AlGaAs laser diodes

RLD-78PP-B / RLD-78NP-D

The RLD-78PP-B and RLD-78NP-D are the world's first mass-produced laser diodes those are manufactured by molecular beam epitaxy. The characteristics of these laser diodes are suitable for laser beam printers.

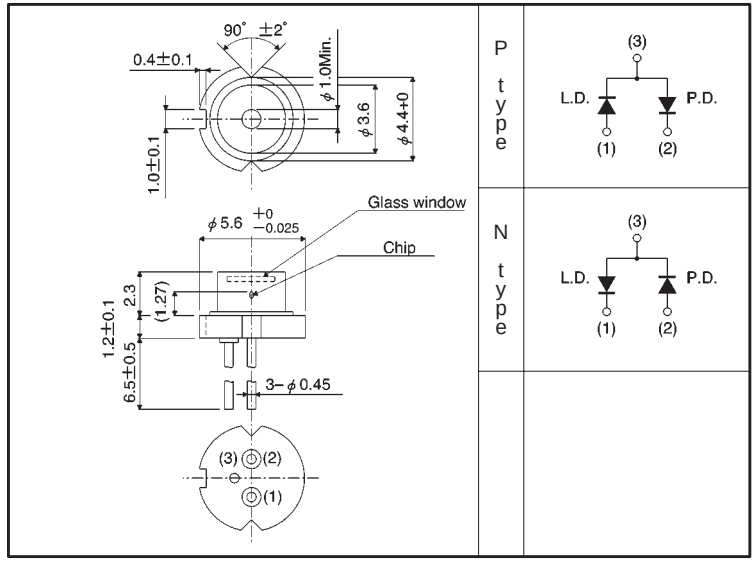
●Applications

Laser beam printers

●Features

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

●External dimensions (Units: mm)



●Absolute maximum ratings (Tc = 25°C)

Parameter		Symbol	Limits	Unit
Output		Po	5	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}	15	25	45	mA	—
Operating current	I_{op}	25	45	65	mA	Po=3mW
Operating voltage	V_{op}	—	1.9	2.3	V	Po=3mW
Differential efficiency	η	0.1	0.2	0.3	mW/mA	$\frac{2mW}{I(3mW)-I(1mW)}$
Monitor current	I_m	0.3	0.55	0.9	mA	Po=3mW
Parallel divergence angle	$\theta_{//}$*	8	11	15	deg	Po=3mW
Perpendicular divergence angle	$\theta_{\perp}$*	25	30	38	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	795	nm	Po=3mW
Droop	ΔP	—	5	10	%	Po=3mW

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

●Electrical and optical characteristic curves

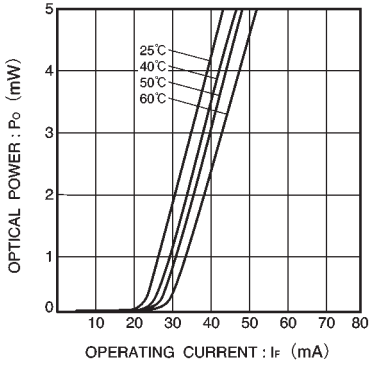


Fig. 1 Optical output vs. operating current

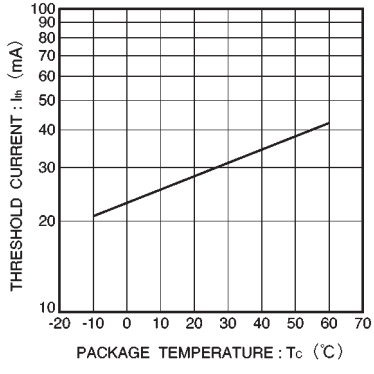


Fig. 2 Dependence of threshold current on temperature

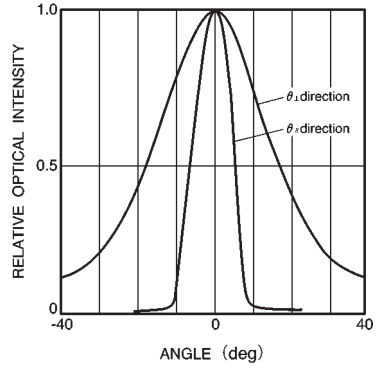


Fig. 3 Far field pattern

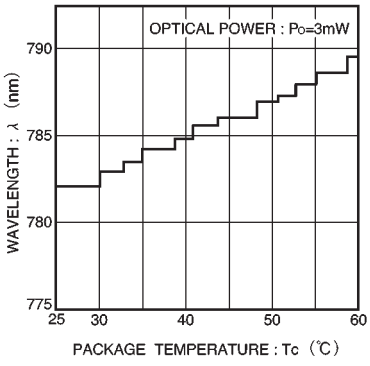


Fig. 4 Dependence of wavelength on temperature

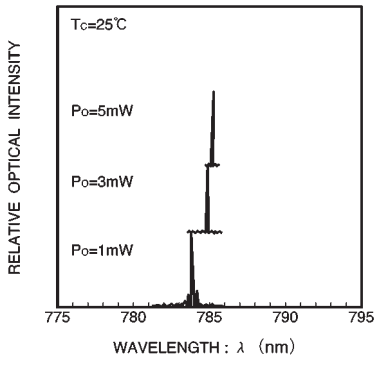


Fig. 5 Dependence of emission spectrum on optical output

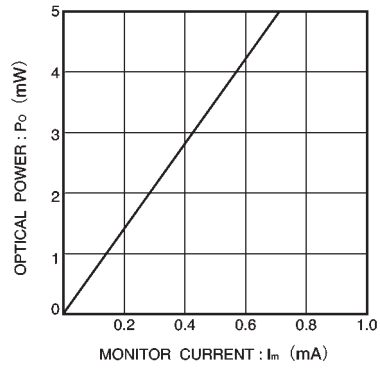


Fig. 6 Monitor current vs. optical output

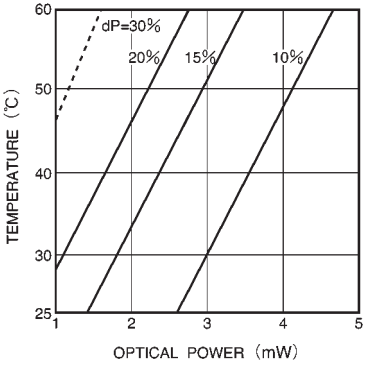


Fig. 7 Temperature vs. output guidelines for various droop percentages

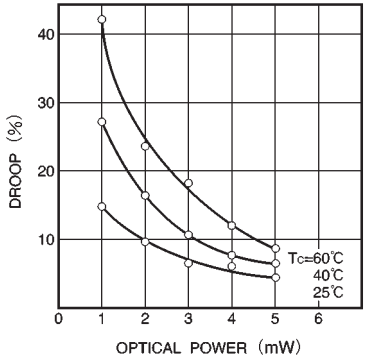


Fig. 8 Dependence of droop on output and temperature

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