

AlGaAs laser diodes

RLD78NZH1

The RLD78NZH1 is the laser diode for laser printers that has excellent temperature characteristics and excellent droop characteristics.

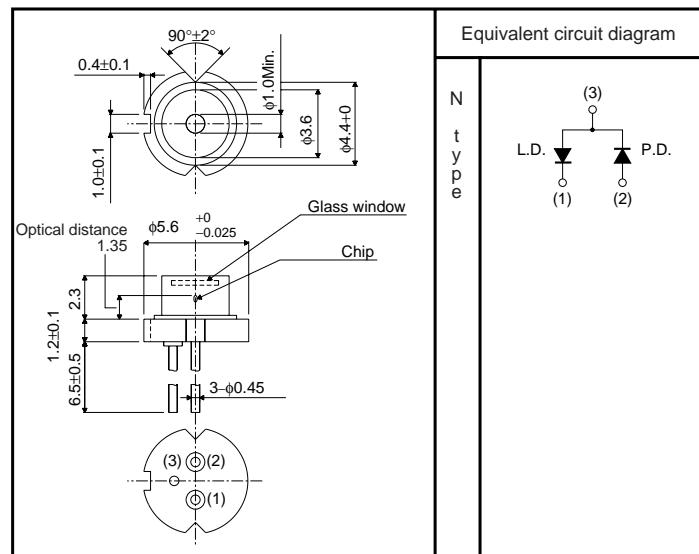
●Applications

Laser printers
Optical sensors

●Features

- 1) Absolute max. output power is 5mW.
- 2) High-precision, compact package.(φ5.6mm)
- 3) Low droop.
- 4) Can be driven by single power supply (N type).

●External dimensions (Unit : mm)



●Absolute maximum ratings (T_c=25°C)

Parameter		Symbol	Limits	Unit
Output		P _o	5	mW
Reverse voltage	Laser	V _R	2	V
	PIN photodiode	V _R (PIN)	30	V
Operating temperature		T _{opr}	-10 to +60	°C
Storage temperature		T _{stg}	-40 to +85	°C

Laser diodes

●Electrical and optical characteristics ($T_c=25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	—	16	45	mA	—
Operating current	I_{op}	—	28	65	mA	$P_o=3\text{mW}$
Operating voltage	V_{op}	—	1.9	2.3	V	$P_o=3\text{mW}$
Differential efficiency	η	0.1	0.25	0.4	mW/mA	$\frac{2\text{mW}}{I(3\text{mW}) - I(1\text{mW})}$
Monitor current	I_m	0.2	0.45	0.9	mA	$P_o=3\text{mW}$
Parallel divergence angle	$\theta_{//}^*$	8	11	15	deg	$P_o=3\text{mW}$
Perpendicular divergence angle	θ_{\perp}^*	25	30	38	deg	
Parallel deviation angle	$\Delta\theta_{//}$	—	—	± 2	deg	
Perpendicular deviation angle	$\Delta\theta_{\perp}$	—	—	± 3	deg	
Emission point accuracy	$\frac{\Delta X}{\Delta Y}$ $\frac{\Delta Y}{\Delta Z}$	-100	—	+100	μm	—
Peak emission wavelength	λ	770	785	795	nm	$P_o=3\text{mW}$
Droop	ΔP	—	5	10	%	$P_o=3\text{mW}$

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

●Electrical and optical characteristic curves

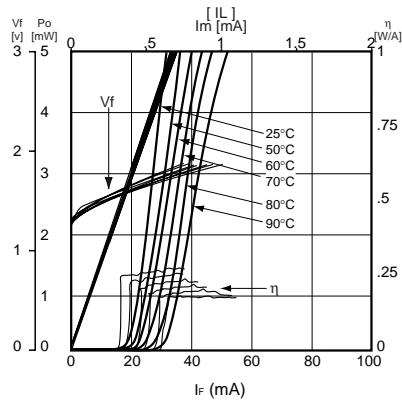


Fig.1 Dependence of I_f on temperature

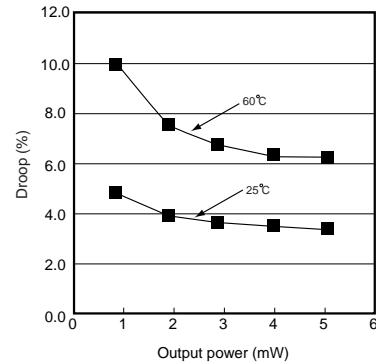


Fig.2 Dependence of droop on output power and temperature

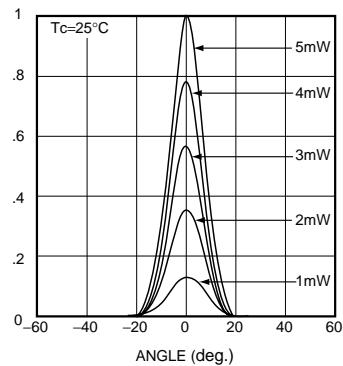


Fig.3 Parallel far field pattern

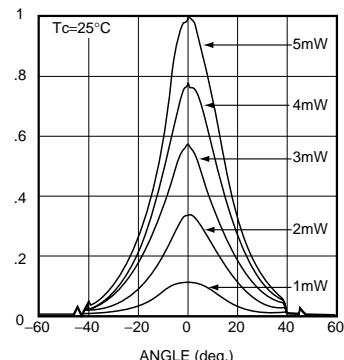


Fig.4 Perpendicular far field pattern

Appendix

Notes

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