AlGaAs laser diodes

RLD-78MC

The RLD-78MC is the world's first mass-produced laser diodes that is manufactured by molecular beam epitaxy. The characteristics of this laser diode are suitable for use in sensors and bar code readers.

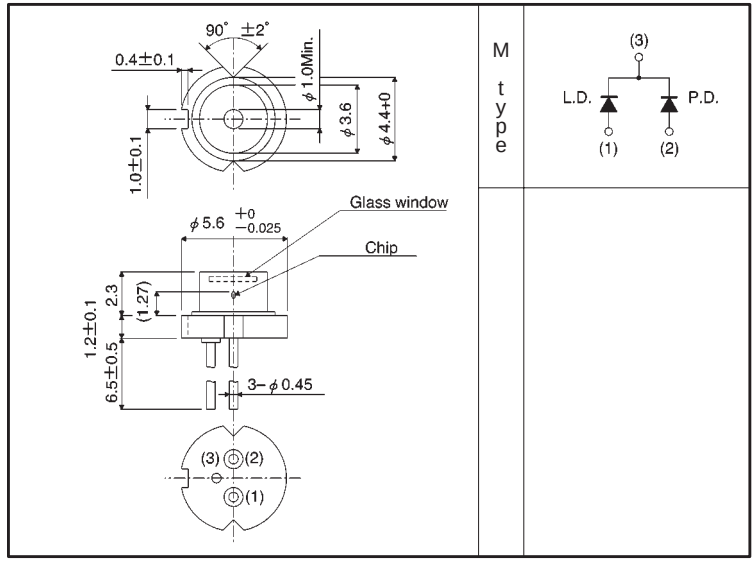
●Applications

Sensors
Bar code readers
Measuring instruments

●Features

1) One-third the dispersion compared with conventional laser diodes.
2) High-precision, compact package.

●External dimensions (Units: mm)



Note: The lengths of the RLD-78MC leads are 5.0 ± 0.5 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	℃
Storage temperature		Tstg	−40～+85	℃

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold current	I_{th}	—	35	60	mA	—
Operating current	I_{op}	—	45	70	mA	Po=3mW
Operating voltage	V_{op}	—	1.9	2.3	V	Po=3mW
Differential efficiency	η	0.1	0.25	0.6	mW/mA	$\frac{2mW}{I(3mW)-I(1mW)}$
Monitor current	I_m	0.1	0.2	0.6	mA	Po=3mW,$V_{R(PIN)}$=15V
Parallel divergence angle	$\theta_{//}$*	8	11	15	deg	Po=3mW
Perpendicular divergence angle	$\theta_{\perp}$*	20	37	45	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	810	nm	Po=3mW

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

●Electrical and optical characteristic curves

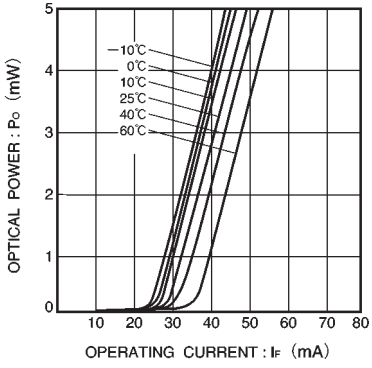


Fig. 1 Optical output vs. operating current

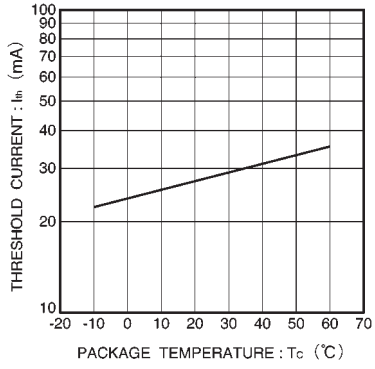


Fig. 2 Dependence of threshold current on temperature

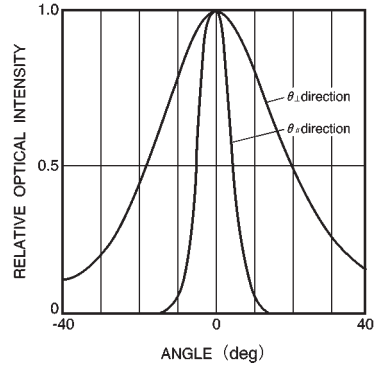


Fig. 3 Far field pattern

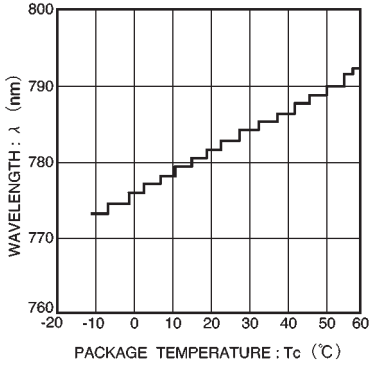


Fig. 4 Dependence of wavelength on temperature

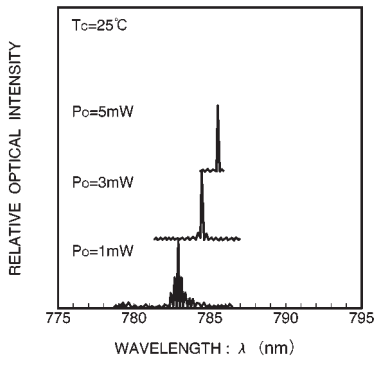


Fig. 5 Dependence of emission spectrum on optical output

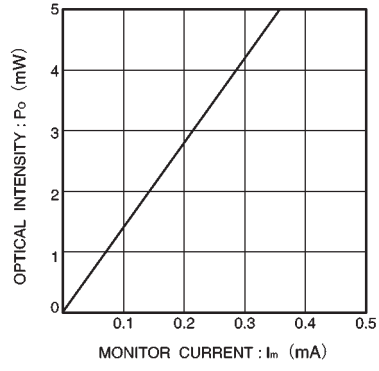


Fig. 6 Monitor current vs. optical output