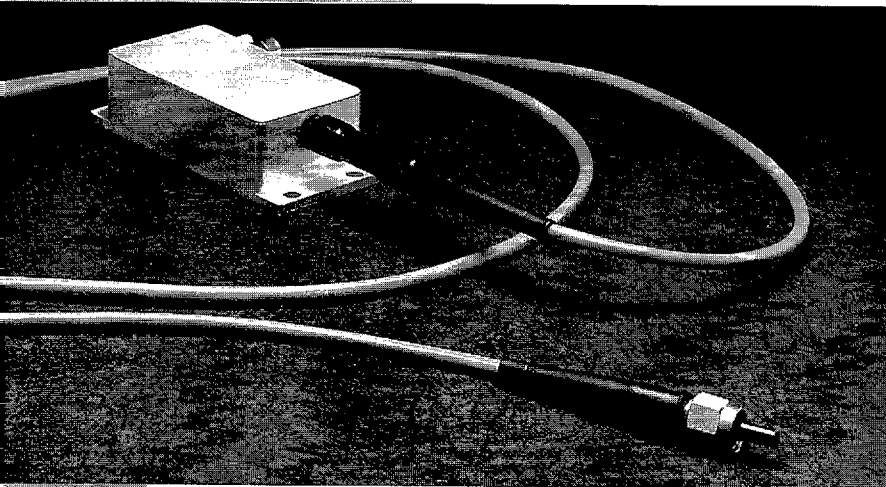


SDL

3400/6400/7400-P5/P6

SERIES



Key Features

- Up to 16 W cw Optical Power
- High Brightness, 0.2 NA Option
- 680 nm, 810 nm, 975 nm Wavelengths
- Single Fiber Output
- Symmetrical, Uniform Beam Pattern

HIGH POWER FIBER-COUPLED LINEAR ARRAY LASER DIODES

The high cw power, high brightness and fiber output of the SDL-3400/6400/7400 Series enables applications in medicine, materials processing, solid-state laser pumping, industry and aerospace. CW power up to 16 W from a single multimode fiber and numerical aperture as low as 0.2 provide the brightness and power density required for advanced systems.

Wavelength availability from 670 nm visible, 810 nm and 975 nm near-IR match solid-state laser pump bands, therapeutic and diagnostic medical requirements and couple efficiently into industrial metals and materials. The low numerical aperture and small fiber core diameter optimize brightness, energy density and beam quality. Efficient coupling into the multimode delivery fiber and low transmission loss allow energy delivery to remote targets.

The 12 watt SDL-3450-P6 and 16 watt SDL-3460-P6 provide cw power via 500 and 600 μm core fiber, within 0.2 NA respectively. The 5 watt SDL-3490-P5 and 10 watt SDL-3450-P5 provide cw power via 400 μm core fiber, within 0.4 NA.

The SDL-6480-P6 provides 12 W cw power via 500 μm core fiber, within 0.2 NA. The SDL-6480-P5 provides 10 W cw power via 400 μm core fiber, within 0.4 NA.

The SDL-7470-P5 provides 3 W cw power via 400 μm core fiber, within 0.4 NA.

The multimode fiber provides a symmetrical, incoherent beam and terminates in an SMA-905 connector. An efficient quantum well structure, low operating current and low thermal resistance package allow exceptional device reliability.



CW High Power/Brightness
Laser Diodes/Linear Arrays

CW Single Spatial/Longitudinal
Mode Laser Diodes

CW Single Spatial/Mode
Laser Diodes

Individually Addressable
Array Laser Diodes

High Power Fiber-Coupled
Linear Arrays
SDL-3400/6400/7400

CW Tunable
Laser Diodes

OCW Linear Arrays
and Stacked Arrays

Pulsed and OCW
Laser Diodes

Laser Diode Drivers,
Systems and Heatinks

Specifications

(Typical values at 25 °C)

*PRELIMINARY PRODUCT

Model Number	CW Output Power (W)	Differential Quantum Efficiency (W/A)	Total Conversion Efficiency (%)	Beam Divergence θ (deg)	Fiber Diameter \varnothing (μm)	Numerical Aperture	Threshold Current (A)	Operating Current (A)
SDL-3460-P6*	16	0.50	23	≤ 24	600	0.2	14	36
SDL-3450-P6*	12	0.50	23	≤ 24	500	0.2	9	28
SDL-3450-P5	10	0.50	12.5	≤ 50	400	0.4	9	28
SDL-3490-P5	5	0.35	12.5	≤ 50	400	0.4	6	20
SDL-6480-P6*	12	0.43	23	≤ 24	500	0.2	7	30
SDL-6480-P5*	10	0.40	12.5	≤ 50	400	0.4	9	30
SDL-7470-P5*	3	0.50	12	≤ 50	400	0.4	5	12

Notes

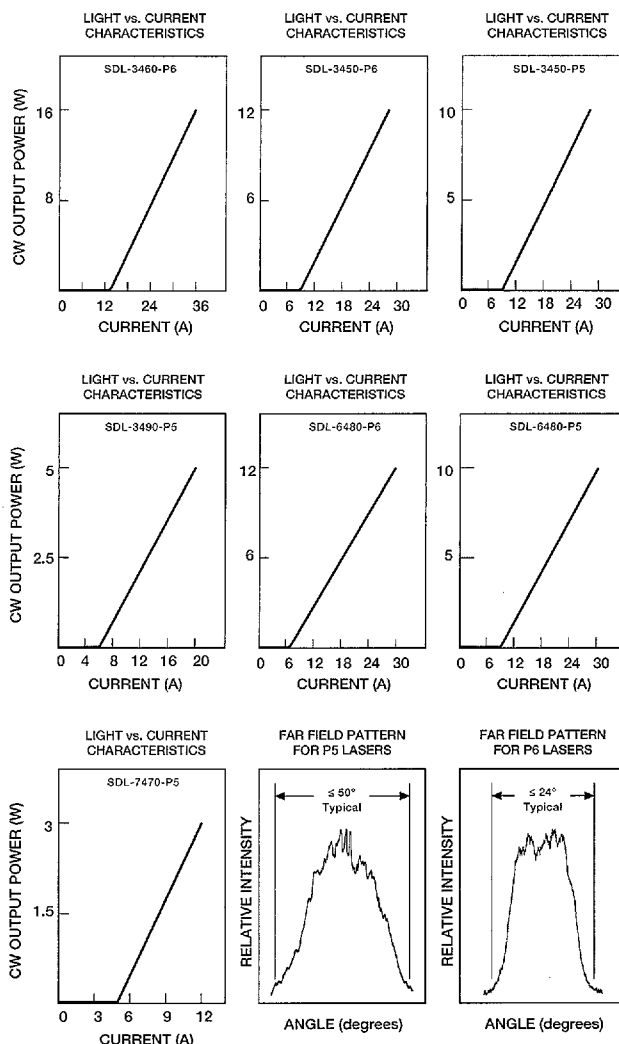
- Wavelength ranges are as follows:

SDL-3400-P5/P6 Series	797-812 nm
SDL-6480-P5/P6 Series	970-980 nm
SDL-7470-P5	670-690 nm
- Other Features Include:
 - Spectral Width is 3 nm FWHM (P5) and 4.5 nm (P6).
 - Temperature coefficient of wavelength is approximately 0.27 to 0.3 nm/°C (SDL-3400/6480) and 0.2 nm/°C (SDL-7470-P5).
 - Temperature coefficient of threshold current can be modeled as:

$$I_{TH2} = I_{TH1} \exp[(T_2 - T_1)/T_0]$$
 where T_0 is a device constant of about 120°K for SDL-3400 and SDL-6400 Series and about 90°K for SDL-7470-P5.
 - Temperature coefficient of operating current is approximately 0.5% to 0.7% per °C.
- Forward Voltage is typically:

SDL-3400 & SDL-6480	$V_f = 1.5 \text{ V} + I_{op} \times R_s$
SDL-7470	$V_f = 1.8 \text{ V} + I_{op} \times R_s$
- P5 and P6 package diodes terminate in a male SMA 905 Series optical connector at the end of a 1 meter multimode fiber.
- A dry N_2 environment should be provided by the user when storing or operating at temperatures below ambient dew point.
- Care should be taken to avoid light reflection back into the multimode fiber core.

Optical Characteristics



SDL-3400/6400/7400-P5/P6 SERIES

Safety And Operating Considerations

The laser light emitted from these laser diodes is visible or invisible and may be harmful to the human eye. Avoid looking directly into the fiber or fiber coupler when the device is in operation.

CAUTION: THE USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD.

Operating the laser diode outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded. CW laser diodes may be damaged by excessive drive current or switching transients. When using power supplies, the laser diode should be connected with the main power on and the output voltage at zero. The current should be increased slowly while monitoring the laser diode output power and the drive current.

Device degradation accelerates with increased temperature and therefore careful attention to minimize the case temperature is advised. For example, life expectancy will decrease by a factor of four if the case is operated at 50 °C rather than 30 °C.

A proper heat sink for the laser diode on a thermal radiator will greatly enhance laser life. Firmly mount the laser on a radiator having a thermal impedance of less than 0.5 °C/W for increased reliability.

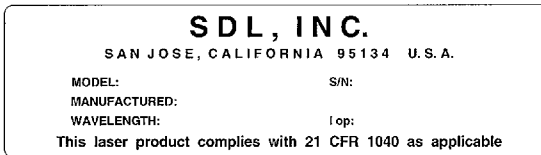
ESD PROTECTION — Electro-static discharge is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces, and rigorous anti-static techniques when handling laser diodes.

This product is export controlled under CO-COM. The ECCN is 6A05A; Harmonized Commodity is 8541.40.6050.

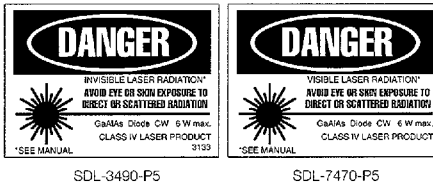
21 CFR 1040.10 Compliance

Because of the small size of these devices, each of the labels shown is attached to the individual shipping container. They are illustrated here to comply with 21 CFR 1040.10 as applicable under the radiations control for health and safety act of 1968.

SERIAL NUMBER IDENTIFICATION LABEL



OUTPUT POWER DANGER LABELS



PACKAGE APERTURE LABELS

