MITSUBISHI LASER DIODES
ML1XX3 SERIES
AlGaLnP LASER DIODES

TYPE NAME

ML1013R,ML1413R,ML120G3

DESCRIPTION

ML1XX3 is a high power AlGaInP semiconductor laser which provides a stable, single transverse mode oscillation with emission wavelength of 685nm (typical) and standard continuous light output of 50mW.

FEATURES

- High power 50mW(CW)
- Short wavelength (685nm typ.)
- High reliability

APPLICATION

Optical disc drive (Higt Density)

ABSOLUTE MAXIMUM RATINGS (Note 1)

Symbol	Parameter	Conditions	Ratings	Unit
P_O	Light output power	CW	60	mW
		Pulse (Note 2)	60	
V_{RL}	Reverse voltage (laser diode)	—	2	V
V_{RD}	Reverse voltage (Photodiode)	—	30	V
I_{FD}	Forward current (Photodiode)	—	10	mA
T_C	Case temperature	—	−10～+60	℃
T_{stg}	Storage temperature	—	−10～+100	℃

Note 1: The maximum rating means the limitation over which the laser should not be operated even instant time, and this does not mean the gurantee of its lifetime.

Note 2: Duty cycle less than 50%, pulse width less than 1 μs.

ELECTRICAL/OPTICAL CHARACTERISTICS

Symbol	Parameter	Test condition	Limits			Unit
			Min.	Typ.	Max.	
I_{th}	Threshold current	CW	—	35	60	mA
I_{OP}	Operation current	CW,P_O = 50mW	—	100	140	mA
V_{OP}	Operating voltage	CW,P_O = 50mW	2.0	2.7	3.0	V
η	Slope efficiency	CW,P_O = 50mW	—	0.75	—	mW/mA
λ_P	Peak wavelength	CW,P_O = 50mW	670	685	700	nm
$\theta_{//}$	Beam divergence angle (parallel)	CW,P_O = 50mW	7	9.5	12	deg.
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW,P_O = 50mW	16	20	25	deg.
I_m	Monitoring output current (Photodiode)	CW,P_O = 50mW,V_{RD} = 1V,R_L = 10Ω *3	0.05	0.3	2.5	mA
I_D	Dark current (Photodiode)	V_{RD} = 10V	—	—	0.5	μA
C_t	Capacitance (Photodiode)	f = 1MHz,V_{RD} = 5V	—	7	—	pF

Note3:R_L=the load resistance of photodiode (ML1013R, ML1413R)

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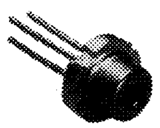
OUTLINE DRAWINGS

ML1013R
ML120G3



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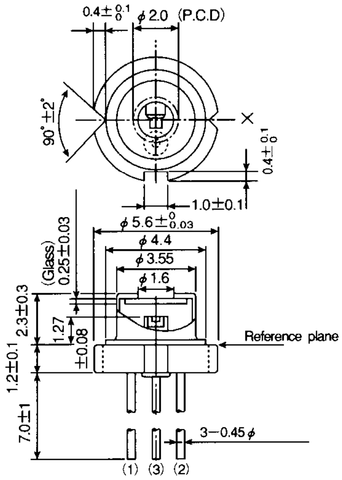
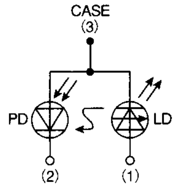
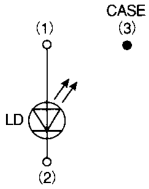


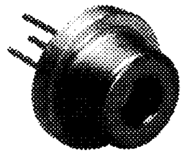


ML1013R



ML120G3

ML1413R



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