AlGaAs laser diode

RLD-78NP15

The RLD-78NP15 is the world's first mass-produced laser diodes that is manufactured by molecular beam epitaxy. The properties, high speed and high output operation characteristics this laser diode make it suitable for laser printers.

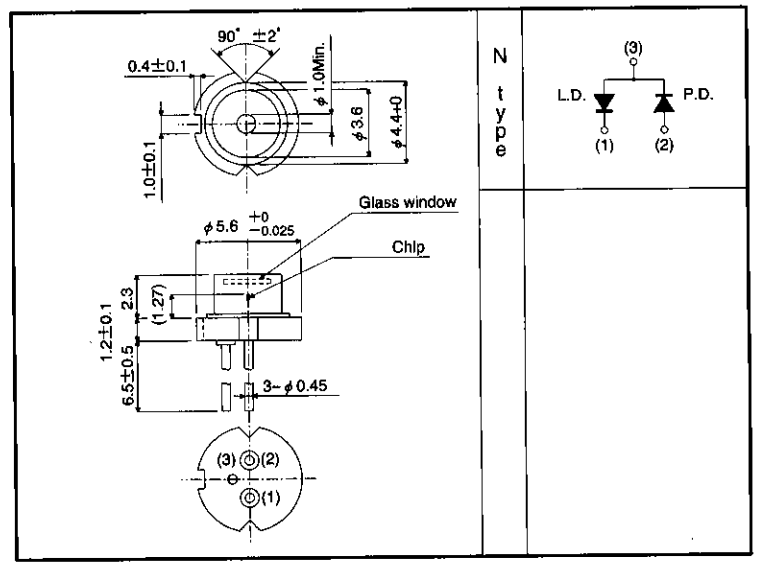
●Applications

High speed, laser printers

●Features

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

●External dimensions (Unit: mm)



●Absolute maximum ratings (Tc = 25℃)

Parameter		Symbol	Limits	Unit
Output		Po	15	mW
Reverse voltage	Laser	VR	2	V
	PIN photodiode	VR (PIN)	30	V
Operating temperature		Topr	−10～+60	℃
Storage temperature		Tstg	−40～+85	℃

●Electrical and optical characteristics (Tc = 25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	20	30	45	mA	—
Operating current	I_{op}	40	55	65	mA	P_O=9mW
Operating voltage	V_{op}	—	2.0	2.5	V	P_O=9mW
Differential efficiency	η	0.25	0.3	0.45	mW/mA	$\frac{9mW}{I(12mW) - I(3mW)}$
Monitor current	I_m	0.38	0.6	1.25	mA	P_O=9mW
Parallel divergence angle	$\theta_{//}$*	8	9	14	deg	P_O=9mW
Perpendicular divergence angle	$\theta_{\perp}$*	20	25	35	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	765	780	790	nm	P_O=9mW
Droop	ΔP	—	5	10	%	P_O=9mW

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

●Electrical and optical curves

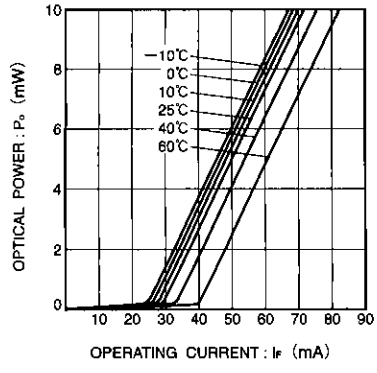


Fig. 1 Optical output vs. operating current

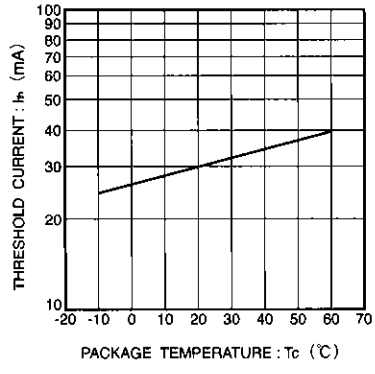


Fig. 2 Dependence of threshold current on temperature

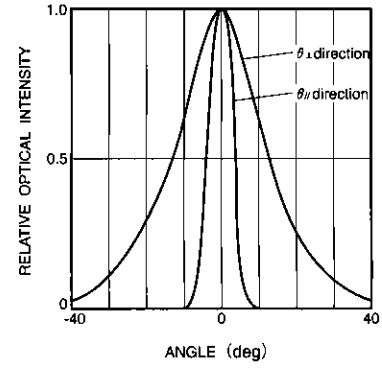


Fig. 3 Far field pattern

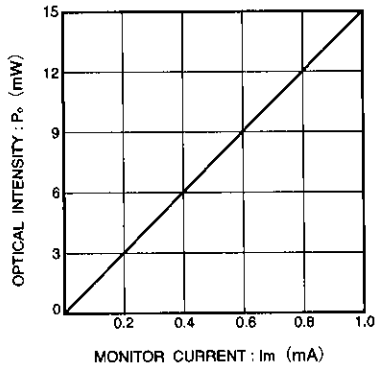


Fig. 4 Monitor current vs. optical output

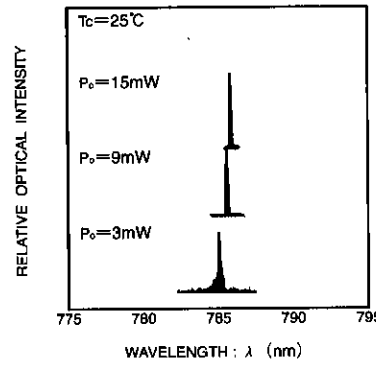


Fig. 5 Dependence of emission spectrum on optical output

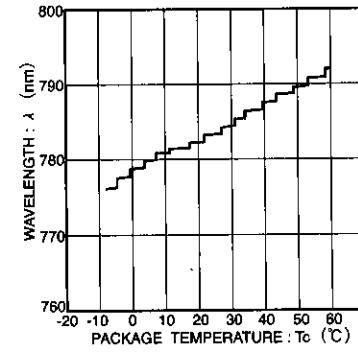


Fig. 6 Dependence of wavelength on temperature

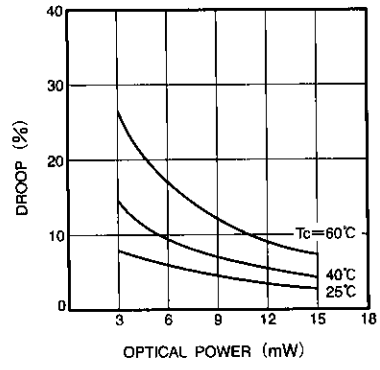


Fig. 7 Dependence of droop on optical output and temperature

Notes

- The contents described in this catalogue are correct as of March 1997.
- No unauthorized transmission or reproduction of this book, either in whole or in part, is permitted.
- The contents of this book are subject to change without notice. Always verify before use that the contents are the latest specifications. If, by any chance, a defect should arise in the equipment as a result of use without verification of the specifications, ROHM CO., LTD., can bear no responsibility whatsoever.
- Application circuit diagrams and circuit constants contained in this data book are shown as examples of standard use and operation. When designing for mass production, please pay careful attention to peripheral conditions.
- Any and all data, including, but not limited to application circuit diagrams, information, and various data, described in this catalogue are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO., LTD., disclaims any warranty that any use of such device shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes absolutely no liability in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices; other than for the buyer's right to use such devices itself, resell or otherwise dispose of the same; no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by ROHM CO., LTD., is granted to any such buyer.

The products listed in this catalogue are designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys). Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers, or other safety devices) please be sure to consult with our sales representatives in advance.

- Notes when exporting

  It is essential to obtain export permission when exporting any of the above products when it falls under the category of strategic material (or labor) as determined by foreign exchange or foreign trade control laws. Please be sure to consult with our sales representatives to ascertain whether any product is classified as a strategic material.