

AlGaAs laser diode

RLD-78P40

The RLD-78P40 is a high-output laser diode designed for optical disc writing. This device obtains a high coupling efficiency with the optical system and has stable playback characteristics.

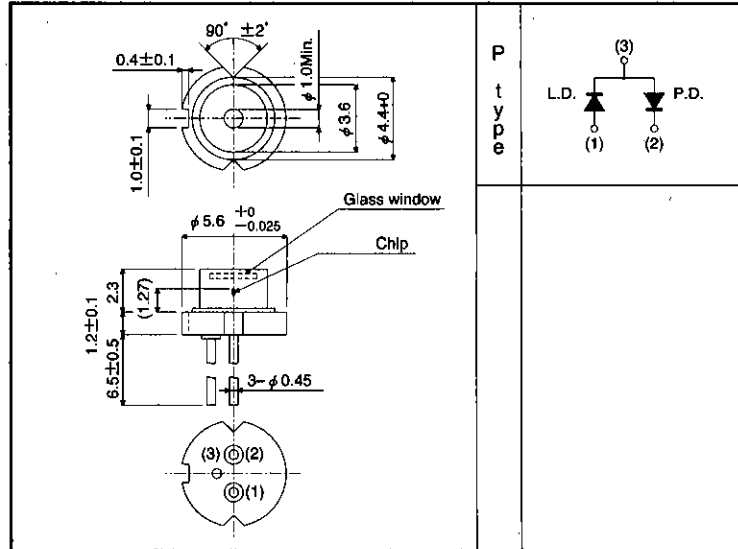
●Applications

- Magneto-optical discs
- Phase change discs
- Minidiscs
- CD-R

●Features

- 1) High coupling efficiency.
- 2) Wavefront aberration control gives stable playback characteristics.
- 3) Reduced facet reflection.
- 4) Polarity suitable for pulse drive.

●External dimensions (Unit: mm)



●Absolute maximum ratings (Tc = 25°C)

Parameter	Symbol	Limits	Unit	
Output	P _o	40	mW	
Reverse voltage	Laser	V _R	2	V
	PIN photodiode	V _{R(PIN)}	30	V
Operating temperature	T _{opr}	-10~+60	°C	
Storage temperature	T _{stg}	-40~+85	°C	

For Optical discs

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I _{th}	—	30	45	mA	—
Operating current	I _{op}	—	80	120	mA	P _o =35mW
Operating voltage	V _{op}	—	1.9	2.5	V	P _o =35mW
Differential efficiency	η	0.4	0.7	1.2	mW/mA	$\frac{35\text{mW}}{I(40\text{mW}) - I(5\text{mW})}$
Monitor current	I _m	0.18	0.7	1.4	mA	P _o =35mW, V _{R (PIN)} =15V
Parallel divergence angle	θ _∥ *	8	9	13	deg	P _o =35mW
Perpendicular divergence angle	θ _⊥ *	15	25	30	deg	
Parallel deviation angle	Δφ _∥	—	—	±2	deg	
Perpendicular deviation angle	Δφ _⊥	—	—	±3	deg	
Emission point accuracy	ΔX ΔY ΔZ	—	—	±80	μm	—
Peak-emission wavelength	λ	780	—	790	nm	P _o =35mW

* θ_∥ and θ_⊥ are defined as the angle within which the intensity is 50% of the peak value.

● Electrical and optical curves

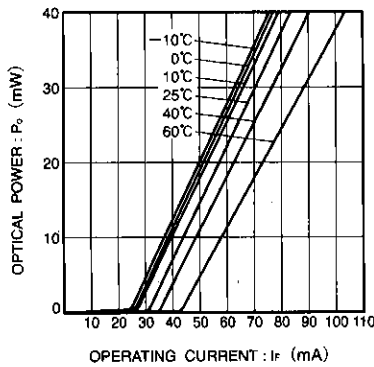


Fig. 1 Optical output vs. operating current

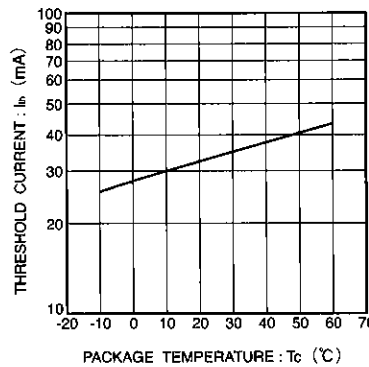


Fig. 2 Dependence of threshold current on temperature

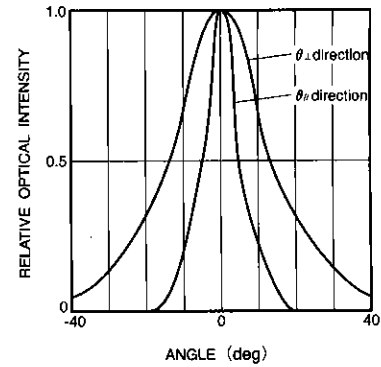


Fig. 3 Far field pattern

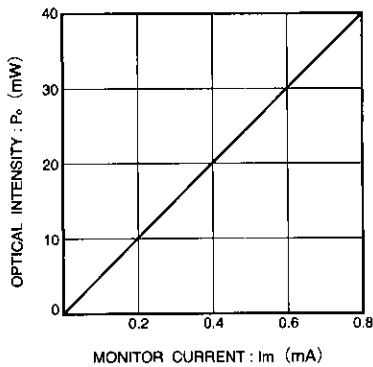


Fig. 4 Monitor current vs. optical output

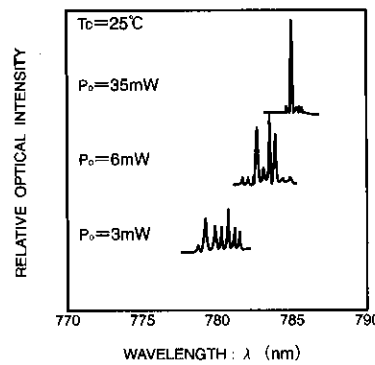


Fig. 5 Dependence of emission spectrum on optical output

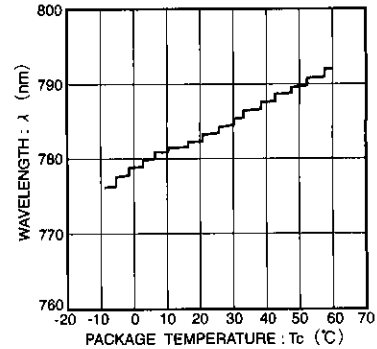


Fig. 6 Dependence of wavelength on temperature

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