AlGaAs laser diode

RLD-78MD

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

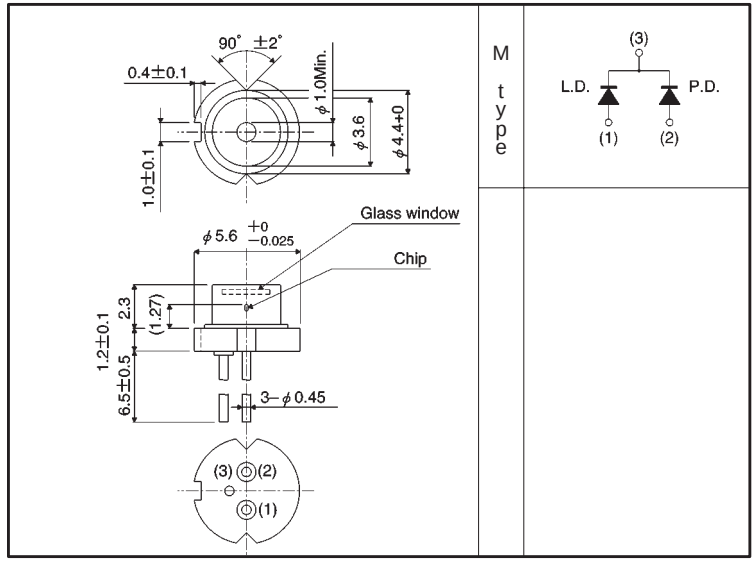
●Applications

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		Po	10	mW
Reverse voltage	Laser	V_R	2	V
	PIN photodiode	$V_{R\ (PIN)}$	30	V
Operating temperature		Topr	−10～+60	℃
Storage temperature		Tstg	−40～+85	℃

●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	$\frac{2mW}{I(7mW)-I(5mW)}$
Monitor current	I_m	0.05	0.15	0.4	mA	P_O=7mW, $V_{R(PIN)}$=15V
Parallel divergence angle	$\theta_{//}$*	8	11	15	deg	P_O=7mW
Perpendicular divergence angle	$\theta_{\perp}$*	20	37	45	deg	
Parallel deviation angle	$\Delta\theta_{//}$	—	—	±2	deg	
Perpendicular deviation angle	$\Delta\theta_{\perp}$	—	—	±3	deg	
Emission point accuracy	ΔX ΔY ΔZ	—	—	±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

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

●Electrical and optical characteristic curves

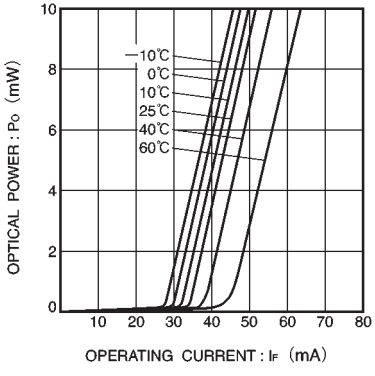


Fig. 1 Optical output vs. operating current

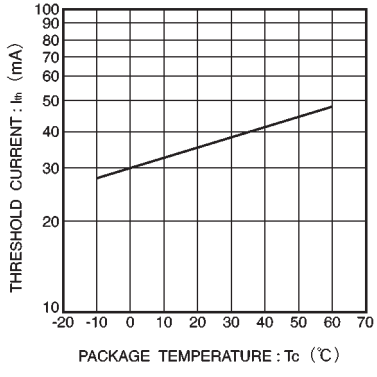


Fig. 2 Dependence of threshold current on temperature

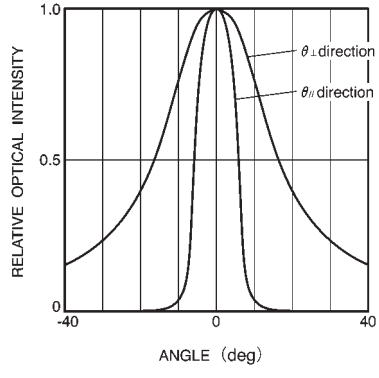


Fig. 3 Far field pattern

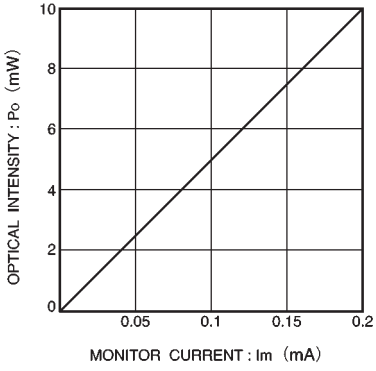


Fig. 4 Monitor current vs . optical output

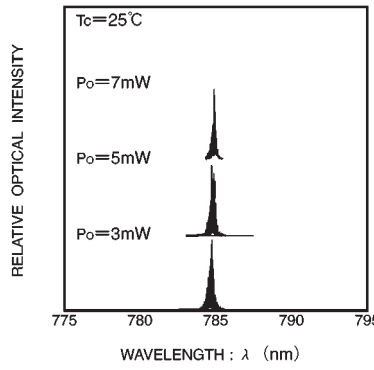


Fig. 5 Dependence of emission spectrum on optical output

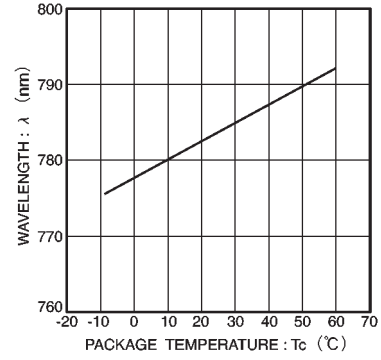


Fig. 6 Dependence of wavelength on temperature

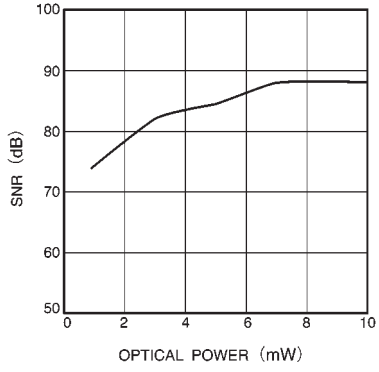


Fig. 7 Dependence of signal to noise ratio on optical power