

4W High Power Laser Diode

Description

The SLD335YT has a package with a Peltier cooler and allows independent thermal and electric design.

It realizes a uniform emission area by adopting a new chip structure.

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
- Material processing
- Measurement
- Printing

Structure

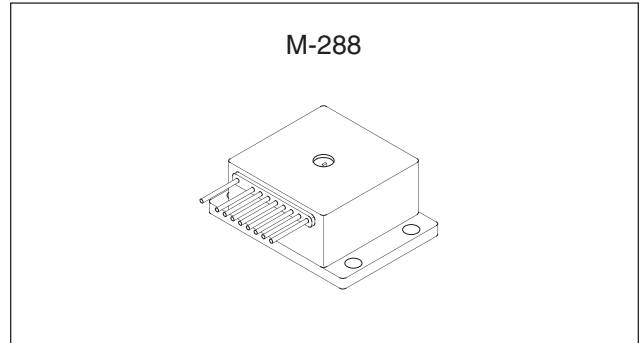
AlGaAs Quantum Well structure laser diode

Operating Lifetime

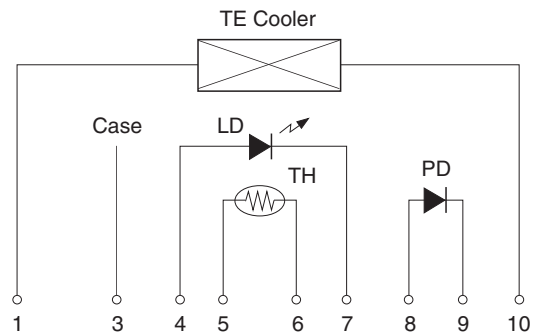
MTTF 10,000H (effective value) at $P_o = 4W, T_{th} = 25^\circ C$

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

- Optical power output P_{omax} 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 $+85$ $^\circ C$



Equivalent Circuit



Pin Configuration (Top View)

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

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Electrical and Optical Characteristics

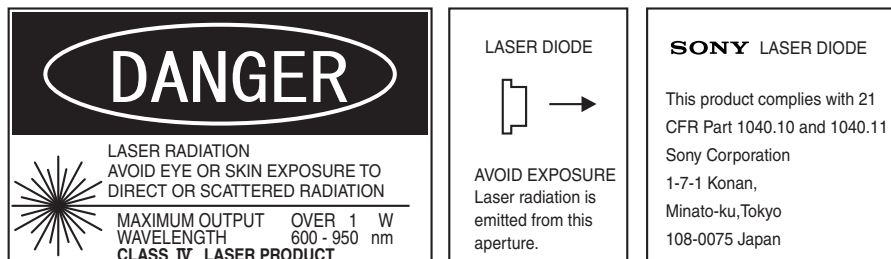
(Tth = Thermistor temperature, Tth = 25°C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current	Ith		—	0.8	1.5	A
Operating current	Iop	Po = 4.0W	—	4.3	5.5	A
Operating voltage	Vop	Po = 4.0W	—	2.1	3.0	V
Wavelength	λ_p	Po = 4.0W	790	—	840	nm
Radiation angle	Parallel	Po = 4.0W	4	10	17	degree
	Perpendicular		15	23	33	degree
Positional accuracy	Angle	Po = 4.0W	—	—	±3	degree
			$\Delta\phi_{\perp}$	—	—	±4
	Position	$\Delta X, \Delta Y$	—	—	±100	μm
Differential efficiency	η_D	Po = 4.0W	0.65	1.1	—	W/A
Monitor current	I _{mon}	Po = 4.0W, VR = 10V	0.15	0.9	3.0	mA
Thermistor resistance	Rth	Tth = 25°C	—	10	—	k Ω

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.

Also, use the power supply that was designed not to exceed the optical power output specified at the absolute maximum ratings.

- (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.

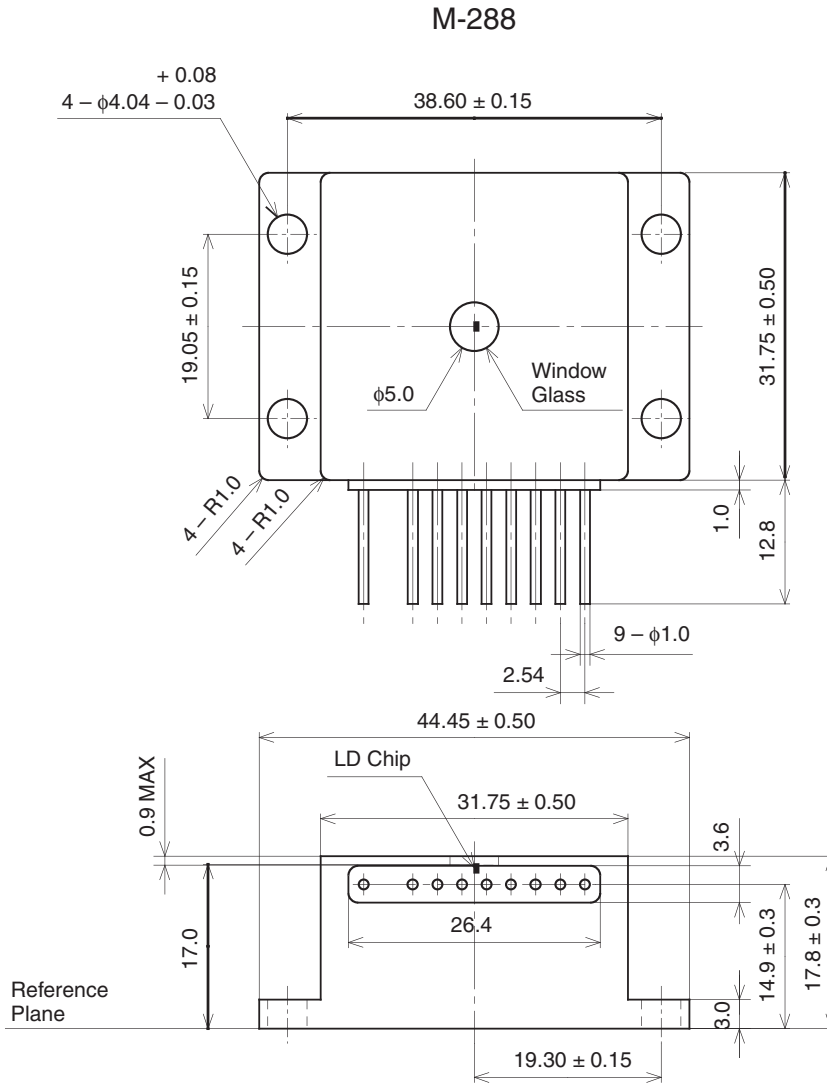
(6) Environment-related Substances to be Controlled

No substances classified at Level 1 (immediate ban) of Sony Technical Standard, SS-00259, "Management regulations for the Environment-related Substances to be Controlled". The excerpt from SS-00259 is introduced on following URL.

<http://www.sony.net/SonyInfo/procurementinfo/ss00259/>

Package Outline

Unit: mm



SONY CODE	M-288
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE MASS	100g
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