

**6W High Power Laser Diode**

*Preliminary*

**Description**

The SLD344YT 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:  $P_o = 6.0W$
- High-optical power density:  $6W/400\mu m$   
(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  $P_o = 6.0W$ ,  $T_{th} = 25^\circ C$

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

- Optical power output  $P_o$  6.6 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**

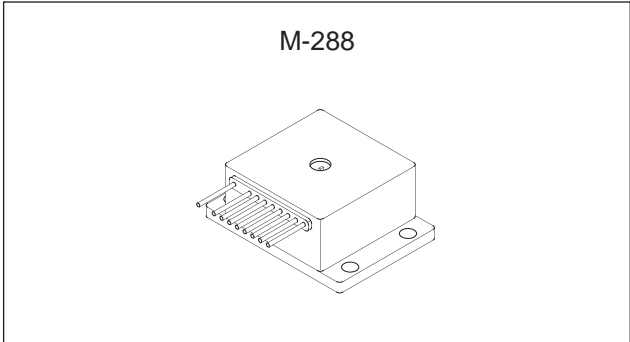
This warranty period shall be 90 days after receipt of the product or 1,000 hours operation time whichever is shorter.

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.

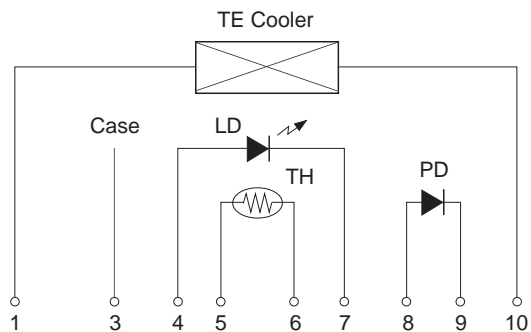
Laser diodes naturally have differing lifetimes which follow a Weibull distribution.

Special warranties are also available.

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**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	I <sub>th</sub>			1.4	3.0	A						
Operating current	I <sub>op</sub>	P <sub>o</sub> = 6.0W		7.0	9.0	A						
Operating voltage	V <sub>op</sub>	P <sub>o</sub> = 6.0W		2.0	3.0	V						
Wavelength*	λ <sub>P</sub>	P <sub>o</sub> = 6.0W	790		840	nm						
Radiation angle	Perpendicular	P <sub>o</sub> = 6.0W		20	23	35	degree					
	Parallel							θ//	5	10	15	degree
Positional accuracy	Position	P <sub>o</sub> = 6.0W				±100	μm					
	Angle							Δφ <sub>⊥</sub>			±3	degree
								Δφ//				
Differential efficiency	η <sub>D</sub>	P <sub>o</sub> = 6.0W	0.5	1.1	1.5	W/A						
Monitor current	I <sub>mon</sub>	P <sub>o</sub> = 6.0W V <sub>R</sub> = 10V	0.2	2.0	4.0	mA						
Thermistor resistance	R <sub>th</sub>	T <sub>th</sub> = 25°C		10		kΩ						

**\* Wavelength Selection Classification**

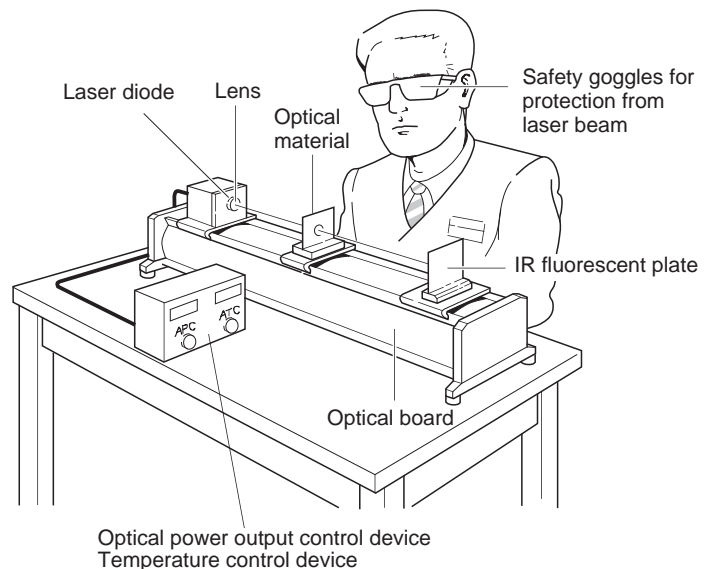
Type	Wavelength (nm)
SLD344YT-1	795 ± 5
SLD344YT-2	810 ± 10
SLD344YT-3	830 ± 10

Type	Wavelength (nm)
SLD344YT-21	798 ± 3
SLD344YT-24	807 ± 3
SLD344YT-25	810 ± 3

**Handling Precautions**

**Eye protection against laser beams**

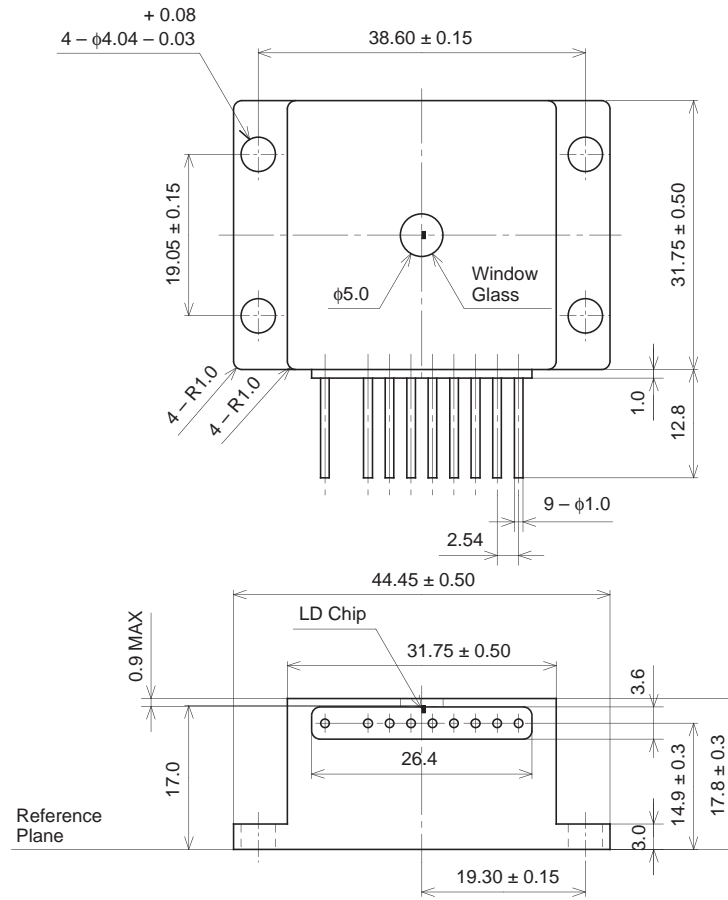
The optical output of laser diodes ranges from several mW to 10W. However the optical power density of the laser beam at the diode chip reaches 1.5MW/cm<sup>2</sup>. Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing 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
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