

MITSUBISHI LASER DIODES
ML9XX6 SERIES

InGaAsP — MQW — FP LASER DIODES

**TYPE
NAME**

ML976H6F, ML920B6S

DESCRIPTION

ML9XX6 series are InGaAsP laser diodes which provides a stable, single transverse mode oscillation with emission wavelength of 1550nm and standard continuous light output of 5mW.

ML9XX6 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

- 1550nm typical emission wavelength
 - Low threshold current, low operating current
 - Wide temperature range operation
($T_c = -40$ to $+85^\circ\text{C}$)
 - High reliability, long operation life
 - MQW* active layer
- * : Multiple Quantum Well

APPLICATION

Long-distance optical communication system

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
P _O	Light output power	CW	6	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 ($T_c = 25^\circ\text{C}$)

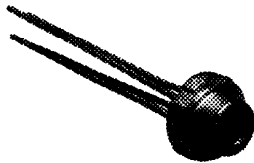
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I _{th}	Threshold current	CW	—	10	20	mA
I _{OP}	Operating current	CW, P _O = 5mW	—	30	50	mA
V _{OP}	Operating voltage	CW, P _O = 5mW	—	1.1	1.5	V
η	Slope efficiency	CW, P _O = 5mW	0.15	0.25	—	mW/mA
λ_c	Peak wavelength	CW, P _O = 5mW	1520	1550	1580	nm
$\Delta\lambda$	Spectral width (RMS)	CW, P _O = 5mW	—	1.5	3	nm
$\theta_{\parallel}$	Beam divergence angle (parallel)	CW, P _O = 5mW	—	25	—	deg.
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW, P _O = 5mW	—	30	—	deg.
t _r , t _f	Rise and fall times	I _F = I _{th} , P _O = 5mW, 10~90%	—	0.3	0.7	ns
I _m	Monitoring output current (Photodiode)	CW, P _O = 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

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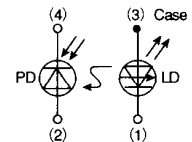
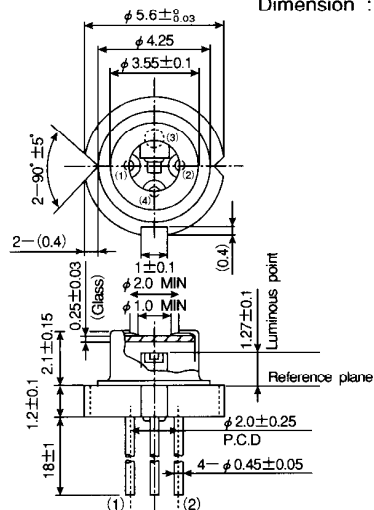
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OUTLINE DRAWINGS

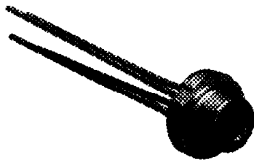
ML976H6F



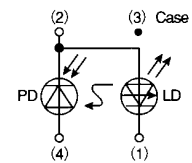
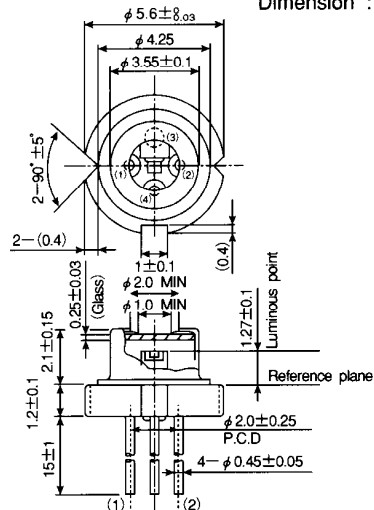
Dimension : mm



ML920B6S



Dimension : mm



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TYPICAL CHARACTERISTICS

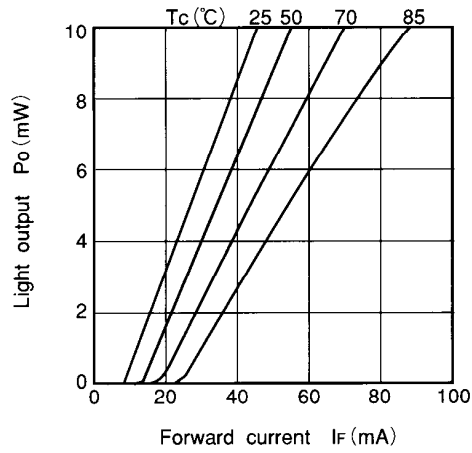


Fig.1 Light output vs. forward current

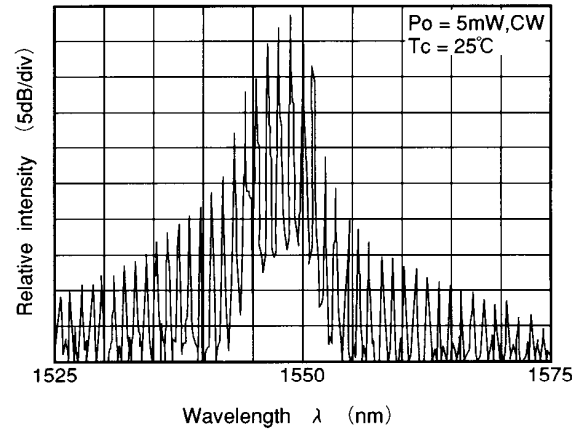


Fig.2 Spectrum

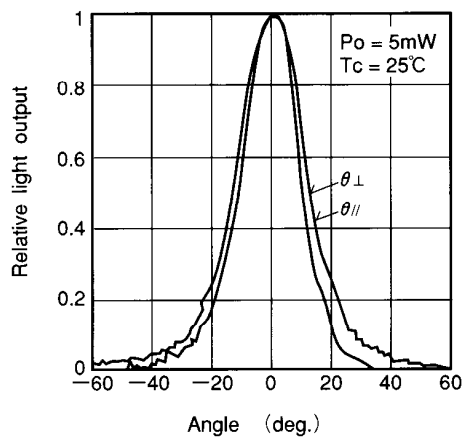


Fig.3 Far field patterns