

**Block-type 1000mW High Power Laser Diode**

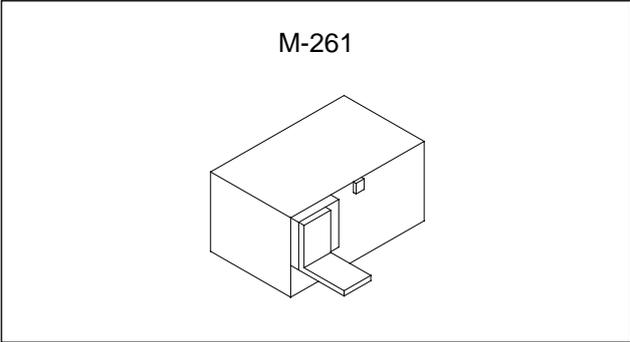
**Description**

The SLD304B is a high power laser diode mounted on a 3 × 3 × 5mm Copper block.

It is ideal for applications which require a minimal distance between the laser facet and external optical parts.

**Features**

- Compact size                    3 × 3 × 5mm block
- High power output            Po = 1000mW
- Hole for thermistor



**Applications**

- Solid state laser excitation
- Medical use

**Structure**

GaAlAs double hetero-type laser diode

**Operating Lifetime**

MTTF 10,000H (effective value) at Po = 900mW, Tc= 25°C

**Absolute Maximum Ratings (Tc = 15°C)**

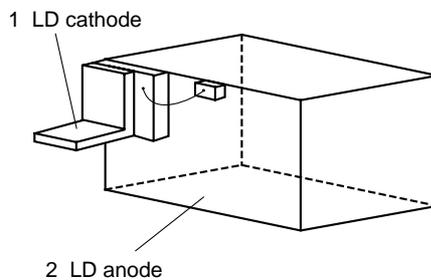
- Optical power output                    Pomax    1000    mW
- Recommended optical power output    Po        900       mW
- Reverse voltage                            VR LD    2         V
- Operating temperature                    Topr    -10 to +30   °C
- Storage temperature                        Tstg    -40 to +85   °C

**Warranty**

Reliability assurance does not apply to this product.

**Pin Configuration**

No.	Function
1	LD cathode
2	LD anode



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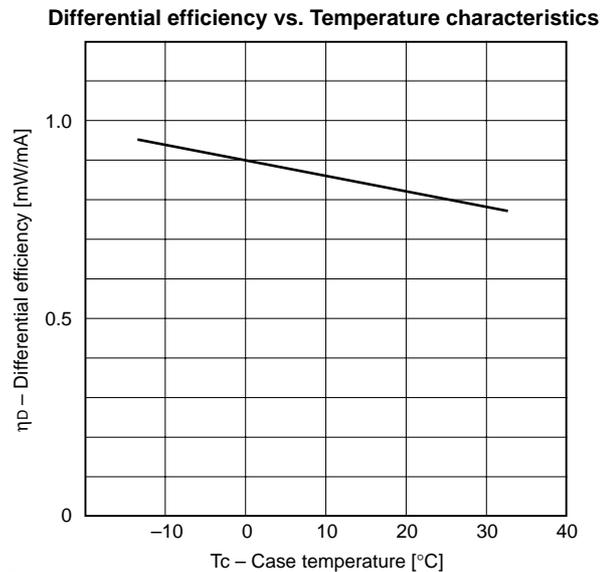
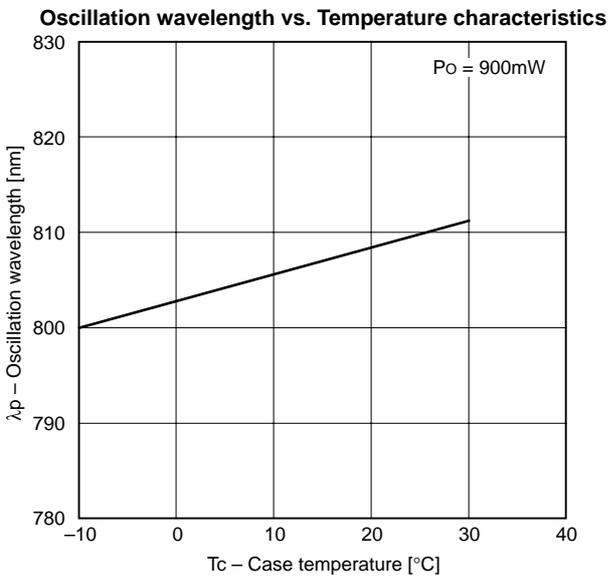
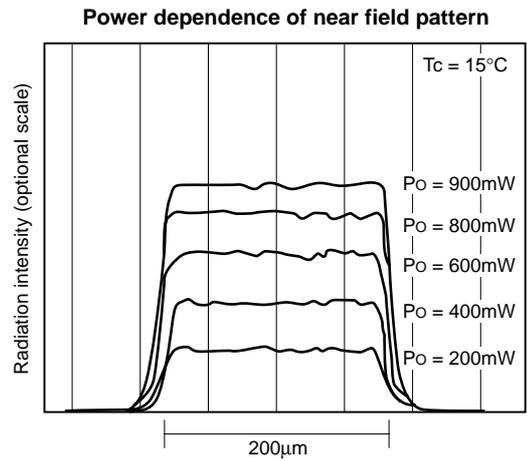
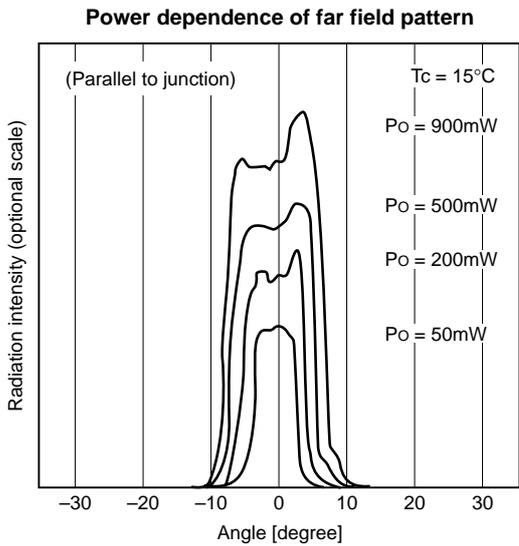
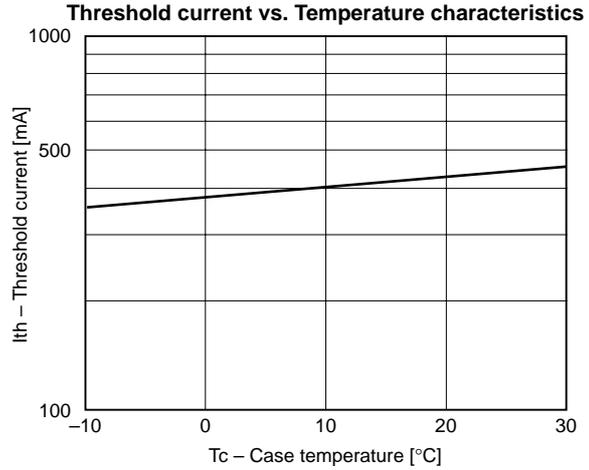
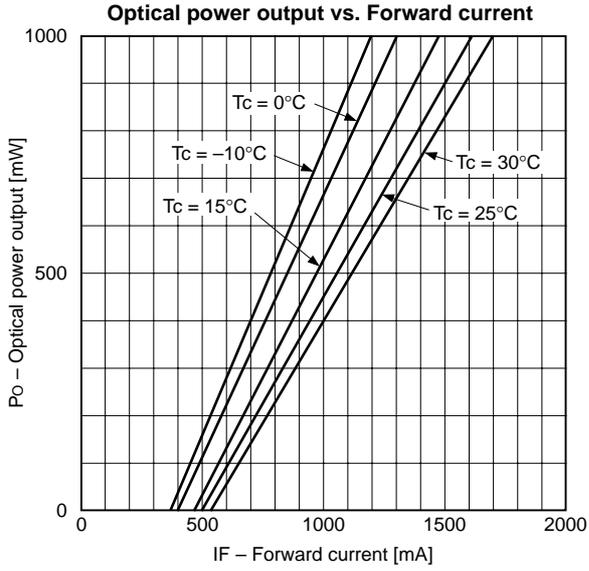
## Electrical and Optical Characteristics

(T<sub>c</sub> = 15°C)

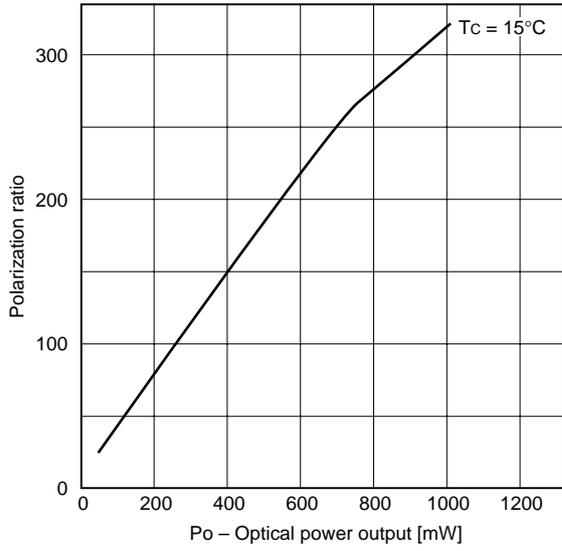
Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		I <sub>th</sub>			550	700	mA
Operating current		I <sub>op</sub>	P <sub>o</sub> = 900mW		1600	2000	mA
Operating voltage		V <sub>op</sub>	P <sub>o</sub> = 900mW		2.2	3.0	V
Wavelength		λ <sub>p</sub>	P <sub>o</sub> = 900mW	770		840	nm
Radiation angle (F. W. H. M.*)	Perpendicular to junction	θ <sub>⊥</sub>	P <sub>o</sub> = 900mW		28	40	degree
	Parallel to junction	θ <sub>//</sub>			13	17	
Positional accuracy	Position	ΔX	P <sub>o</sub> = 900mW			±300	μm
		ΔY, ΔZ				±100	
	Angle	Δφ <sub>⊥</sub>					±3
Differential efficiency		η <sub>D</sub>	P <sub>o</sub> = 900mW	0.5	0.8		mW/mA

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

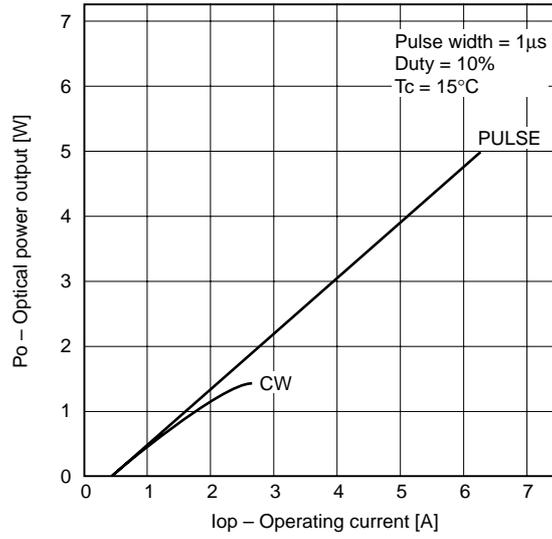
Example of Representative Characteristics



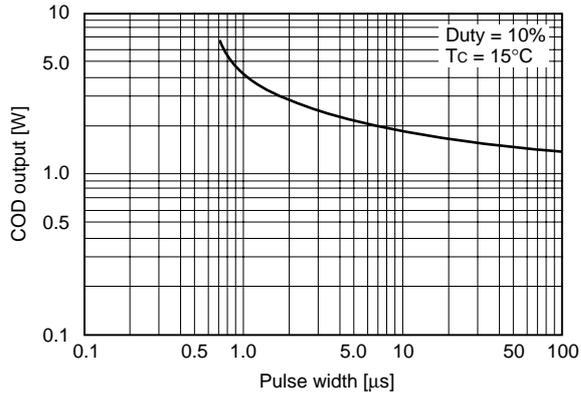
Power dependence of polarization ratio



Optical power output vs. Operating current

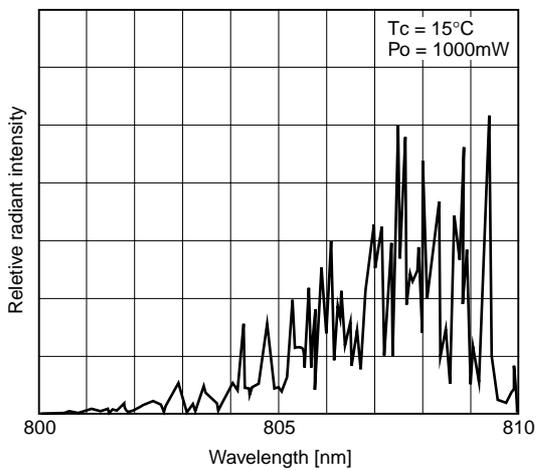
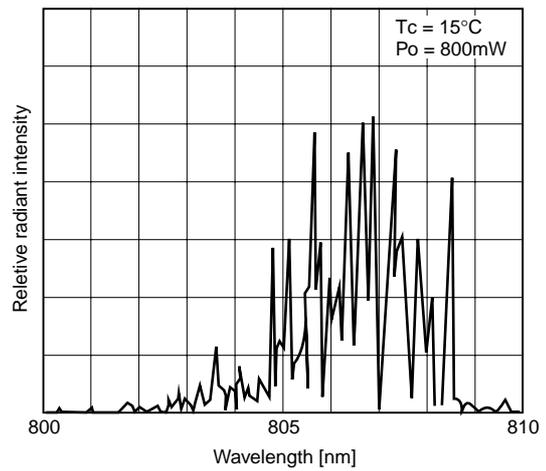
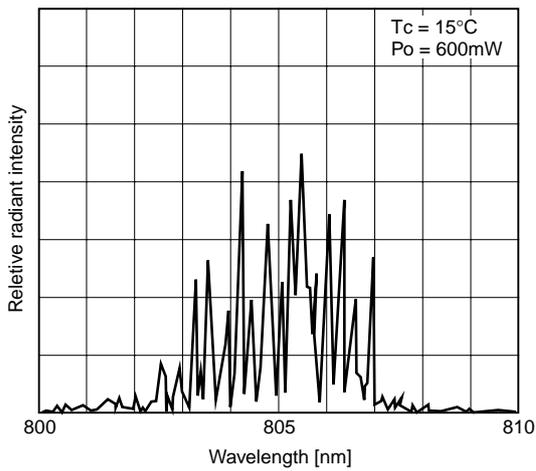
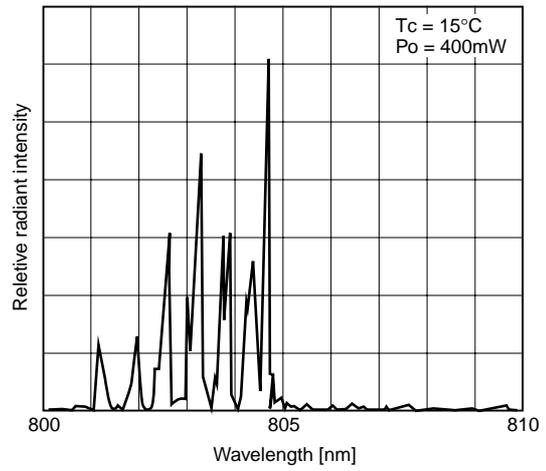
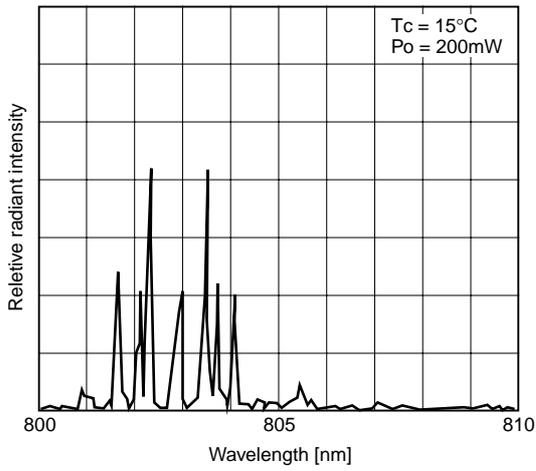


Pulse width dependence of COD\* power

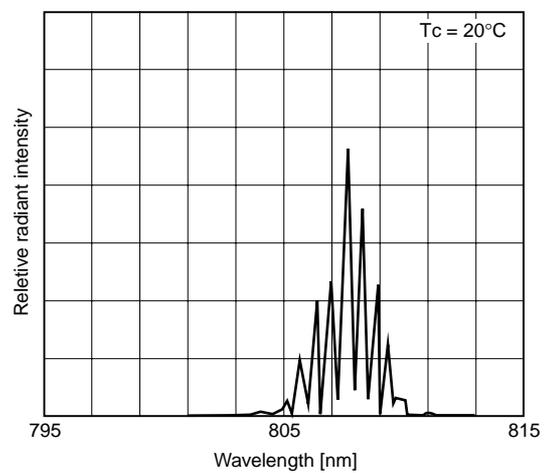
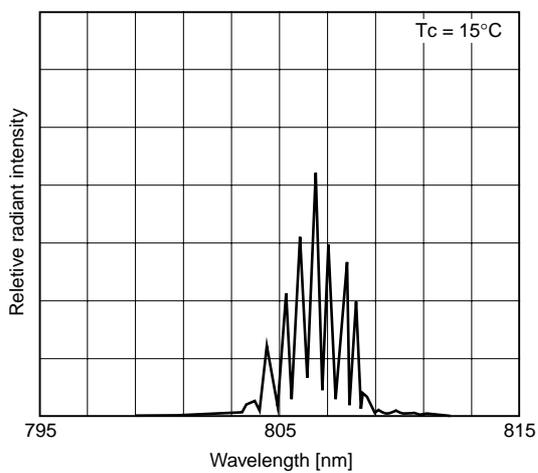
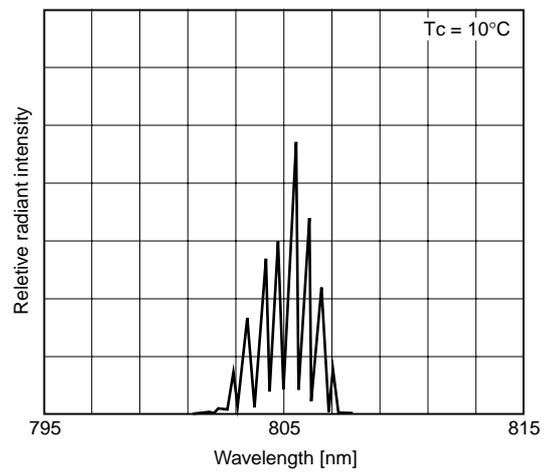
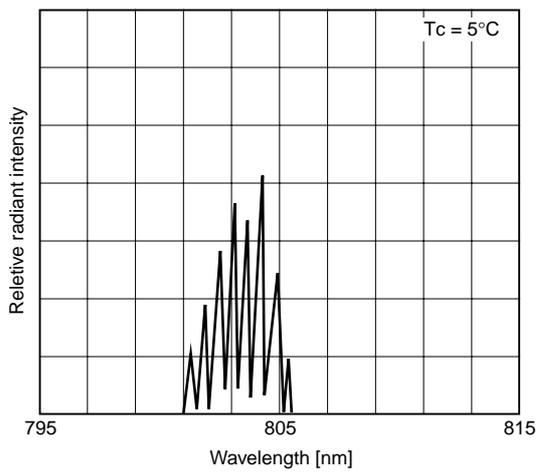
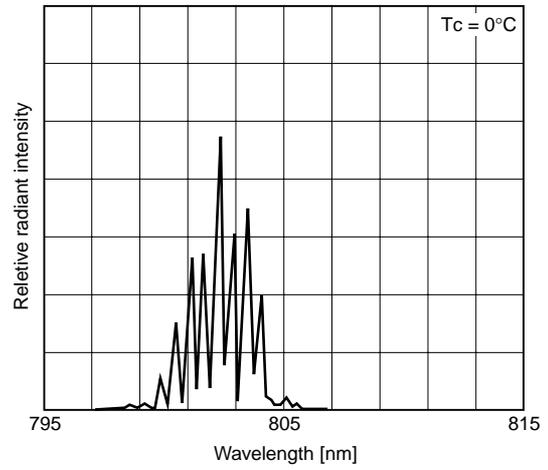
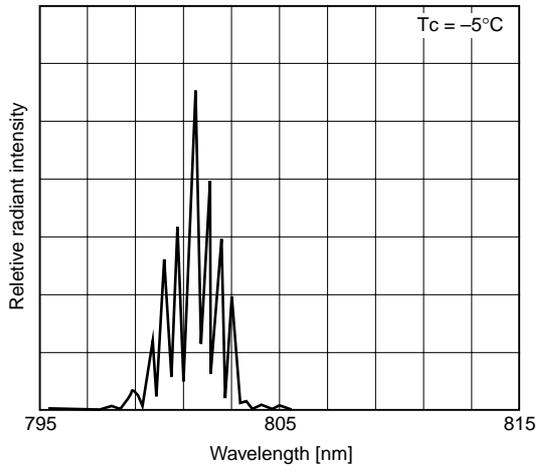


\* COD (Catastrophic Optical Damage)

Power Dependence of Wavelength



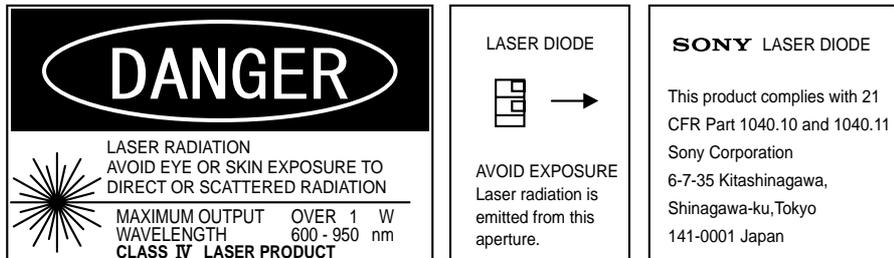
Temperature Dependence of Wavelength ( $P_o = 90mW$ )



## Notes on Operation

Care should be taken for the following points when using this product.

- (1) This product corresponds to a Class 4 product under IEC60825-1 and JIS standard C6802 "Laser Product Emission Safety Standards".



- (2) Eye protection against laser beams

Take care not to allow laser beams to enter your eyes under any circumstances.

For observing laser beams, ALWAYS use safety goggles that block laser beams. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

- (3) Gallium Arsenide

This product uses gallium arsenide (GaAs). This is not a problem for normal use, but GaAs vapors may be potentially hazardous to the human body. Therefore, never crush, heat to the maximum storage temperature or higher, or place the product in your mouth.

In addition, the following disposal methods are recommended when disposing of this product.

1. Engaging the services of a contractor certified in the collection, transport and intermediate treatment of items containing arsenic.
2. Managing the product through to final disposal as specially managed industrial waste which is handled separately from general industrial waste and household waste.

- (4) Prevention of surge current and electrostatic discharge

Laser diodes are most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode for even an extremely short time, the strong light emitted from the laser diode promotes deterioration and then destruction of the laser diode. Therefore, note that surge current should not flow to the laser diode driving circuit from switches and others. Also, if the laser diode is handled carelessly, it may be destroyed instantly because electrostatic discharge is easily applied by a human body. Therefore, be extremely careful about overcurrent and electrostatic discharge.

- (5) Use for special applications

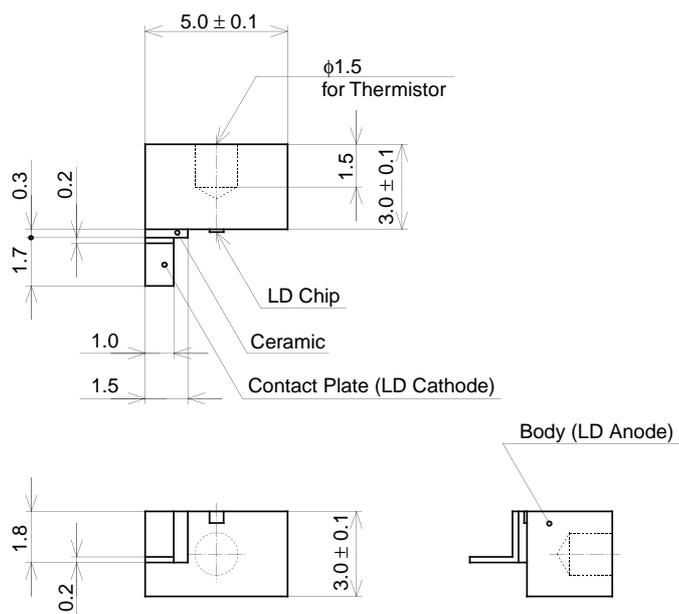
This product is not designed or manufactured for use in equipment used under circumstances where failure may pose a risk to life and limb, or result in significant material damage, etc.

Consult your Sony sales representative when investigating use for medical, vehicle, nuclear power control or other special applications. Also, use the power supply that was designed not to exceed the optical power output specified at the absolute maximum ratings.

Package Outline

Unit: mm

M-261



SONY CODE	M-261
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE STRUCTURE

PACKAGE MASS	1g
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