ML4XX26 SERIES

AlGaAs LASER DIODES

TYPE NAME

ML40126N,ML44126R,ML44126N

DISCRIPTION

ML4XX26 serise are AlGaAs laser diodes which provides a stable, single transverse mode oscillation with emission wavelength of 780nm and standerd continuous light output of 5mW.

ML4XX26 are produced by the MOCVD crystal growth method which is excellent in mass production and characteristics uniformity. This is a high - performance, highly reliable, and long life semiconductor laser.

FEATURES

- ●Low droop*
- ●Short astigmatic distance
- ●Low threshold current
- ●Stable transverse mode oscillation
- ●Built-in monitor photodiode

APPLICATION

Laser beam printing, laser beam copy

* Droop characteristics
  Droop characteristics indicate the amount which optical light output is down by heating up when constant pulse current is load on LD.

ABSOLUTE MAXIMUM RATINGS (Note 1)

Symbol	Parameter	Conditions	Ratingas	Unit
P_O	Light output power	CW	8	mW
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	—	−40～+60	℃
T_{stg}	Storage temperature	—	−40～+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 guarantee of its lifetime.

ELECTRICAL/OPTICAL CHARACTERISTICS (T_C = 25℃)

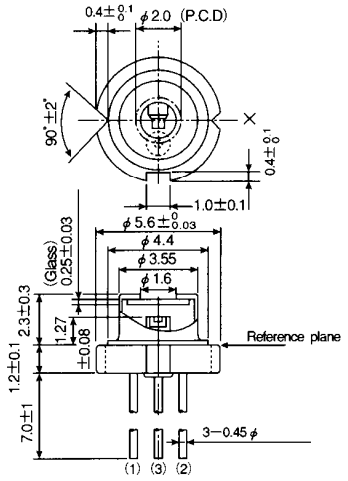
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{th}	Threshold current	CW	—	25	40	mA
I_{OP}	Operating current	CW,P_O = 5mW	—	40	70	mA
V_{OP}	Operating voltage	CW,P_O = 5mW	—	2.0	2.5	V
η	Slope efficiency	CW	0.25	0.35	0.45	mW/mA
λ_C	Center Wavelength	CW,P_O = 5mW	770	785	800	nm
$\theta_{//}$	Beam divergence angle (parallel)	CW,P_O = 5mW	9	11	15	deg.
$\theta_{\perp}$	Beam divergence angle (perpendicular)	CW,P_O = 5mW	22	29	36	deg.
I_m	Monitoring output current (photodiode)	CW,P_O = 5mW,V_{RD} = 1V,R_L = 10Ω (Note 3)	—	0.45	—	mA
I_m (Note2)			—	0.90	—	
I_D	Dark current (photodiode)	V_{RD} = 10V	—	—	0.5	μA
C_t	Capacitance (photodiode)	V_{RD} = 5V,f = 1MHz	—	7	—	pF
D	Droop	CW, P_O = 3mW	—	6	—	%

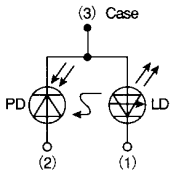
Note 2 : Applicable to ML44126R, ML44126N
3 : R_L = the load resistance of photodiode

OUTLINE DRAWING

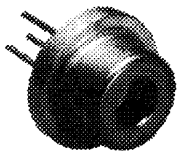
ML40126N

Dimention : mm

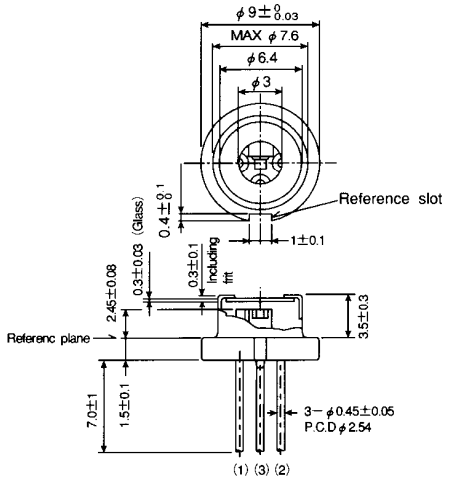


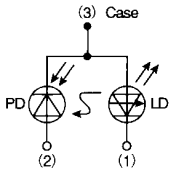


ML44126R/ ML44126N

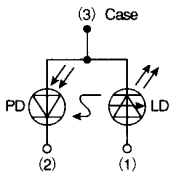


Dimention : mm





ML44126N



ML44126R

TYPICAL CHARACTERISTICS

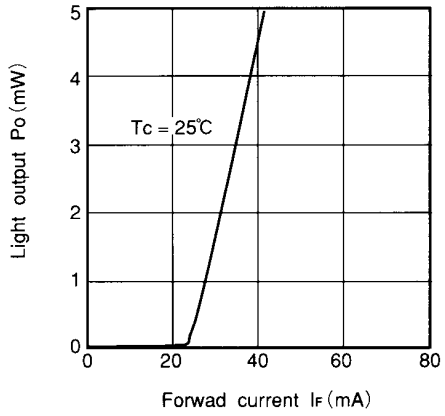


Fig. 1 Light output vs. forward current

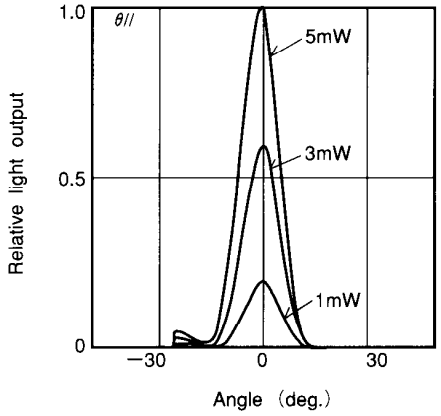


Fig. 2 Far - field pattern θ //

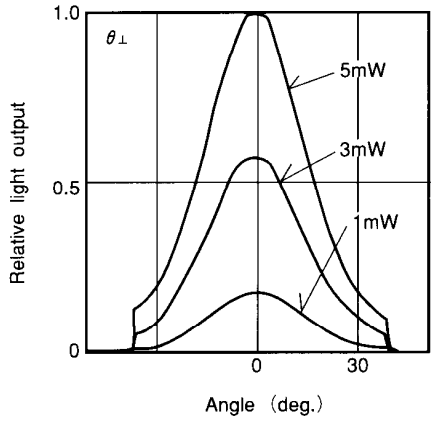


Fig.3 Far - field pattern θ ⊥

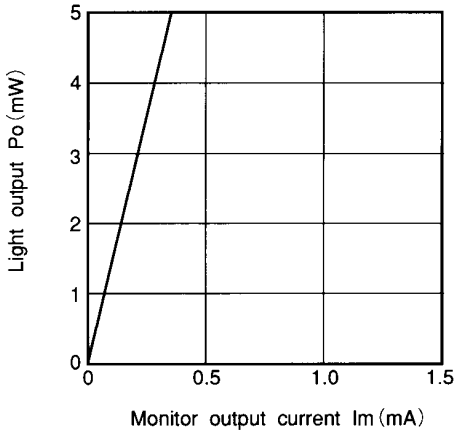


Fig. 4 Light output vs. monitor output current characteristic (ML40126)

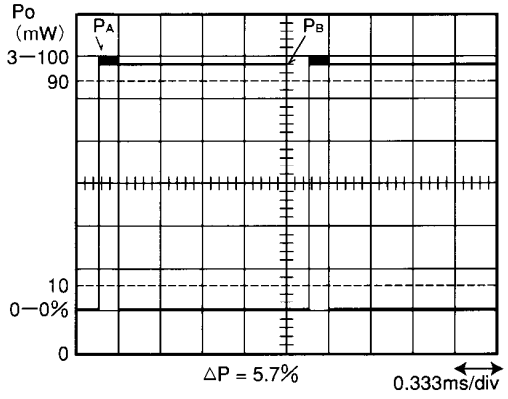


Fig. 5 Droop

Droop characteristics indicate the amount which optical light output is down by heating up when constant pulse current is loaded on LD.
Definition is follows.

$$\triangle P = \frac{P_A - P_B}{P_B} \times 100\ (\%)$$

P_A : Initial value of monitoring current at 10% duty pulse. (600Hz)

PB : Final value of monitoring current at 90% duty pulse. (600Hz)

Typical droop characteristic of ML4XX26 is shown in Fig.5. Typical droop value is 6% at PA = 3mW.