SONY

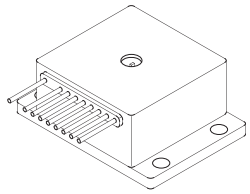
SLD327YT

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.

M-288



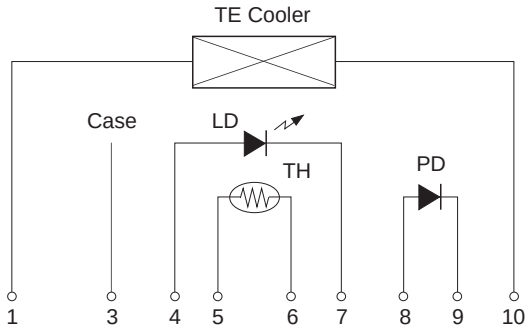
Features

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

Applications

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

Equivalent Circuit



Structure

GaAlAs quantum well structure laser diode

Absolute Maximum Ratings (Tth = 25°C)

• Optical power output	P_O	3.3	W
• Reverse voltage	V_{RLD}	2	V
	PD	15	V
• Operating temperature (Tth)	Topr	–10 to +30	°C
• Storage temperature	Tstg	–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)

E95Z13A97-PS

Optical and Electrical Characteristics (Tth = Thermistor temperature, Tth = 25°C)

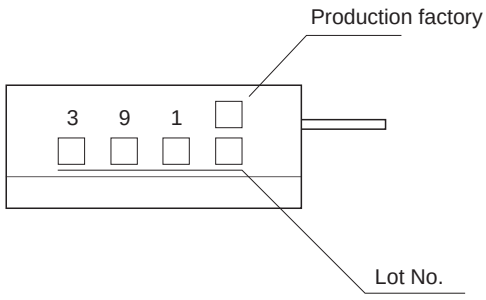
Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		Ith			0.6	2.0	A
Operating current		Iop	P_O = 3.0W		4.0	6.0	A
Operating voltage		Vop	P_O = 3.0W		2.4	3.0	V
Wavelength		λ_P	P_O = 3.0W	790		840	nm
Radiation angle	Perpendicular	$\theta\perp$	P_O = 3.0W	25	30	40	degree
	Parallel	θ//	P_O = 3.0W	5	10	20	degree
Positional accuracy	Position	ΔX, ΔY				±100	µm
	Angle	$\Delta\phi\perp$	P_O = 3.0W			±3	degree
		$\Delta\phi$//	P_O = 3.0W			±4	degree
Differential efficiency		η_D	P_O = 3.0W	0.5	0.85	1.5	W/A
Monitor current		Imon	P_O = 3.0W V_R = 10V	0.2	1.1	4.0	mA
Thermistor resistance		Rth	Tth = 25°C		10		kΩ

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

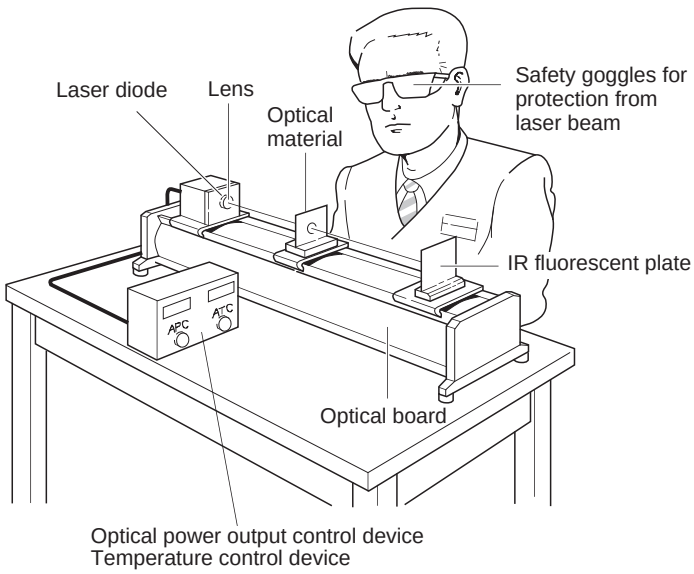


* Categories are not specified by marking.

Handling Precautions

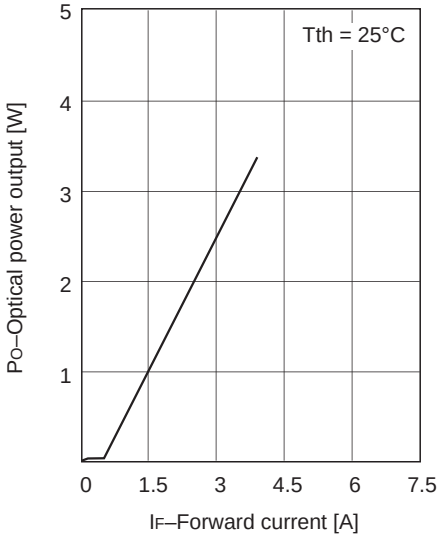
Eye protection against laser beams

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/cm^2. 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.

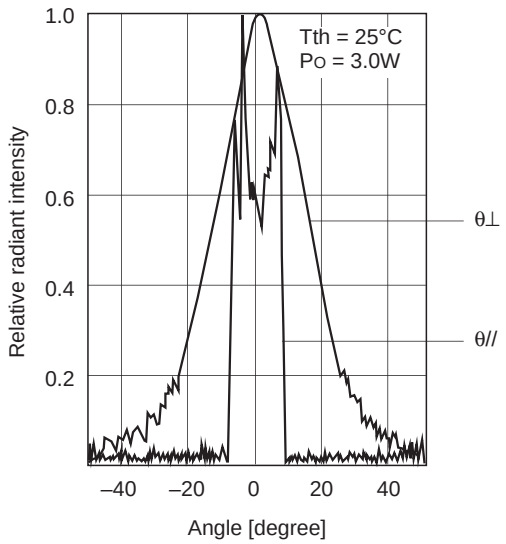


Example of Representative Characteristics

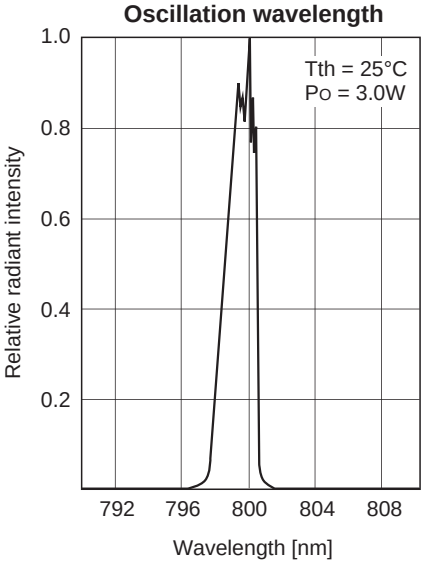
Optical power output vs. Forward current characteristics



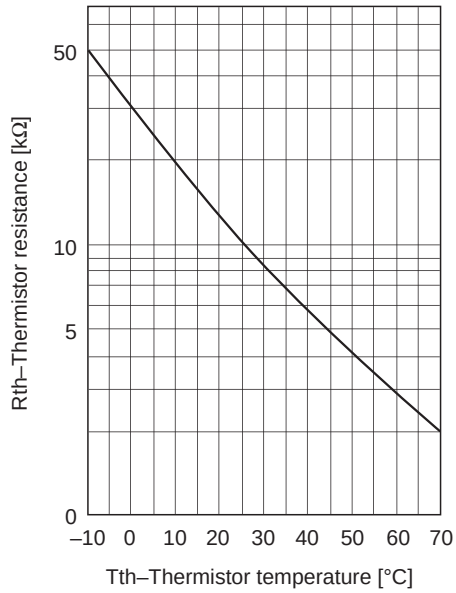
Far field pattern



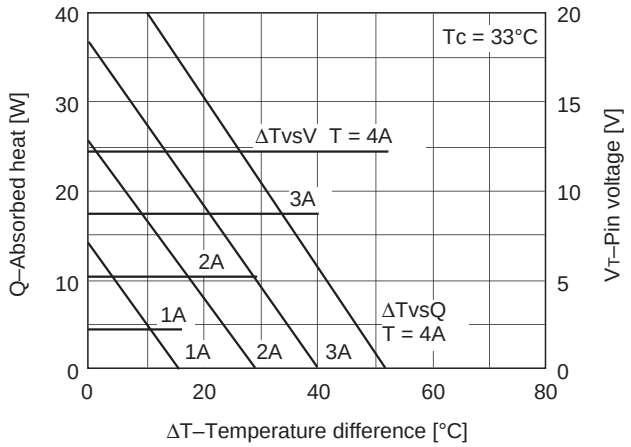
Oscillation wavelength



Thermistor characteristics

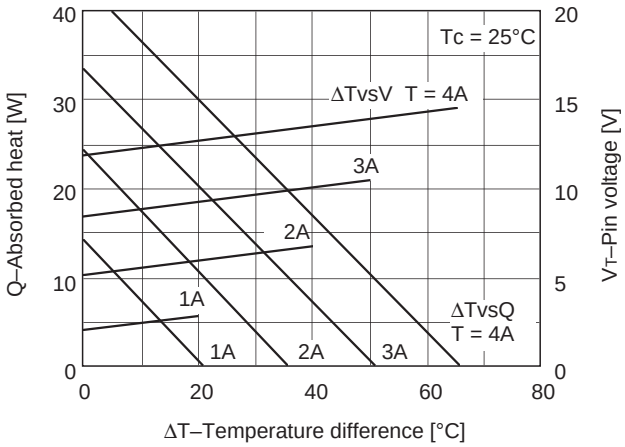


TE cooler characteristics



ΔT : Tc – Tth
Tth : Thermistor temperature
Tc : Case temperature

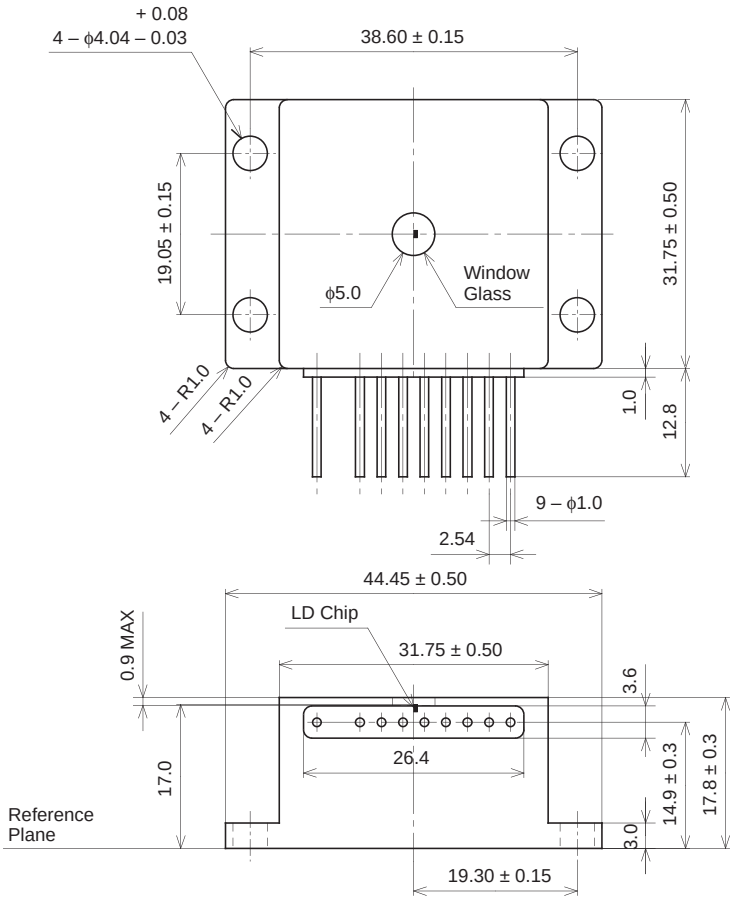
TE cooler characteristics



ΔT : Tc – Tth
Tth : Thermistor temperature
Tc : Case temperature

Package Outline Unit: mm

M-288



SONY CODE	M-288
EIAJ CODE	————
JEDEC CODE	————

PACKAGE WEIGHT	150g