SONY

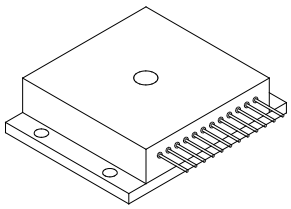
SLD1324ZT

High-Power Density 1W Laser Diode

Description

The SLD1324ZT is a gain-guided, high-power laser diode with 1W red visible output. The flat package with built-in TE cooler is adopted and fine tuning of wavelength is possible by controlling the laser chip temperature.

M-272



Features

- High power
  Recommended optical power output :1.0W
- Emitting line width :200µm
- Flat package with built-in photodiode, TE cooler and thermistor

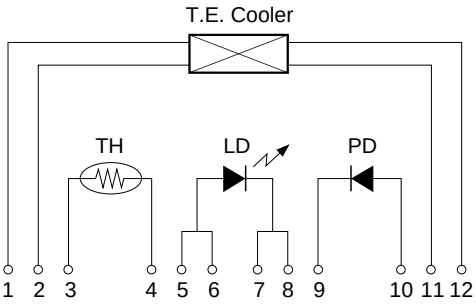
Applications

- Medical use
- Solid state laser excitation

Structure

AlGaInP quantum well structure laser diode

Equivalent Circuit

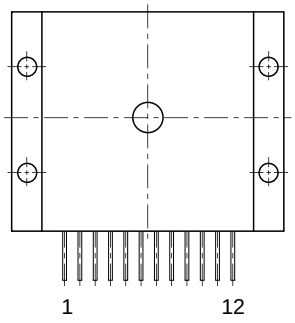


Absolute Maximum Ratings (Tth = 25°C)

• Optical power output	P_O	1.1	W
• Reverse voltage	V_RLD	2	V
	P_D	15	V
• Operating temperature (Tth)	Topr	–10 to +30	°C
• Storage temperature	Tstg	–40 to +85	°C
• Operating current of TE cooler	I_T	4.0	A

Pin Configuration (Top View)

No.	Function	No.	Function
1	T. E. Cooler (negative)	7	LD (cathode)
2	T. E. Cooler (negative)	8	LD (cathode)
3	Thermister	9	PD (cathode)
4	Thermister	10	PD (anode)
5	LD (anode)	11	T. E. Cooler (positive)
6	LD (anode)	12	T. E. Cooler (positive)

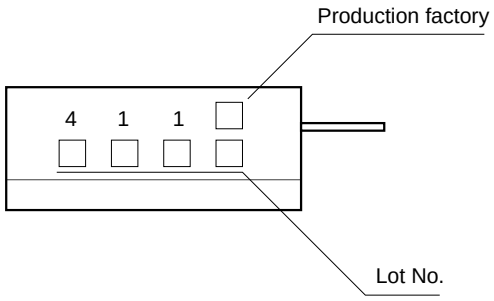


E94724-PP

Optical and Electrical Characteristics (Tth = Thermistor temperature, Tth = 25°C)

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		Ith			0.9	1.5	A
Operating current		Iop	P_O = 1.0W		2.1	3.0	A
Operating voltage		Vop	P_O = 1.0W		2.2	3.0	V
Wavelength		λ	P_O = 1.0W	685	695	705	nm
Monitor current		Imon	P_O = 1.0W, V_R = 10V	0.15	1.2	3.0	mA
Radiation angle (F.W.H.M)	Perpendicular	θ⊥	P_O = 1.0W	15	24	35	degree
	Parallel	θ//	P_O = 1.0W	4	11	15	degree
Positional accuracy	Position	ΔX, ΔY	P_O = 1.0W			±100	µm
	Angle	Δϕ⊥	P_O = 1.0W			±3	degree
Differential efficiency		ηD	P_O = 1.0W	0.3	0.9	1.5	W/A
Thermistor resistance		Rth	Tth = 25°C		10		kΩ

Marking



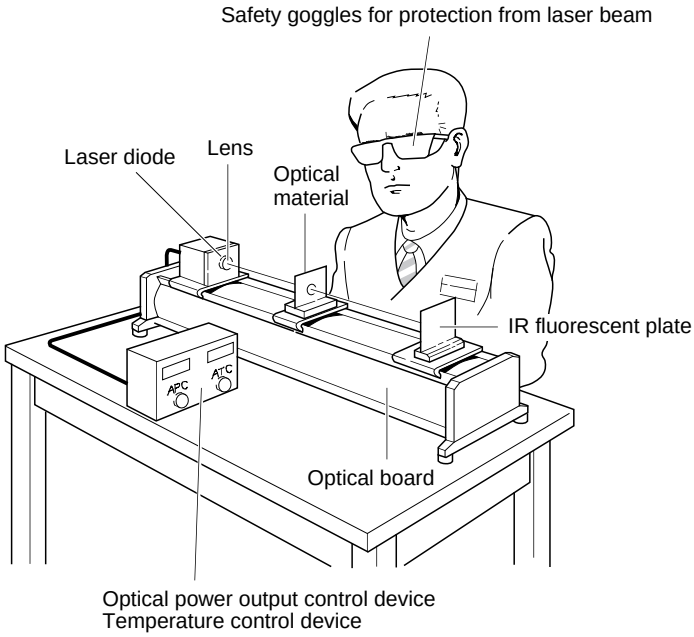
* Categories are not specified by marking.

Handling Precautions

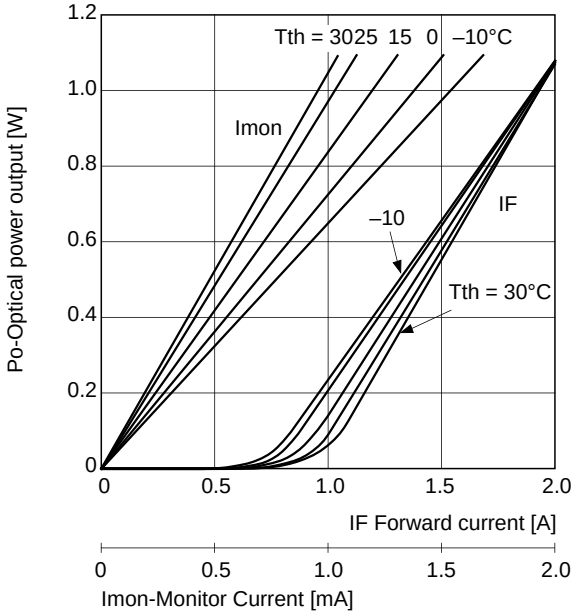
Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 3W. However the optical power density of the laser beam at the diode chip reaches 1MW/cm^2.

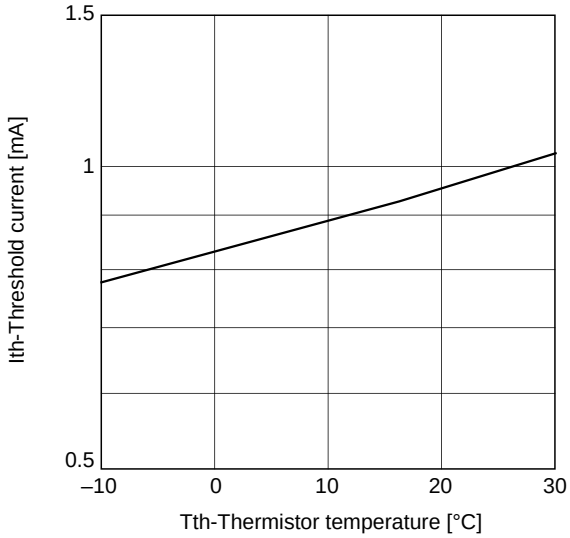
Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, ALWAYS use safety goggles that block infrared rays. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.



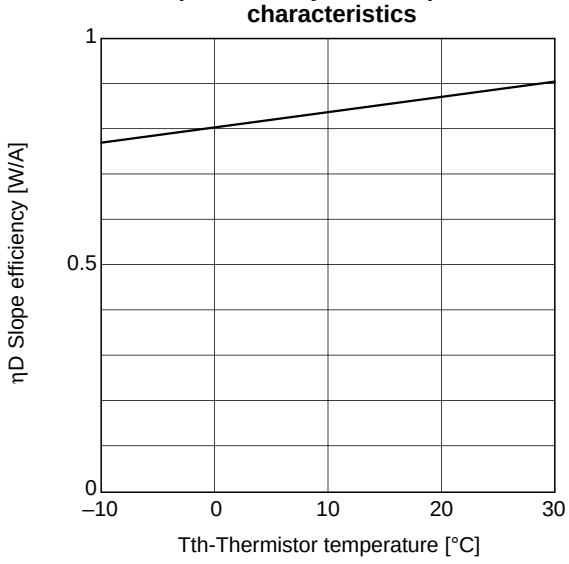
Optical power output vs. Forward current characteristics
Optical power output vs. Monitor current characteristics



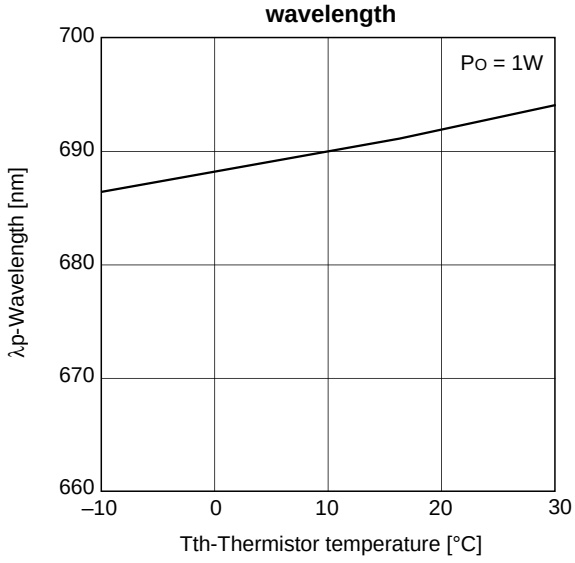
Threshold current vs. Temperature characteristics



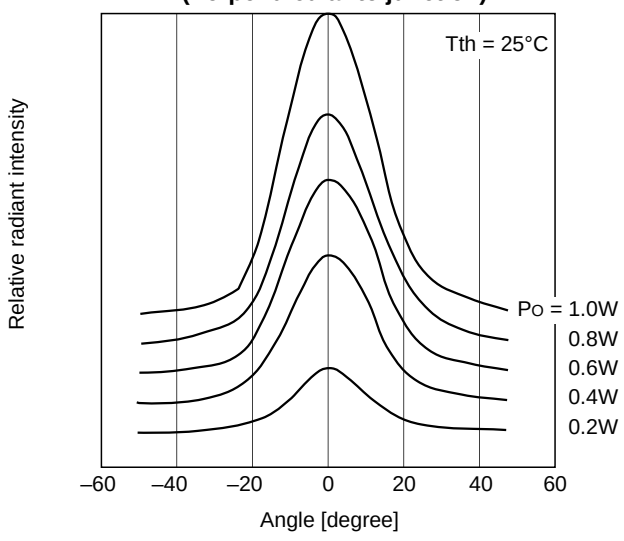
Slope efficiency vs. Temperature characteristics



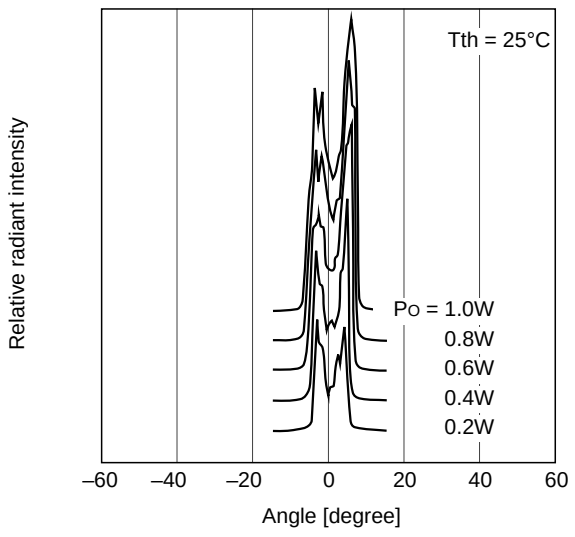
Temperature dependence of wavelength



Power dependence of far field pattern (Perpendicular to junction)

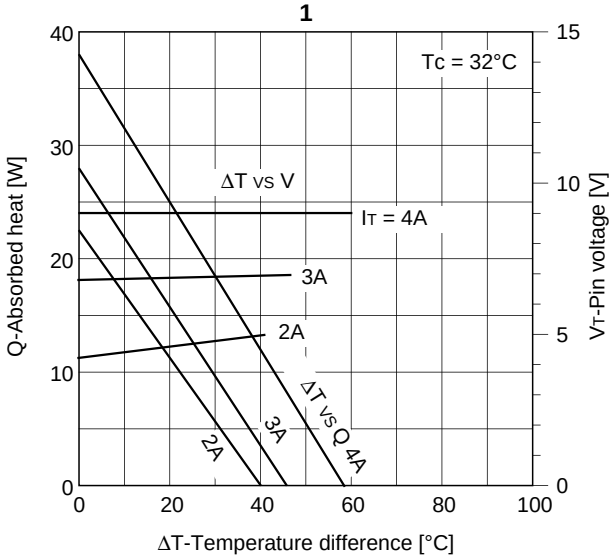


Power dependence of far field pattern (Parallel to junction)



TE cooler characteristics

1



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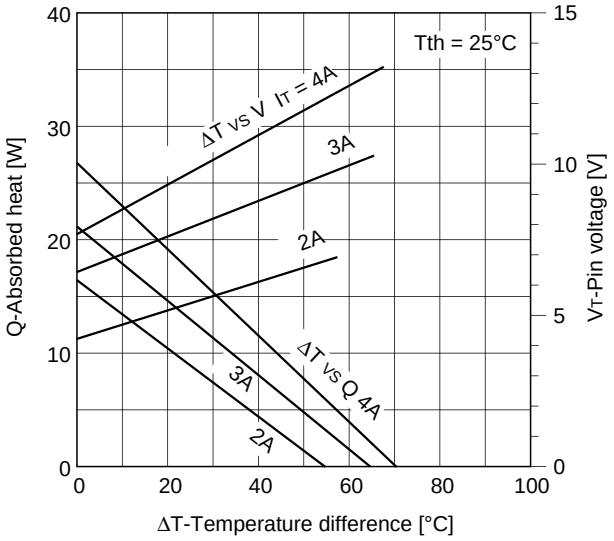
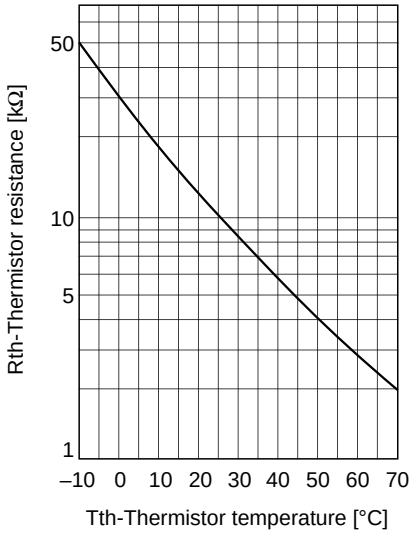
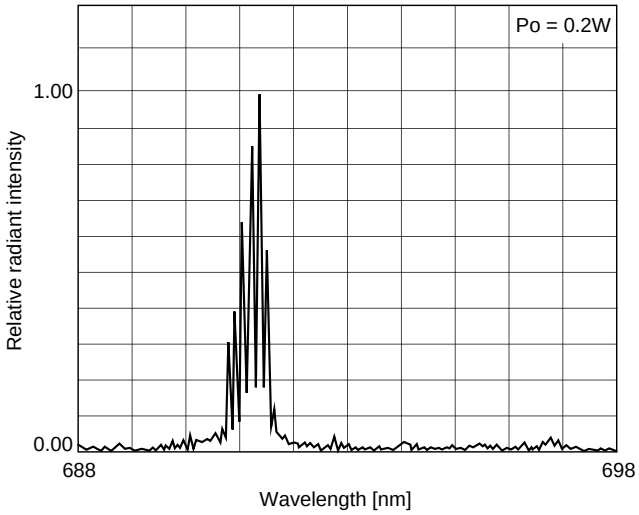


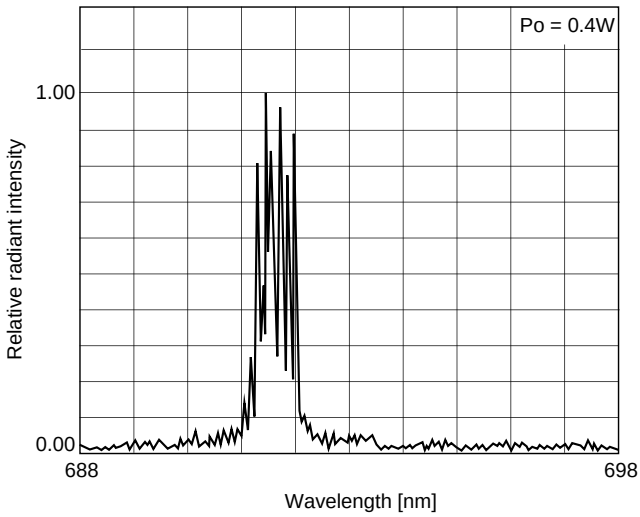
ΔT : Tc – Tth
Tth: Thermistor temperature
Tc : Case temperature

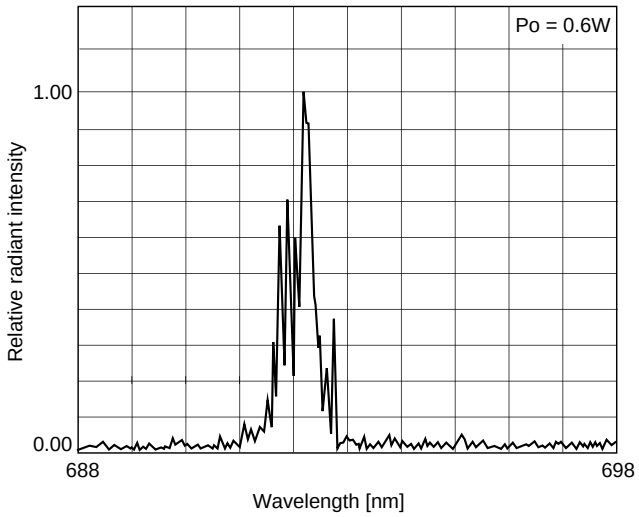
Thermistor characteristics

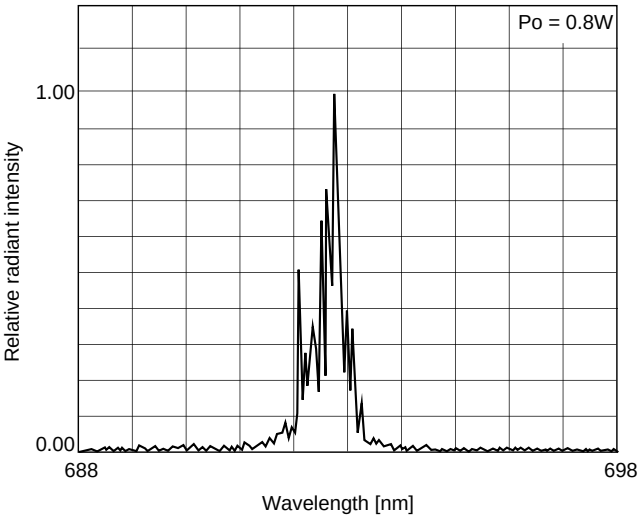


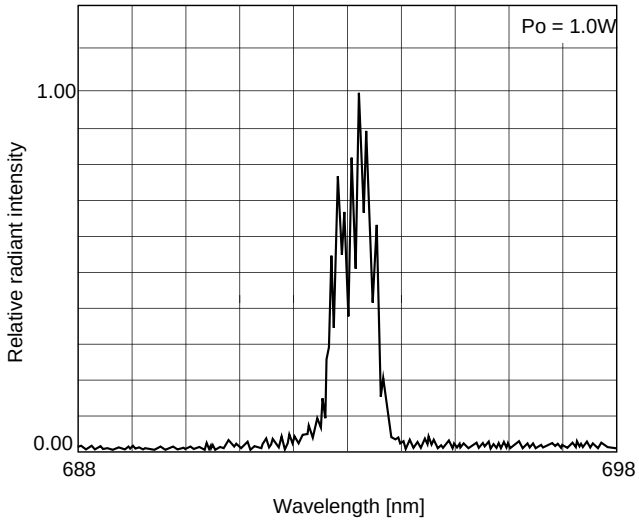
Power dependence of Spectrum (Tth = 25°C)



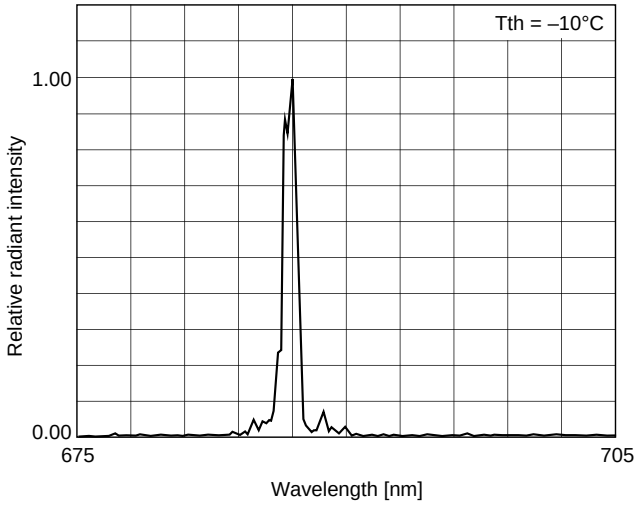


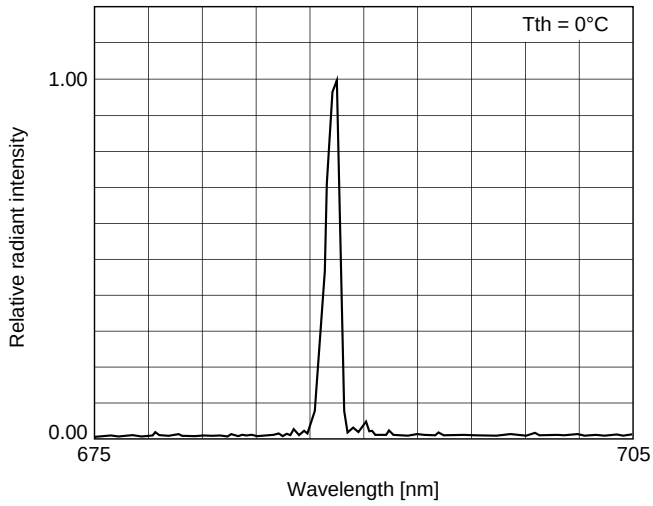


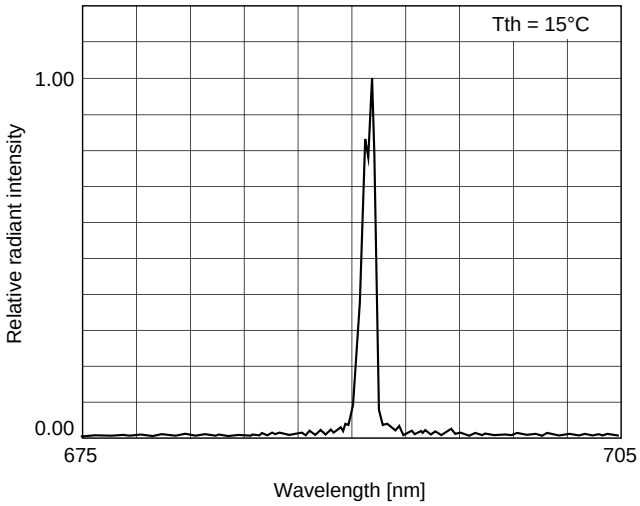


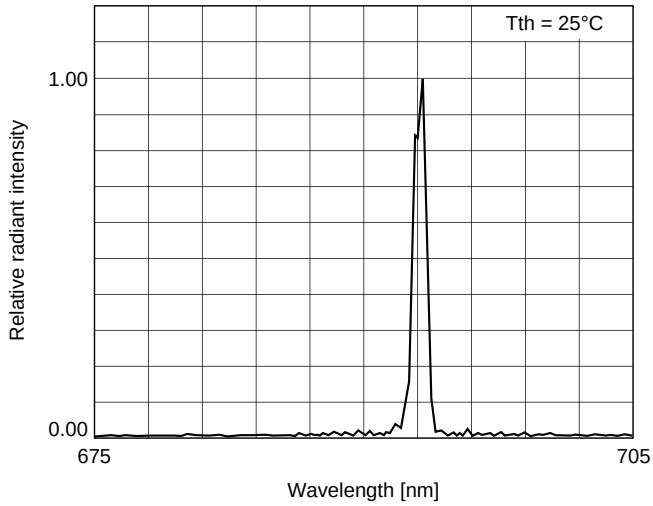


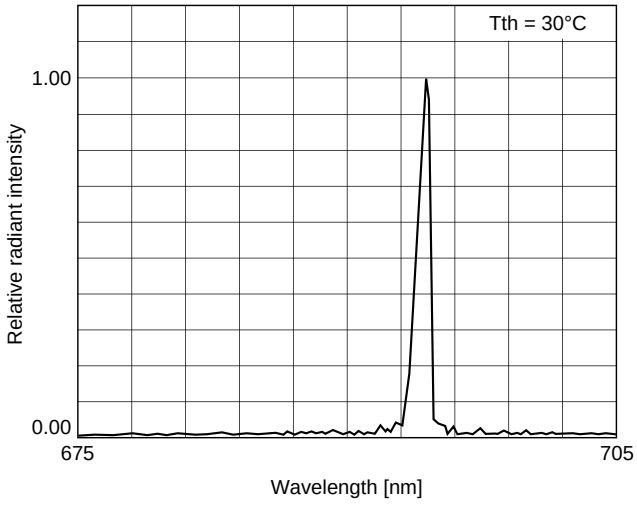
Temperature dependence of Spectrum (Po = 1W)











Package Outline Unit: mm

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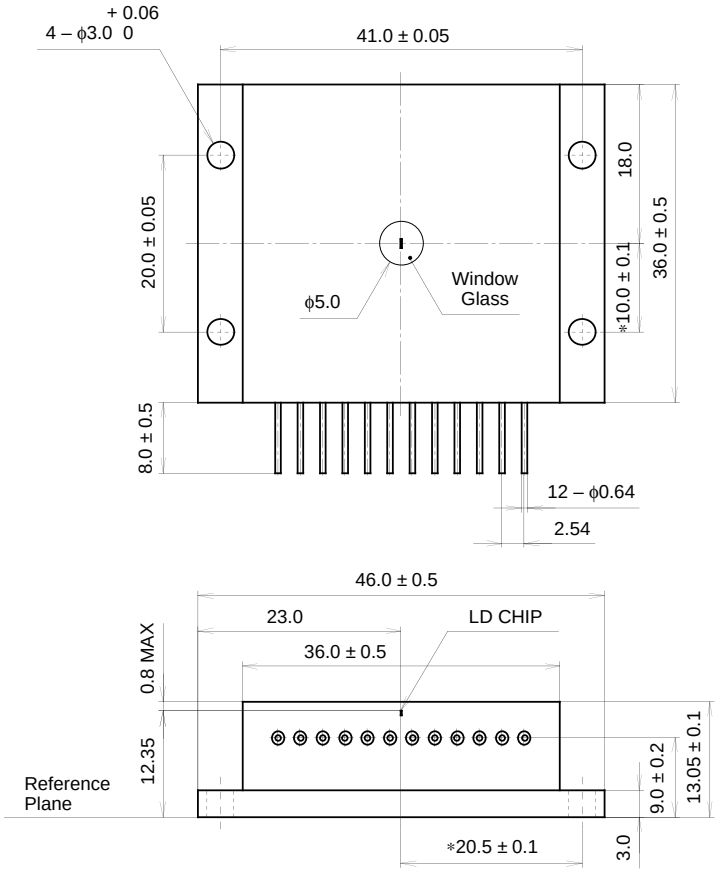

SONY CODE	M-272
EIAJ CODE	————
JEDEC CODE	————

∗Distance between pilot hole and emitting area.

PACKAGE WEIGHT	118 g