

# 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.

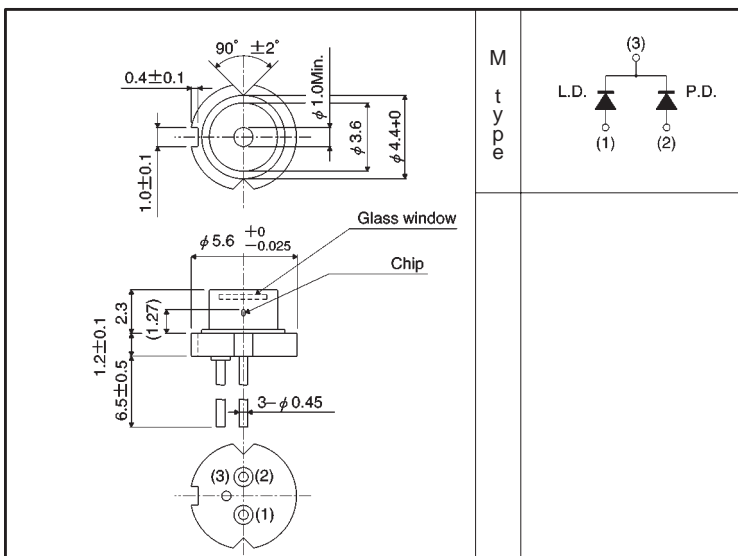
### ●Applications

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 <sub>R</sub>	2	V
	PIN photodiode	V <sub>R</sub> (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	$I_{th}$	—	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	$\eta$	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	$\Delta \theta_{//}$	—	—	$\pm 2$	deg	
Perpendicular deviation angle	$\Delta \theta_{\perp}$	—	—	$\pm 3$	deg	
Emission point accuracy	$\Delta X$ $\Delta Y$ $\Delta Z$	—	—	$\pm 80$	$\mu m$	—
Peak emission wavelength	$\lambda$	770	785	810	nm	$P_O=7mW$
Signal-to-noise ratio	S / N	60	—	—	dB	$f=720kHz, \Delta f=10kHz$

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

●Electrical and optical characteristic curves

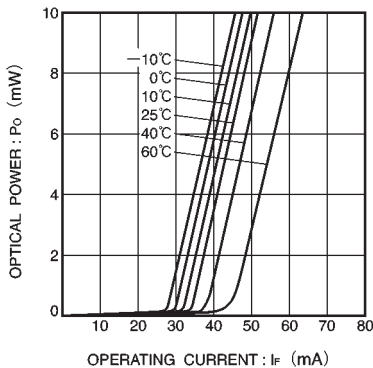


Fig. 1 Optical output vs. operating current

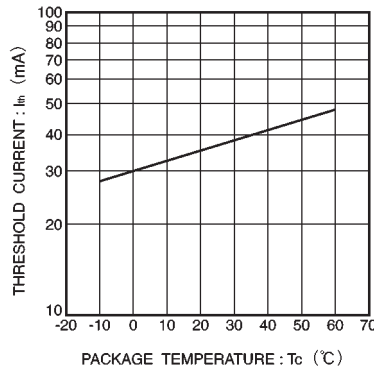


Fig. 2 Dependence of threshold current on temperature

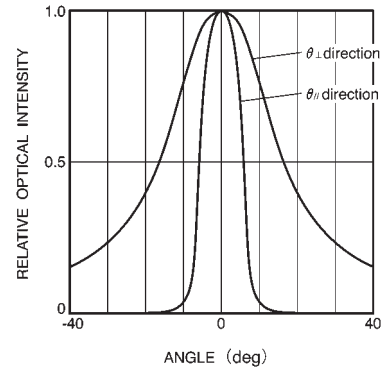


Fig. 3 Far field pattern

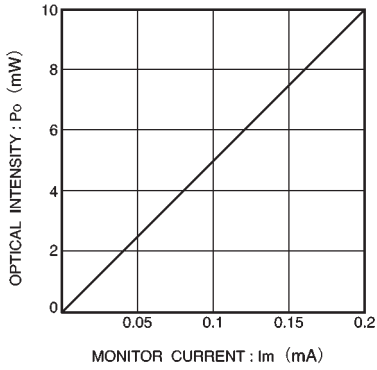


Fig. 4 Monitor current vs . optical output

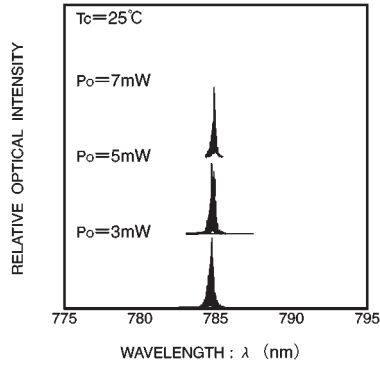


Fig. 5 Dependence of emission spectrum on optical output

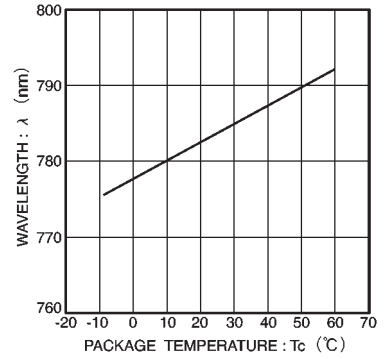


Fig. 6 Dependence of wavelength on temperature

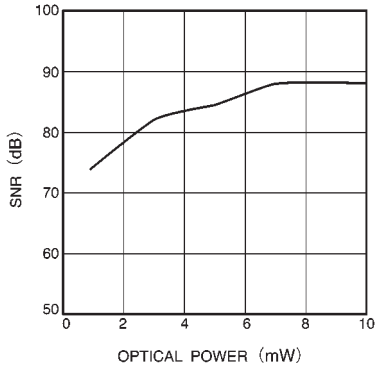


Fig. 7 Dependence of signal to noise ratio on optical power