

GaAlAs Laser Diode

Description

The SLD131UL is a low-power consumption and low-noise laser diode developed for portable CDs.

Features

- Low current consumption I_{OP} : 20mA ($P_O = 2.5mW$)
- Supports single power supply.
- Low noise

Applications

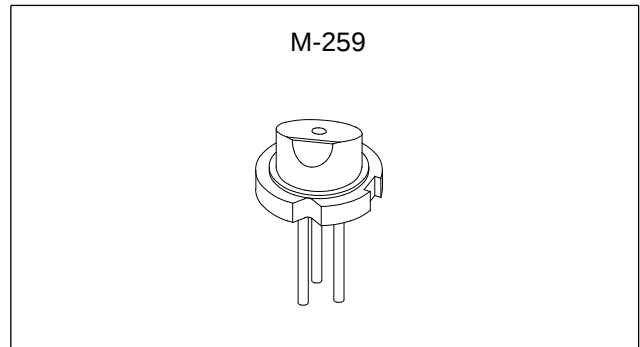
- Portable CDs

Structure

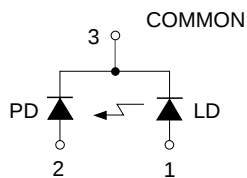
- GaAlAs double hetero laser diode
- PIN photodiode to monitor laser beam output

Absolute Maximum Ratings ($T_C = 25^\circ C$)

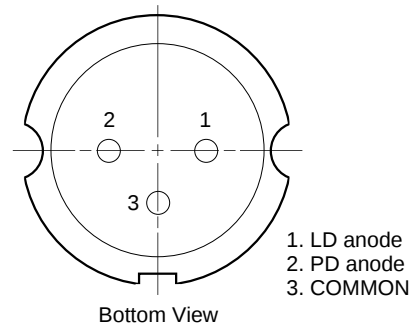
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|-------------------------|-----------|------------|------------|
| • Optical power output | P_O | 4 | mW |
| • Reverse voltage | V_R | LD 2 | V |
| | | PD 15 | V |
| • Operating temperature | T_{opr} | -10 to +60 | $^\circ C$ |
| • Storage temperature | T_{stg} | -40 to +85 | $^\circ C$ |



Connection Diagram



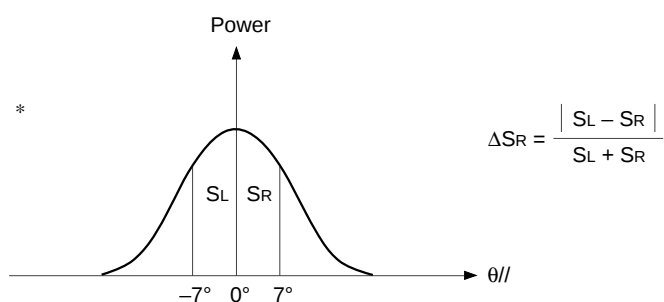
Pin Configuration



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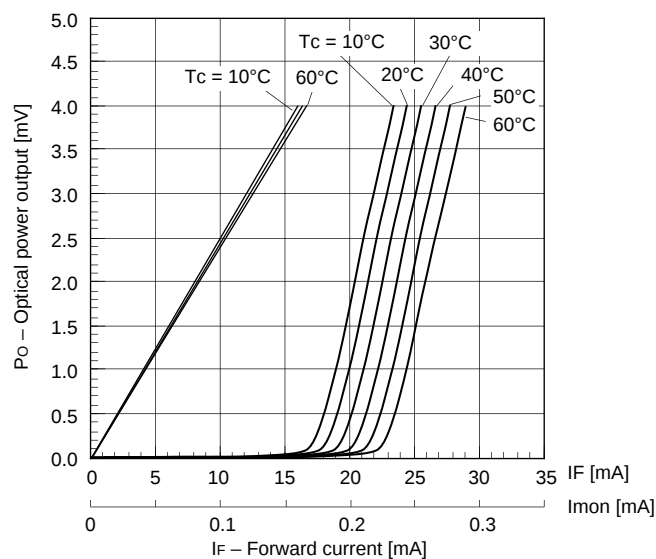
Electrical and Optical Characteristics (T_c = 25°C)T_c : Case temperature

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		I _{th}			16	28	mA
Operating current		I _{op}	P _o = 2.5mW		20	30	mA
Operating voltage		V _{op}	P _o = 2.5mW	1.7	1.9	2.5	V
Wavelength		λ _p	P _o = 2.5mW	760	790	810	nm
Monitor current		I _m	P _o = 2.5mW V _R = 5V	0.08	0.11	0.6	mA
Radiation angle	Perpendicular	θ _⊥	P _o = 2.5mW	20	39	45	degree
	Parallel	θ _{//}		8	13	25	degree
	Asymmetry	ΔS _R [*]				25	%
Positional accuracy	Position	ΔX, ΔY, ΔZ	P _o = 2.5mW			±150	μm
	Angle	Δφ _⊥				±4	degree
Differential efficiency		η _D	P _o = 2.5mW	0.2	0.6	0.9	mW/mA
Astigmatism		A _s	Z // -Z _⊥			15	μm
Dark current of PD		I _D	V _R = 5V			150	nA
capacitance of PD		C _T	V _R = 5V, f = 1kHz			30	pF

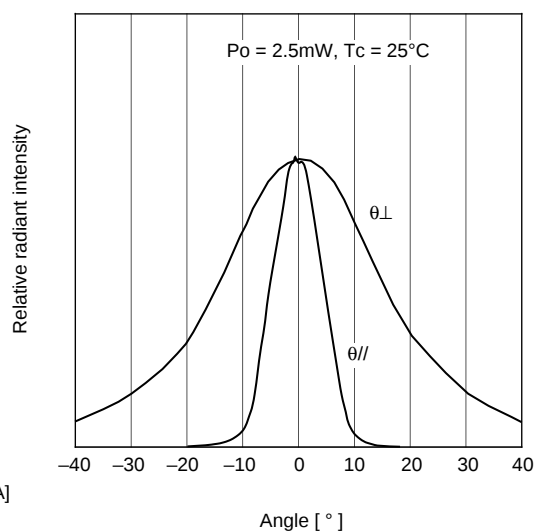


Example of Representative Characteristics

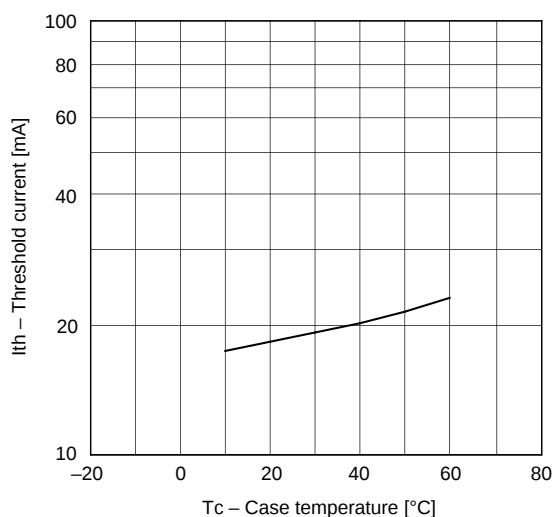
Optical power output vs. Forward current characteristics



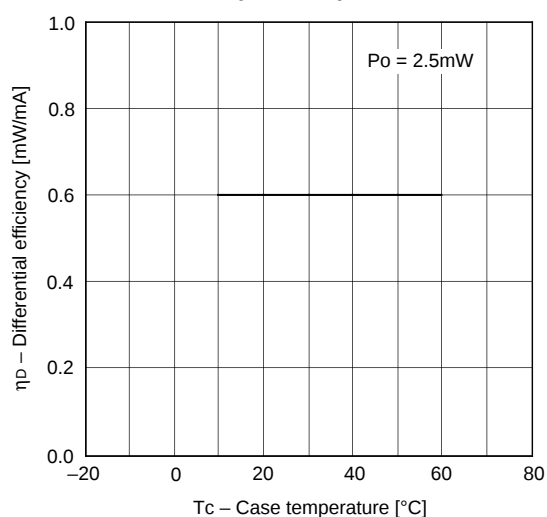
Far field pattern (FFP)



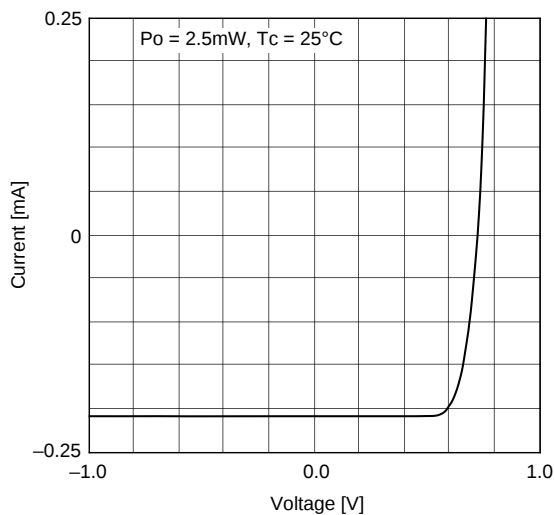
Threshold current vs. Temperature characteristics



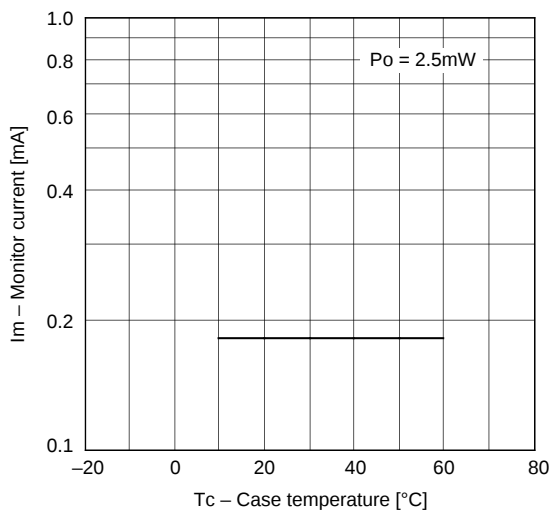
Differential efficiency vs. Temperature characteristics



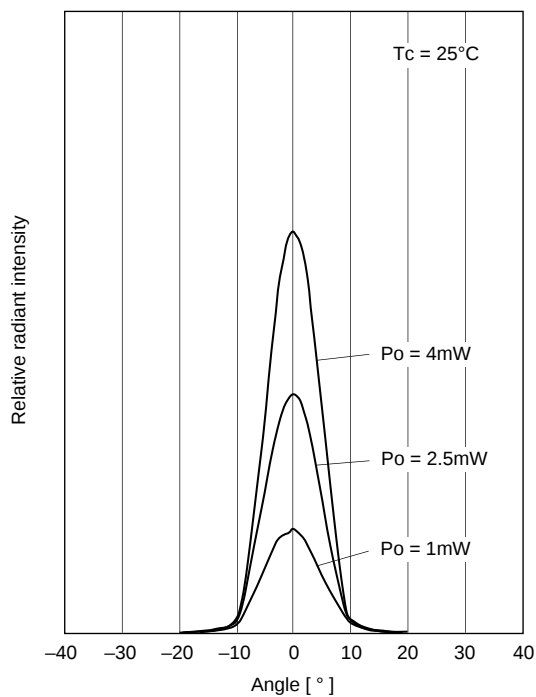
PIN diode voltage and current characteristics



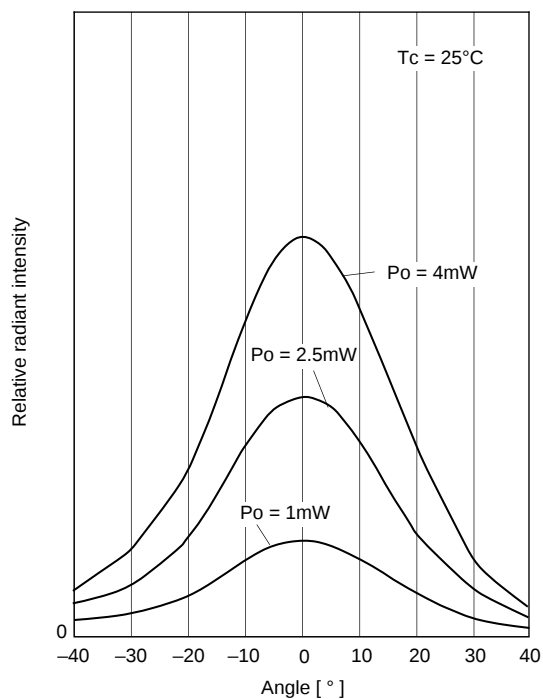
Monitor current vs. Temperature characteristics



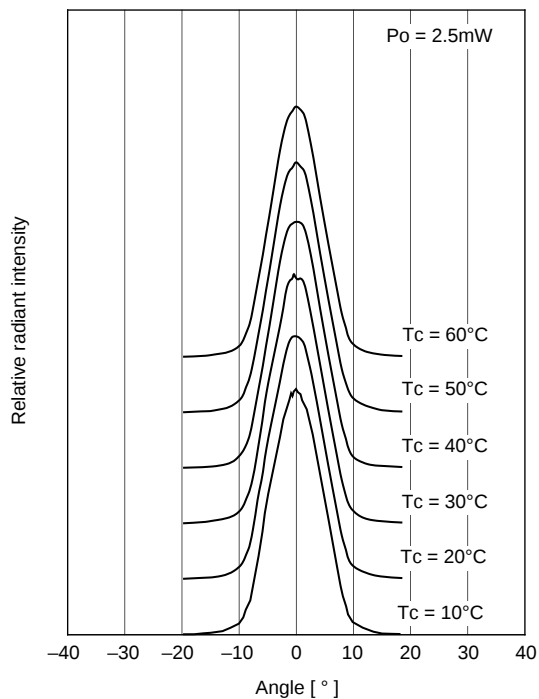
**Power dependence of far field pattern
(Parallel to junction)**



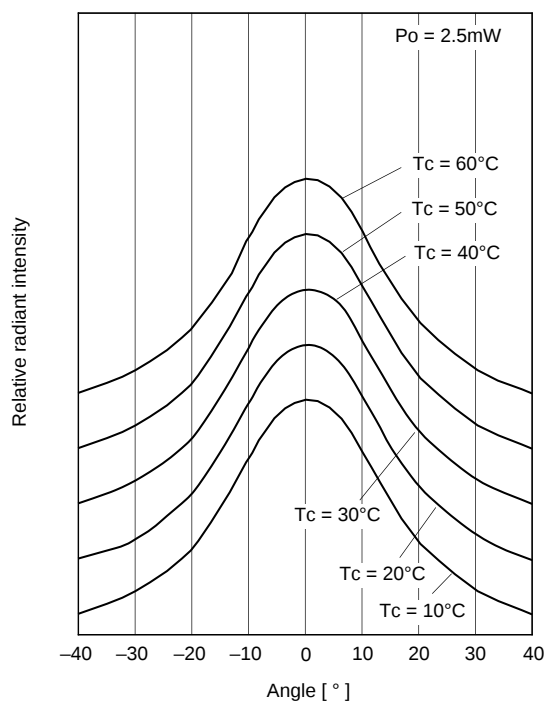
**Power dependence of far field pattern
(Perpendicular to junction)**



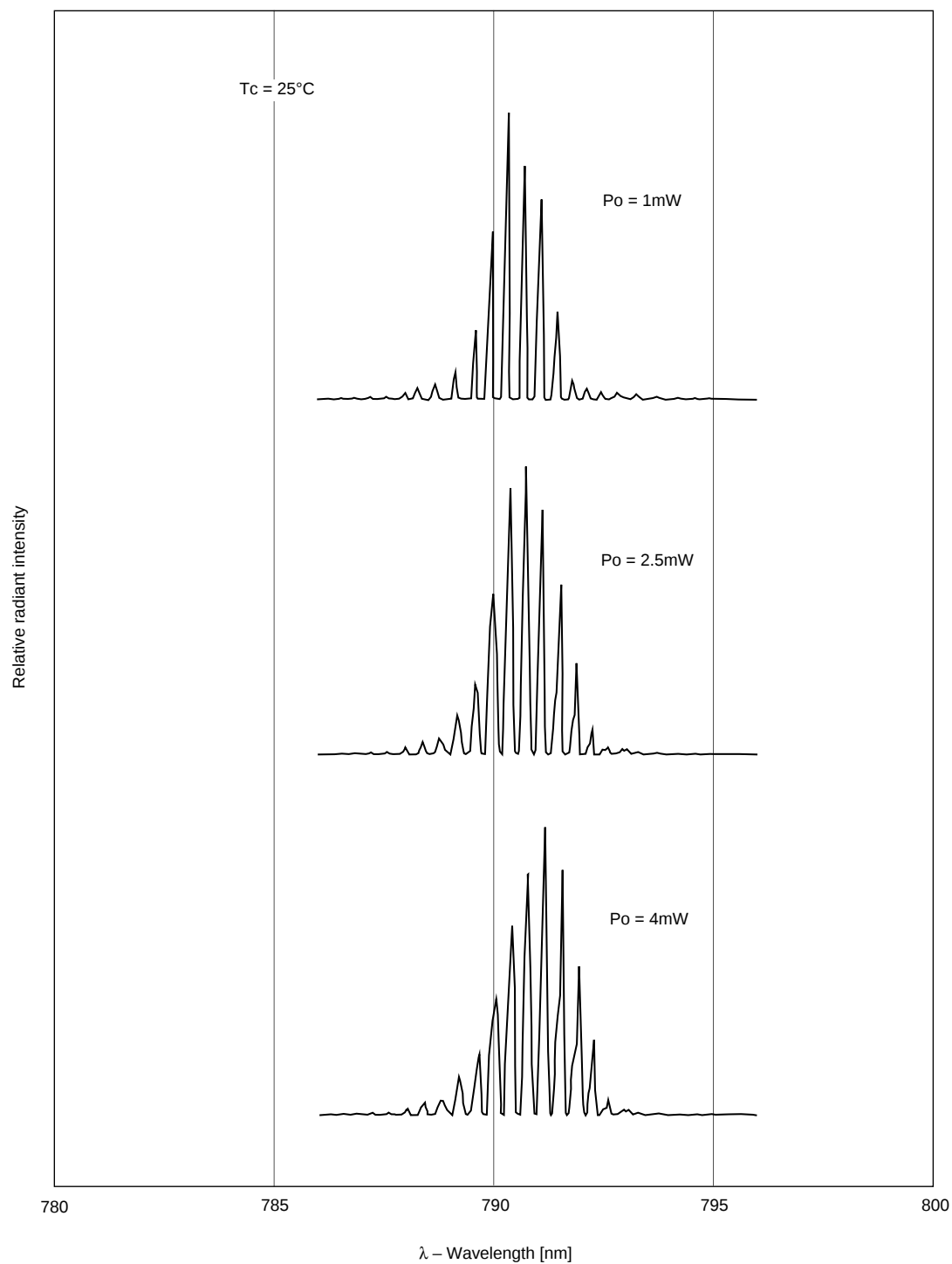
**Temperature dependence of far field pattern
(Parallel to junction)**



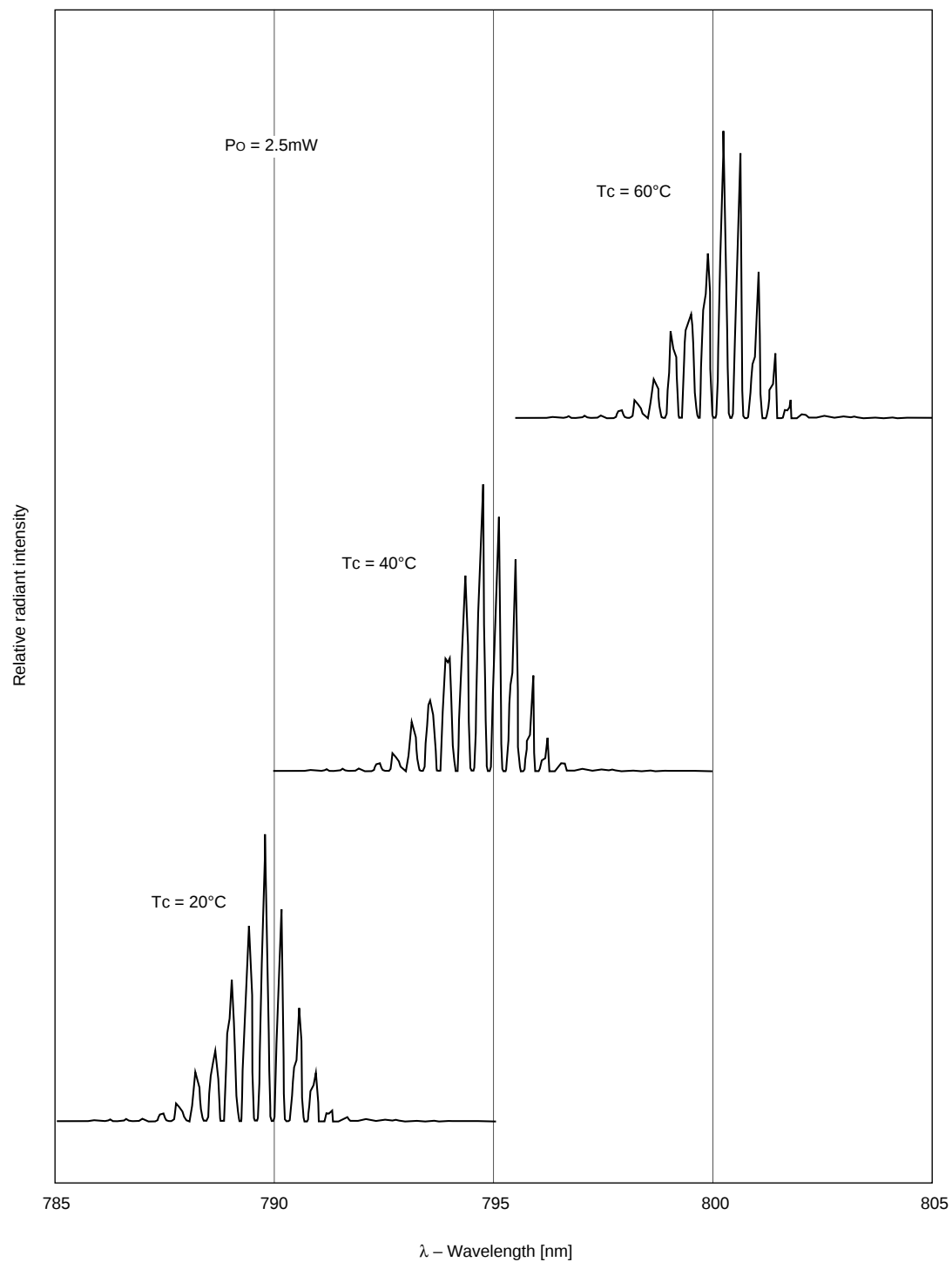
**Temperature dependence of far field pattern
(Perpendicular to junction)**



Power dependence of oscillating spectrum

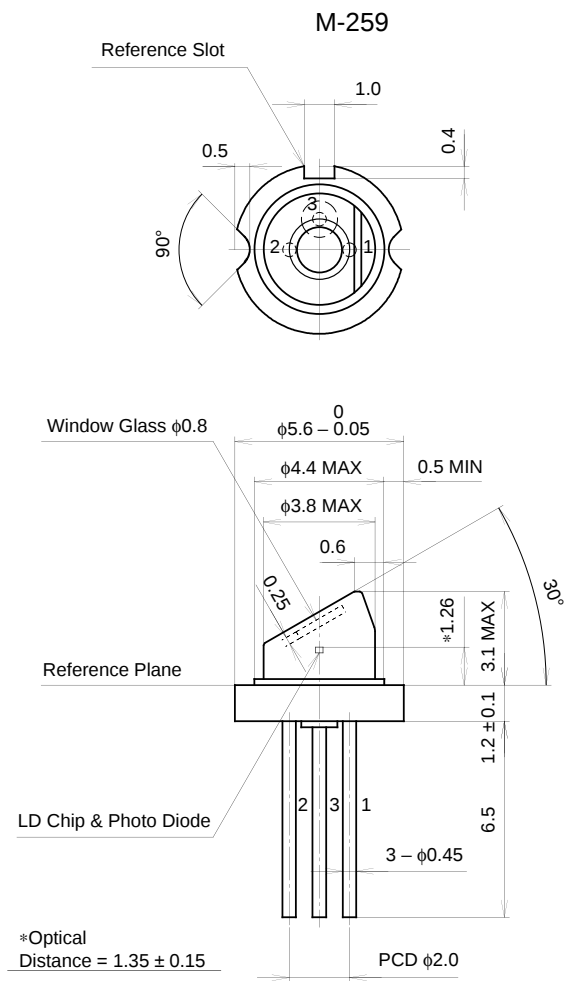


Temperature dependence of oscillating spectrum



Package Outline

Unit: mm



SONY CODE	M-259
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.3g
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