

Single-Frequency Fiber Coupled U-Type Module



RoHS
COMPLIANT

Standard Wavelengths

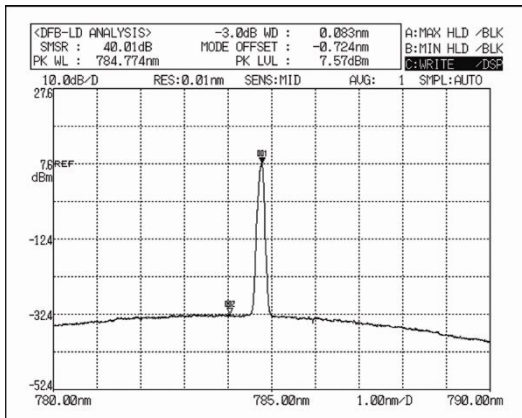
- 780 nm
- 808 nm
- 976 nm
- 1053 nm
- 785 nm
- 830 nm
- 1030 nm
- 1064 nm

Additional wavelengths available upon request

RPMC'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, RPMC's 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

General Optical Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth ($\Delta\lambda$)	< 100 MHz
Wavelength Stability Range	15 C - 45 C
SMSR	35 -45 dB
Polarization Orientation	Standard is PM slow. The "P" in part number signifies PM slow. Substitute "F" for PM fast
Polarization Extinction Ratio (PER)	>17 dB
Output Power Stability	1% typical
Peak Wavelength Drift	+/- 7pm assuming TEC control +/- 0.1 degree C
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 Connector	Polarization Maintaining, Panda Type 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

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

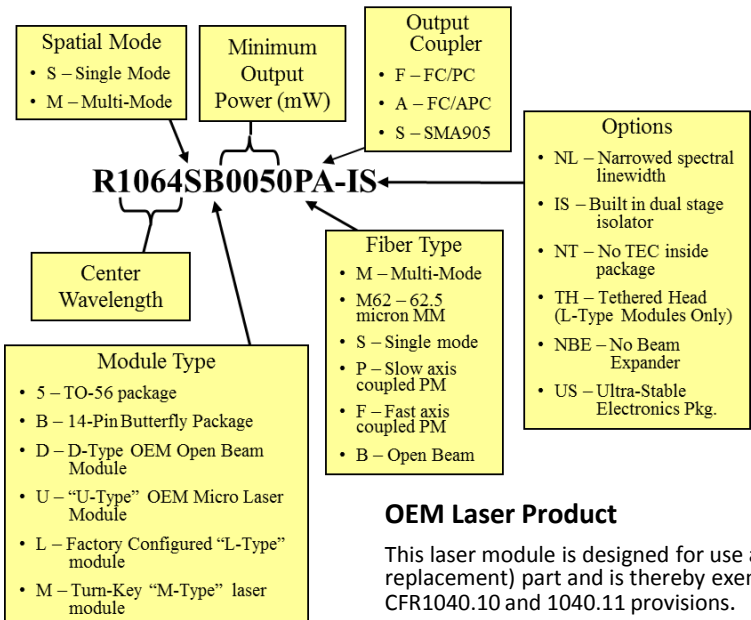
U-Type Module Pinout

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 0 to 1 Volt to control optical output power. Pin 2 needs to be grounded to enable this option.
9	PD +	Photodiode anode
10	PD -	Photodiode cathode

Operational Notes

1. Do not retro-reflect beam! This can cause Catastrophic Optical Damage (COD) and is not covered under warranty.
2. To adjust power output, RPMC recommends using Pulse Width Modulation (PWM) to adjust average power rather than using pin 4 (LD SET) for single-mode diode lasers. See Note 3.
3. 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.
4. RPMC offers a Laser Control Unit (LCU-U) for USB control. Ask about this.
5. Heat sink and 5V power supply are not included with module

Part Numbering Schema



Wavelength (nm)	Min. Power (mW)	Part Number
780	50	R0780SU0050PA
785	50	R0785SU0050PA
808	50	R0808SU0050PA
830	50	R0830SU0050PA
976	220	R0976SU0220PA
1030	100	R1030SU0100PA
	280	R1030SU0280PA
1053	120	R1053SU0120PA
	300	R1053SU0300PA
1064	50 (integral dual-stage isolator)	R1064SU0050PA-IS
	120	R1064SU0120PA
	300	R1064SU0300PA

Mechanical Specifications

