## AlGaAs laser diodes RLD-78NP10-B

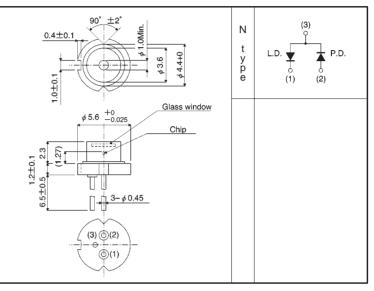
The RLD-78NP10-B is one of the world's first mass-produced laser diodes that is manufactured by molecular beam epitaxy. The characteristics of this laser diode are suitable for high-speed laser beam printers.

Applications
Laser beam printers
High-speed laser beam printers

## Features

- 1) One-third dispersion compared with conventional laser diodes.
- 2) High-precision, compact package.
- 3) Low droop.
- Can be driven by single power supply (N type).

•External dimensions (Units: mm)



## Absolute maximum ratings (Tc = 25°C)

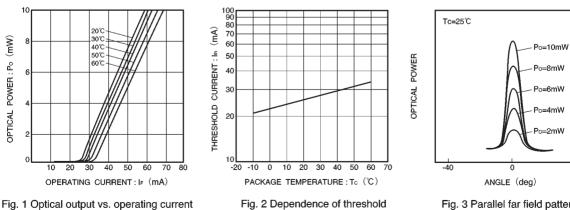
Parameter		Symbol	Limits	Unit
Output		Po	10	mW
Reverse voltage	Laser	VR	2	V
	PIN photodiode	VR (PIN)	30	V
Operating temperature		Topr	$-10 \sim +60$	°C
Storage temperature		Tstg	$-40 \sim +85$	Ĵ

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Threshold current	Ith	15	25	45	mA	_	
Operating current	lop	25	45	65	mA	Po=6mW	
Operating voltage	Vop		1.9	2.3	V	Po=6mW	
Differential efficiency	η	0.2	0.4	0.6	wW/mA	4mW I(6mW)—I(2mW)	
Monitor current	lm	0.2	0.4	1.0	mA	Po=6mW	
Parallel divergence angle	θ∥*	8	11	15	deg		
Perpendicular divergence angle	θ⊥*	25	30	38	deg	Po=6m₩	
Parallel deviation angle	Δθ∥	—	_	±2	deg	-	
Perpendicular deviation angle	<b>Δ</b> <i>θ</i> ⊥	_	_	±3	deg		
Emission point accuracy	ΔX ΔY ΔZ	_	_	±80	μm	_	
Peak emission wavelength	٨	770	785	795	nm	Po=6mW	
Droop	ΔP		5	10	%	Po=6mW	

•Electrical and optical characteristics (Tc =  $25^{\circ}$ C)

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

## Electrical and optical characteristic curves



current on temperature



Po=8mW

Po=6mW Po=4mW

Po=2mW

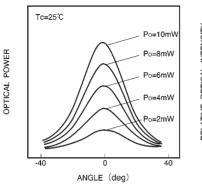


Fig. 4 Perpendicular far field pattern

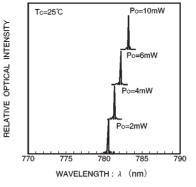
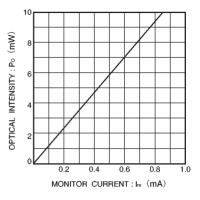


Fig. 5 Dependence of emission spectrum on optical output





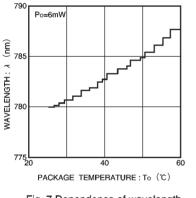


Fig. 7 Dependence of wavelength on temperature

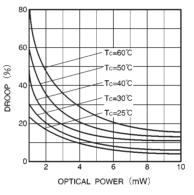


Fig. 8 Dependence of droop on output and temperature

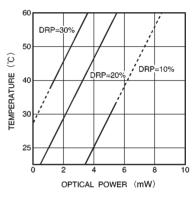


Fig. 9 Temperature vs. output guidelines for various droop percentages