SONY

SLD302V

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

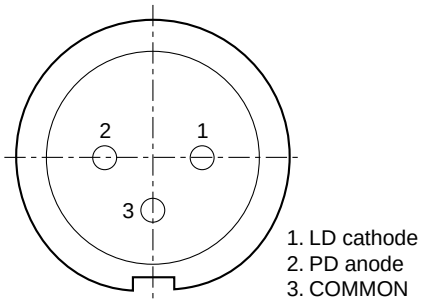
Applications

- Solid state laser excitation
- Medical use

Structure

GaAlAs double-hetero-type laser diode

Pin Configuration



1. LD cathode
2. PD anode
3. COMMON

Bottom View

Operating Lifetime

MTTF 10,000H (effective value) at Po = 180mW, Tc = 25°C

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

Warranty

This warranty period shall be 90 days after receipt of the product or 1,000 hours operation time whichever is shorter.
Sony Quality Assurance Department shall analyze any product that fails during said warranty period, and if the analysis results show that the product failed due to material or manufacturing defects on the part of Sony, the product shall be replaced free of charge.
Laser diodes naturally have differing lifetimes which follow a Weibull distribution.
Special warranties are also available.

E88060C08-PS

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

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		Ith			150	200	mA
Operating current		Iop	P_O = 180mW		350	500	mA
Operating voltage		Vop	P_O = 180mW		1.9	3.0	V
Wavelength*1		λp	P_O = 180mW	770		840	nm
Monitor current		Imon	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**

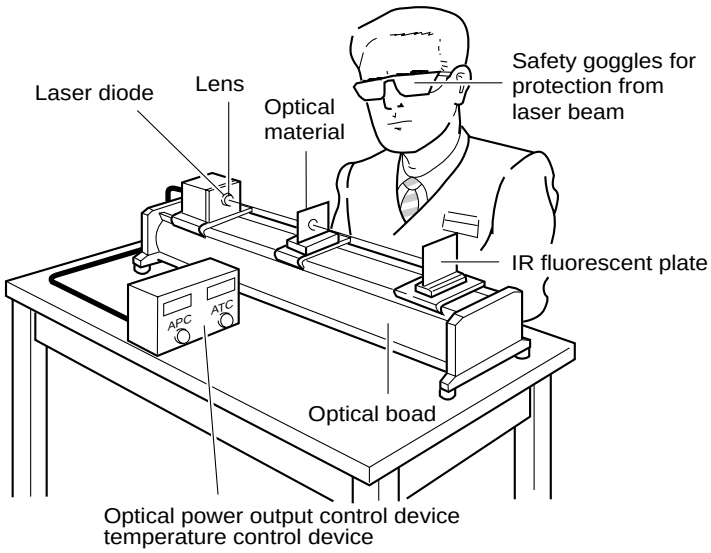
Type	Wavelength (nm)
SLD302V-1	785 ± 15
SLD302V-2	810 ± 10
SLD302V-3	830 ± 10

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

Handling Precautions

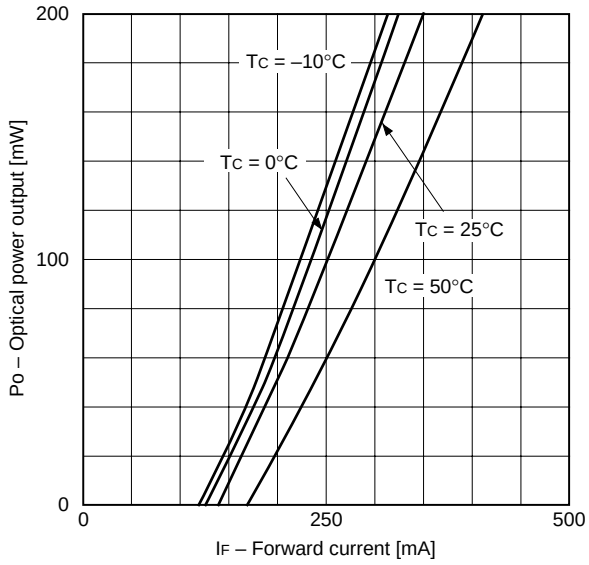
Eye protection against laser beams

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/cm^2. 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.

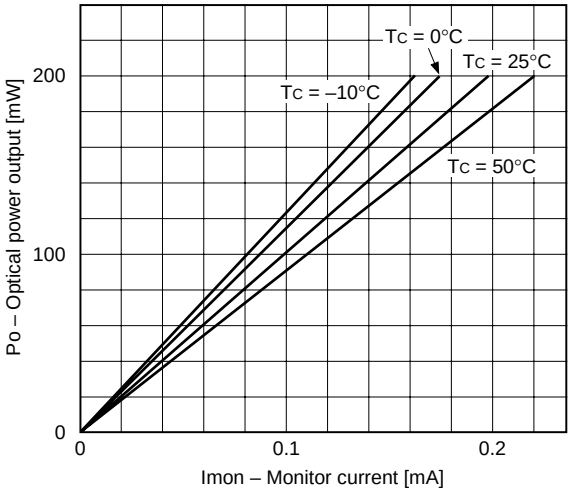


Example of Representative Characteristics

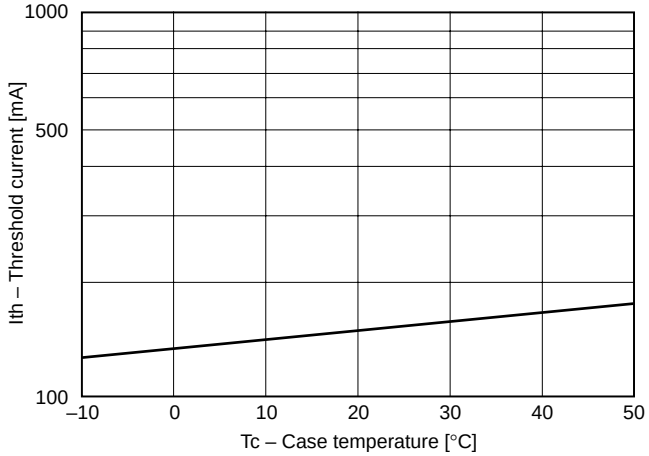
Optical power output vs. Forward current characteristics



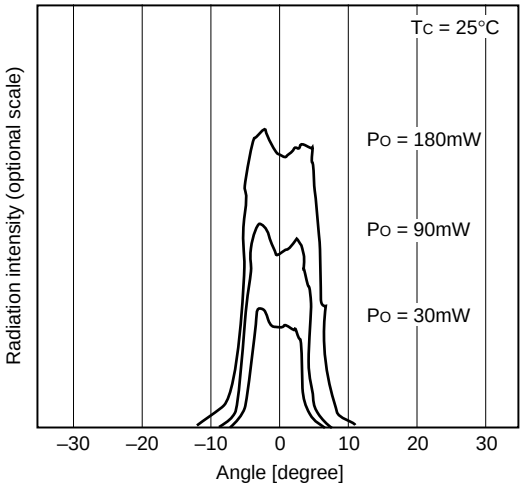
Optical power output vs. Monitor current characteristics



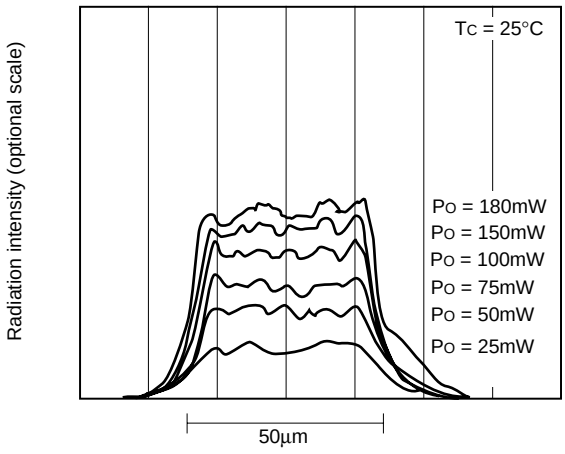
Threshold current vs. Temperature characteristics



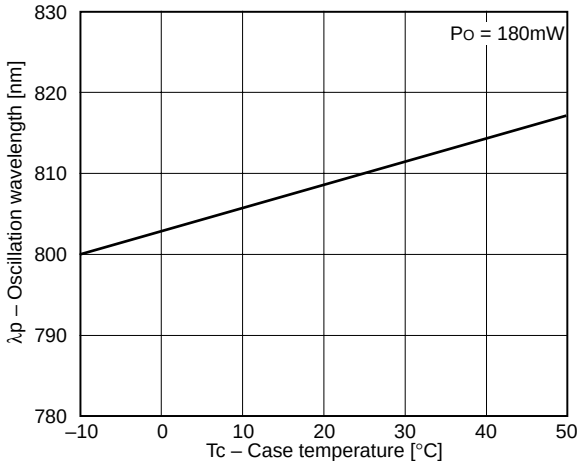
Power dependence of far field pattern (parallel to junction)



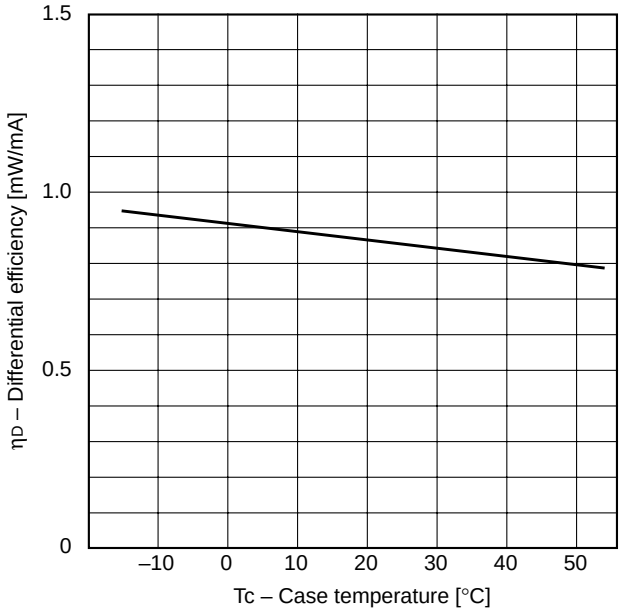
Power depecdence of near field pattern



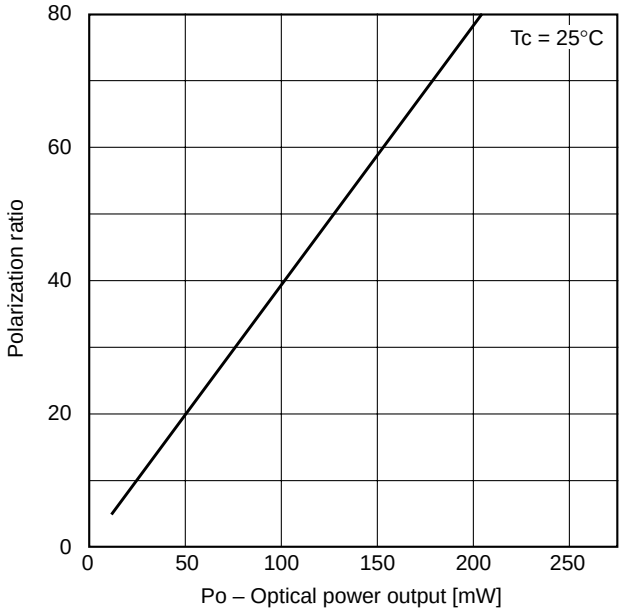
Oscillation wavelength vs. Temperature characteristics



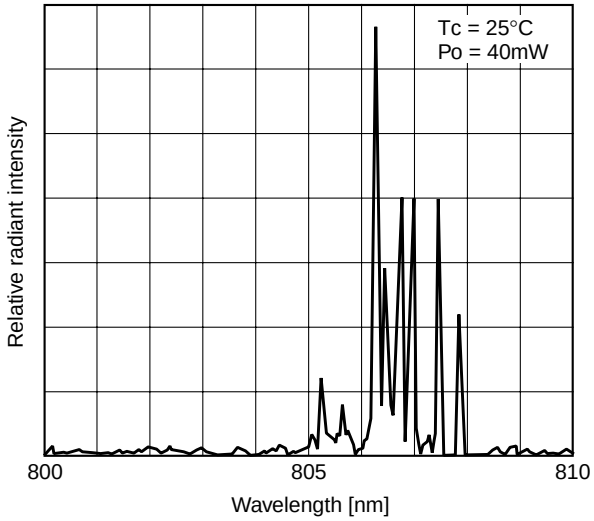
Differential efficiency vs. Temperature characteristics

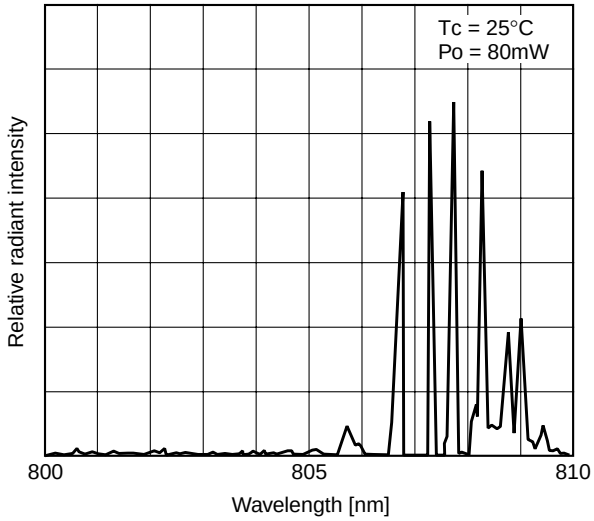


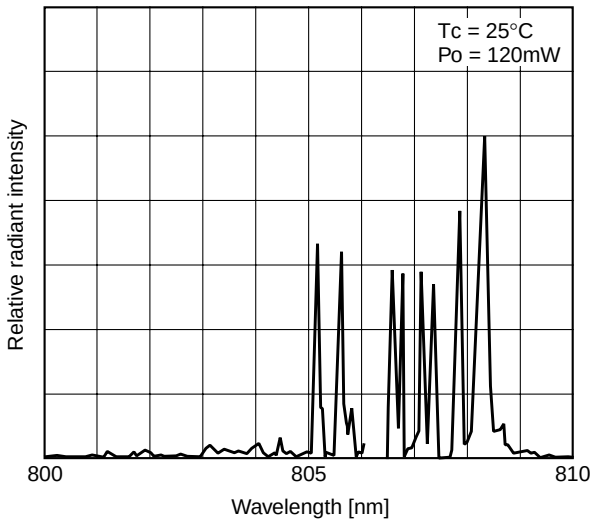
Power dependence of polarization ratio

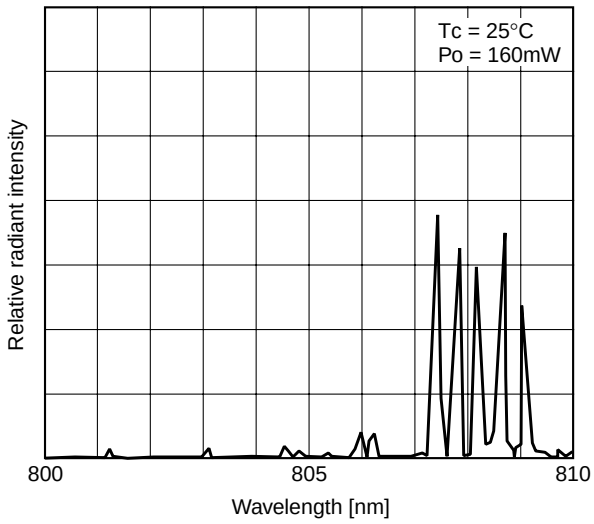


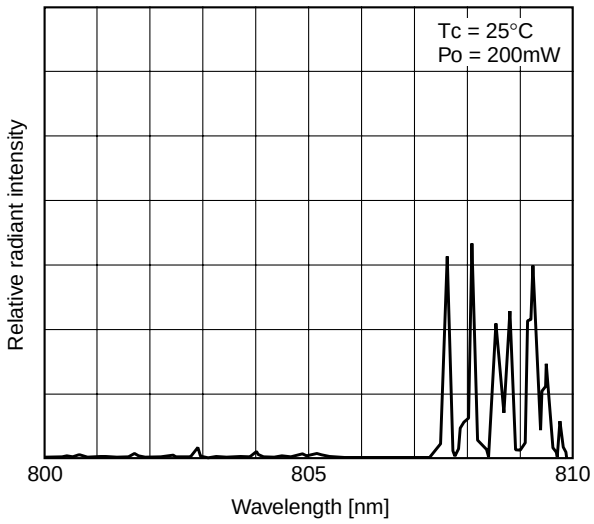
Power dependence of wavelength



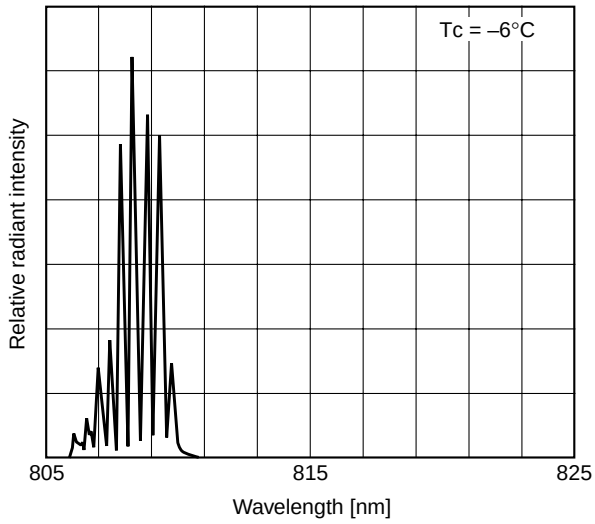


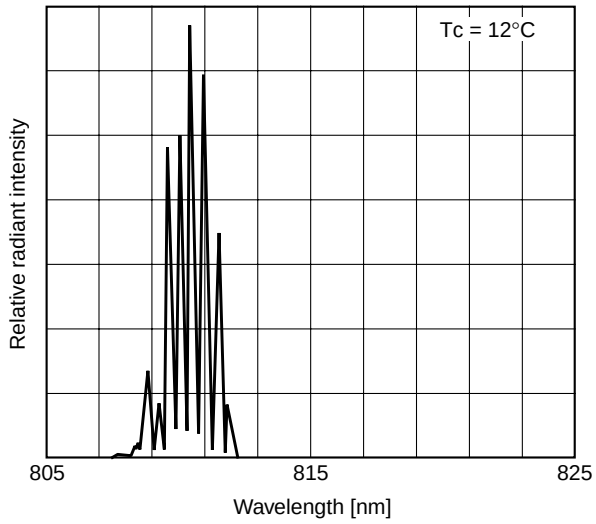


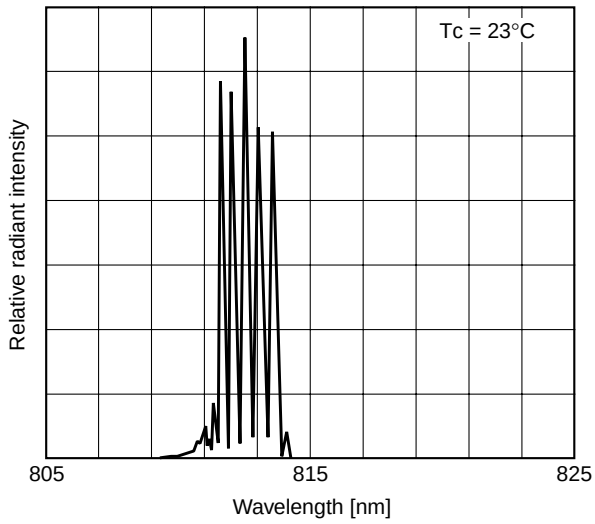


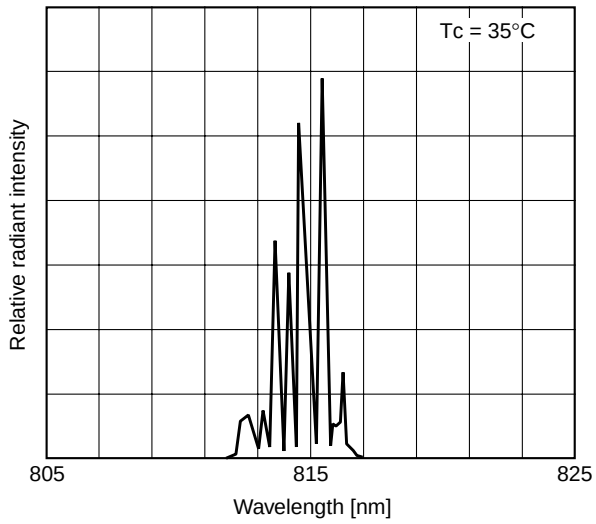


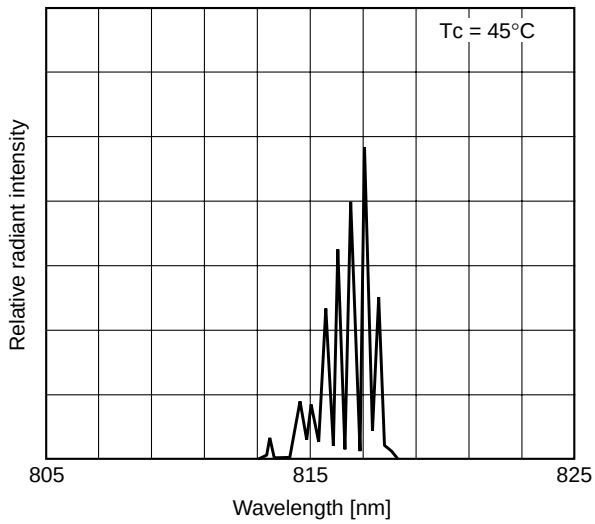
Temperature dependence of wavelength (Po = 180mW)





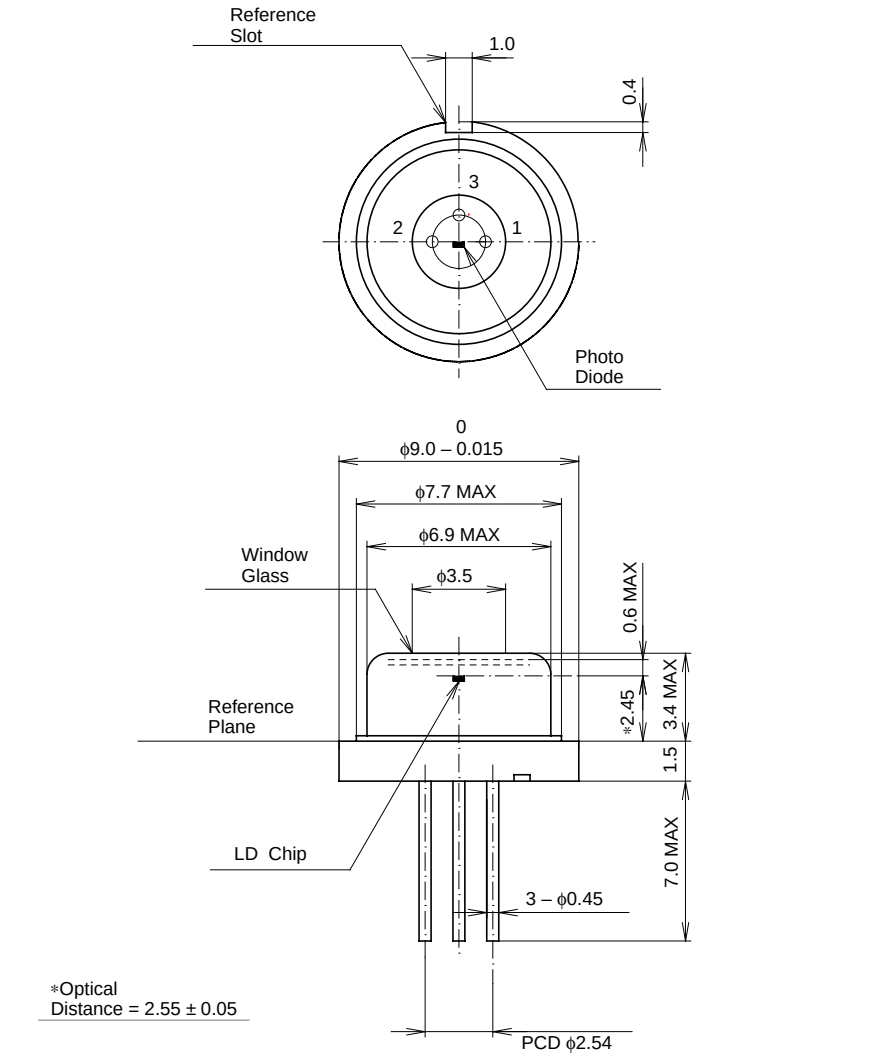






Package Outline Unit: mm

M-248 (LO-11)



SONY CODE	M-248
EIAJ CODE	————
JEDEC CODE	————

PACKAGE MASS	1.2g