

MITSUBISHI LASER DIODES
ML7XX8 SERIES

InGaAsP—MQW—FP LASER DIODES

TYPE
NAME

ML701B8R, ML725B8F, ML725C8F
ML720J8S, ML720K8S

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 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 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~+85°C)
- High reliability, long operation life
- Have a lens-cap (ML725C8F, ML720K8S)
- MQW* active layer
* : Multiple Quantum Well

APPLICATION

Optical communication system

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings (Note1)	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	°C
Tstg	Storage temperature	—	-40~+100	°C

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc = 25°C)

Symbol	Parameter	Test conditions	Limits (Note1)			Unit
			Min.	Typ.	Max.	
Ith	Threshold current	CW	—	5	15	mA
IoP	Operating current	CW, Po = 5mW	—	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]	—	mW/mA
λc	Center 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 times	IF = Ith, Po = 5mW, 10~90%	—	0.3	0.7	ns
Im	Monitoring output current (Photodiode)	CW, Po = 5mW, VRD = 1V	0.1	0.5	—	mA
ID	Dark current (Photodiode)	VRD = 10V	—	0.01	0.1	μA
Ct	Capacitance (Photodiode)	VRD = 10V, f = 1MHz	—	10	20	pF
Pf (Note 2)	Fiber coupled power	CW, Po = 5mW, SI10/125	[0.4]	[0.8]	[—]	mW
Df (Note 3)	Fiber coupled distance	CW, Po = 5mW, SI10/125 (Note 3)	[5.0]	[5.8]	[6.2]	mm

Note 1 : Limits in [] applied to the lens-cap type.

Note 2 : Pf, Df are applied to the lens-cap type.

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



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TYPICAL CHARACTERISTICS

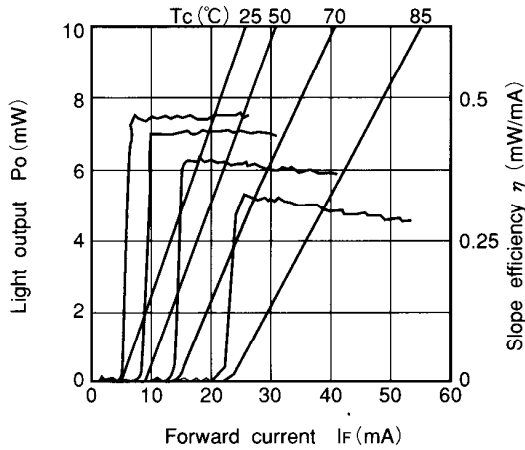


Fig.1 Light output vs. forward current

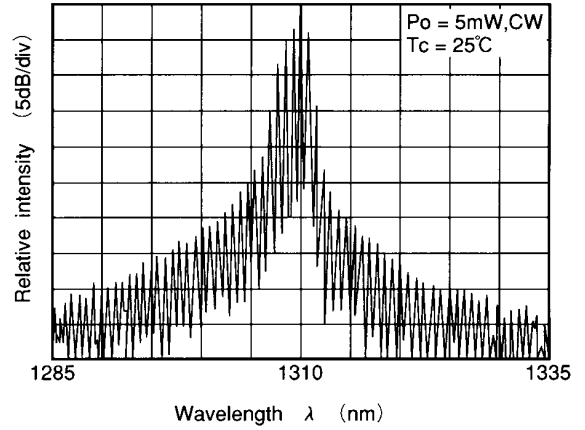


Fig.52 Spectrum

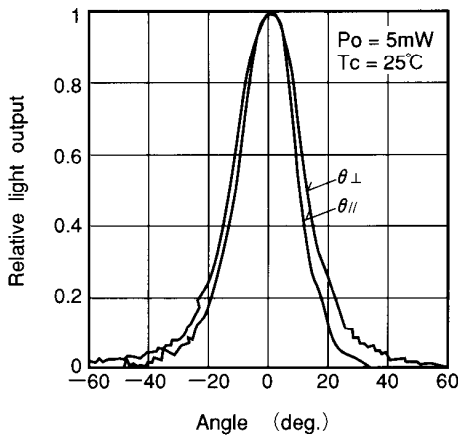


Fig.3 Far field pattern

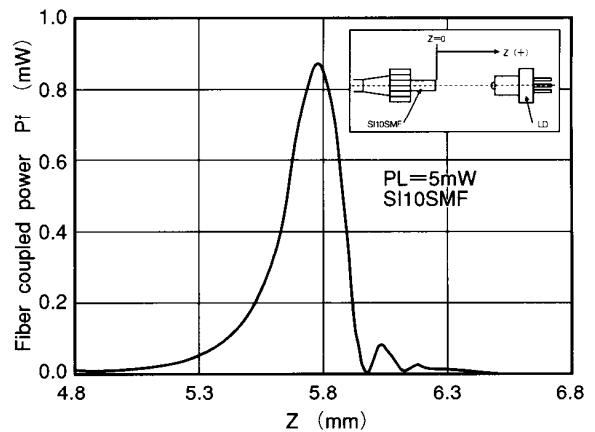
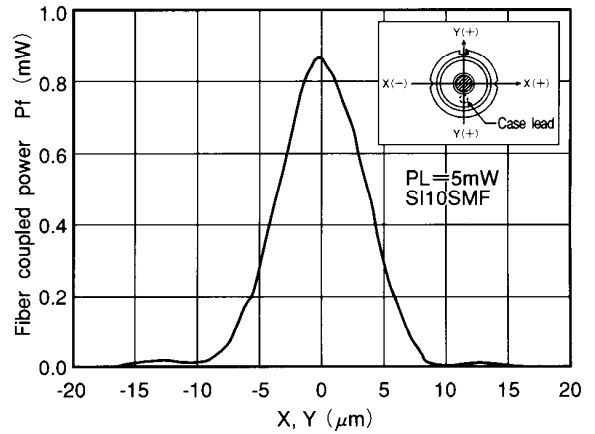
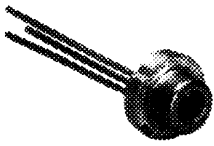
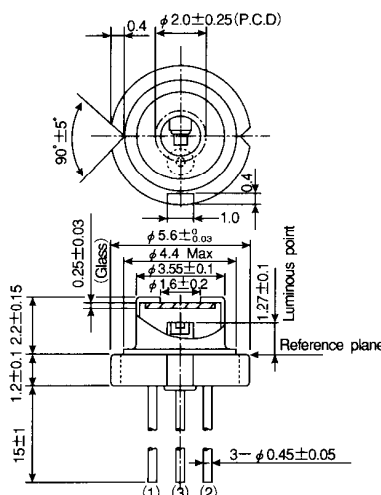
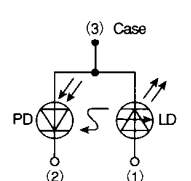
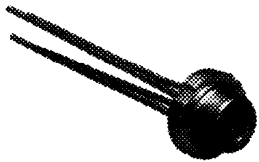
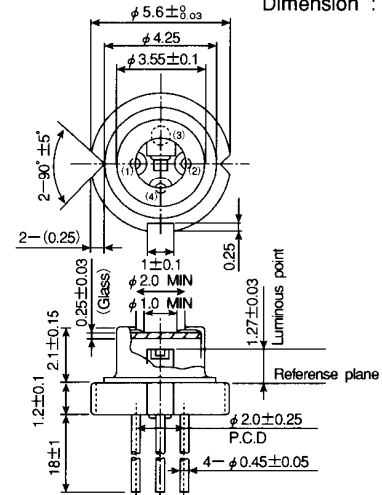
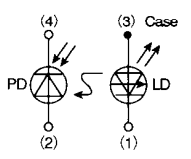
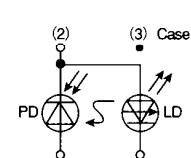

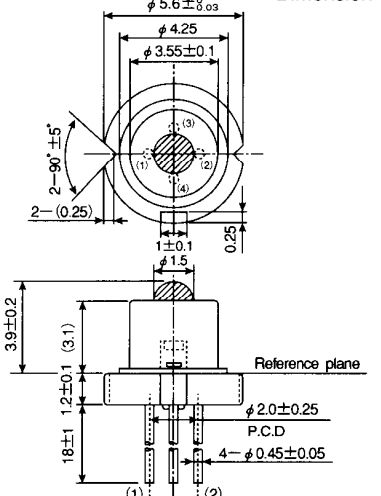
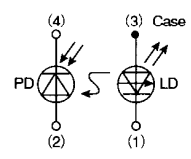
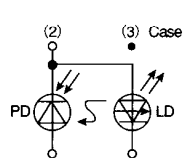


Fig.4 Fiber coupling characteristics
(ML725C8F, ML720K8S)

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OUTLINE DRAWINGS

<p>ML701B8R</p> 	<p>Dimension : mm</p> 	
<p>ML725B8F ML720J8S</p> 	<p>Dimension : mm</p> 	 <p>ML725B8F</p>  <p>ML720J8S</p>
<p>ML725C8F ML720K8S</p> 	<p>Dimension : mm</p> 	 <p>ML725C8F</p>  <p>ML720K8S</p>