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Single-Frequency Fiber Coupled U-Type Module

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.

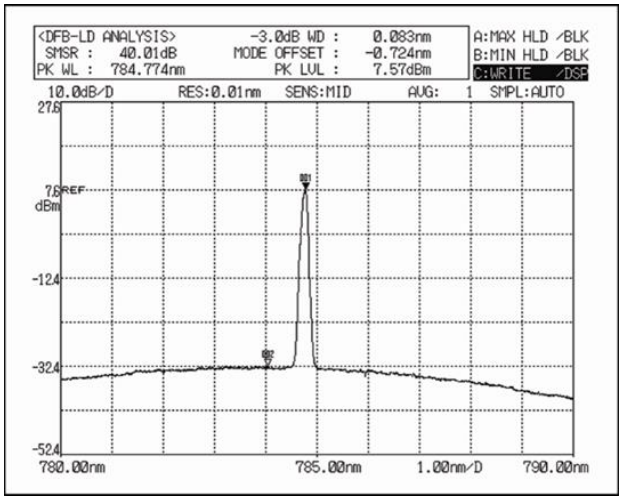
Features

- Wavelength Stabilized Spectrum
- Narrow Spectral Linewidth (< 100 MHz FWHM)
- High Power Single-mode Fiber Coupled Output
- Temperature Stabilized Spectrum (< 0.007 nm/0C)
- 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 (Δλ)	< 100 MHz
Wavelength Stability Range	15 C - 45 C
SMSR	45 - 55 dB typical
Polarization Orientation	RPMC 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

Typical Spectral Plot



Typical 785 nm Stabilized Laser Spectrum

General Wavelength & Min. Power

Custom Wavelengths Available

RoHS COMPLIANT

633nm	638nm	1053nm
20mW	25mW	35mW
780nm, 783nm, 785nm, 808nm, 830nm, 1064nm		
50mW		
785nm, 1030nm		1053nm, 1064nm
100mW		120mW
976nm		1030nm
220mW		250mW
1053nm, 1064nm		976nm
300mW		500mW

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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 Aluminmum
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 degress C

U-Type Module

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

Part Numbers

Wavelength (nm)	Min. Power (mW)	Part Number	Polarization
633	20	RI0633SU0020SA-USB	Random
		RI0633SU0020PA-USB	PM Slow
638	25	RI0638SU0025SA-USB	Random
		RI0638SU0025PA-USB	PM Slow
780	50	RI0780SU0050SA-USB	Random
		RI0780SU0050PA-USB	PM Slow
783	50	RI0783SU0050SA-USB	Random
		RI0783SU0050PA-USB	PM Slow
785	50	RI0785SU0050SA-USB	Random
		RI0785SU0050PA-USB	PM Slow
785	100	RI0785SU0100SA-USB	Random
		RI0785SU0100PA-USB	PM Slow
808	50	RI0808SU0050SA-USB	Random
		RI0808SU0050PA-USB	PM Slow
830	50	RI0830SU0050SA-USB	Random
		RI0830SU0050PA-USB	PM Slow
976	220	RI0976SU0220SA-USB	Random
		RI0976SU0220PA-USB	PM Slow
1030	100	RI1030SU0100SA-USB	Random
		RI1030SU0100PA-USB	PM Slow
	250	RI1030SU0250SA-USB	Random
		RI1030SU0250PA-USB	PM Slow
1053	35 (integral dual-stage isolator)	RI1053SU0050SA-IS-USB	Random
		RI1053SU0050PA-IS-USB	PM Slow
	120	RI1053SU0120SA-USB	Random
		RI1053SU0120PA-USB	PM Slow
	300	RI1053SU0300SA-USB	Random
		RI1053SU0300PA-USB	PM Slow
1064	50 (integral dual-stage isolator)	RI1064SU0050SA-IS-USB	Random
		RI1064SU0050PA-IS-USB	PM Slow
	120	RI1064SU0120SA-USB	Random
		RI1064SU0120PA-USB	PM Slow
	300	RI1064SU0300SA-USB	Random
		RI1064SU0300PA-USB	PM Slow

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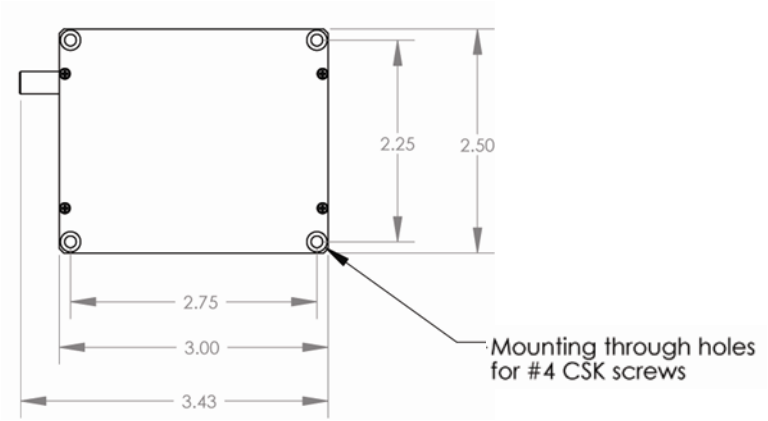
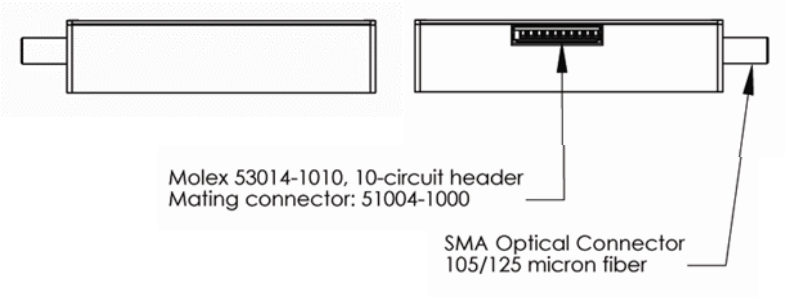
Mechanical Specifications

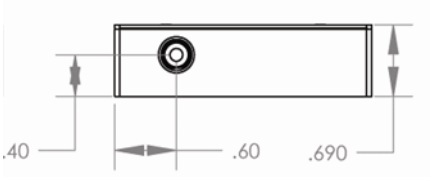
Bottom View



Side View



Front 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.

Operational Notes

1. To adjust power output, RPMC recommends Pulse Width Modulation (PWM) to adjust AVERAGE power rather than using pin 8 (LD SET) for single-mode diode lasers. See Note 2.
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.
3. RPMC offers a Laser Control Unit (LCU-U) for USB control. Ask about this.
4. 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.

Part Numbering Schema