

High-Optical Power Density 4W Laser Diode

Description

The SLD326YT 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: $P_o = 4.0W$
- High-optical power density: 4W/400 μm (Emitting line width)

Applications

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

Structure

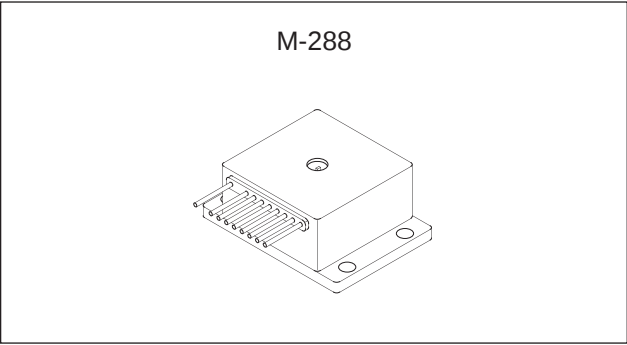
GaAlAs quantum well structure laser diode

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

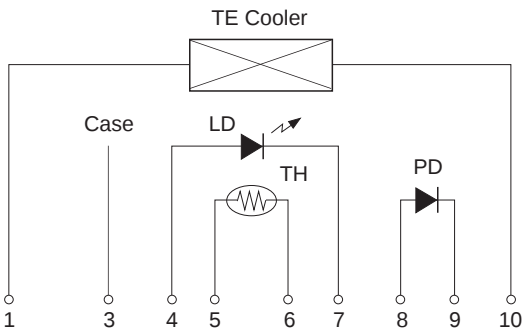
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|--|------------------|------------|----|
| • Optical power output | P_o | 4.4 | W |
| • Reverse voltage | V_{RLD} | 2 | V |
| | PD | 15 | V |
| • Operating temperature (T _{th}) | T _{opr} | −10 to +30 | °C |
| • Storage temperature | T _{stg} | −40 to +85 | °C |
| • Operating current of TE cooler | I _T | 4.0 | A |

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)



Equivalent Circuit



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Optical and Electrical Characteristics

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

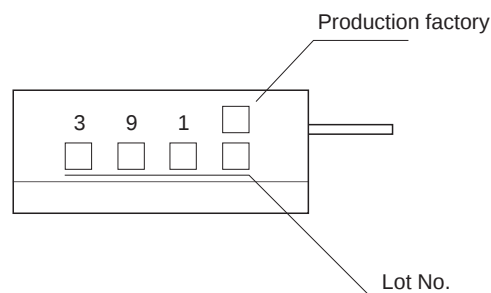
Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		I _{th}			1.0	2.0	A
Operating current		I _{op}	P _O = 4.0W	4.0	5.5	8.0	A
Operating voltage		V _{op}	P _O = 4.0W		2.4	2.8	V
Wavelength		λ _P	P _O = 4.0W	790		840	nm
Radiation angle	Perpendicular	θ _⊥	P _O = 4.0W	25	30	40	degree
	Parallel	θ _{//}	P _O = 4.0W	5	10	14	degree
Positional accuracy	Position	ΔX, ΔY				±100	μm
	Angle	Δφ _⊥	P _O = 4.0W			±3	degree
		Δφ _{//}	P _O = 4.0W			±4	degree
Differential efficiency		η _D	P _O = 4.0W	0.5	0.85	1.5	W/A
Monitor current		I _{mon}	P _O = 4.0W V _R = 10V	0.2	1.5	4.0	mA
Thermistor resistance		R _{th}	T _{th} = 25°C		10		kΩ

Wavelength Selection Classification

Type	Wavelength (nm)
SLD326YT-1	795 ± 5
SLD326YT-2	810 ± 10
SLD326YT-3	830 ± 10

Type*	Wavelength (nm)
SLD326YT-21	798 ± 3
SLD326YT-24	807 ± 3
SLD326YT-25	810 ± 3

Marking

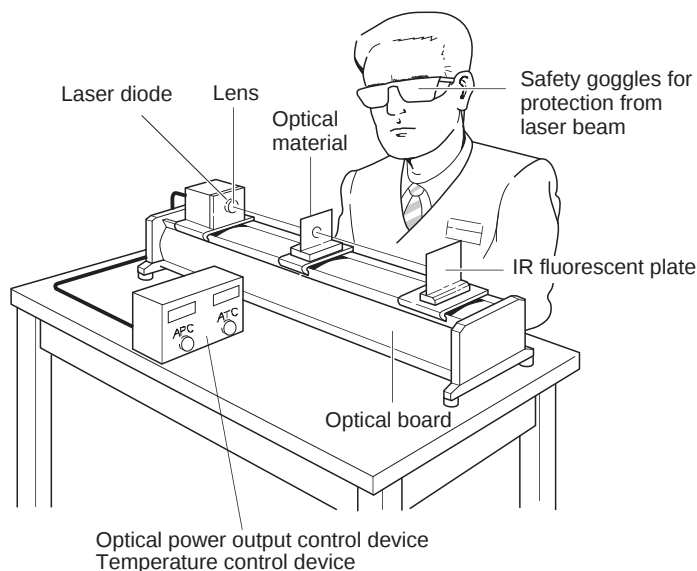


* Categories are not specified by marking.

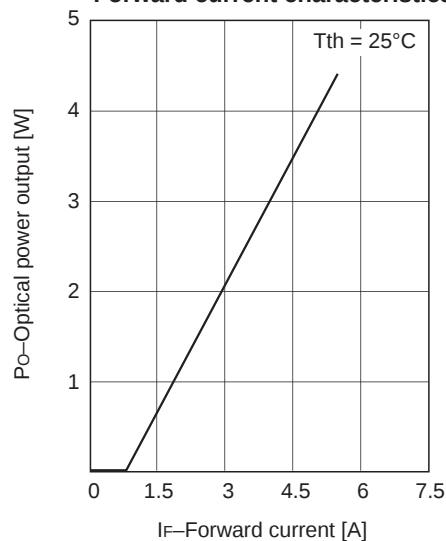
Handling Precautions

Eye protection against laser beams

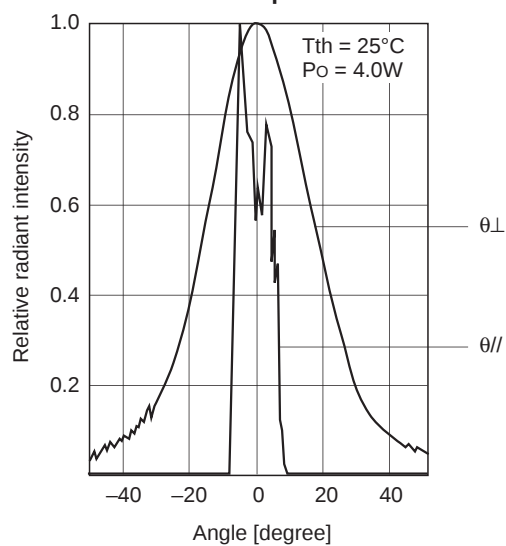
The optical output of laser diodes ranges from several mW to 4W. However the optical power density of the laser beam at the diode chip reaches 1.5MW/cm². Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, 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.



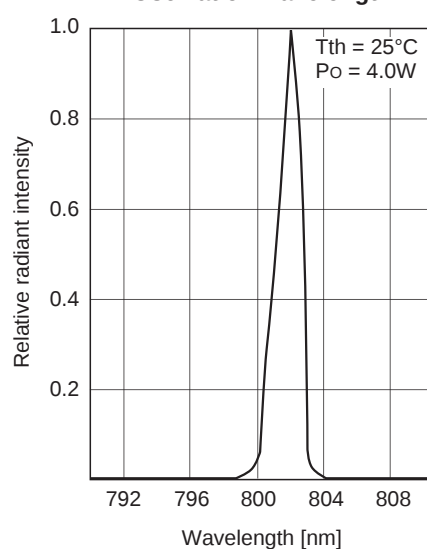
Example of Representative Characteristics

Optical power output vs.
Forward current characteristics

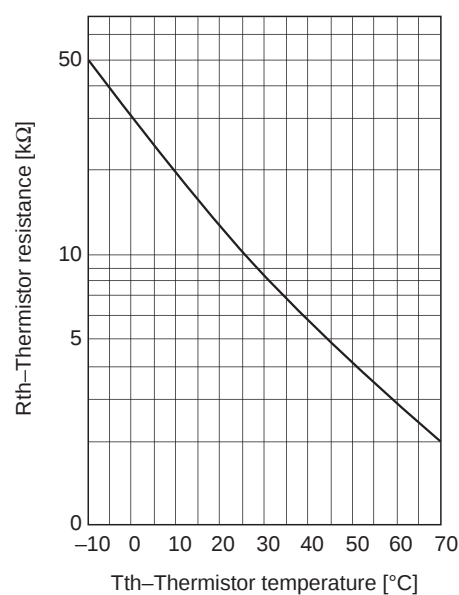
Far field pattern



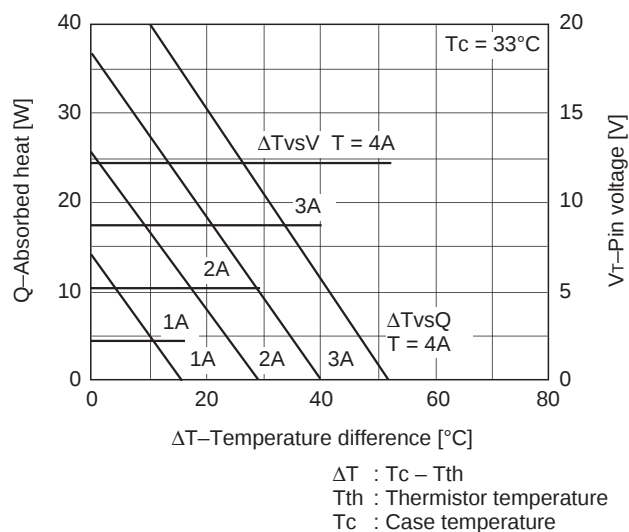
Oscillation wavelength



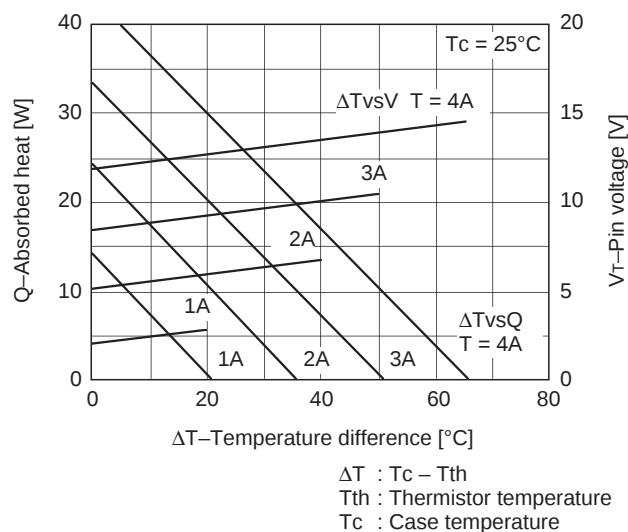
Thermistor characteristics



TE cooler characteristics



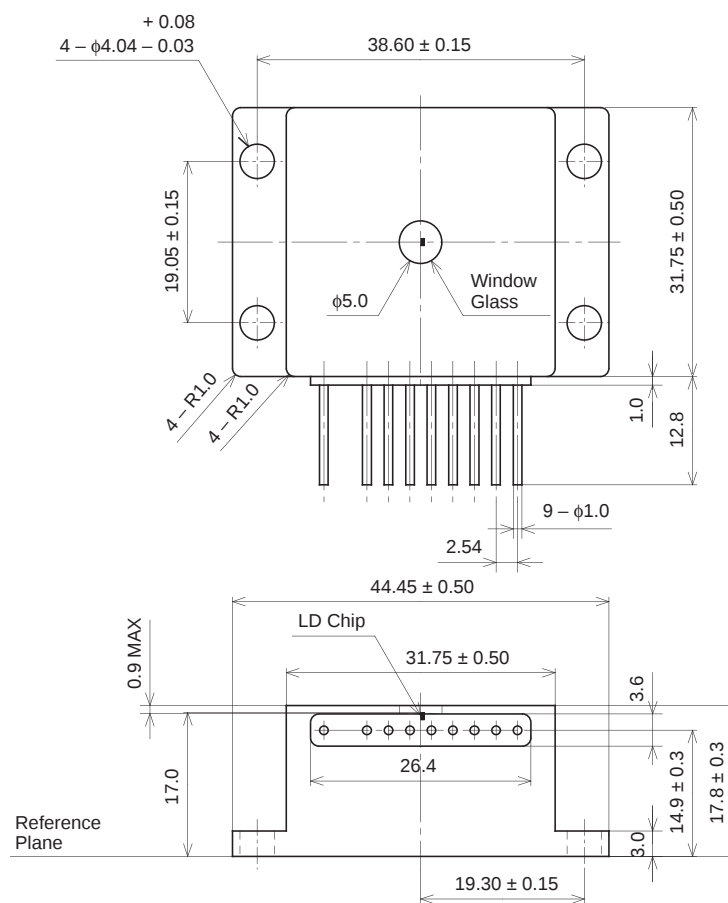
TE cooler characteristics



Package Outline

Unit: mm

M-288



SONY CODE	M-288
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	150g
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