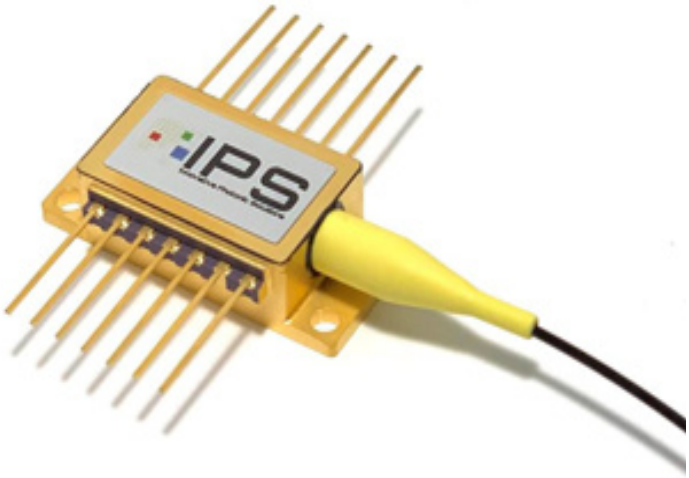
Multimode Fiber Coupled Butterfly Package



Innovative Photonic Solutions' proprietary multimode wavelength stabilized laser diode features high output power with ultra-narrow spectral bandwidth and a uniform intensity output beam. Designed to replace expensive DFB, DBR, fiber, and external cavity lasers, the multimode Spectrum Stabilized Laser offers superior wavelength stability over time, temperature, and vibration, and is manufactured to meet the most demanding wavelength requirements. The laser's stabilized peak wavelength remains "locked" regardless of case temp. (15 to 45° 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.

Applications

This laser package is designed for OEM Integration and is ideal for:

- High Resolution Raman Spectroscopy
  - Portable Raman
  - Process Raman
- Direct-Diode Frequency Doubling
- Fiber Laser Pumping
- Metrology & Interferometry
- Remote Sensing

Key Features

- Ultra-Narrow Spectral Bandwidth (< 0.1 nm FWHM, 0.08 nm typical)
- Stabilized Output Spectrum (< 0.007 nm/°C)
- "Ultra-Track" Linear Tracking Photodiode
- Low Power consumption
- 40 dB SMSR Typical
- Multimode laser diodes come standard with <0.1 nm (0.08 nm typical) spectral linewidth.
- Available with 105 micron core or 62.5 micron core fiber (105 micron core is standard)

Standard Wavelengths

All specified wavelengths are measured "in-vacuum"

638nm	785nm	860nm
660nm	808nm	976nm
680nm	830nm	1064nm

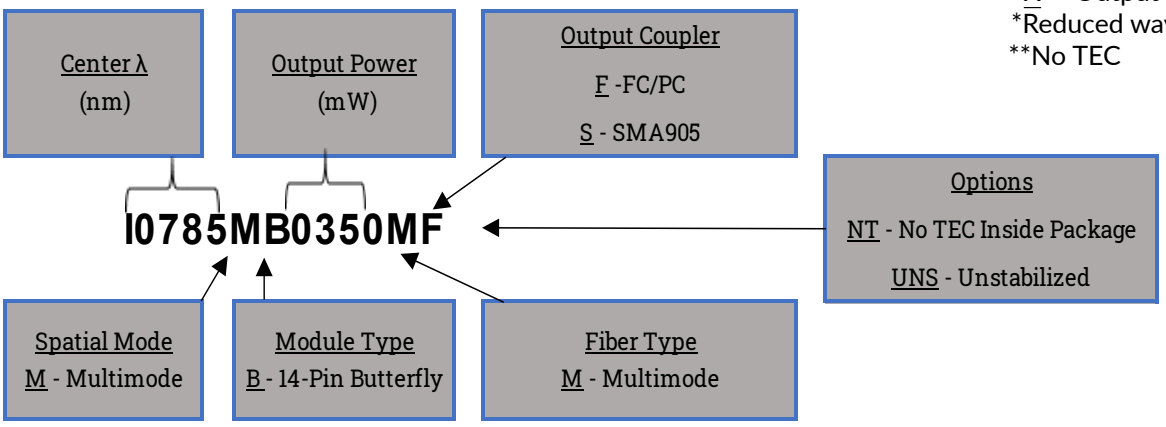
Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth	<0.1 nm (0.08nm typical)
Wavelength Stability Range	15 - 45 °C
SMSR	35 - 45 dB
Fiber	105 micron core multi-mode(MM) fiber
Output Power Stability	1% typical

λ (nm)	Output Power (mW)	Base Part Number	Max Current, Voltage
638	350*	I0638MB0350MX	1000 mA, 3.3V
660	250	I0660MB0250MX	1000 mA, 3.3V
680	300	I0680MB0300MX	1000 mA, 3.3V
785	350	I0785MB0350MX	1000 mA, 2.3V
	600	I0785MB0600MX	1350 mA, 2.3V
	800	I0785MB0800MX	1500 mA, 2.3V
808	350	I0808MB0350MX	1000 mA, 2.3V
	600	I0808MB0600MX	1350 mA, 2.3V
	800	I0808MB0800MX	1500 mA, 2.3V
830	350	I0830MB0350MX	6000 mA, 2.3V
	600	I0830MB0600MX	1350mA, 2.3V
	800	I0830MB0800MX	1500 mA, 2.3V
860	350	I0860MB0350MX	1000 mA, 2.3V
	600	I0830MB0600MX	1350 mA, 2.3V
976	600	I0976MB0600MX	1500 mA, 2.3V
	800	I0976MB0800MX	1500 mA, 2.3V
	4000**	I0976MB4000MX	6000 mA, 2.3V
	5000**	I0976MB5000MX	7000 mA, 2.3V
1064	350	I1064MB0350MX	1350 mA, 2.3V
	600	I1064MB0600MX	1500 mA, 2.3V
	800	I1064MB0800MX	1500 mA, 2.3V

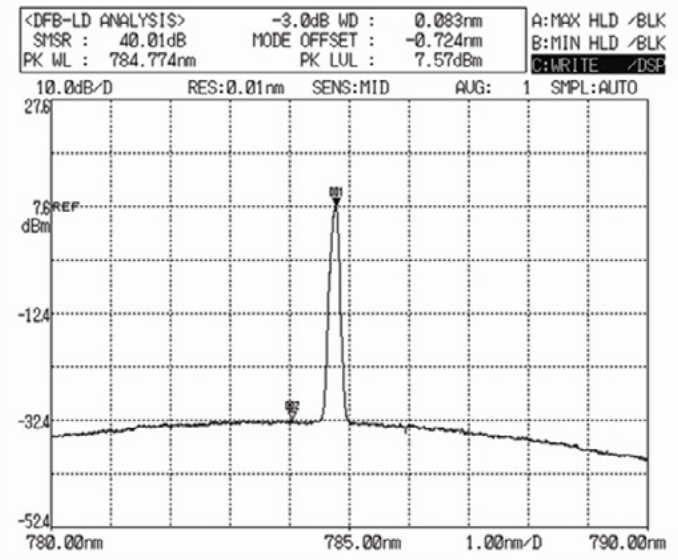
"X" - Output Coupler Type
*Reduced wavelength stability range
**No TEC

Part Schema

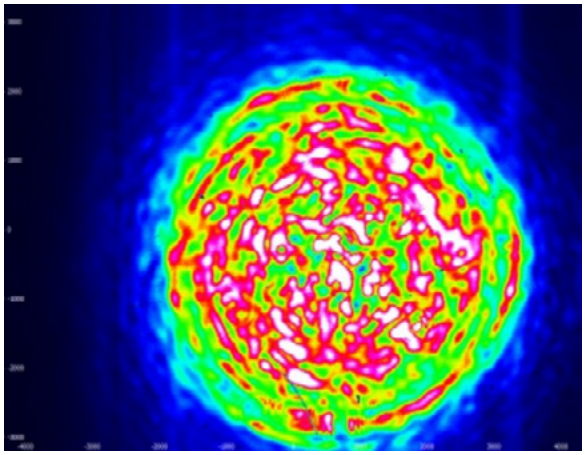


Selected Data

TEC Current Limit	3.2 A
TEC Voltage Limit	5.8 V
Photodiode Current	30uA
Integral Thermistor	Betatherm 10K3CG3



Typical 785nm SS Laser Spectrum



Typical 785nm Beam Quality

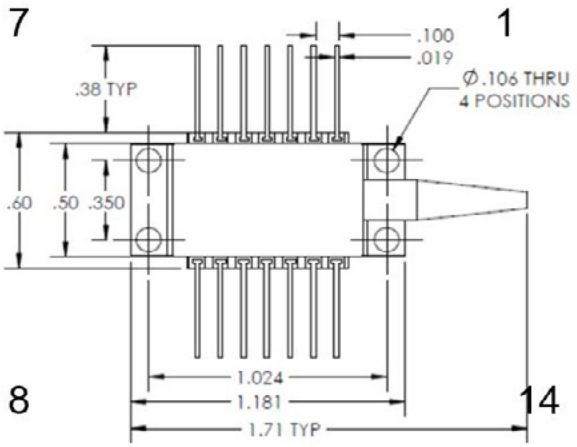
Custom Capability

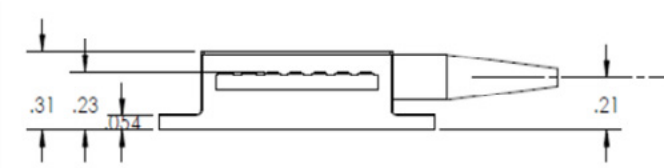
- Custom wavelengths available upon request
- FC/PC, SMA, or unterminated output coupler
- Various output fiber diameters available
- External TEC (e.g. No TEC inside of package optional)

Electrical Specs

Pin 1	TEC+
Pin 2	Thermistor (10kOhm @25°C
Pin 3	PD Anode
Pin 4	PD Cathode
Pin 5	Thermistor
Pin 6-8	NC
Pin 9	Laser Cathode (-)
Pin 10	Laser Anode (+)
Pin 11	Laser Cathode (-)
Pin 12	NC
Pin 13	Case Ground
Pin 14	TEC -

Mechanical Drawings





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. 14-pin BF should be mounted on a heat sink with a thermal compound (thermal grease).
2. 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.
3. Laser and TEC driver circuitry should be configured in a manner to prevent power /current / voltage surges and spikes.
4. IPS recommends not grounding anode and cathode as this can cause ground loops.
5. TECs require optimization of PID controller parameters in customer specific application (e.g. ambient temperature, TEC controller, heat sinking etc.) to prevent overtemperature surges that could damage the laser diode.

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