

200mW High Power Laser Diode

Description

The SLD302V is a gain-guided, high-power laser diodes fabricated by MOCVD.
MOCVD: Metal Organic Chemical Vapor Deposition

Features

- High power
Recommended power output Po = 180mW
- Low operating current

Applications

- Solid state laser excitation
- Medical use

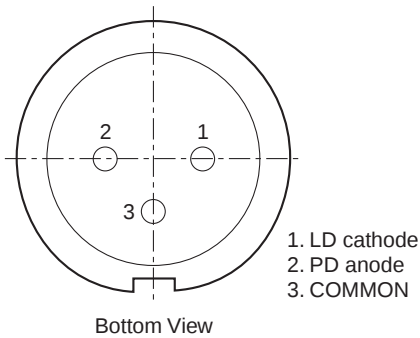
Structure

GaAlAs double-hetero-type laser diode

Absolute Maximum Ratings (Tc = 25°C)

• Optical power output	Po	200	mW
• Reverse voltage	V _R LD	2	V
	PD	15	V
• Operating temperature	Topr	−10 to +50	°C
• Storage temperature	Tstg	−40 to +85	°C

Pin Configuration



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Electrical and Optical Characteristics

(Tc: Case temperature, Tc = 25°C)

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		I _{th}			150	200	mA
Operating current		I _{op}	P _O = 180mW		350	500	mA
Operating voltage		V _{op}	P _O = 180mW		1.9	3.0	V
Wavelength ^{*1}		λ _p	P _O = 180mW	770		840	nm
Monitor current		I _{mon}	P _O = 180mW V _R = 10V		0.3		mA
Radiation angle (F. W. H. M.*)	Perpendicular	θ _⊥	P _O = 180mW		28	40	degree
	Parallel	θ _{//}			12	17	degree
Positional accuracy	Position	ΔX, ΔY	P _O = 180mW			±50	μm
	Angle	Δφ _⊥				±3	degree
Differential efficiency		η _D	P _O = 180mW	0.65	0.9		mW/mA

* F. W. H. M. : Full Width at Half Maximum

^{*1} Wavelength Selection Classification

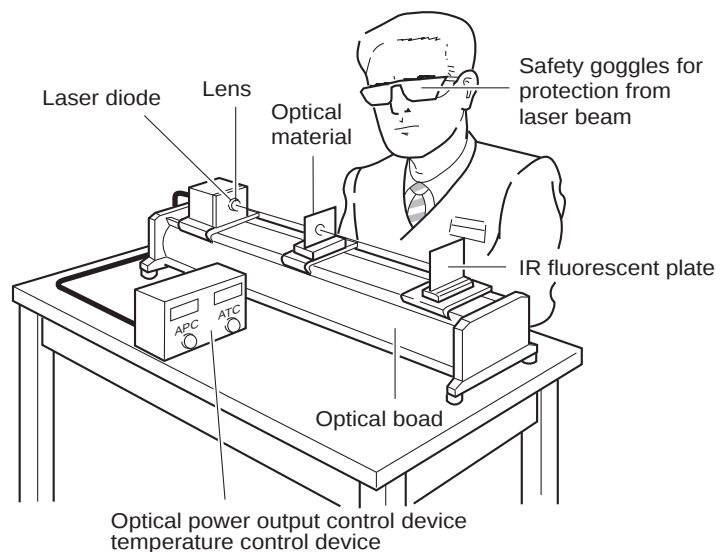
Type	Wavelength (nm)
SLD302V-1	785 ± 15
SLD302V-2	810 ± 10
SLD302V-3	830 ± 10

Type	Wavelength (nm)
SLD302V-21	798 ± 3
SLD302V-24	807 ± 3
SLD302V-25	810 ± 3

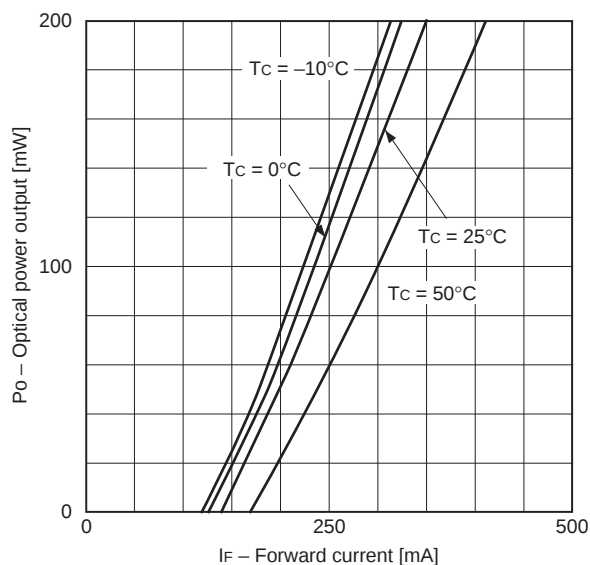
Handling Precautions

Eye protection against laser beams

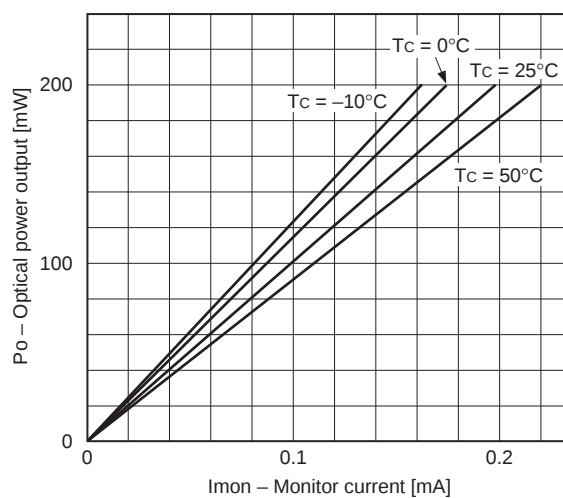
The optical output of laser diodes ranges from several mW to 1W. However the optical power density of the laser beam at the diode chip reaches 1mW/cm². Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, ALWAYS use safety goggles that block infrared rays. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.



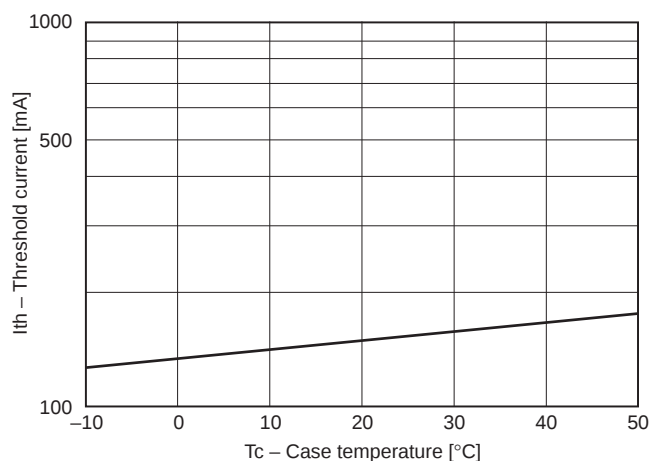
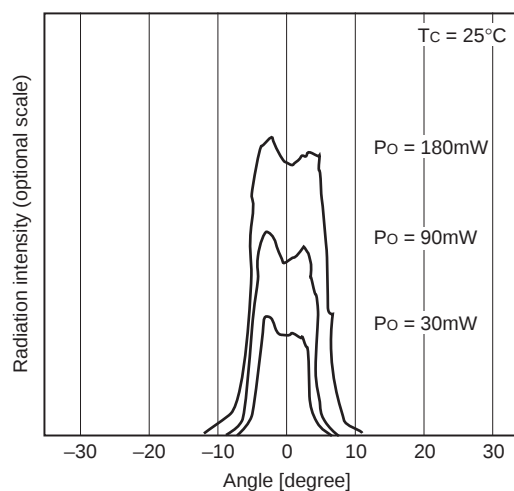
Example of Representative Characteristics

Optical power output vs.
Forward current characteristics

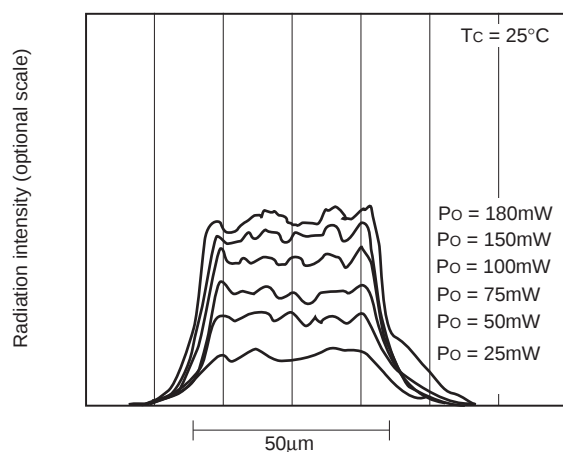
Optical power output vs. Monitor current characteristics



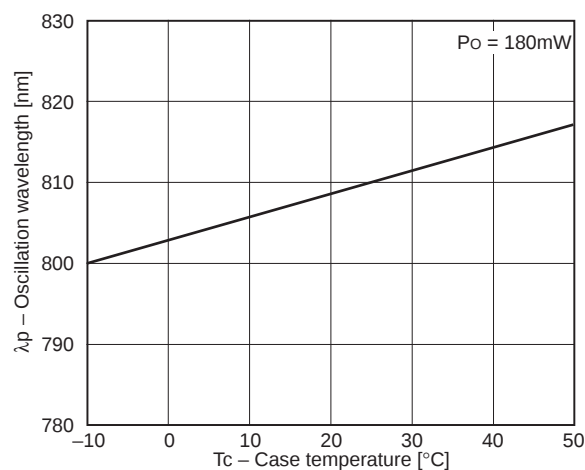
Threshold current vs. Temperature characteristics

Power dependence of far field pattern
(parallel to junction)

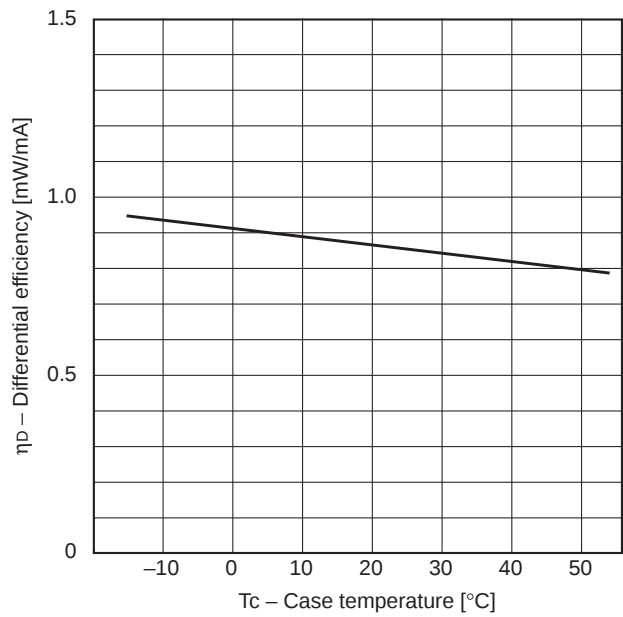
Power dependence of near field pattern



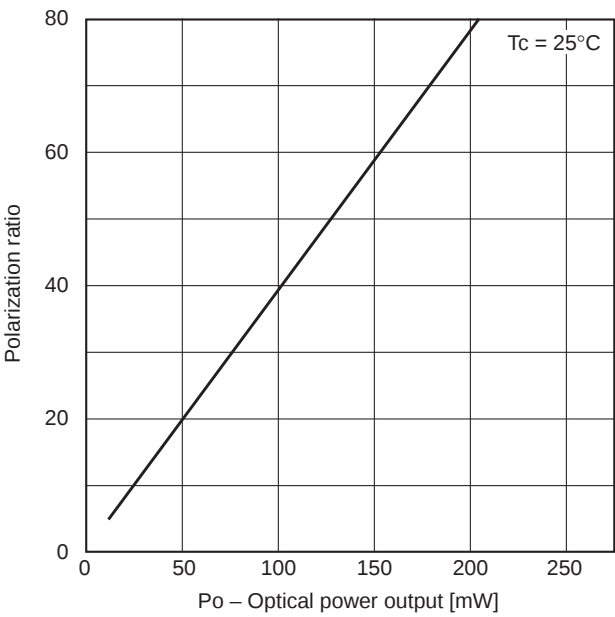
Oscillation wavelength vs. Temperature characteristics



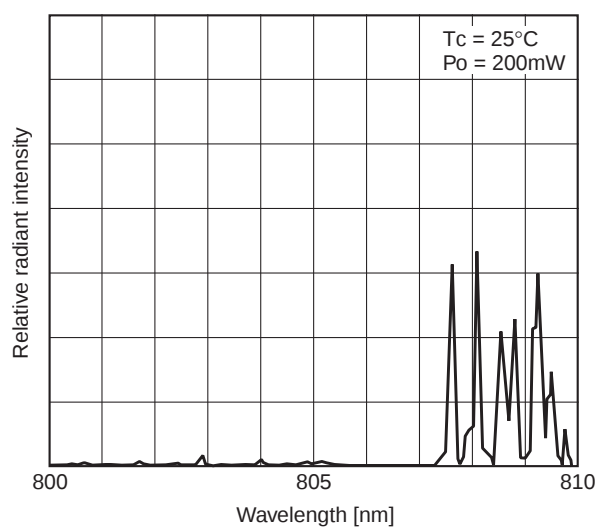
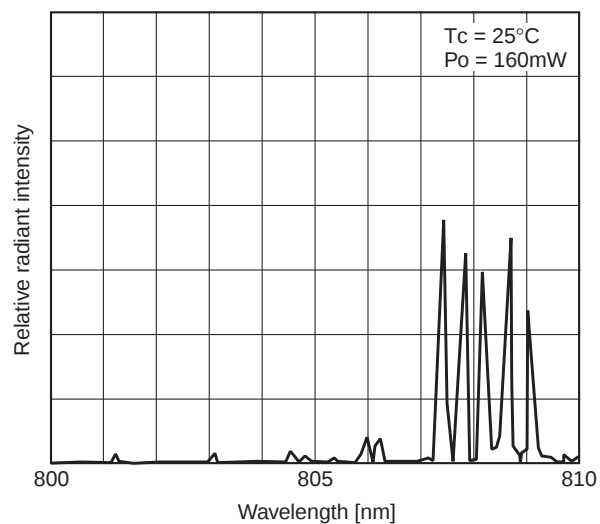
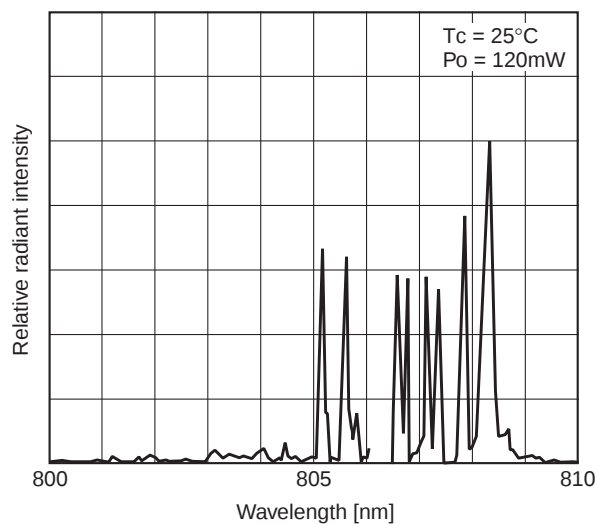
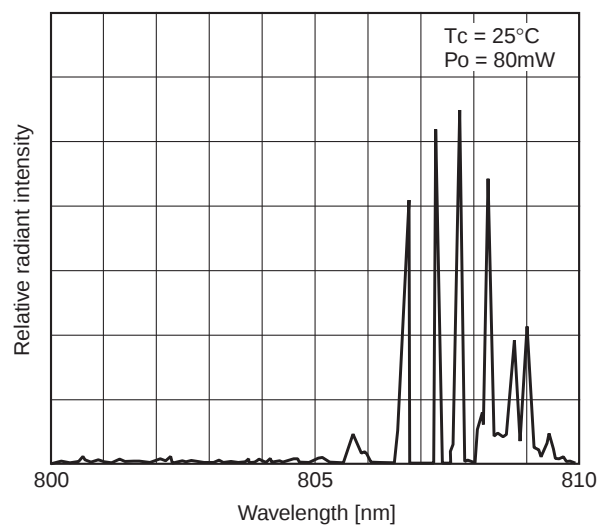
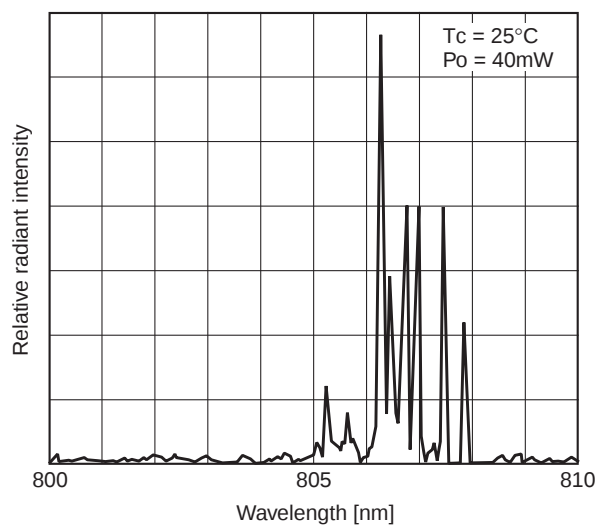
Differential efficiency vs. Temperature characteristics

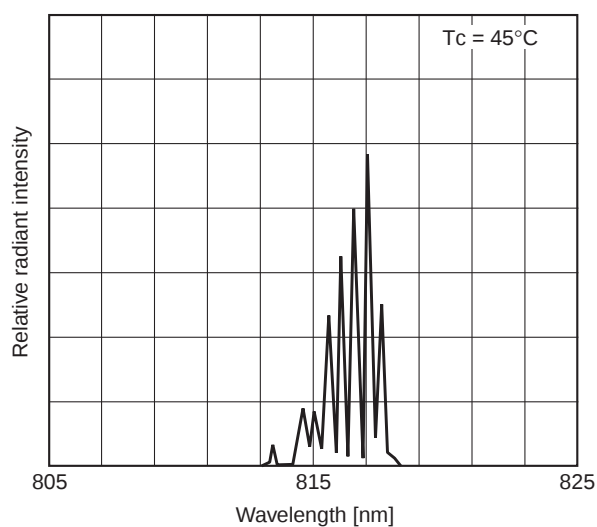
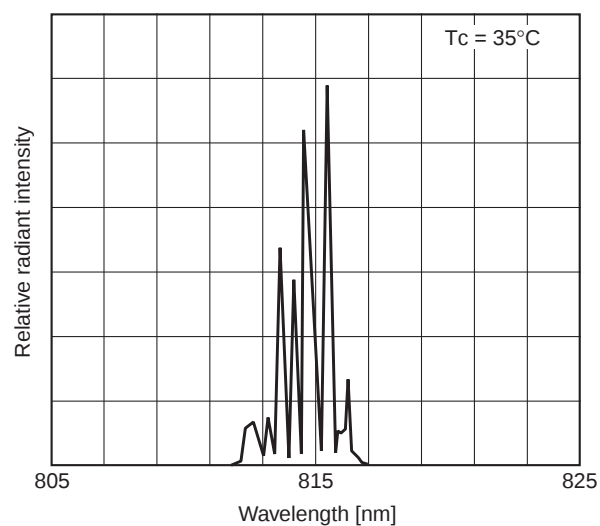
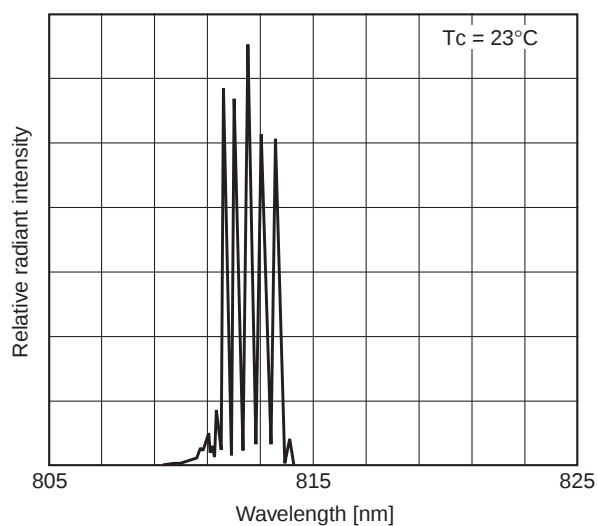
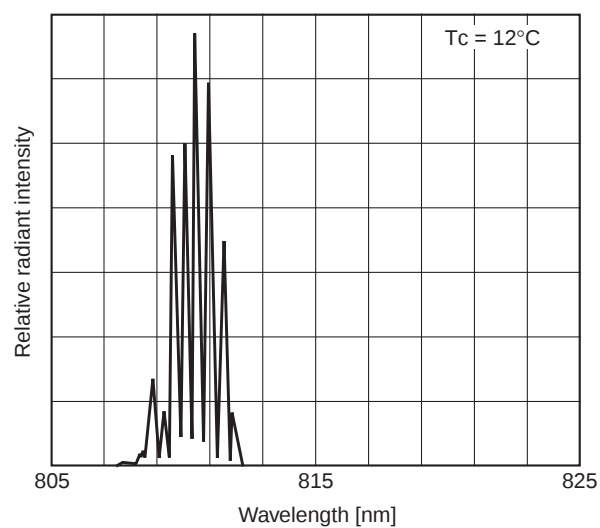
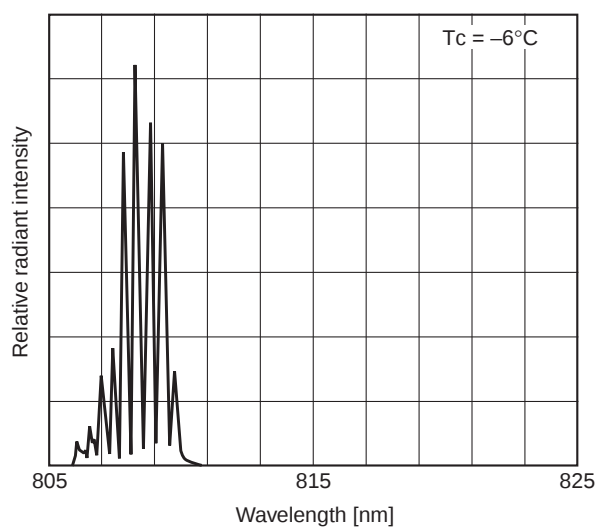


Power dependence of polarization ratio



Power dependence of wavelength

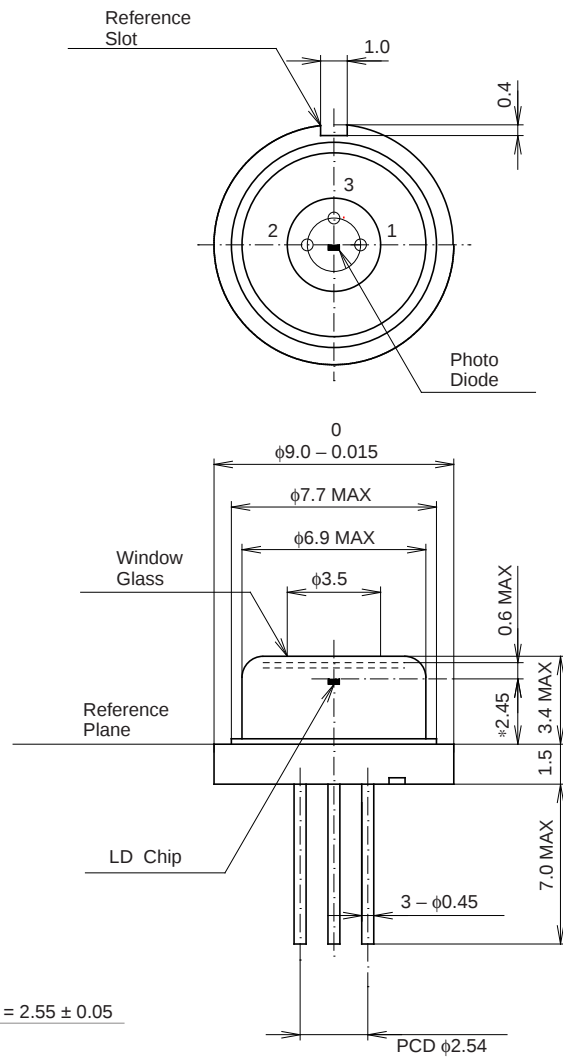


Temperature dependence of wavelength ($P_0 = 180\text{mW}$)

Package Outline

Unit: mm

M-248 (LO-11)



SONY CODE	M-248
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	1.2g
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