

**TYPE
NAME**
ML701B8R
ML776H8F, ML774F8F, ML720B8S
ML776K8F, ML774E8F, ML720D8S
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, fabry-perot LDs
 - High-power, wide temp. range operation
($P_o = 10\text{mW}$, $T_c = -40 \sim +85^\circ\text{C}$)
 - Have a lens-cap
(ML776K8F, ML774E8F, ML720B8S)
 - High reliability, long operation life
 - MQW* active layer
 - FSBH** structure fabricated by all MOCVD process
- * : Multiple Quantum Well
** : Facet Selective-growth Buried Heterostructure

APPLICATION

Optical communication system

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
P_o	Light output power	CW	10 [5]	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	—	$-40 \sim +100$	$^\circ\text{C}$

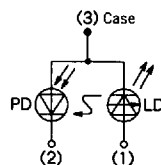
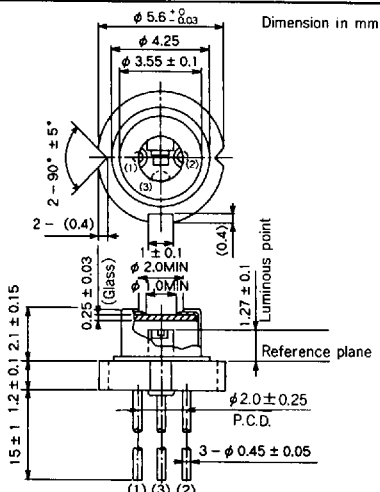
ELECTRICAL/OPTICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{th}	Threshold current	CW	—	5	20	mA
I_{OP}	Operating current	CW, $P_o = 5\text{mW}$	—	20	45	mA
V_{OP}	Operating voltage	CW, $P_o = 5\text{mW}$	—	1.1	1.5	V
η	Slope efficiency	CW, $P_o = 5\text{mW}$	0.2 [0.1]	0.5 [0.25]	—	mW/mA
λ_c	Center wavelength	CW, $P_o = 5\text{mW}$	1290	1310	1330	nm
$\Delta\lambda$	Spectral width (RMS)	CW, $P_o = 5\text{mW}$	—	1.0	3.0	nm
$\theta_{//}$	Beam divergence angle (parallel)	CW, $P_o = 5\text{mW}$	—	25 [10]	—	deg.
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW, $P_o = 5\text{mW}$	—	30 [12]	—	deg.
t_r, t_f	Rise and fall times	$I_b = I_{th}$, $P_o = 5\text{mW}$, 10%~90%	—	0.3	0.7	ns
I_m	Monitoring output current (Photodiode)	CW, $P_o = 5\text{mW}$, $V_{RD} = 1\text{V}$, $R_L = 10\Omega$	0.1	0.5	—	mA
I_D	Dark current (Photodiode)	$V_{RD} = 10\text{V}$	—	0.01	0.1	μA
C_t	Capacitance (Photodiode)	$V_{RD} = 10\text{V}$, $f = 1\text{MHz}$	—	8	20	pF

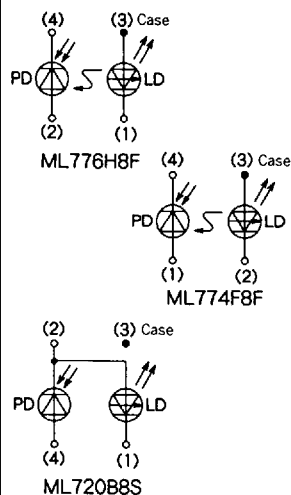
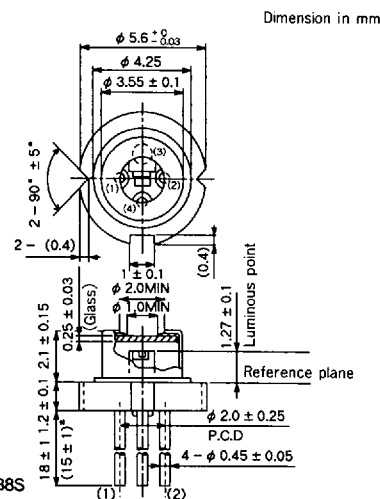
Note 1 : [] Applied to ML776K8F, ML774E8F, ML720D8S at P_L (output power from lens) = 3mW

OUTLINE DRAWINGS

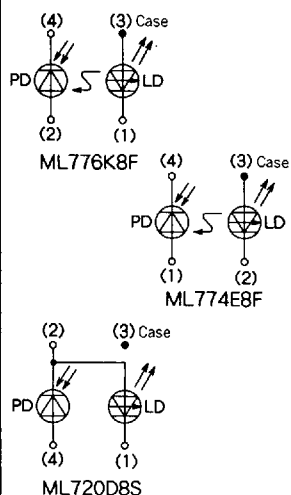
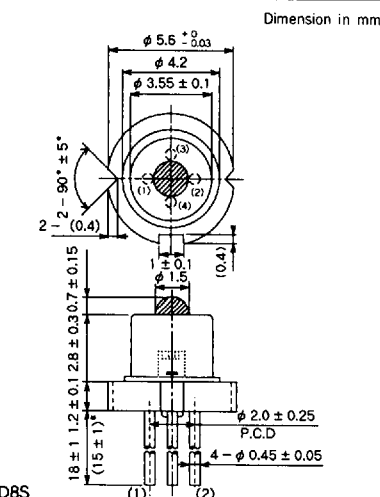
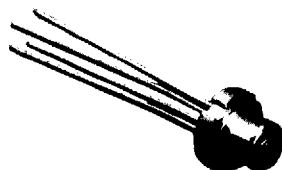
ML701B8R



ML776H8F
ML774F8F
ML720B8S



ML776K8F
ML774E8F
ML720D8S



TYPICAL CHARACTERISTICS

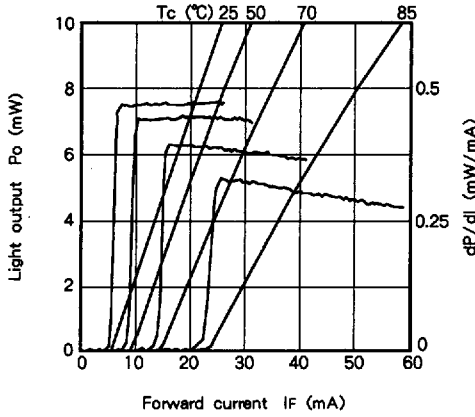


Fig. 1 Light output vs. forward current

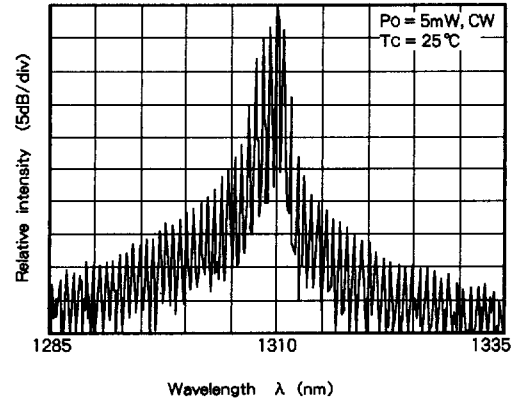


Fig. 2 Spectrum

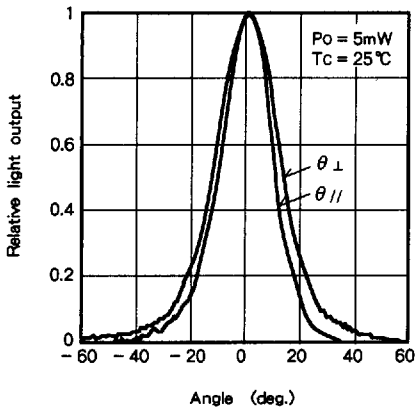


Fig. 3 Far-field pattern