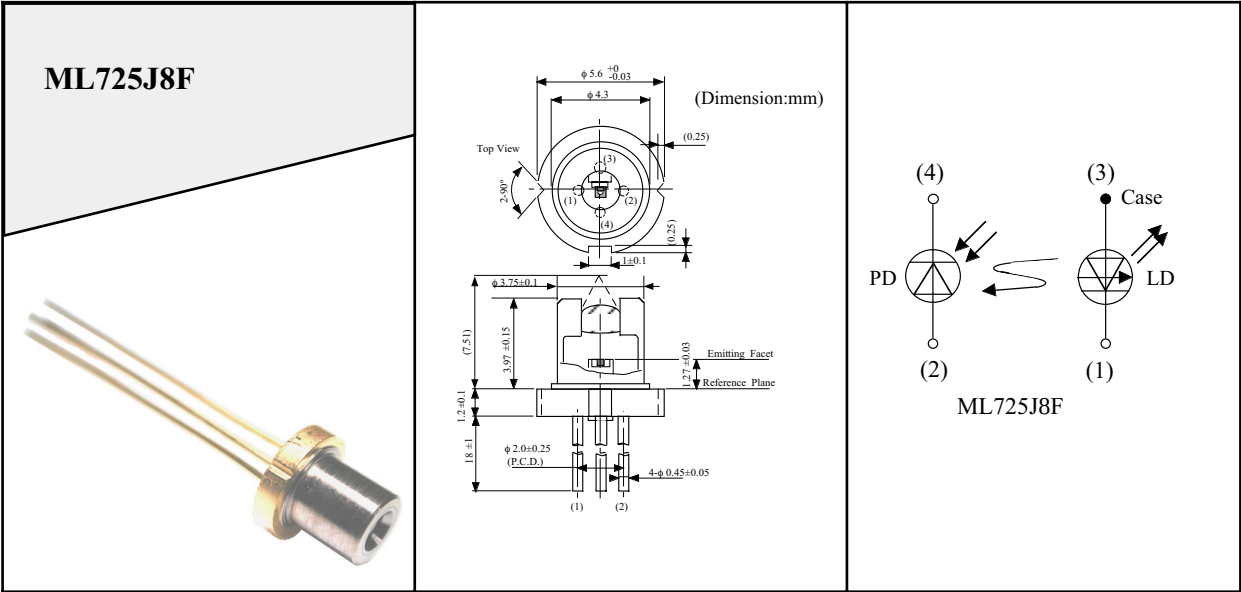
Other Labels:

- P.C.D



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

OUTLINE DRAWINGS



MITSUBISHI LASER DIODES ML7XX8 SERIES

InGaAsP — MQW — FP LASER DIODES

TYPICAL CHARACTERISTICS

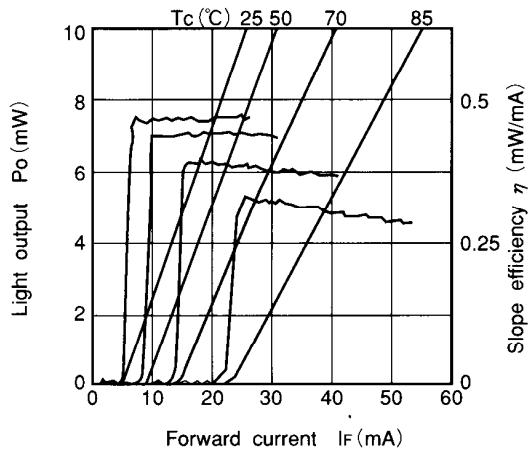


Fig.1 Light output vs. forward current

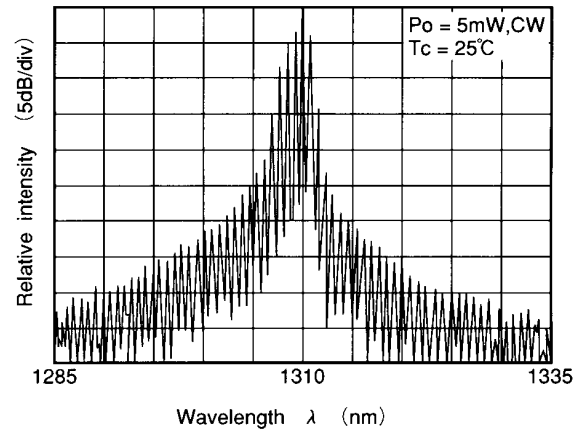


Fig.52 Spectrum

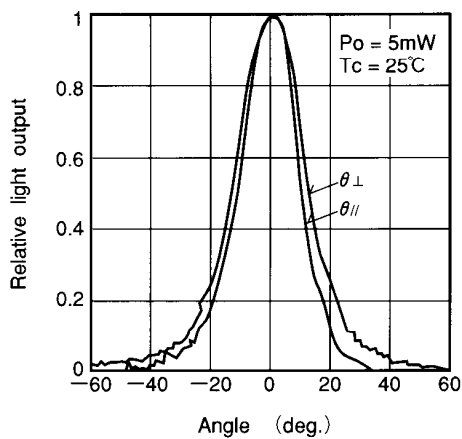


Fig.3 Far field pattern

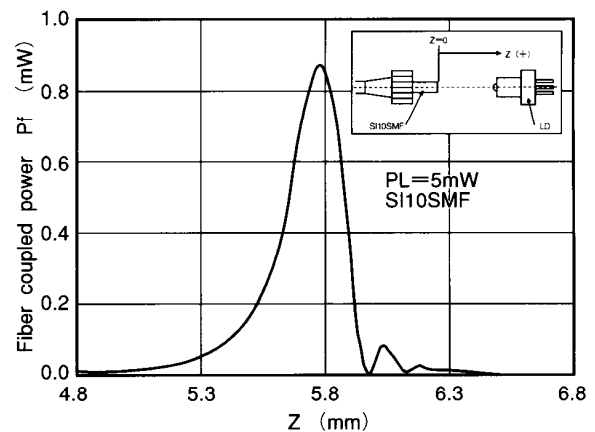
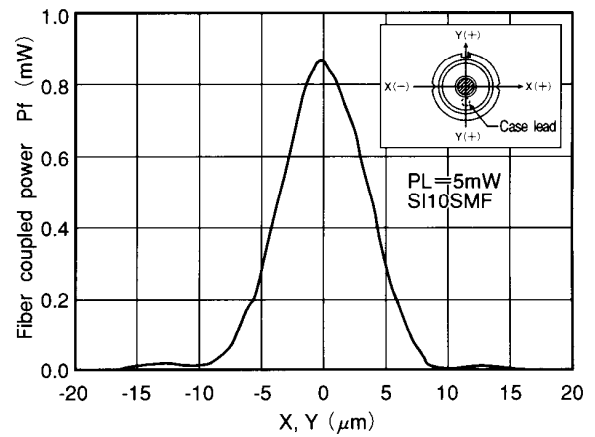


Fig.4 Fiber coupling characteristics
(ML725C8F, ML720K8S)