

AlGaAs laser diodes

RLD-78MA4

The low operating current RLD-78MA4 has been added to our RLD-78MA series of laser diodes for compact disc players. This laser diode is ideal for portable CD players.

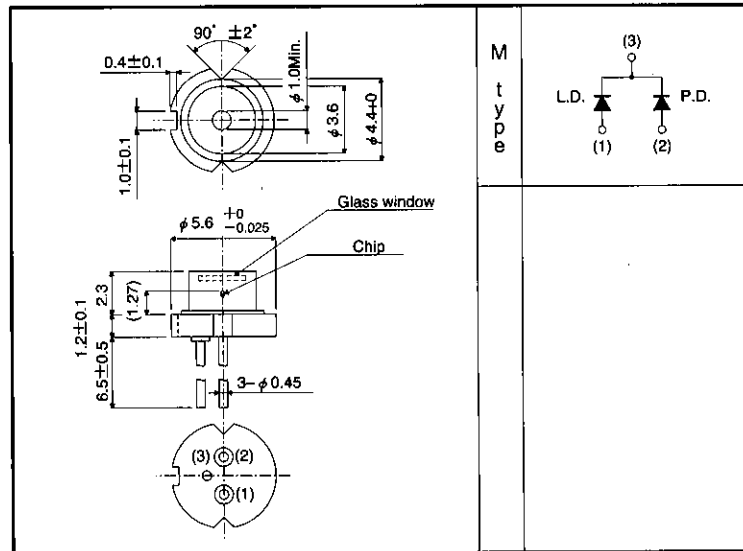
●Applications

- Portable CD players
- Battery driven sensors

●Features

- 1) Low operating current.
- 2) Peak emission wavelength of 785 nm.
- 3) Optimum beam dispersion angle.
- 4) Low noise.
- 5) Built-in monitor photodiode.
- 6) High-precision, compact package.

●External dimensions (Unit: mm)



●Absolute maximum ratings (Tc = 25°C)

Parameter	Symbol	Limits	Unit	
Output	Po	4	mW	
Reverse voltage	Laser	Vr	2	V
	PIN photodiode	Vr(PIN)	30	V
Operating temperature	Topr	-10~+60	°C	
Storage temperature	Tstg	-40~+85	°C	

●Electrical and optical characteristics (Tc = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	—	25	34	mA	—
Operating current	I_{op}	—	35	40	mA	$P_o=2.5mW$
Operating voltage	V_{op}	—	1.9	2.3	V	$P_o=2.5mW$
Differential efficiency	η	0.1	0.3	0.6	mW/mA	$\frac{2mW}{I(3mW)-I(1mW)}$
Monitor current	I_m	0.1	0.2	0.6	mA	$P_o=2.5mW, V_{R(PIN)}=15V$
Parallel divergence angle	$\theta_{//}^*$	8	11	15	deg	$P_o=2.5mW$
Perpendicular divergence angle	θ_{\perp}^*	20	37	45	deg	
Parallel dispersion angle	$\Delta\phi_{//}$	—	—	± 2	deg	
Perpendicular dispersion angle	$\Delta\phi_{\perp}$	—	—	± 3	deg	
Emission point accuracy	ΔX ΔY ΔZ	—	—	± 80	μm	—
Peak emission wavelength	λ	770	785	810	nm	$P_o=2.5mW$
Signal-to-noise ratio	S/N	60	—	—	dB	$f=720kHz, \Delta f=10kHz$

* $\theta_{//}$ and θ_{\perp} are defined as the angle within which the intensity is 50% of the peak value.



For Compact Discs

●Electrical and optical curves

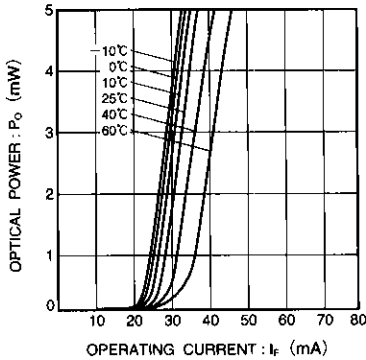


Fig. 1 Optical output vs. operating current

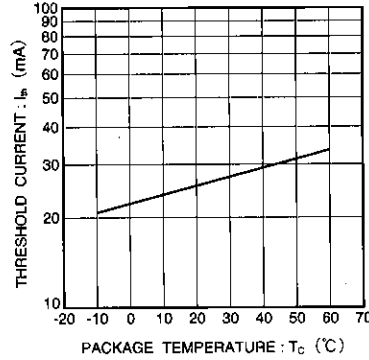


Fig. 2 Dependence of threshold current on temperature

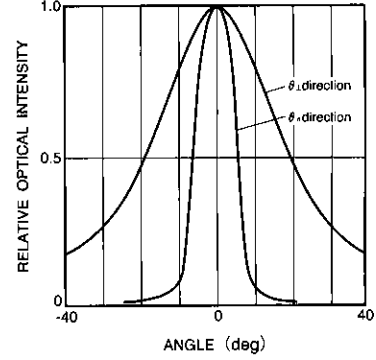


Fig. 3 Far field pattern

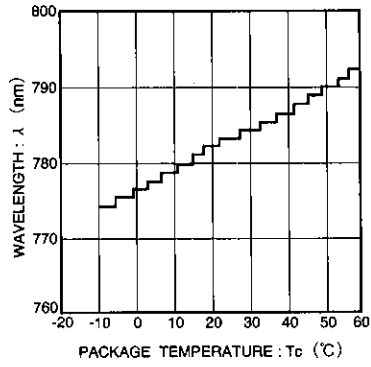


Fig. 4 Dependence of wavelength on temperature

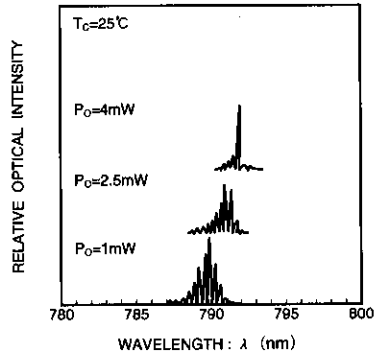


Fig. 5 Dependence of emission spectrum on optical output

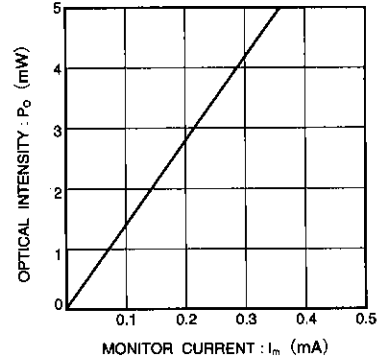


Fig. 6 Monitor current vs. optical output

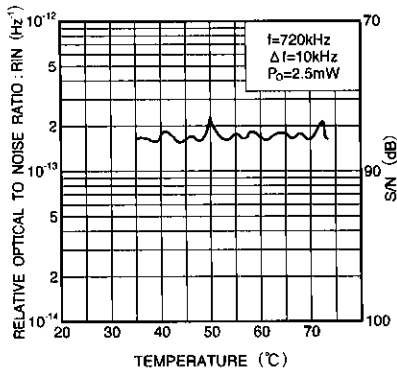


Fig. 7 Temperature dependence of noise

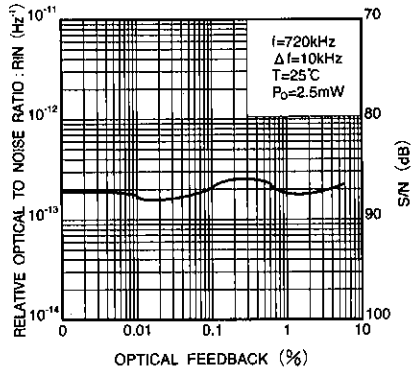


Fig. 8 Dependence of noise on optical feedback

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