Title AlGaAs, double-heterojunction, visible laser diodes

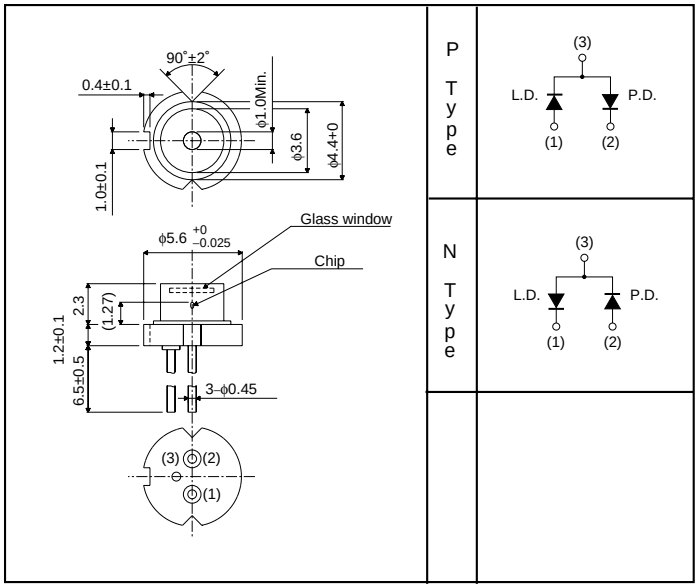
RLD-78PP-G1 / RLD-78NP-G1

RLD-78PP-G1 and RLD-78NP-G1 are the semiconductor laser developed for the laser beam printer application.
We have achieved the very small variations of the optical characteristics and low droop by ROHM original Epitaxial growth technology using Molecular Beam Epitaxy.
In addition, they have the appropriate characteristics for sensor application as well.

●Applications
Laser beam printers
Sensors

●Features
1) Minimum variation of radiation beam angle.
2) Low droop.
3) High stability wave length.
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	˚C
Storage temperature		Tstg	-40~+85	˚C

●Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	10	25	45	mA	-
Operating current	I_{op}	15	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 curves

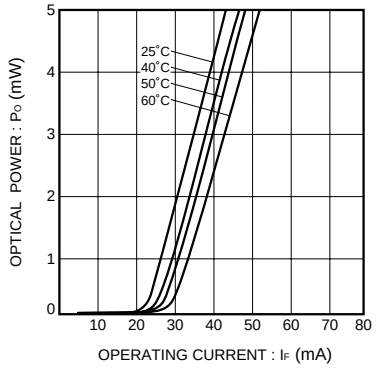


Fig. 1 Optical output vs. operating current

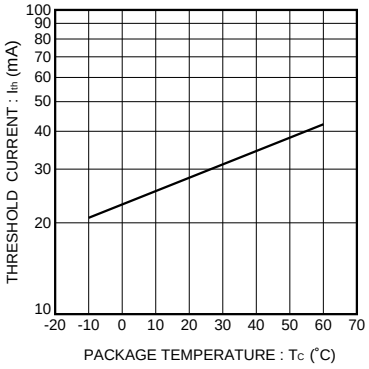


Fig. 2 Dependence of threshold current on temperature

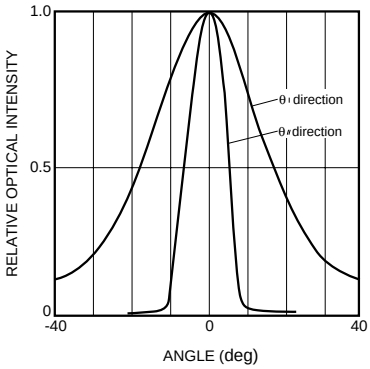


Fig. 3 Far field pattern

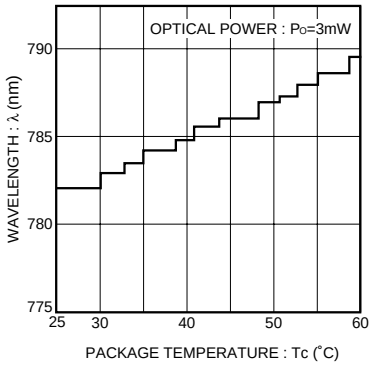


Fig. 4 Dependence of wavelength on temperature

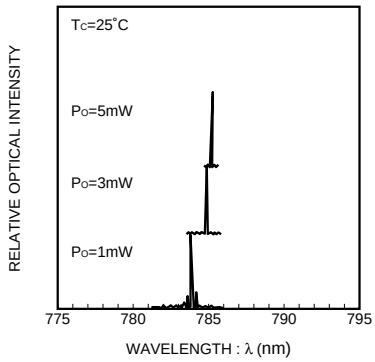


Fig. 5 Dependence of emission spectrum on optical output

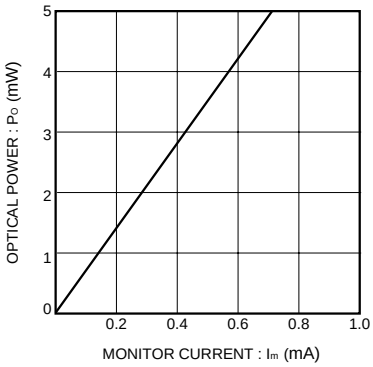


Fig. 6 Monitor current vs. optical output

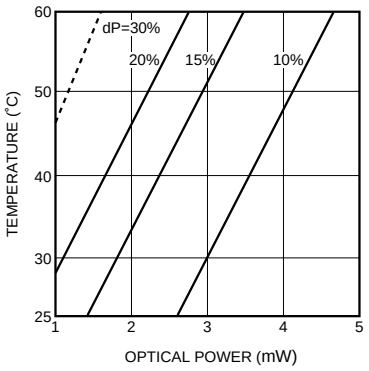


Fig. 7 Temperature vs. output guidelines for various droop percentages

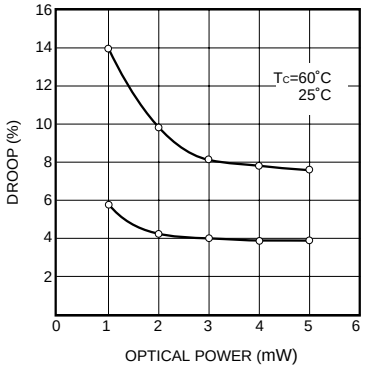


Fig. 8 Dependence of droop on output