

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
($P_o=10\text{mW}$, $T_c=-40\sim+85^\circ\text{C}$)
- 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
P_o	Light output power	—	10 [7]	mW
V_{RL}	Reverse Voltage (Laser diode)	—	2	V
V_{RD}	Reverse Voltage (Photodiode)	—	20	V
I_{FD}	Forward current (Photodiode)	—	2	mA
T_c	Case temperature	—	$-40\sim+85$	$^\circ\text{C}$
T_{stg}	Storage temperature	—	$-40\sim+100$	$^\circ\text{C}$

ELECTRICAL/OPTICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limits (Note1)			Unit
			Min.	Typ.	Max.	
I_{th}	Threshold current	CW	—	5	15	mA
I_{OP}	Operating current	CW, $P_o = 5\text{mW}$	—	20	35	mA
V_{OP}	Operating voltage	CW, $P_o = 5\text{mW}$	—	1.1	1.5	V
η	Slope efficiency	CW, $P_o = 5\text{mW}$	0.3 [0.2]	0.5 [0.35]	—	mW/mA
λ_c	Center wavelength	CW, $P_o = 5\text{mW}$	1290	1310	1330	nm
$\Delta\lambda$	Spectral width (RMS)	CW, $P_o = 5\text{mW}$	—	1	2	nm
$\theta_{ }$	Beam divergence angle (parallel)	CW, $P_o = 5\text{mW}$	—	25 [11]	—	deg.
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW, $P_o = 5\text{mW}$	—	30 [11]	—	deg.
t_r, t_f	Rise and fall times	$I_F = I_{th}$, $P_o = 5\text{mW}$, 10~90%	—	0.3	0.7	ns
I_m	Monitoring output current (Photodiode)	CW, $P_o = 5\text{mW}$, $V_{RD} = 1\text{V}$	0.1	0.5	—	mA
I_D	Dark current (Photodiode)	$V_{RD} = 10\text{V}$	—	0.01	0.1	μA
C_t	Capacitance (Photodiode)	$V_{RD} = 10\text{V}$, $f = 1\text{MHz}$	—	10	20	pF
P_f (Note 2)	Fiber coupled power	CW, $P_o = 5\text{mW}$, SI10/125	[0.4]	[0.8]	[—]	mW
D_f (Note 3)	Fiber coupled distance	CW, $P_o = 5\text{mW}$, SI10/125 (Note 3)	[5.0]	[5.8]	[6.2]	mm

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

Note 2 : P_f , D_f are applied to the lens-cap type.

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

MITSUBISHI LASER DIODES ML7XX8 SERIES

InGaAsP — MQW — FP LASER DIODES

TYPICAL CHARACTERISTICS

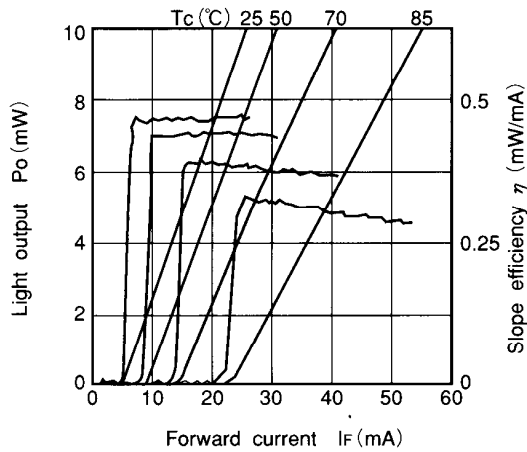


Fig.1 Light output vs. forward current

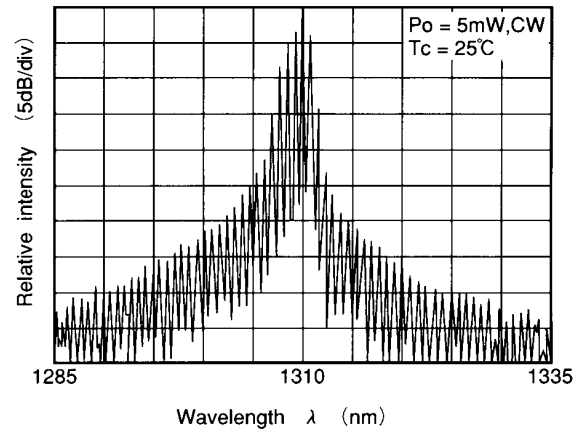


Fig.52 Spectrum

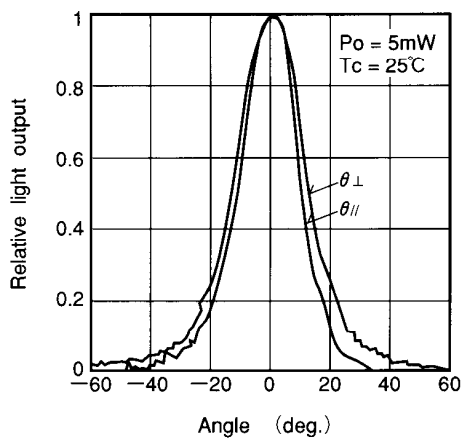


Fig.3 Far field pattern

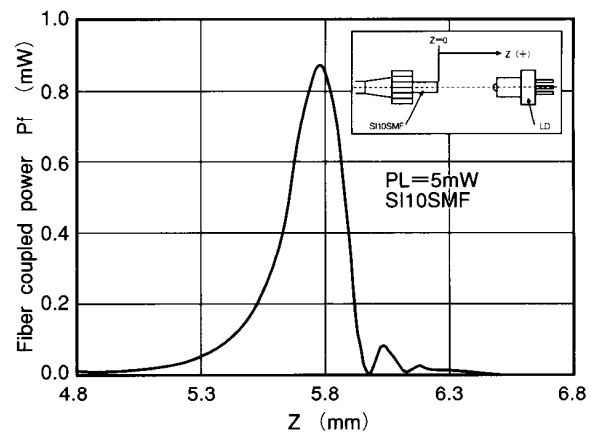
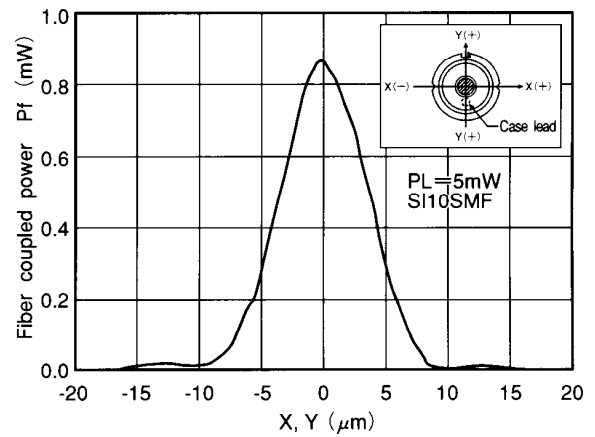
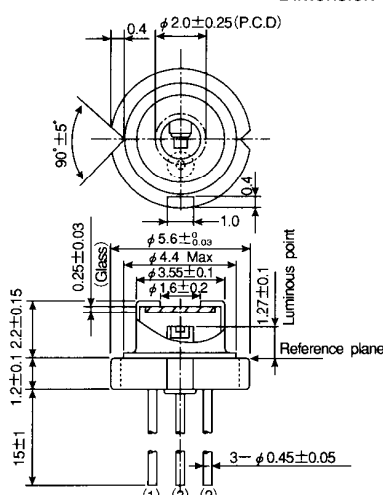
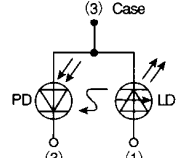
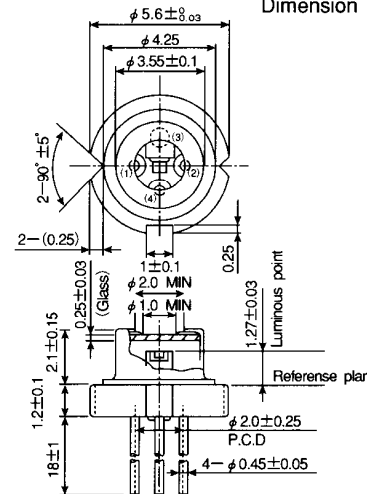
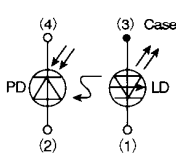
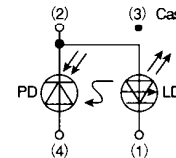
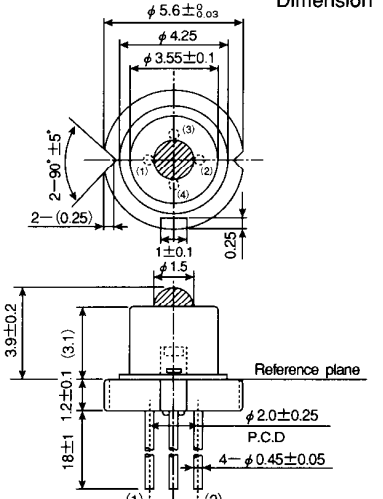
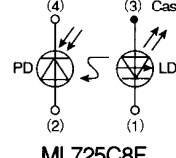


Fig.4 Fiber coupling characteristics
(ML725C8F, ML720K8S)

OUTLINE DRAWINGS

ML701B8R 	Dimension : mm 	
ML725B8F ML720J8S 	Dimension : mm 	ML725B8F  ML720J8S 
ML725C8F ML720K8S 	Dimension : mm 	ML725C8F  ML720K8S 