

Single-Frequency Fiber Coupled U-Type Module

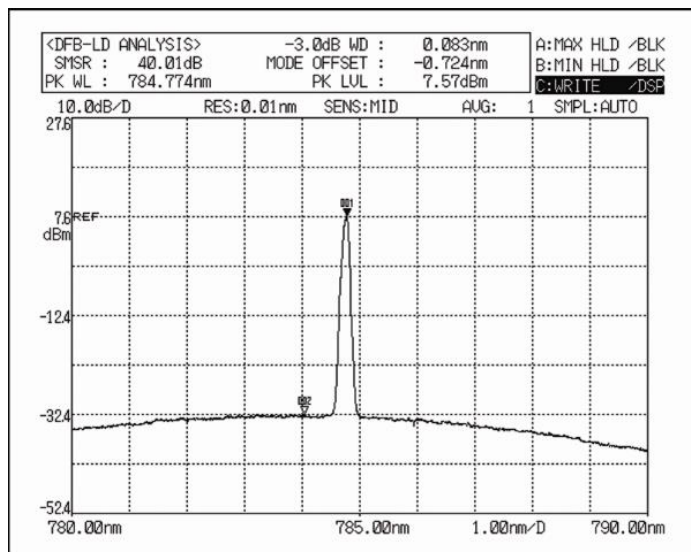
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COMPLIANT



Innovative Photonic Solution's proprietary Wavelength Stabilized Laser features high output power with narrow spectral bandwidth. The laser's stabilized peak wavelength remains "locked" regardless of case temperature (15 to 45 deg. C).

Devices can be spectrally tailored to suit application needs and offer side mode suppression ratios (SMSRs) better than 40 dB, thereby providing extremely high signal to noise ratio and making these sources ideal for Raman spectroscopy and pump laser applications. The laser is integrated with high performance laser drive and temperature control electronics in a compact package.

In addition to integration into systems, IPS' OEM U-Type module is designed to "drop in" to our UL/CE and IEC certified turnkey modules to offer wavelength flexibility at a lower cost.



Typical 785 nm Stabilized Laser Spectrum

Features

- Wavelength Stabilized Spectrum
- Narrow Spectral Linewidth (< 100 MHz FWHM)
- High Power Single-mode Fiber Coupled Output
- Temperature Stabilized Spectrum (< 0.007 nm/°C)
- Low Power consumption (< 5.5 W)
- > 45 dB SMSR Typical
- 3" x 2.5" x 0.69" Package Weighing < 4 oz

Standard Wavelengths

- 633 nm
- 638 nm
- 780 nm
- 783 nm
- 785 nm
- 808 nm
- 830 nm
- 976 nm
- 1030 nm
- 1053 nm
- 1064 nm

Additional wavelengths available upon request

General Optical Specifications

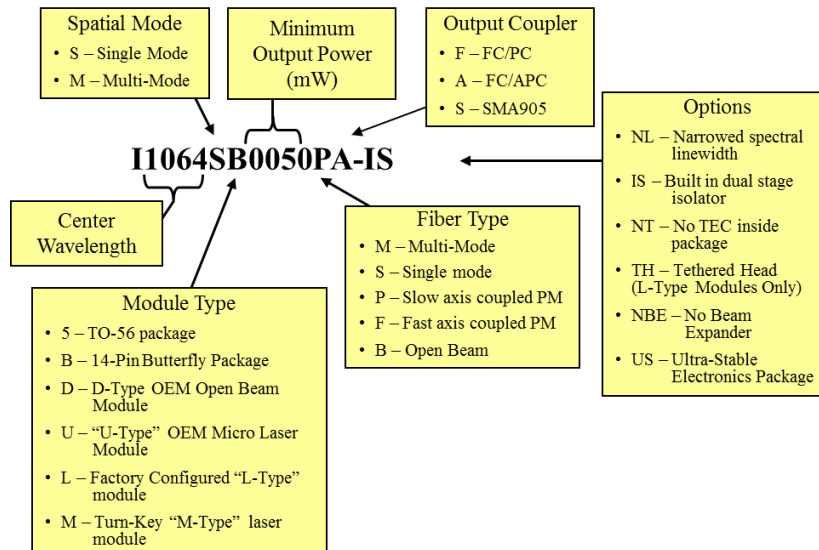
Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth ($\Delta\lambda$)	< 100 MHz
Wavelength Stability Range	15 C - 45 C
SMSR	45 - 55 dB typical
Polarization Orientation	IPS standard is PM slow. The "P" in part number signifies PM slow. Substitute "F" for PM fast
Polarization Extinction Ratio (PER)	>17 dB, 20 dB typical
Output Power Stability	1% typical
Modulation Rate	CW to 1 KHz (for 10% power to CW) up to 10 kHz for 50% power
Warm-Up Time	10 seconds from cold start 1.5 seconds from warm start

Physical Specifications

Optical Fiber Options	Single-Mode Fiber Polarization Maintaining, Panda Type
Connector	FC/APC
Electrical Connector	10-pin, Molex #53014-1010 (mating connector: 51004-1000)
Module Dimensions	3.0 x 2.5 x 0.69 inches
Module weight	100 grams (3.5 ounces)
Case Material	Anodized Aluminum
Operating Temperature	10 to 45 degrees C
Cooling air flow (internal)	100 LFM with attached heatsink
Environment	0-80% Humidity, non condensing
Storage Temperature	-10 to + 55 degrees C

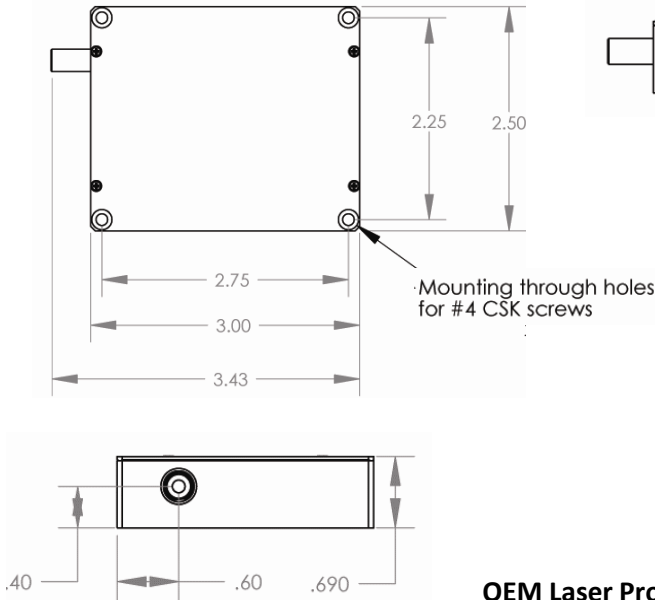
Wavelength (nm)	Min. Power (mW)	Part Number	Polarization
633	20	I0633SU0020SA	Random
		I0633SU0020PA	PM Slow
638	25	I0638SU0025SA	Random
		I0638SU0025PA	PM Slow
780	50	I0780SU0050SA	Random
		I0780SU0050PA	PM Slow
783	50	I0783SU0050SA	Random
		I0783SU0050PA	PM Slow
785	50	I0785SU0050SA	Random
		I0785SU0050PA	PM Slow
808	50	I0808SU0050SA	Random
		I0808SU0050PA	PM Slow
830	50	I0830SU0050SA	Random
		I0830SU0050PA	PM Slow
976	220	I0976SU0220SA	Random
		I0976SU0220PA	PM Slow
1030	100	I1030SU0100SA	Random
		I1030SU0100PA	PM Slow
	280	I1030SU0280SA	Random
		I1030SU0280PA	PM Slow
1053	120	I1053SU0120SA	Random
		I1053SU0120PA	PM Slow
	300	I1053SU0300SA	Random
		I1053SU0300PA	PM Slow
1064	50 (integral dual-stage isolator)	I1064SU0050SA-IS	Random
		I1064SU0050PA-IS	PM Slow
	120	I1064SU0120SA	Random
		I1064SU0120PA	PM Slow
	300	I1064SU0300SA	Random
		I1064SU0300PA	PM Slow

Part Numbering Schema



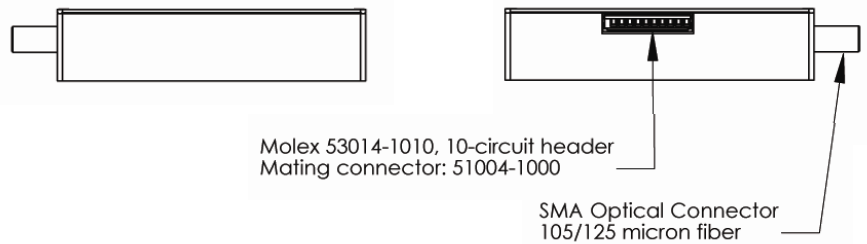
Mechanical Specifications

Bottom View



Front View

Side View



OEM Laser Product

This laser module is designed for use as a component (or replacement) part and is thereby exempt from 21 CFR1040.10 and 1040.11 provisions.

U-Type Module Pinout

Pin #	Symbol	Description
1	NC	Not Connected
2	Vset ENABLE	Enables 'LD SET' on pin 8 when connected to ground. If left open or set to 3-5 Volt, output power defaults to internally pre-set value.
3	T SENS	Not Connected
4	T SENS	
5	GND	Ground
6	+ 5V	4.9 to 5.1 Volt; 1 Ampere
7	ENABLE	Tie to GND to DISABLE Laser output. Leave not connected or apply 3-5 Volt to enable Laser output.
8	LD SET (See Operational Notes)	Apply a voltage bias in 1:1 ratio to drive current - be aware that this approach may casue laser mode hopping behavior. Pin 2 needs to be grounded to enable this option.
9	PD +	Photodiode anode
10	PD -	Photodiode cathode

Electrical Requirements

Supply Voltage	4.9V min to 5.1V max
Power Consumption	3.5 V typical, 5.5V maximum
Photodiode Current	30 uA
Laser setpoint control (LD SET)	900 mA to 1000 mA when pin 2 grounded

Operational Notes

- To adjust power output, IPS recommends Pulse Width Modulation (PWM) to adjust AVERAGE power rather than using pin 8 (LD SET) for single-mode diode lasers. See Note 2.
- By using PWM, user can adjust average power from 10% to 100% in digital increments by setting pulse width and duty cycle. For example, if a 50% duty cycle is selected, the laser will be on 50% of the time, and off 50% of the time, making the average power equal to 50% of the CW output power. The sample will experience a lower average power. Rise/fall time is approximately 20 microseconds.
- IPS offers a Laser Control Unit (LCU-U) for USB control. Ask about this.
- Heat sink and 5V power supply are not included with module. Please ask about our turn-key package that is available as an add-on.