

AlGaAs laser diode

RLD-78MD-K

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

●Applications

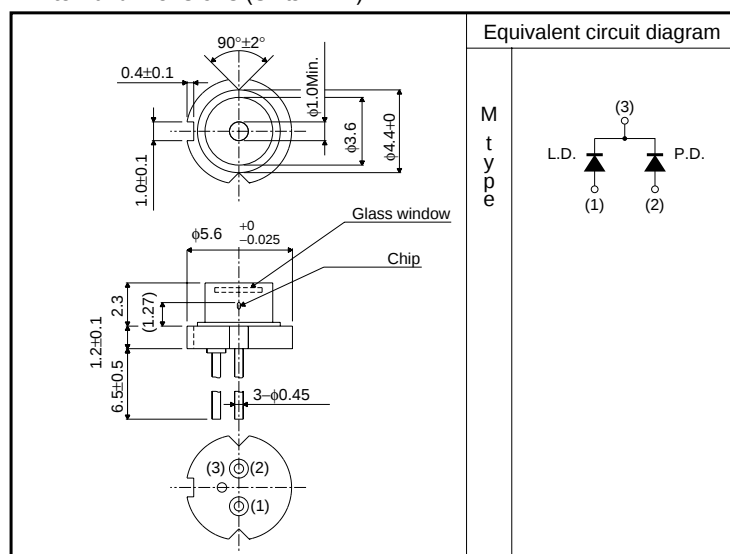
Minidisc (MD) playback

CD-R/RW playback

●Features

- 1) Optical output is high at 5 to 10mW.
- 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 (Ta=25°C)

Parameter		Symbol	Limits	Unit
Output		P _o	10	mW
Reverse voltage	Raser	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

Laser Diodes

●Electrical and optical characteristics (Ta=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	$\Delta\phi_{//}$	—	—	± 2	deg	
Perpendicular deviation angle	$\Delta\phi_{\perp}$	—	—	± 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	$f=720kHz$, $\Delta f=10kHz$

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

●Electrical and optical characteristics curves

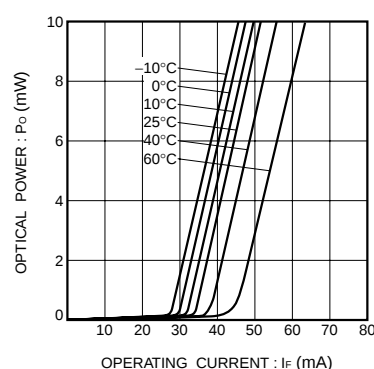


Fig.1 Optical output vs. operating current

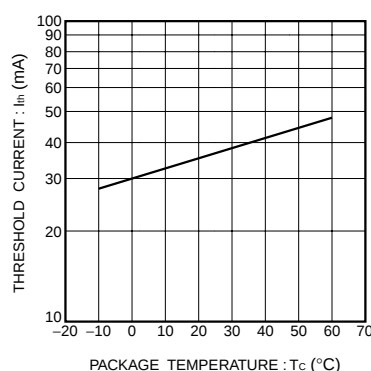


Fig.2 Dependence of threshold current on temperature

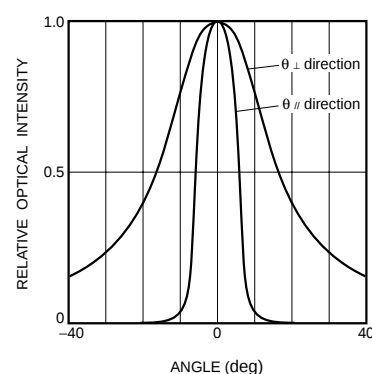


Fig.3 Far field pattern

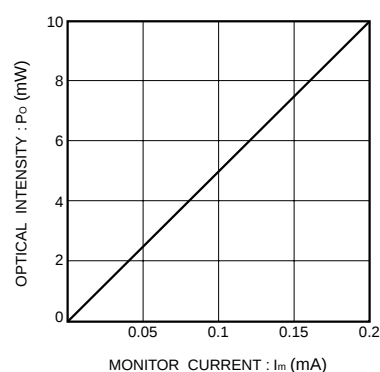


Fig.4 Monitor current vs. optical output

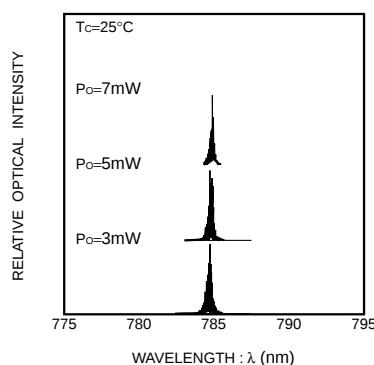


Fig.5 Dependence of emission spectrum on optical output

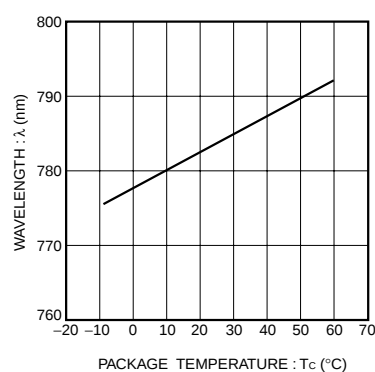


Fig.6 Dependence of wavelength on temperature

Laser Diodes

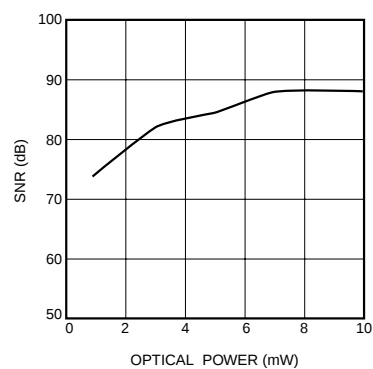


Fig.7 Dependence of signal to noise ratio on optical power