AlGaAs laser diodes RLD-78MA

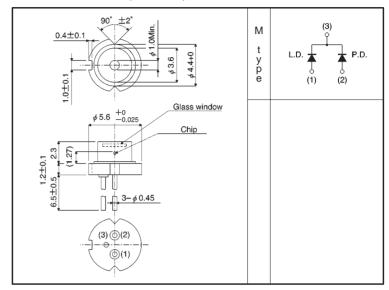
The RLD-78MA is world's first mass-produced laser diodes that is manufactured by molecular beam epitaxy. The signal-to-noise ratio is stable in comparison to conventional manufacturing techniques. This device is ideal for use in compact disc players.

ApplicationsCompact disc players

Features

- Signal-to-noise ratio guaranteed over entire operating temperature range.
- 2) Reduced facet reflection.
- One-third the dispersion compared with conventional laser diodes.
- 4) High-precision, compact package.

External dimensions (Units: mm)



● Absolute maximum ratings (Tc = 25°C)

Parameter		Symbol	Limits	Unit
Output		Po	5	mW
Reverse voltage	Laser	VR	2	V
	PIN photodiode	VR (PIN)	30	V
Operating temperature		Topr	-10~ + 60	°
Storage temperature		Tstg	-40~+85	°C

Laser diodes RLD-78MA

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Threshold current	Ith	_	35	60	mA	_	
Operating current	lop	_	45	70	mA	Po=3mW	
Operating voltage	Vop	_	1.9	2.3	٧	Po=3mW	
Differential efficiency	η	0.1	0.25	0.6	mW/mA	2mW I(3mW)—I(1mW)	
Monitor current	lm	0.1	0.2	0.6	mA	Po=3mW,V _{R(PIN)} =15V	
Parallel divergence angle	θ // *	8	11	15	deg	Po=3mW	
Perpendicular divergence angle	<i>θ</i> _⊥ *	20	37	45	deg		
Parallel deviation angle	Δ θ //	_	_	±2	deg		
Perpendicular deviation angle	Δ θ ⊥	_	_	±з	deg		
Emission point accuracy	ΔX ΔΥ ΔΖ	_	_	±80	μm	_	
Peak emission wavelength	λ	770	785	810	nm	Po=3mW	
Signal-to-noise ratio	S/N	60	_	_	dB	f=720kHz, Δf=10kHz	

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

Electrical and optical characteristic curves

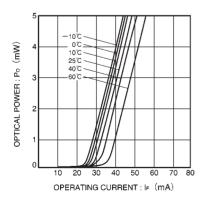


Fig. 1 Optical output vs. operating current

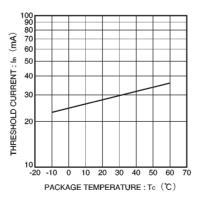


Fig. 2 Dependence of threshold current on temperature

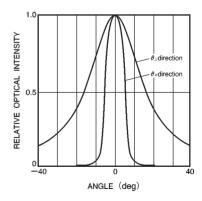


Fig. 3 Far field pattern

Laser diodes RLD-78MA

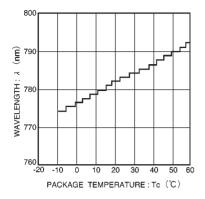


Fig. 4 Dependence of wavelength on temperature

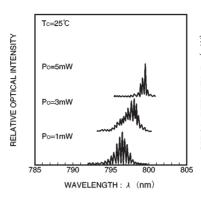


Fig. 5 Dependence of emission spectrum on optical output

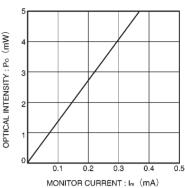


Fig. 6 Monitor current vs . optical output

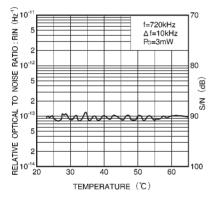


Fig. 7 Temperature dependence of noise

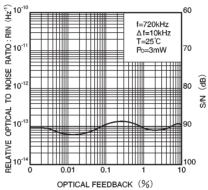


Fig. 8 Dependence of noise on optical feedback