

**100mW High Power Laser Diode**

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**Description**

The SLD301V is a gain-guided, high-power laser diode fabricated by MOCVD.  
 MOCVD: Metal Organic Chemical Vapor Deposition

**Features**

- High power  
 Recommended power output  $P_o = 90\text{mW}$
- Low operating current

**Applications**

- Solid state laser excitation
- Medical use

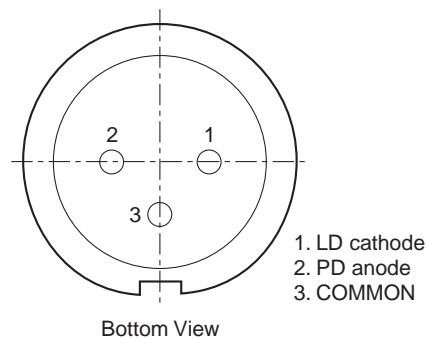
**Structure**

GaAlAs double-hetero-type laser diode

**Absolute Maximum Ratings** ( $T_c = 25^\circ\text{C}$ )

• Optical power output	$P_o$	100	mW
• Reverse voltage	$V_R$ LD	2	V
	PD	15	V
• Operating temperature	$T_{opr}$	-10 to +50	$^\circ\text{C}$
• Storage temperature	$T_{stg}$	-40 to +85	$^\circ\text{C}$

**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 <sub>th</sub>			150	200	mA
Operating current	I <sub>op</sub>	P <sub>O</sub> = 90mW		250	400	mA
Operating voltage	V <sub>op</sub>	P <sub>O</sub> = 90mW		1.9	3.0	V
Wavelength*1	λ <sub>p</sub>	P <sub>O</sub> = 90mW	770		840	nm
Monitor current	I <sub>mon</sub>	P <sub>O</sub> = 90mW V <sub>R</sub> = 10V		0.15		mA
Radiation angle (F. W. H. M.*)	Perpendicular	θ <sub>⊥</sub>	P <sub>O</sub> = 90mW	28	40	degree
	Parallel	θ <sub>//</sub>		12	17	degree
Positional accuracy	Position	ΔX, ΔY	P <sub>O</sub> = 90mW		±50	μm
	Angle	Δφ <sub>⊥</sub>			±3	degree
Differential efficiency	η <sub>D</sub>	P <sub>O</sub> = 90mW	0.65	0.9		mW/mA

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

**\*1 Wavelength Selection Classification**

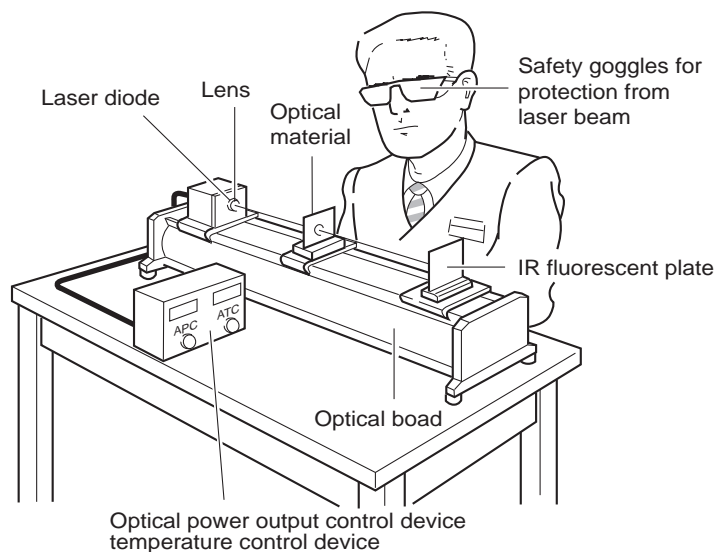
Type	Wavelength (nm)
SLD301V-1	785 ± 15
SLD301V-2	810 ± 10
SLD301V-3	830 ± 10

Type	Wavelength (nm)
SLD301V-21	798 ± 3
SLD301V-24	807 ± 3
SLD301V-25	810 ± 3

**Handling Precautions**

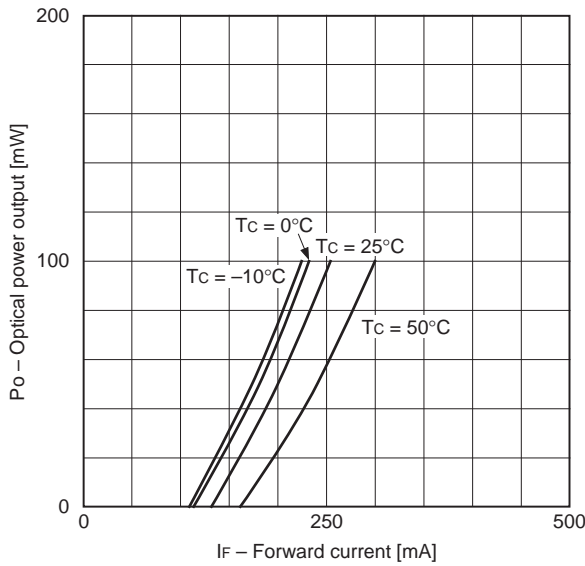
**Eye protection against laser beams**

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<sup>2</sup>. Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. Generally speaking, however, it is best NOT to LOCK into laser beams, under any circumstances. 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.

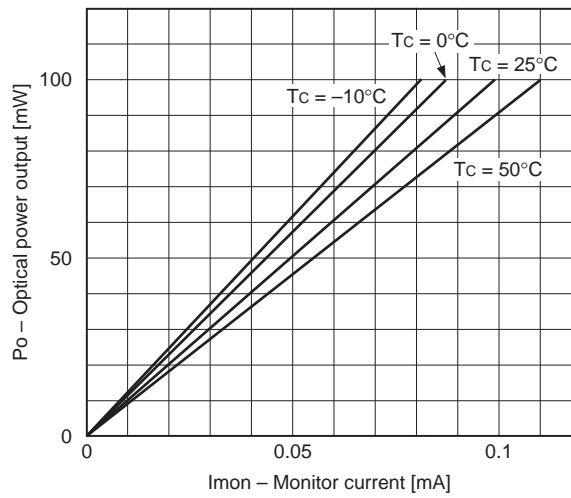


Example of Representative Characteristics

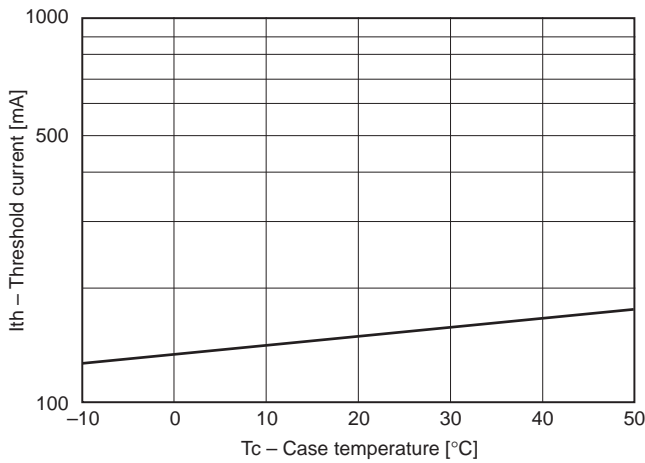
Optical power output vs. Forward current characteristics



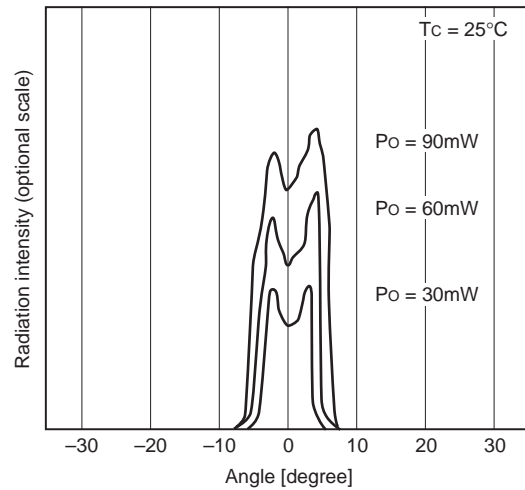
Optical power output vs. Monitor current characteristics



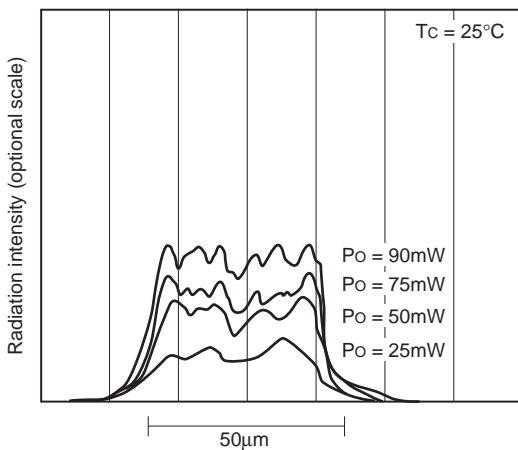
Threshold current vs. Temperature characteristics



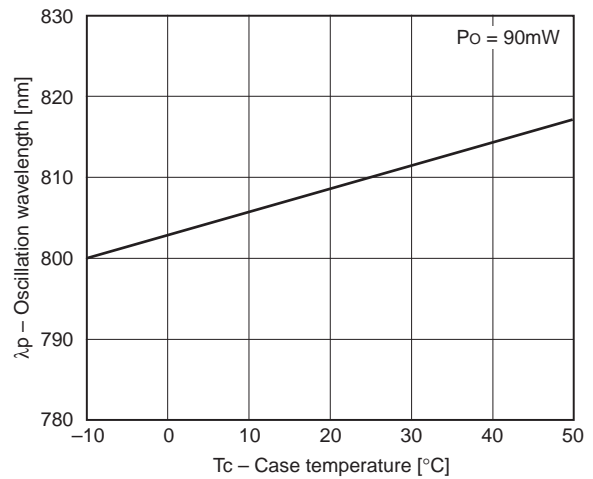
Power dependence of far field pattern (parallel to junction)



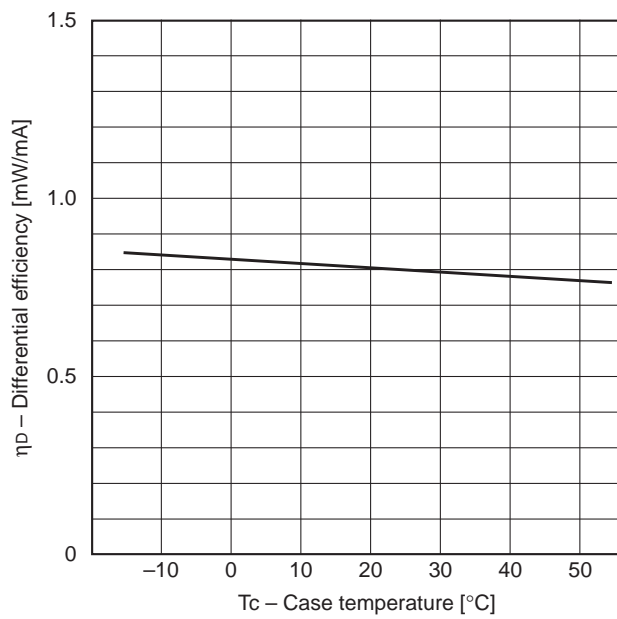
Power dependence of near field pattern



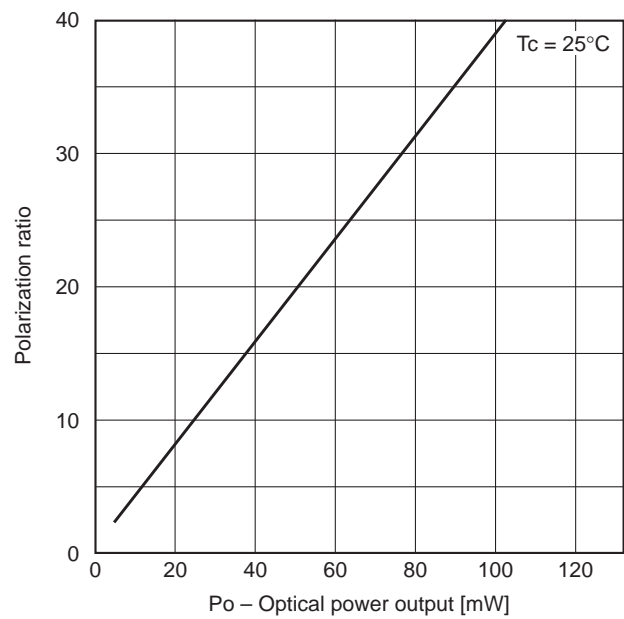
Oscillation wavelength vs. Temperature characteristics



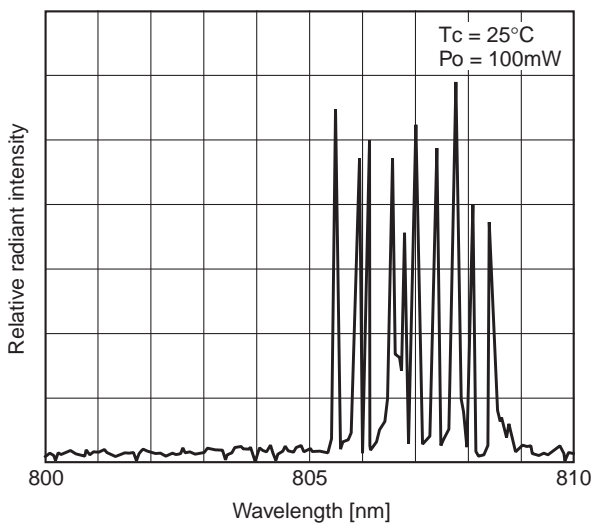
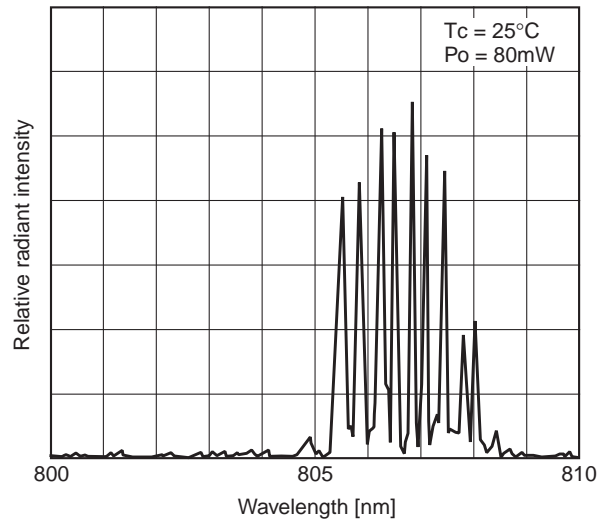
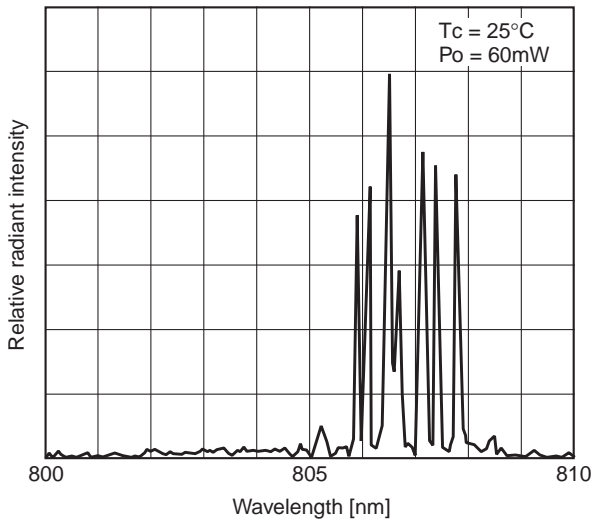
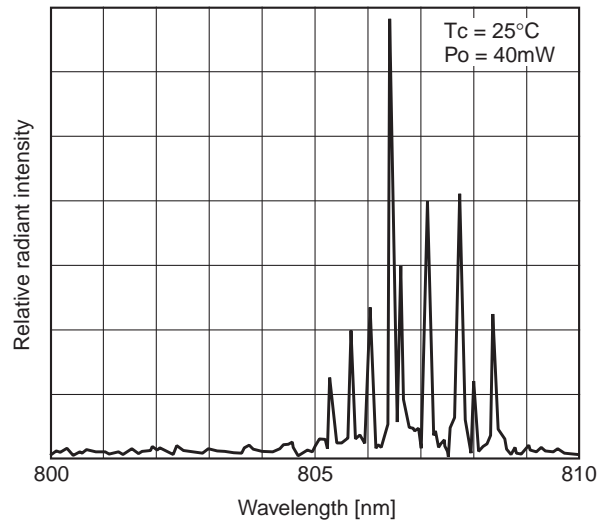
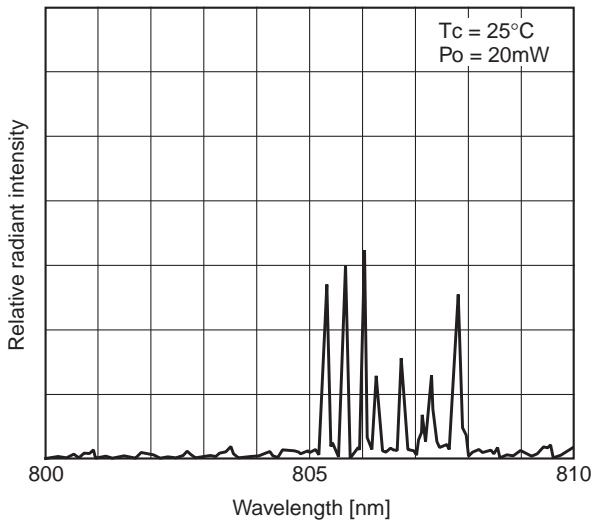
Differential efficiency vs. Temperature characteristics



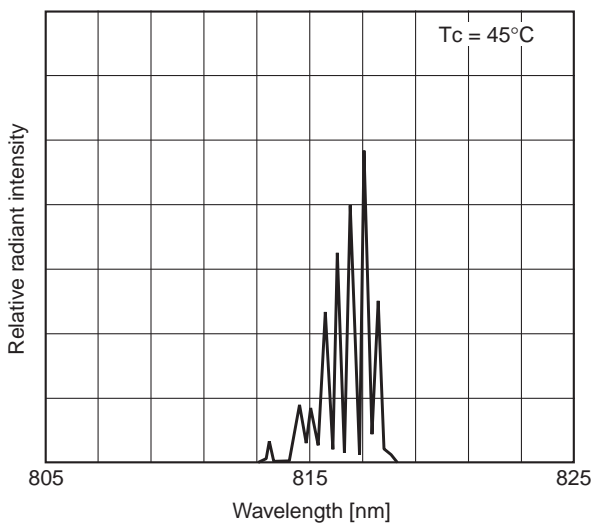
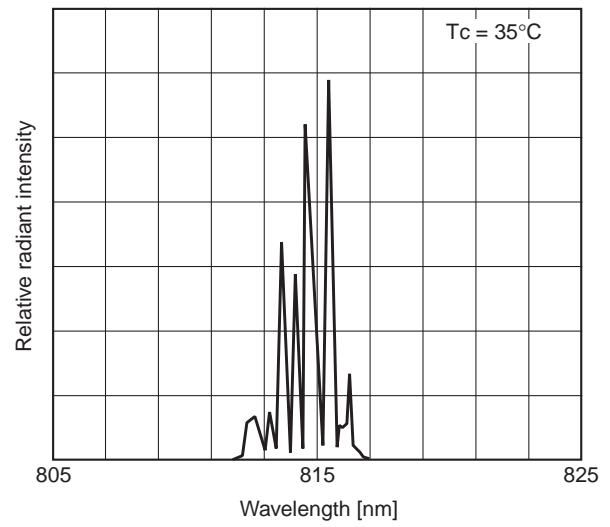
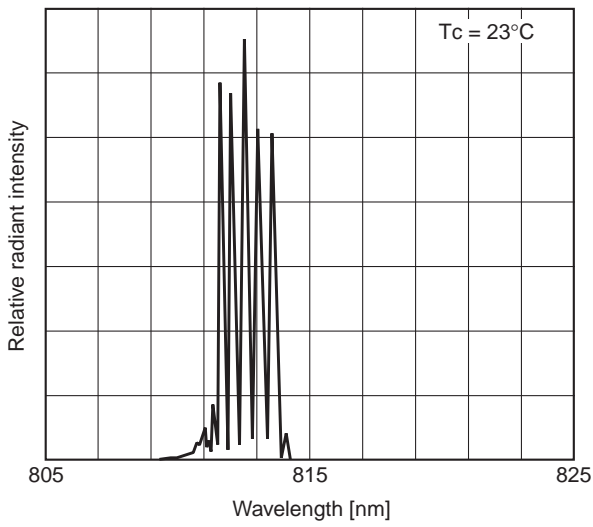
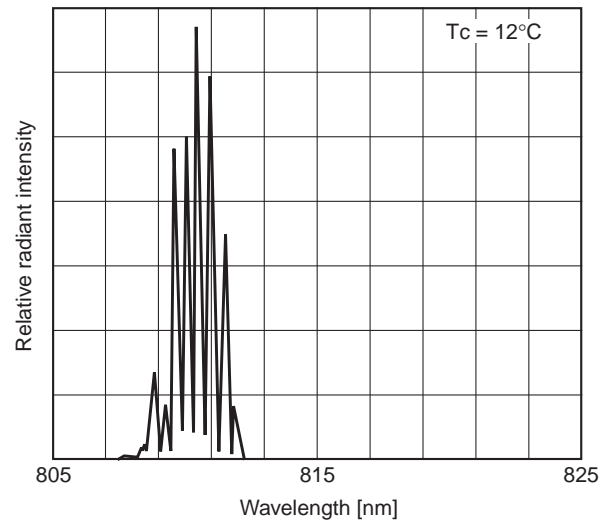
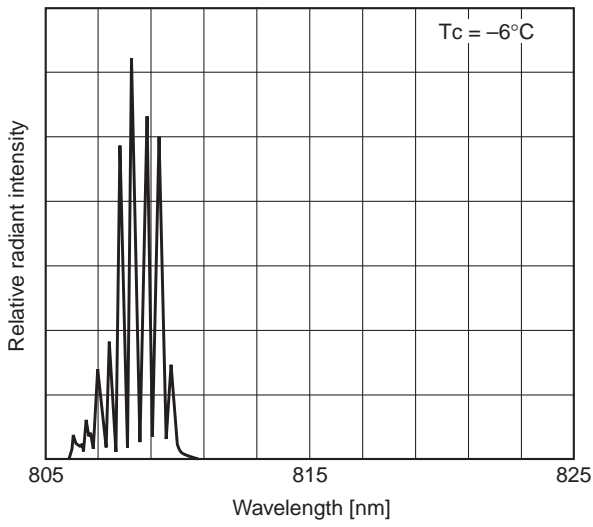
Power dependence of polarization ratio



Power dependence of wavelength (Spectrum)



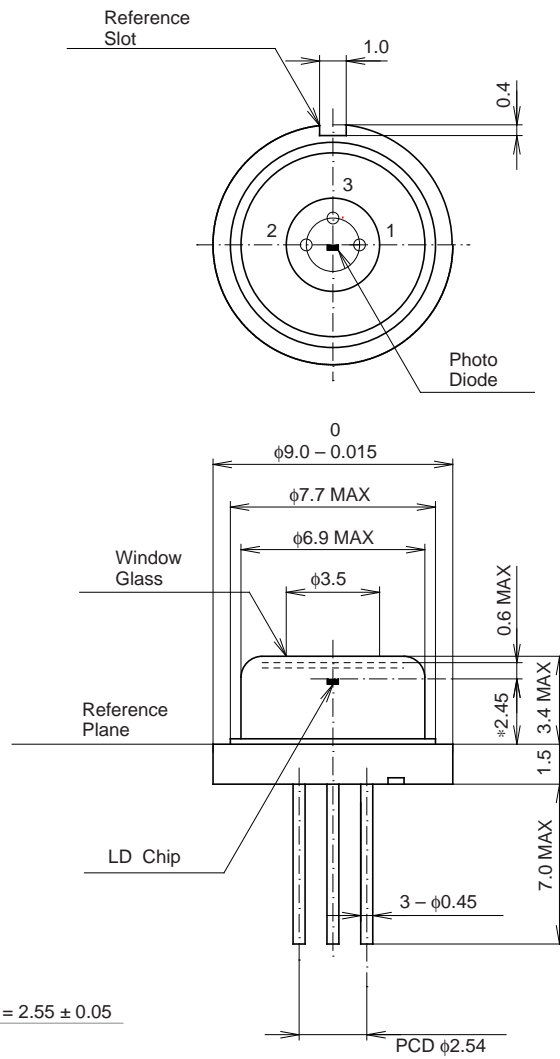
Temperature dependence of wavelength ( $P_o = 90\text{mW}$ )



Package Outline

Unit: mm

M-248 (LO-11)



\*Optical Distance =  $2.55 \pm 0.05$

SONY CODE	M-248
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	1.2g
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