

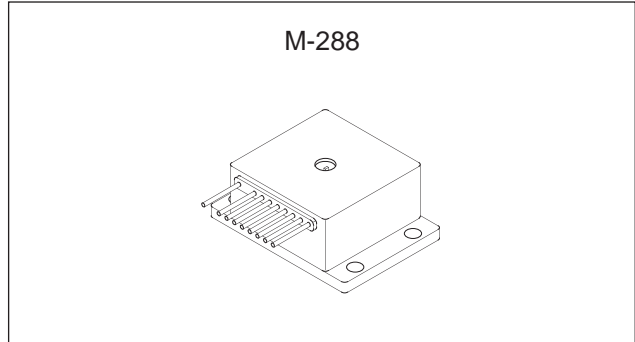
High-Optical Power Density 3W Laser Diode

Description

The SLD327YT is a high optical density laser diode. This product employs the compatible package newly developed, so that the thermal and power control circuits can be designed independently.

Features

- High-optical power output
Recommended optical power output: $P_o = 3.0W$
- High-optical power density: 3W/200 μm (Emitting line width)



Applications

- Solid state laser excitation
- Medical use
- Material processing
- Measurement

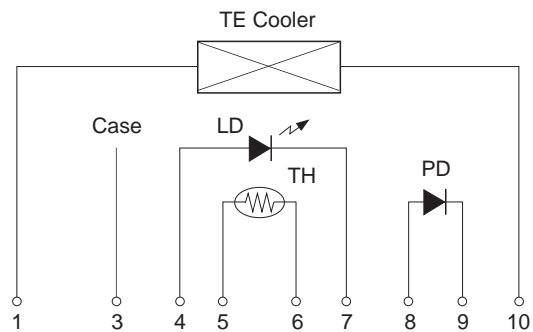
Structure

GaAlAs quantum well structure laser diode

Absolute Maximum Ratings (T_{th} = 25°C)

- Optical power output P_o 3.3 W
- Reverse voltage V_{RLD} 2 V
- P_D 15 V
- Operating temperature (T_{th}) T_{opr} -10 to +30 °C
- Storage temperature T_{stg} -40 to +85 °C
- Operating current of TE cooler I_T 4.0 A

Equivalent Circuit



Pin Configuration (Top View)

No.	Function	No.	Function
1	TE Cooler (negative)	6	Thermistor
2	—	7	LD (cathode)
3	Case	8	PD (anode)
4	LD (anode)	9	PD (cathode)
5	Thermistor	10	TE Cooler (positive)

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Optical and Electrical Characteristics

(Tth = Thermistor temperature, Tth = 25°C)

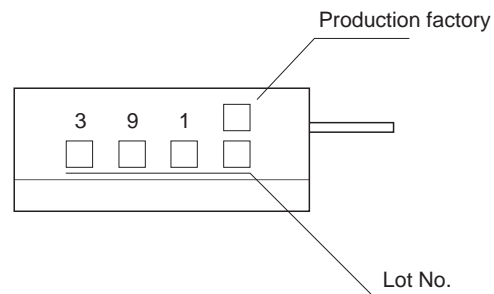
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Threshold current	Ith			0.6	2.0	A	
Operating current	Iop	Po = 3.0W		4.0	6.0	A	
Operating voltage	Vop	Po = 3.0W		2.4	3.0	V	
Wavelength	λ_P	Po = 3.0W	790		840	nm	
Radiation angle	Perpendicular	θ_{\perp}	Po = 3.0W	25	30	40	degree
	Parallel	$\theta_{//}$	Po = 3.0W	5	10	20	degree
Positional accuracy	Position	$\Delta X, \Delta Y$			± 100	μm	
	Angle	$\Delta\phi_{\perp}$	Po = 3.0W			± 3	degree
		$\Delta\phi_{//}$	Po = 3.0W			± 4	degree
Differential efficiency	η_D	Po = 3.0W	0.5	0.85	1.5	W/A	
Monitor current	I _{mon}	Po = 3.0W VR = 10V	0.2	1.1	4.0	mA	
Thermistor resistance	Rth	Tth = 25°C		10		k Ω	

Wavelength Selection Classification

Type	Wavelength (nm)
SLD327YT-1	795 ± 5
SLD327YT-2	810 ± 10
SLD327YT-3	830 ± 10

Type*	Wavelength (nm)
SLD327YT-21	798 ± 3
SLD327YT-24	807 ± 3
SLD327YT-25	810 ± 3

Marking

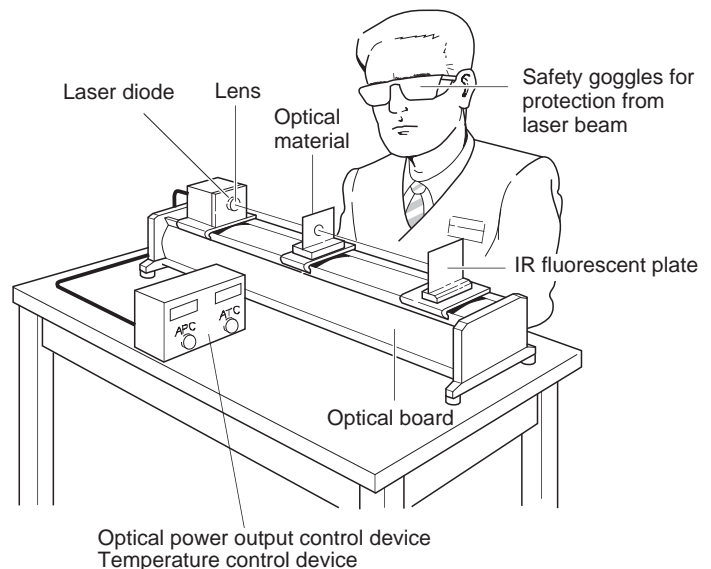


* Categories are not specified by marking.

Handling Precautions

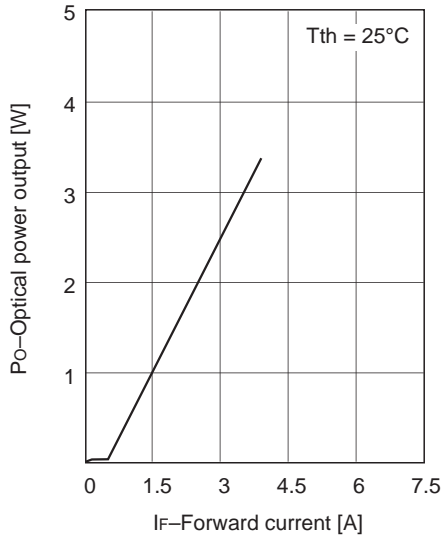
Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 4W. However the optical power density of the laser beam at the diode chip reaches 1.5MW/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.

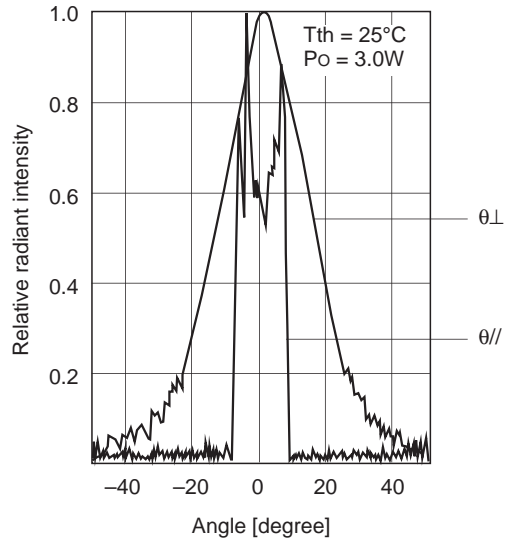


Example of Representative Characteristics

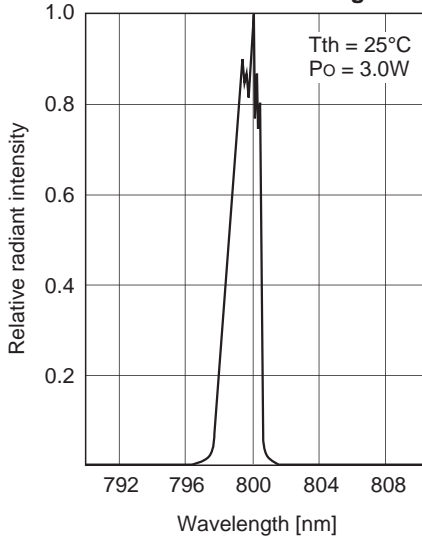
Optical power output vs. Forward current characteristics



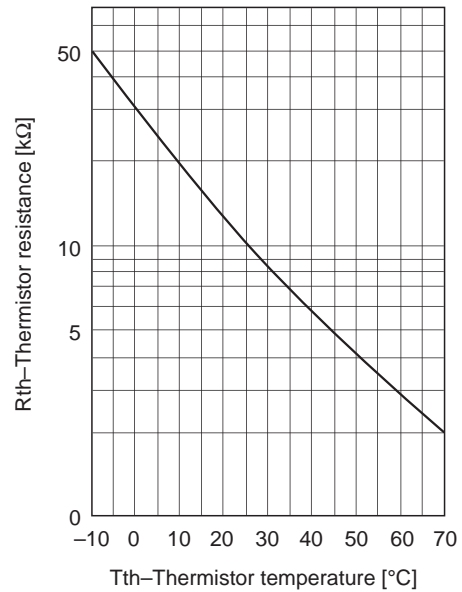
Far field pattern



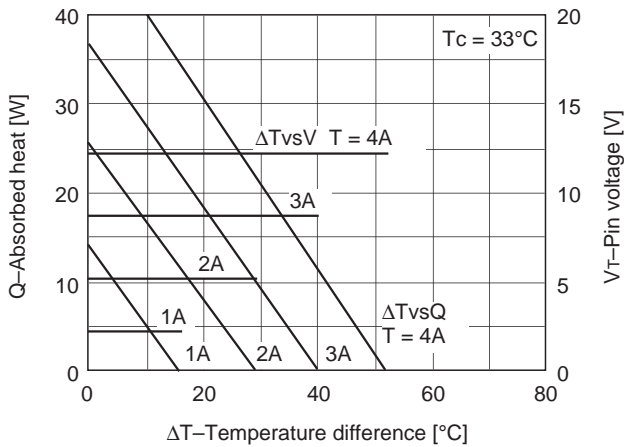
Oscillation wavelength



Thermistor characteristics

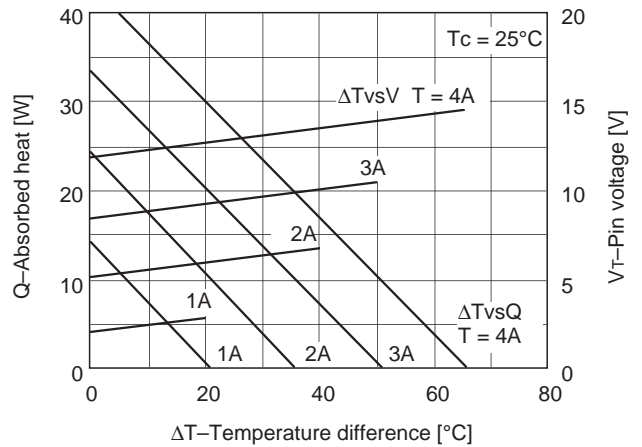


TE cooler characteristics



ΔT : $T_c - T_{th}$
 T_{th} : Thermistor temperature
 T_c : Case temperature

TE cooler characteristics

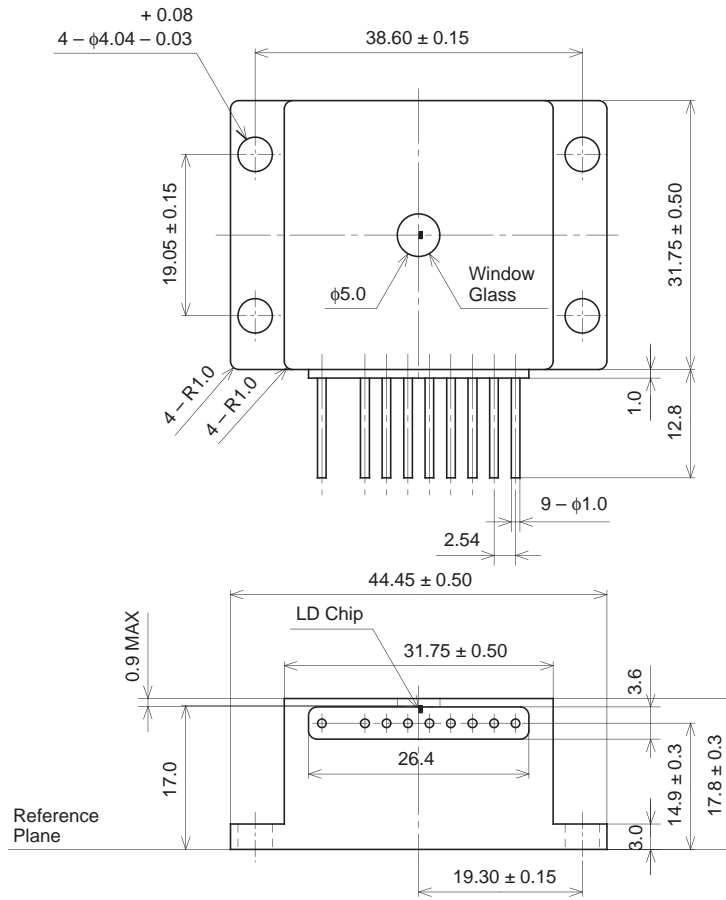


ΔT : $T_c - T_{th}$
 T_{th} : Thermistor temperature
 T_c : Case temperature

Package Outline

Unit: mm

M-288



SONY CODE	M-288
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	150g
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