

AlGaAs laser diodes

RLD78NZC3

The RLD78NZC3 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 printers.

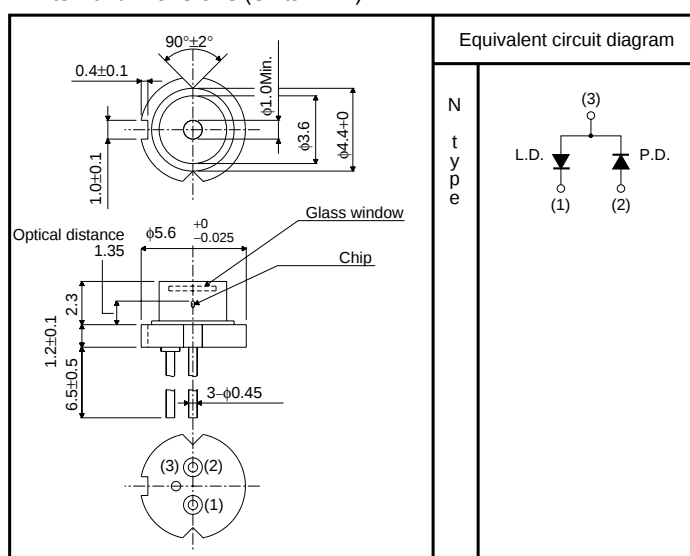
●Applications

Laser printers
High-speed laser 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 (N type).

●External dimensions (Units : mm)



●Absolute maximum ratings (Tc=25°C)

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

Laser diodes

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I _{th}	10	20	45	mA	—
Operating current	I _{op}	20	40	65	mA	P _o =6mW
Operating voltage	V _{op}	—	1.9	2.3	V	P _o =6mW
Differential efficiency	η	0.2	0.4	0.6	mW/mA	$\frac{4\text{mW}}{I(6\text{mW}) - I(2\text{mW})}$
Monitor current	I _m	0.2	0.4	1.0	mA	P _o =6mW
Parallel divergence angle	θ _∥ [*]	8	11	15	deg	P _o =6mW
Perpendicular divergence angle	θ _⊥ [*]	25	30	38	deg	
Parallel deviation angle	Δθ _∥	—	—	±2	deg	
Perpendicular deviation angle	Δθ _⊥	—	—	±3	deg	
Emission point accuracy	$\begin{matrix} \Delta X \\ \Delta Y \\ \Delta Z \end{matrix}$	—	—	±80	μm	—
Peak emission wavelength	λ	770	785	795	nm	P _o =6mW
Droop	ΔP	—	5	10	%	P _o =6mW

*θ_∥ and θ_⊥ are defined as the angle within which the intensity is 50% of the peak value.

●Electrical and optical characteristic curves

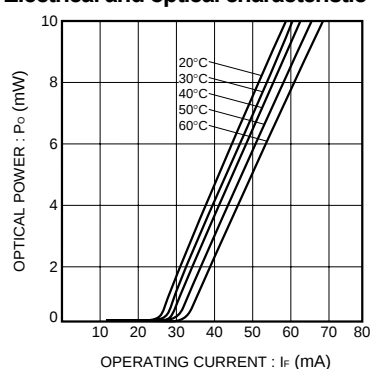


Fig.1 Optical output vs. operating current

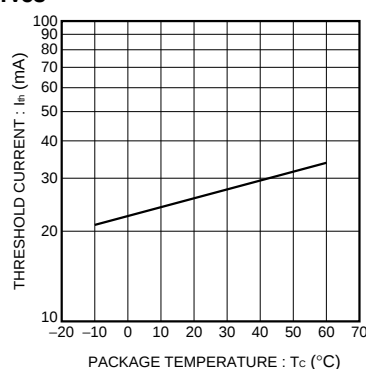


Fig.2 Dependence of threshold current on temperature

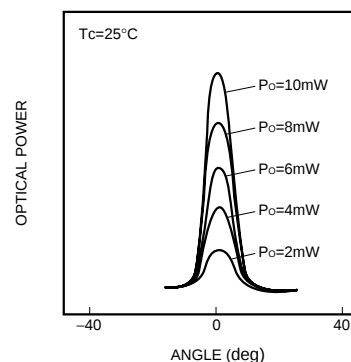


Fig.3 Parallel far field pattern

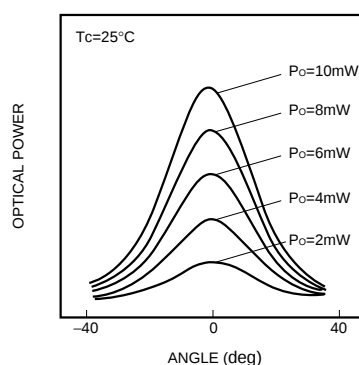


Fig.4 Perpendicular far field pattern

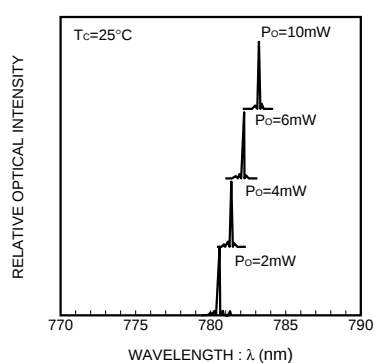


Fig.5 Dependence of emission spectrum on optical output

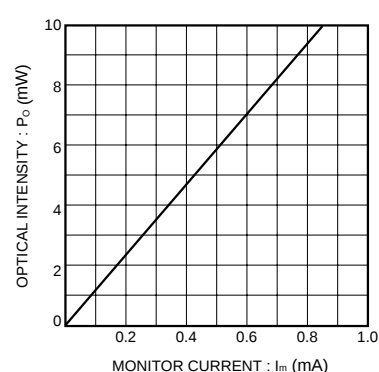


Fig.6 Monitor current vs. optical output

Laser diodes

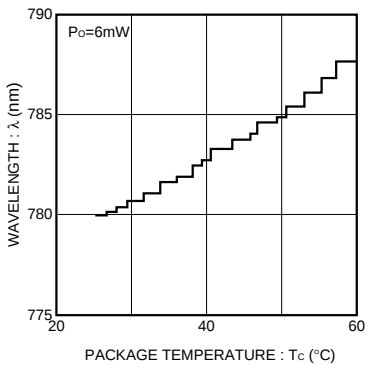


Fig.7 Dependence of wavelength on temperature

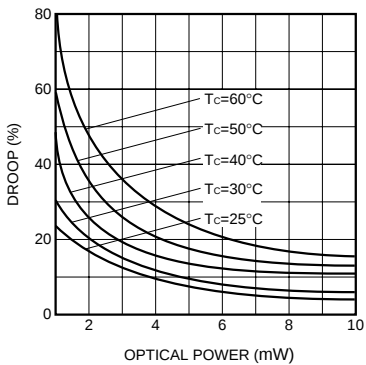


Fig. 8 Dependence of droop on output and temperature

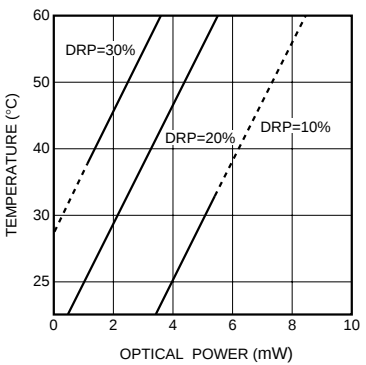


Fig. 9 Temperature vs. output guidelines for various droop percentages