RLD-78MAT1
RLD-78PAT1

AlGaAs double-hetero visible laser diodes

These were the world's first mass-produced laser diodes that were manufactured by molecular beam epitaxy and introduced with the RLD-78MA and RLD-78PA laser diodes. These diodes were especially developed for the higher ambient temperatures found in automobiles and have a higher reliability than the other CD laser diodes.

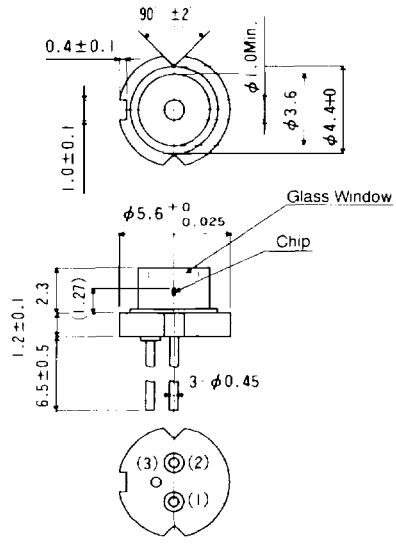
Features

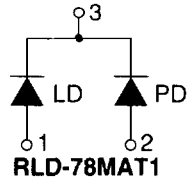
- noise is independent of feedback optical power
- specified signal-to-noise ratio is guaranteed over whole operating range
- reflected facet light is reduced
- one third the dispersion compared with conventional laser diodes
- very small, compact package; with close tolerances
- P type can be operated from single 5 V source

Applications

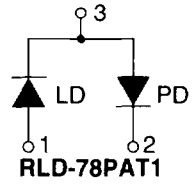
- Automobile compact disc players

Dimensions (Units : mm)





RLD-78MAT1



RLD-78PAT1

Selection guide

RLD-78MAT1	Standard
RLD-78PAT1	Semi-standard

Absolute maximum ratings (T_a = 25°C)

Parameter		Symbol	Limits	Unit
Optical power		P_o	5	mW
Reverse voltage	Laser	V_R	2	V
	PIN photodiode	$V_{R(PIN)}$	30	V
Operating temperature range		T_{opr}	−10 ~ +80	°C
Storage temperature range		T_{stg}	−40 ~ +90	°C

Electro-optical characteristics (T_a = 25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Threshold current	I_{th}		35	60	mA	
Operating current	I_{op}		45	70	mA	P_o = 3 mW
Operating voltage	V_{op}		1.9	2.3	V	P_o = 3 mW
Differential efficiency	η	0.1	0.25	0.6	mW/mA	$\frac{2mW}{I_{P3mW} - I_{P1mW}}$
Monitor current	I_m	0.1	0.2	0.6	mA	P_o = 3 mW, $V_{R(PIN)}$ = 15 V
Beam divergence parallel	$\theta_{//}$	8	11	15	deg	P_o = 3 mW
Beam divergence perpendicular	$\theta_{\perp}$	20	37	45	deg	
Beam tolerance parallel	$\Delta\phi_{//}$			±2	deg	
Beam tolerance perpendicular	$\Delta\phi_{\perp}$			±3	deg	
Emission point accuracy	ΔX ΔY ΔZ			±80	μm	
Wavelength	λ	770	785	810	nm	P_o = 3 mW
Signal-to-noise ratio	S/N	60			dB	f = 720 kHz, Δf = 10 kHz

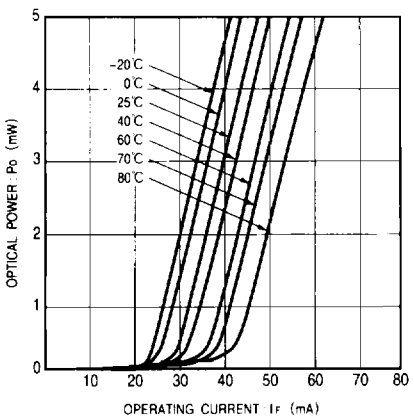


Figure 1

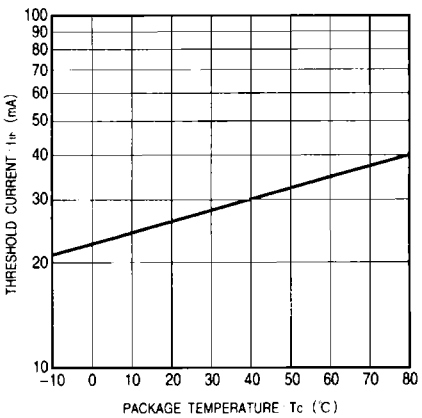


Figure 2

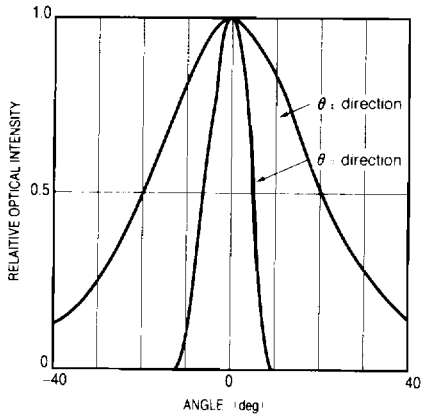


Figure 3

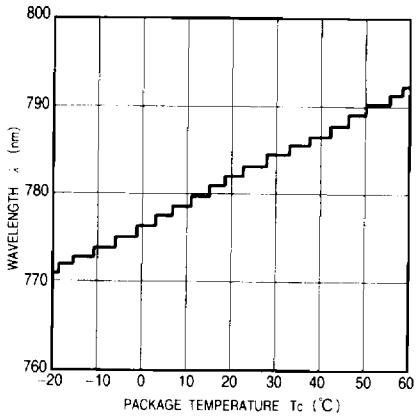


Figure 4

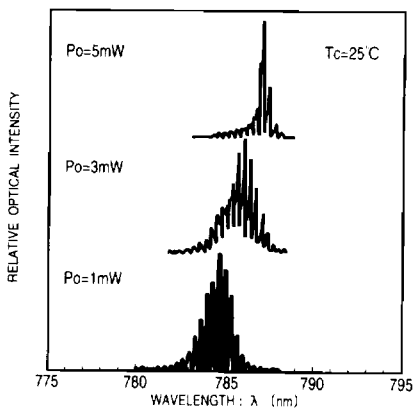


Figure 5

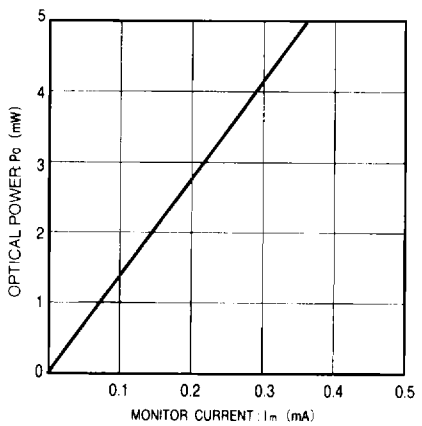


Figure 6

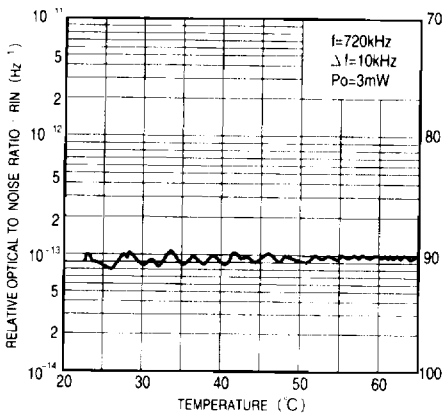


Figure 7

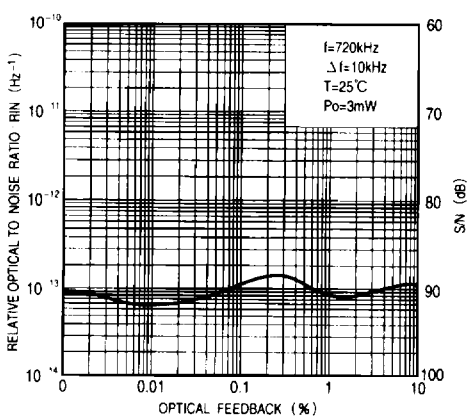


Figure 8