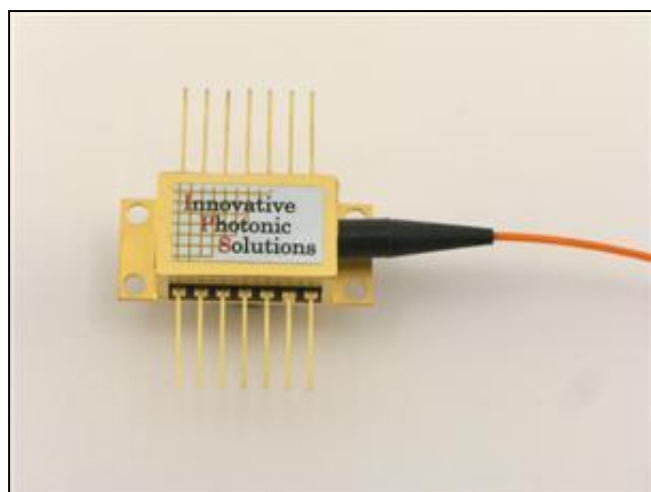


Stabilized Multi-Mode Fiber Coupled 14-Pin BF



Standard Wavelengths

- 638 nm • 785 nm • 830 nm
- 680 nm • 808 nm • 1064 nm

Additional wavelengths available upon request

RPMC's proprietary multi-mode wavelength stabilized laser features high output power with ultra-narrow spectral bandwidth and a diffraction limited output beam. Designed to replace expensive DFB, DBR, fiber, and external cavity lasers, the multi-mode Spectrum Stabilized Laser offers superior wavelength stability over time, temperature (0.007 nm/°C), and vibration, and is manufactured to meet the most demanding wavelength requirements.

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.

Multi-mode laser diodes are available with narrowed spectral linewidth for FWHM < 0.07 nm upon request.

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COMPLIANT

Features

- Ultra-Narrow Spectral Bandwidth (< 0.15 nm FWHM, 0.1 nm typical)
- Narrowed Spectral Bandwidth available upon request (< 0.1 nm FWHM, 0.07 nm typical). Add – NL to part number.
- Stabilized Output Spectrum (< 0.007 nm/OC)
- "Ultra-Track" Linear Tracking Photodiode
- Low Power consumption
- 40 dB SMSR Typical
- Available with 105 micron core or 62.5 micron core fiber (105 micron core is standard)

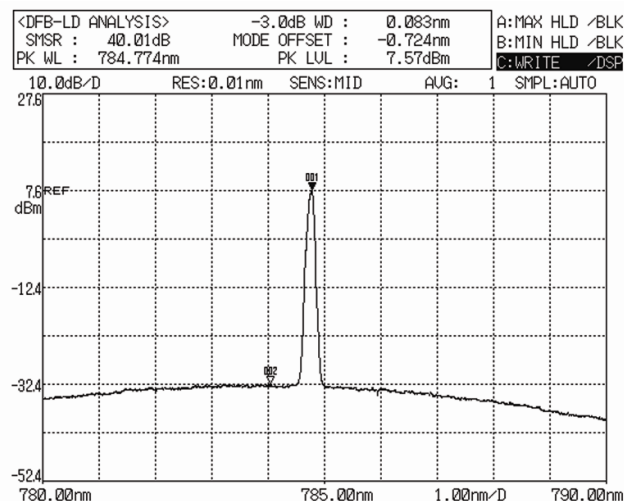
General Optical Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth ($\Delta\lambda$)	<0.15 nm (0.1 nm typical)
Narrowed Linewidth (-NL)	<0.1 nm (0.07 nm typical)
Spectral Linewidth ($\Delta\lambda$)	
Fiber	105 micron core multi-mode (MM) fiber
Wavelength Stability Range	15 C - 45 C
SMSR	35 -45 dB
Output Power Stability	1% typical

Electrical Performance Specifications

TEC Current Limit	2.0 Amperes
TEC Voltage Limit	4.5 V
Photodiode Current	30 uA
Integral Thermistor	See Thermistor information on p.2

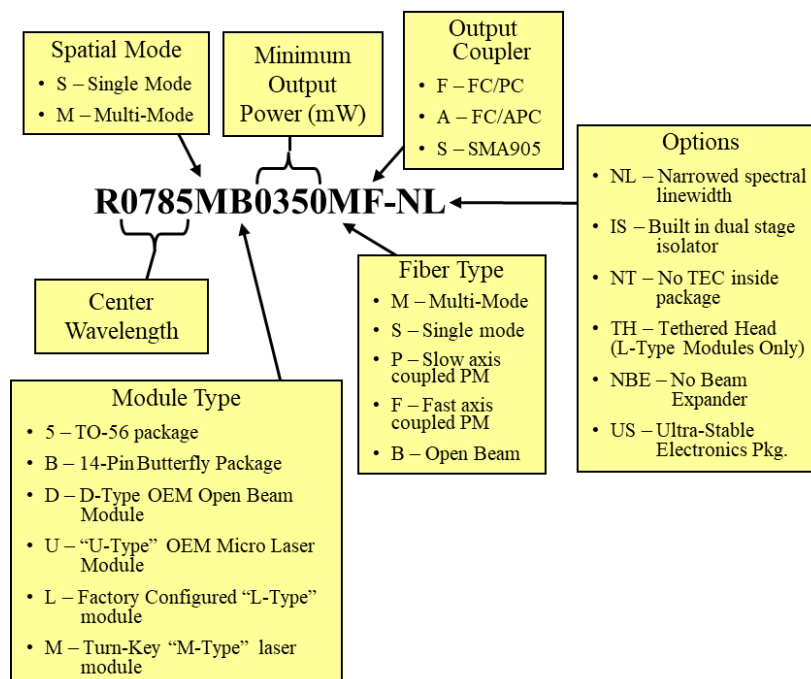
Typical Spectral Plot



Typical 785 nm SS Laser Spectrum (SMSR > 40 dB)

Wavelength (nm)	Min. Power (mW)	Part number	Max Current, Compliance Voltage	Connector
638	300	I0638MB0300M	800 mA, 3.3V	unterminated
		I0638MB0300MF		FC/PC
		I0638MB0300MS		SMA
680	300	I0680MB0300M	1350 mA, 3.3V	unterminated
		I0680MB0300MF		FC/PC
		I0680MB0300MS		SMA
785	350	I0785MB0350M	1000 mA, 2.3V	unterminated
		I0785MB0350MF		FC/PC
		I0785MB0350MS		SMA
	600	I0785MB0600M	1350 mA, 2.3V	unterminated
		I0785MB0600MF		FC/PC
		I0785MB0600MS		SMA
808	350	I0808MB350M	1000 mA, 2.3V	unterminated
		I0808MB0350MF		FC/PC
		I0808MB0350MS		SMA
	600	I0808MB0600M	1350 mA, 2.3V	unterminated
		I0808MB0600MF		FC/PC
		I0808MB0600MS		SMA
830	350	I0830MB0350M	1000 mA, 2.3V	unterminated
		I0830MB0350MF		FC/PC
		I0830MB0350MS		SMA
	600	I0830MB0600M	1350 mA, 2.3V	unterminated
		I0830MB0600MF		FC/PC
		I0830MB0600MS		SMA
1064	600	I1064MB0600M	1350 mA, 2.2V	unterminated
		I1064MB0600MF		FC/PC
		I1064MB0600MS		SMA

Part Numbering Schema



Electrical Pinout

1	TEC +
2	THERMISTOR (10K Ohm @ 25C)
3	PD ANODE
4	PD CATHODE
5	THERMISTOR
6	NC
7	NC
8	NC
9	LASER CATHODE (-)
10	LASER ANODE (+)
11	LASER CATHODE (-)
12	NC
13	CASE GROUND
14	TEC -

Thermistor

Formula for calculating T based upon Resistance

$$1/(C1+C2*LN(kOhm*1000)+C3*(LN(kOhm*1000))^3)-273.15$$

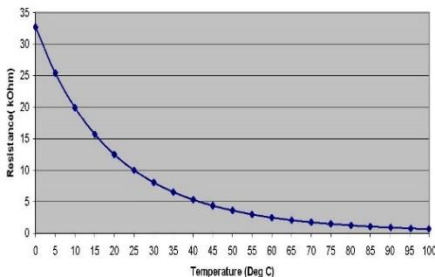
Thermistor (Betatherm 10K3CG3)

C1 0.00113

C2 0.000234

C3 8.78E-08

Plot of Temperature vs Resistance

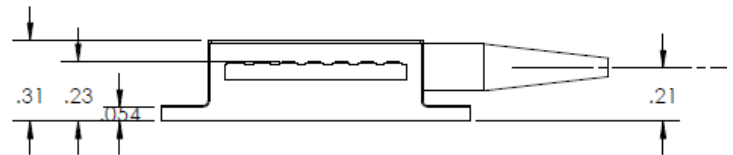
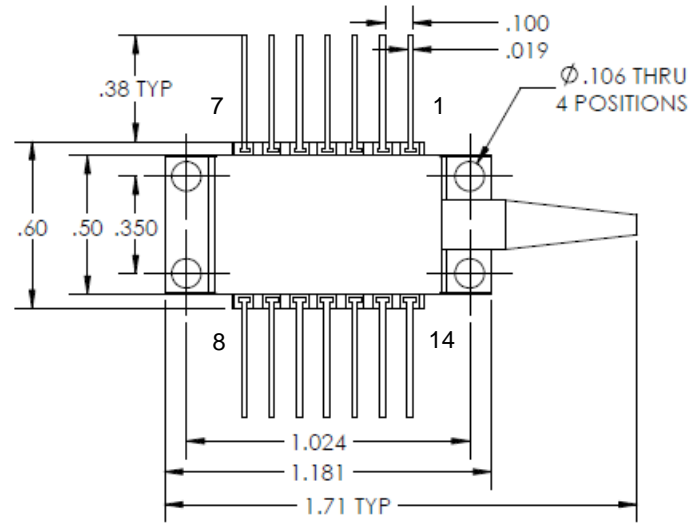


Temperature [C]	Resistance [kOhm]
100	0.68
95	0.78
90	0.91
85	1.07
80	1.25
75	1.48
70	1.75
65	2.08
60	2.49
55	2.99
50	3.6
45	4.37
40	5.32
35	6.54
30	8.05
25	10
20	12.5
15	15.7
10	19.9
5	25.4
0	32.7

Operational Notes

- 14-pin BF should be mounted on a heat sink with a thermal compound (thermal grease).
- Take care not to over-tighten screws when mounting. This can bend the BF package causing damage and hindering performance, and is not covered under warranty.
- Driver circuitry should be configured in a manner to prevent power surges and power spikes.
- RPMC recommends not grounding anode and cathode as this can cause ground loops.

Mechanical Specifications



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.

