AlGaAs laser diodes

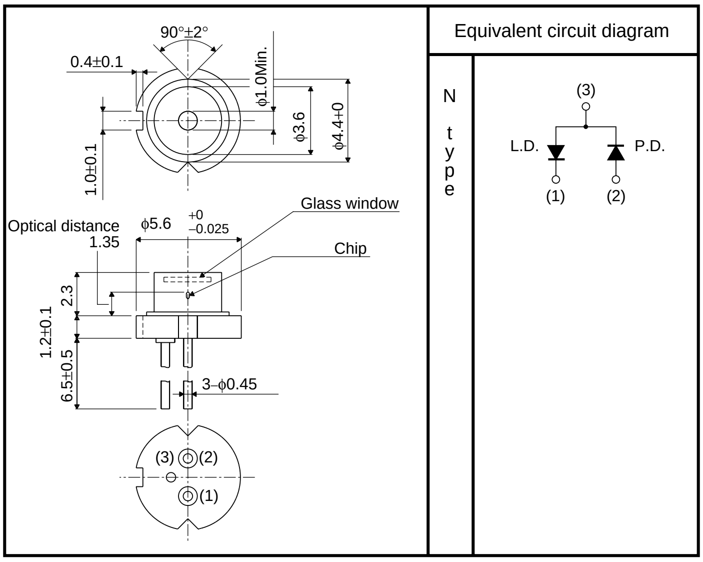
RLD78NZC3

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	V
	PIN photodiode	$V_{R\ (PIN)}$	30	V
Operating temperature		Topr	−10~+60	°C
Storage temperature		Tstg	−40~+85	°C

●Electrical and optical characteristics (Tc=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	$\frac{4mW}{I(6mW) - I(2mW)}$
Monitor current	I_m	0.2	0.4	1.0	mA	P_O=6mW
Parallel divergence angle	$\theta_{//}$*	8	11	15	deg	P_O=6mW
Perpendicular divergence angle	$\theta_{\perp}$*	25	30	38	deg	
Parallel deviation angle	$\Delta\theta_{//}$	–	–	±2	deg	
Perpendicular deviation angle	$\Delta\theta_{\perp}$	–	–	±3	deg	
Emission point accuracy	ΔX ΔY ΔZ	–	–	±80	µm	–
Peak emission wavelength	λ	770	785	795	nm	P_O=6mW
Droop	ΔP	–	5	10	%	P_O=6mW

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

●Electrical and optical characteristic curves

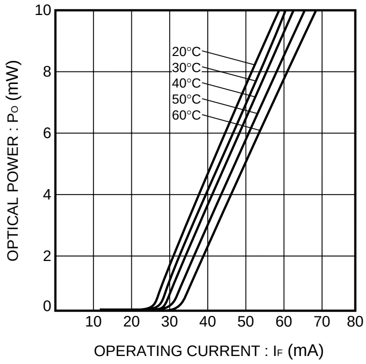


Fig.1 Optical output vs.operating current

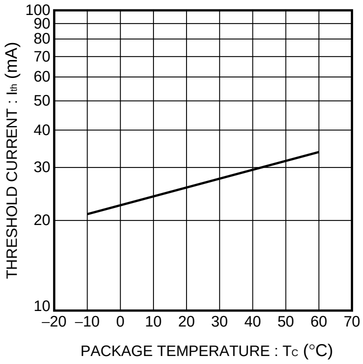


Fig.2 Dependence of threshold current on temperature

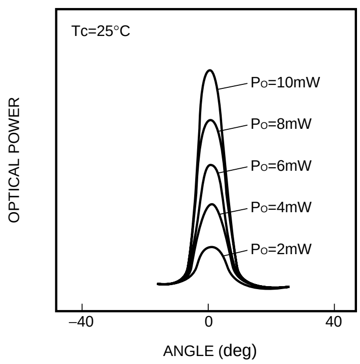


Fig.3 Parallel far field pattern

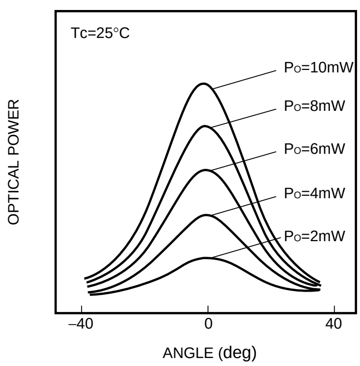


Fig.4 Perpendicular far field pattern

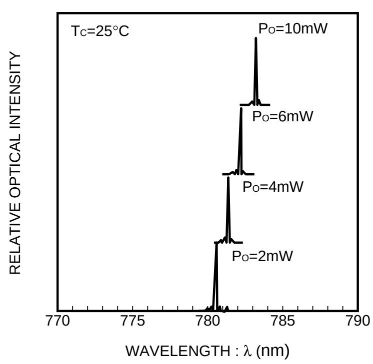


Fig.5 Dependence of emission spectrum on optical output

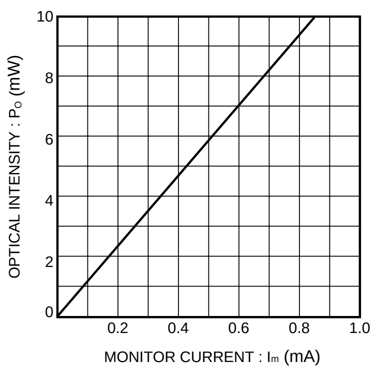


Fig.6 Monitor current vs.optical output

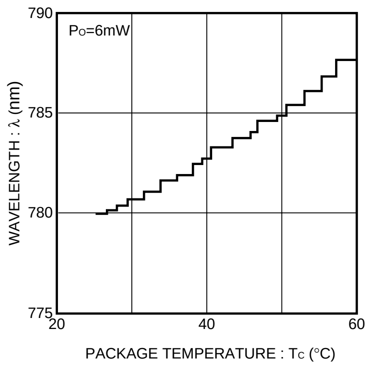


Fig.7 Dependence of wavelength on temperature

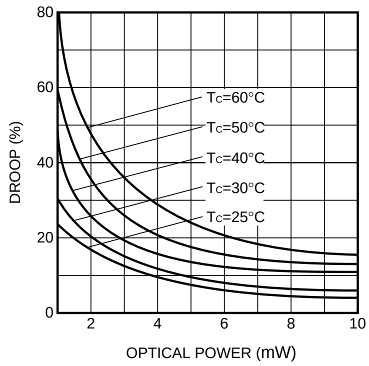


Fig. 8 Dependence of droop on output and temperature

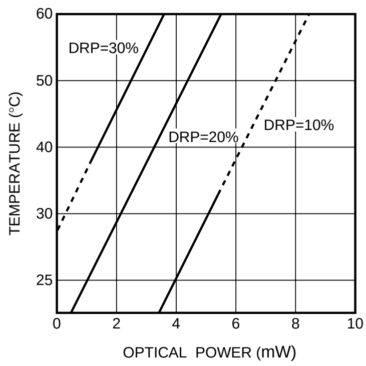


Fig. 9 Temperature vs. output guidelines for various droop percentages