

Ultrahigh Power 4 W and 6 W Laser Diodes
Achieve the Industry's Highest Optical Density and Optical Output

SLD342YT, SLD343YT, SLD344YT

Sony's ultrahigh power industrial laser diodes have a long and distinguished history. Sony continues to lead the world's laser diode suppliers in commercial release of these products, and Sony laser diodes appeal to the world with new possibilities for use as light energy sources.

To respond to customer desires for even higher power and even higher optical energy densities, Sony has developed the SLD344YT, which achieves the industry's highest power from a single stripe, namely, 6 watts.

At the same time, Sony has also developed the SLD343YT 4-watt laser diode and the SLD342YT 2-watt laser diode, which achieve higher optical power output levels without changing the optical emission area of Sony's current lineup.

- Ultrahigh power laser diodes
SLD342YT: 2 W/100 μm
SLD343YT: 4 W/200 μm
SLD344YT: 6 W/400 μm
- YT package with industry-standard temperature control function
- Wavelength selection also supported

■ The Industry's Highest Optical Power Output and Optical Density

The history of Sony's high power laser diodes began in 1985. From that time, Sony led the world's laser diode suppliers both in believing in the possibility of ultrahigh power laser diodes as sources of optical energy, and in commercializing these devices. More recently, many manufacturers, both in Japan and elsewhere around the world, have entered this market, the range of application has become increasingly diverse, and laser diodes are of increasing interest in areas that use optical energy. The history of higher power levels has exhibited the trends shown in figure 1. While the techniques for the higher power include such approaches as array lasers, in which multiple laser

diode chips are arranged in one dimension, and stacked lasers, in which multiple chips are arranged in two dimensions, the three products of this release adopt the approach of providing higher power from a single chip. Taking ease of use in applications into account, these product succeed in not changing the width of the emission area. (See the stripe width W_s shown in figure 2.) Since the emission area has not been changed, these devices can support an expanding range of new applications in medical and manufacturing areas that use lasers.

The SLD343YT is the successor to the SLD327YT, which was developed in 1986 as the industry's highest optical density laser diode, and the SLD343YT is a 4-watt laser diode that provides 1.35 times the optical power output from the same stripe width (W_s). (See figure 4.) The SLD344YT is a 6-watt laser diode that provides 1.5 times the optical power output from the same stripe width as the SLD326YT, which was also developed in 1986. (See figure 5.) The SLD344YT leads the industry as the world's highest power laser diode and achieves an optical power output of 6 watts. It achieves the world's highest performance with 1.5 times the density and 1.2 times the output of the 5-watt output 500 μm stripe width products of other companies.

■ Standard Package

These products are provided in the package (see figure 6) that is the standard in the market that adopts the SLD326YT and SLD327YT products. Thus they can be used as replacements for either Sony products or the products of other companies. This simple replacement provided by stripe width and package compatibility allows users to consider obtaining higher performance.

■ Wavelength Selection Support

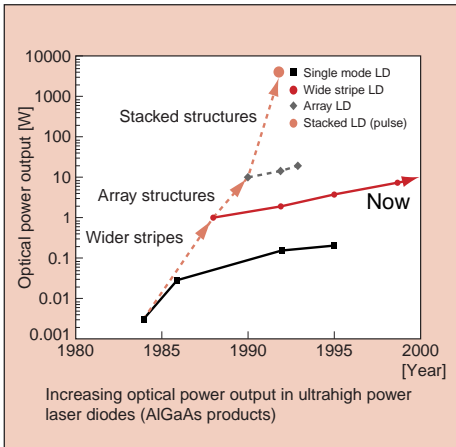
Sony can also support ± 3 nm wavelength selection as an option in YLF excitation of solid-state excitation and YAG excitation applications.

V O I C E

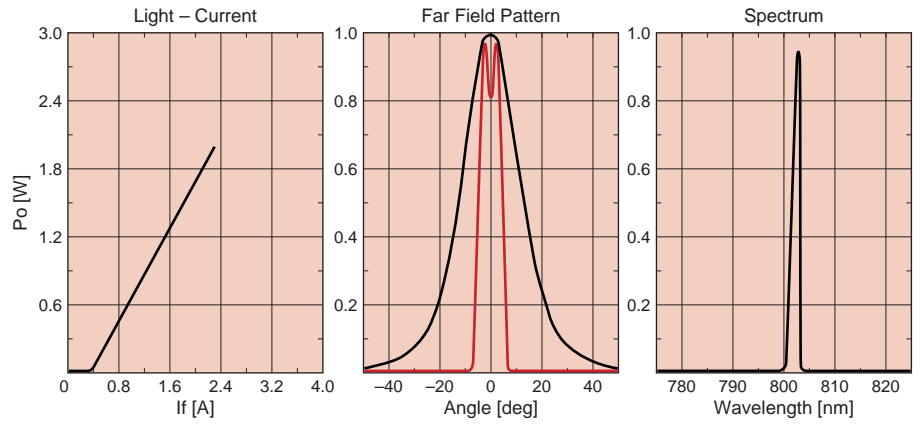
Our motto during development was "higher power, higher optical energy density." We share with our customers the dream of being able to use the optical energy provided by ultrahigh power laser diodes, and we hope that this product will allow our customers to realize their dreams.



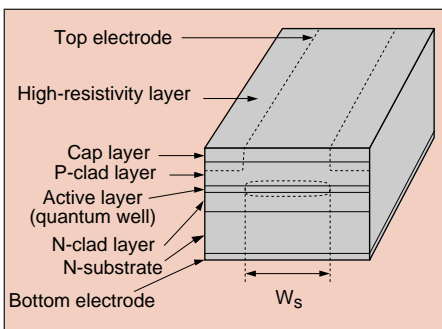
*New
Products*



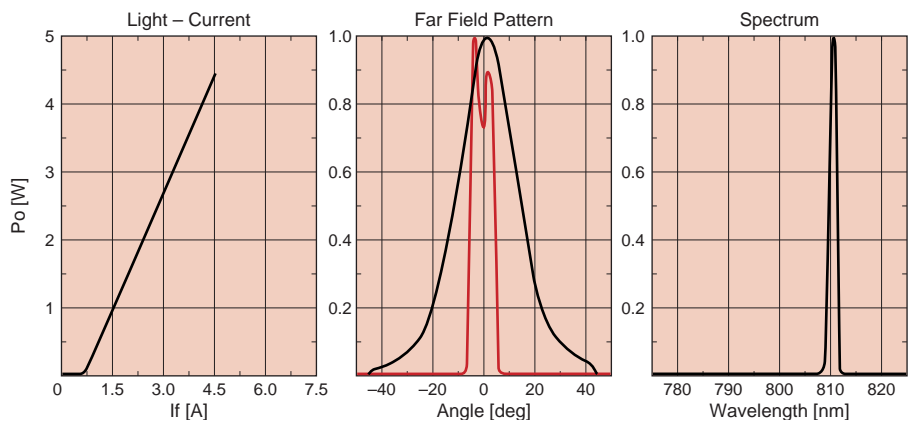
■ **Figure 1 Laser Diode Trends Towards Higher Power**



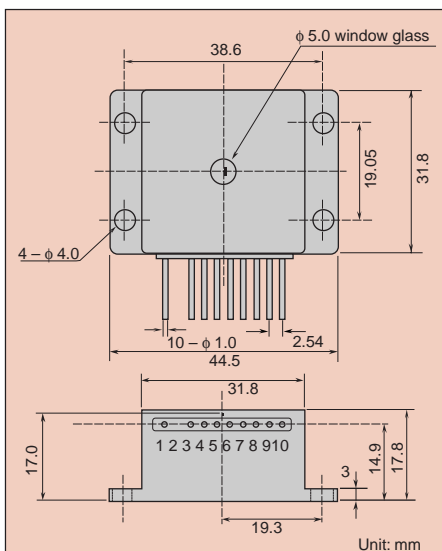
■ **Figure 3 SLD342YT Main Characteristics**



■ **Figure 2 Broad Area Type**

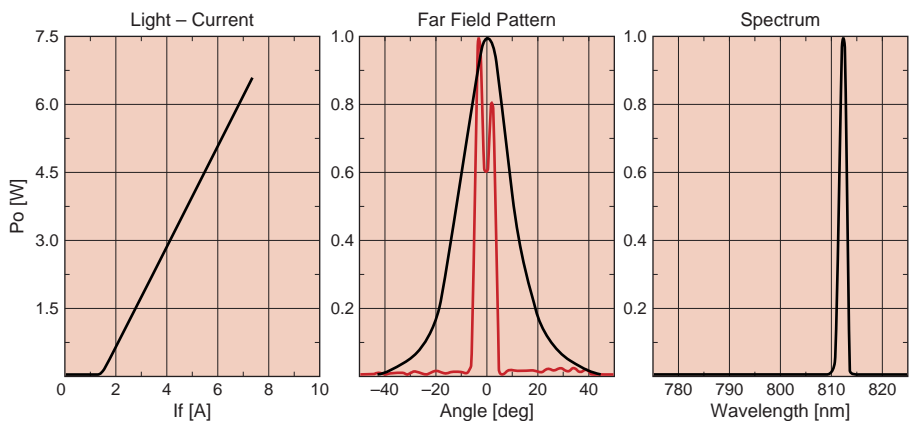


■ **Figure 4 SLD343YT Main Characteristics**



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)

■ **Figure 6 YT Package Dimensions**



■ **Figure 5 SLD344YT Main Characteristics**