

The RLD-78MD is a laser diode designed for minidisc playback. This device has low noise at high optical output levels.

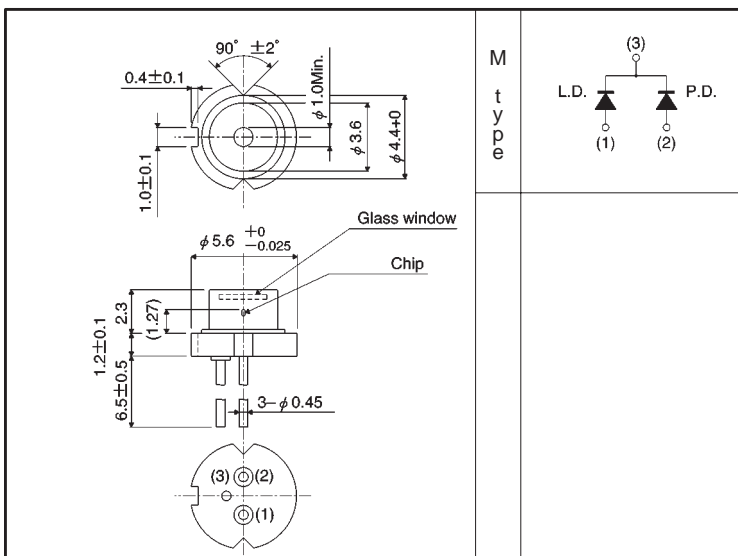
●Applications

Minidisc (MD) playback

●Features

- 1) Optical output is high at 4 to 8 mW.
- 2) Reduced facet reflection.
- 3) High-precision, compact package.
- 4) General purpose polarity type is available. (M type)

● External dimensions (Units: mm)



●Absolute maximum ratings (Tc = 25°C)

Parameter		Symbol	Limits	Unit
Output		P _O	10	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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I _{th}	—	35	60	mA	—
Operating current	I _{op}	—	45	70	mA	P _O =7mW
Operating voltage	V _{op}	—	1.9	2.3	V	P _O =7mW
Differential efficiency	η	0.4	0.55	0.8	mW / mA	$\frac{2\text{mW}}{I(7\text{mW}) - I(5\text{mW})}$
Monitor current	I _m	0.05	0.15	0.4	mA	P _O =7mW, V _{R(PIN)} =15V
Parallel divergence angle	θ _∥ *	8	11	15	deg	P _O =7mW
Perpendicular divergence angle	θ _⊥ *	20	37	45	deg	
Parallel deviation angle	Δθ _∥	—	—	±2	deg	
Perpendicular deviation angle	Δθ _⊥	—	—	±3	deg	
Emission point accuracy	$\begin{matrix} \Delta X \\ \Delta Y \\ \Delta Z \end{matrix}$	—	—	±80	μm	—
Peak emission wavelength	λ	770	785	810	nm	P _O =7mW
Signal-to-noise ratio	S / N	60	—	—	dB	f=720kHz, Δf=10kHz

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

●Electrical and optical characteristic curves

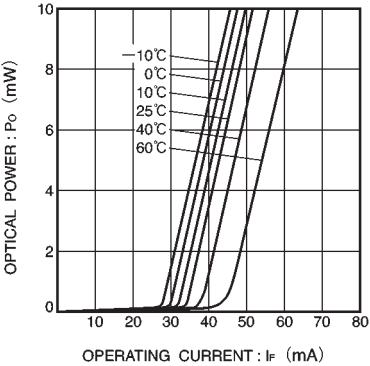


Fig. 1 Optical output vs. operating current

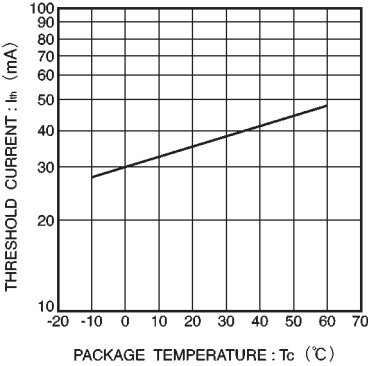


Fig. 2 Dependence of threshold current on temperature

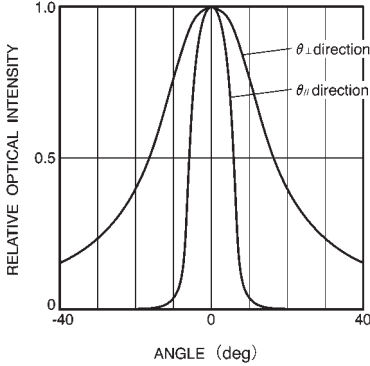


Fig. 3 Far field pattern

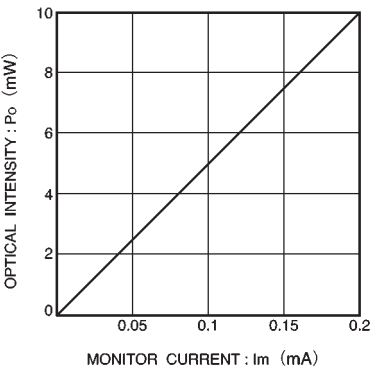


Fig. 4 Monitor current vs . optical output

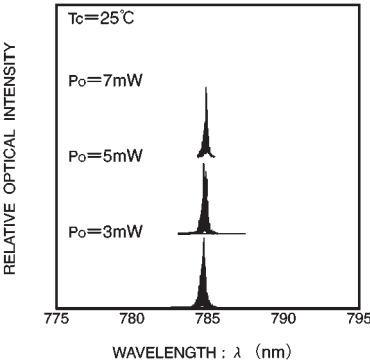


Fig. 5 Dependence of emission spectrum on optical output

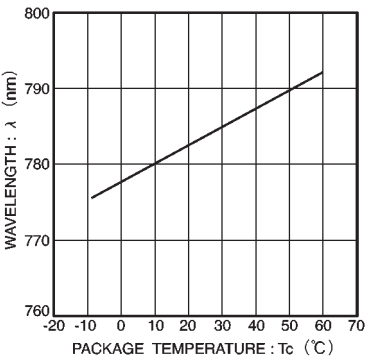


Fig. 6 Dependence of wavelength on temperature

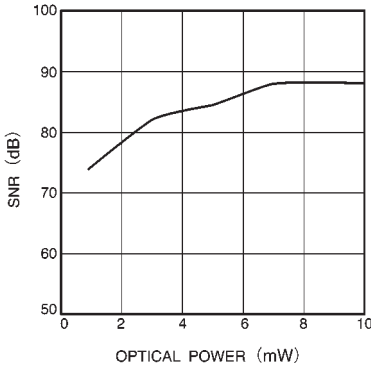


Fig. 7 Dependence of signal to noise ratio on optical power