

4W High Power Laser Diode

Preliminary

Description

The SLD343YT has a compatible package, and allows independent thermal and electric design.

It is a high power laser diode that affords easy optical design.

Features

- High-optical power output
Recommended optical power output: $P_o = 4.0W$
- High-optical power density: $4W/200\mu m$
(Emitting line width)

Applications

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

Structure

AlGaAs quantum well structure laser diode

Operating Lifetime

MTTF 10,000H (effective value)
at $P_o = 4.0W$, $T_{th} = 25^\circ C$

Absolute Maximum Ratings ($T_{th} = 25^\circ C$)

- Optical power output P_o 4.4 W
- Reverse voltage V_R LD 2 V
PD 15 V
- Operating temperature (T_{th}) T_{opr} -10 to $+30^\circ C$
- Storage temperature T_{stg} -40 to $+85^\circ C$

Warranty

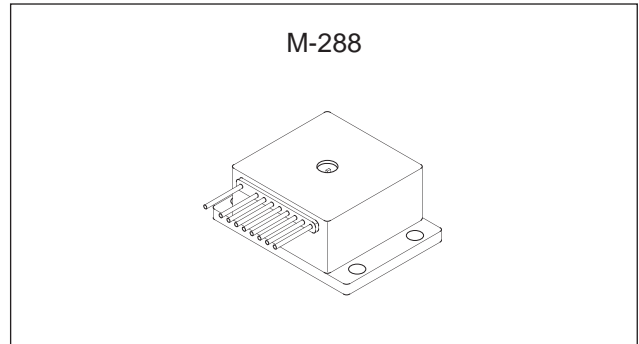
This warranty period shall be 90 days after receipt of the product or 1,000 hours operation time whichever is shorter.

Sony Quality Assurance Department shall analyze any product that fails during said warranty period, and if the analysis results show that the product failed due to material or manufacturing defects on the part of Sony, the product shall be replaced free of charge.

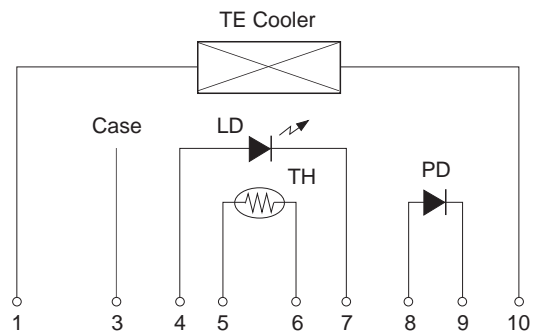
Laser diodes naturally have differing lifetimes which follow a Weibull distribution.

Special warranties are also available.

Sony reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits.



Equivalent Circuit



Pin Configuration (Top View)

No.	Function
1	TE cooler (negative)
2	—
3	Case
4	Laser diode (anode)
5	Thermistor
6	Thermistor
7	Laser diode (cathode)
8	Photo diode (anode)
9	Photo diode (cathode)
10	TE cooler (positive)

Electrical and Optical Characteristics

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

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit							
Threshold current	Ith			1.0	2.0	A							
Operating current	Iop	P _O = 4.0W		4.6	6.5	A							
Operating voltage	Vop	P _O = 4.0W		2.0	3.0	V							
Wavelength*	λ _P	P _O = 4.0W	790		840	nm							
Radiation angle	Perpendicular	P _O = 4.0W				10	23	35	degree				
	Parallel					θ//	5	10	15	degree			
Positional accuracy	Position	P _O = 4.0W						±100	μm				
	Angle							Δφ _⊥				±3	degree
								Δφ//				±4	degree
Differential efficiency	η _D	P _O = 4.0W	0.5	1.1	1.5	W/A							
Monitor current	I _{mon}	P _O = 4.0W V _R = 10V	0.2	1.0	4.0	mA							
Thermistor resistance	R _{th}	T _{th} = 25°C		10		kΩ							

*** Wavelength Selection Classification**

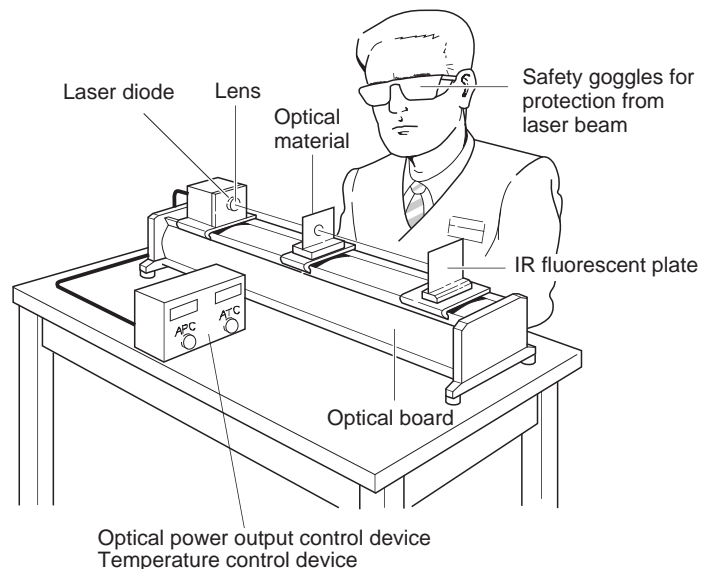
Type	Wavelength (nm)
SLD343YT-1	795 ± 5
SLD343YT-2	810 ± 10
SLD343YT-3	830 ± 10

Type	Wavelength (nm)
SLD343YT-21	798 ± 3
SLD343YT-24	807 ± 3
SLD343YT-25	810 ± 3

Handling Precautions

Eye protection against laser beams

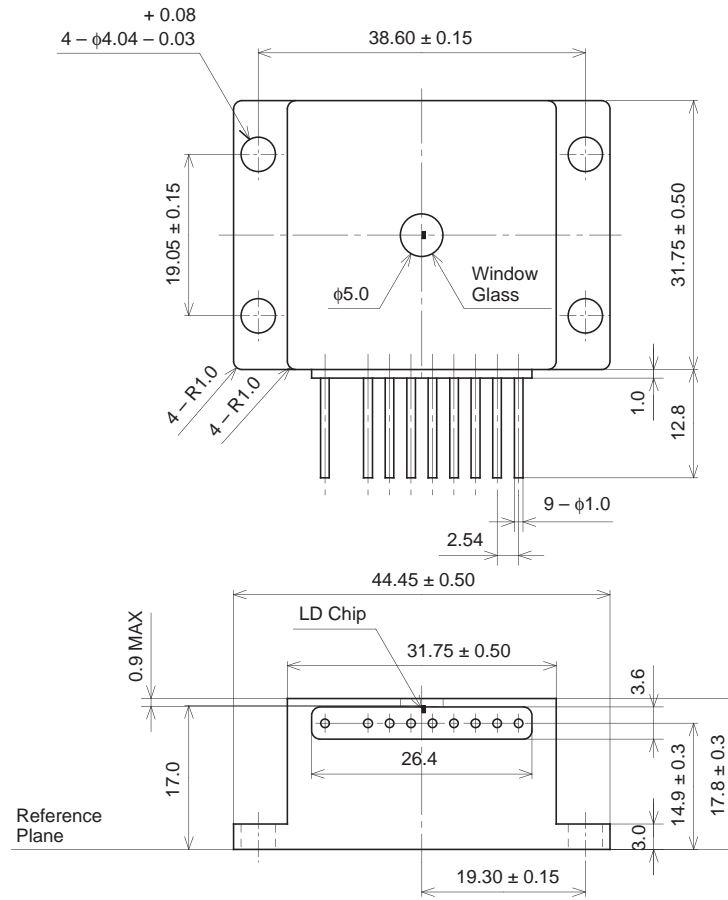
The optical output of laser diodes ranges from several mW to 10W. However the optical power density of the laser beam at the diode chip reaches 1.5MW/cm². Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, 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.



Package Outline

Unit: mm

M-288



SONY CODE	M-288
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	150g
----------------	------