

Beam Homogenized Stub Laser



Applications

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

- Hand-held Raman spectroscopy
- Solid state laser pumping
- Laser speckle contrast imaging
- Laser illumination

Key Features

The stabilized peak wavelength remains “locked” regardless of case temperature (15 to 45 °C). Devices can be spectrally tailored to suit application needs & offer SMSRs better than 40 dB, providing extremely high signal to noise ratio. Multi-mode lasers come standard with <0.1 nm (0.08nm typical) spectral linewidth.

- High Power Open Beam Multi-Mode output power.
- Shaped & Homogenized Beam 1:1, 1:2, or 1:3 beam aspect ratio.
- Even Power Distribution
- Available standard in rectangle or square shape output beam (ask about custom shapes)
- Ultra-Narrow Spectral Bandwidth (< 0.1 nm FWHM, 0.07 nm typical).
- Stabilized Output Spectrum (< 0.007 nm/°C)
- Low Power consumption
- 40 dB SMSR Typical
- 70 dB SMSR available upon request with additional filter

Our proprietary multi-mode wavelength stabilized laser features high output power with narrow spectral bandwidth with a shaped and homogenized beam profile that evenly spreads out the power density and shapes the beam for different spot sizes or to match the field of view of a camera. 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.

Standard Wavelengths

638 nm
680nm

785 nm
830 nm

1064 nm

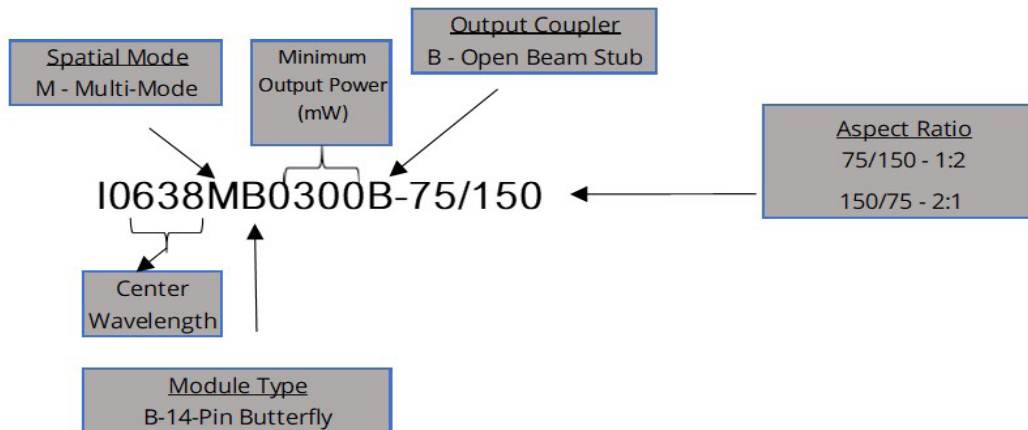
Specifications



Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth (DI)	<0.1nm, 0.07nm typical
Wavelength Stability Range	15 C - 45 °C
SMSR	35 - 45 dB
SMSR w/ integral laser line filter	60 - 70 dB
Power Stability	1% typ., depending on timescale & operating conditions
Beam Exit Angle	< 3 degrees Typical
Beam Shape Aspect Ratio	Configurable
Fast Axis Beam Divergence	10 mrad typ., 20 mrad max.
Slow Axis Beam Divergence	5 mrad typ., 10 mrad max.

λ (nm)	Min. Power (mW)	Base Part Number	Beam Aspect Ratio	Max Current, Voltage	Rectangle Direction
638	300	I0638MB0300B	1:2 (75/150)	1000mA, 2.3V	Vertical
680	300	I0638MB0300B		1350mA, 2.3V	
785	350	I0785MB0350B		1000mA, 2.3V	
785	600	I0785MB0600B		1350mA, 2.3V	
830	350	I0830MB0350B		1000mA, 2.3V	
830	600	I0830MB0600B		1350mA, 2.3V	
1064	600	I1064MB0600B		1350mA, 2.3V	
638	300	I0638MB0300B	2:1 (150/75)	1000mA, 2.3V	Horizontal
680	300	I0680MB0300B		1350mA, 2.3V	
785	350	I0785MB0350B		1000mA, 2.3V	
785	600	I0785MB0600B		1350mA, 2.3V	
830	350	I0830MB0350B		1000mA, 2.3V	
830	600	I0830MB0600B		1350mA, 2.3V	
1064	600	I1064MB0600B		1350mA, 2.2V	

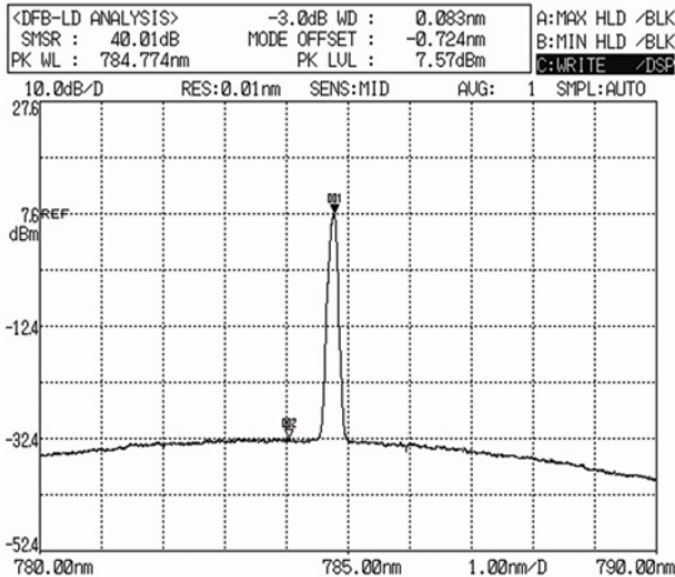
Part Schema



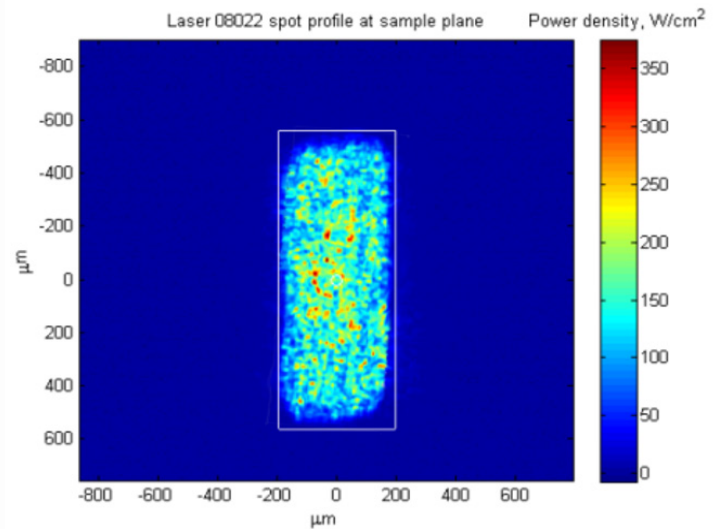
Selected Data



Beam Quality Stability λ + Power A



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



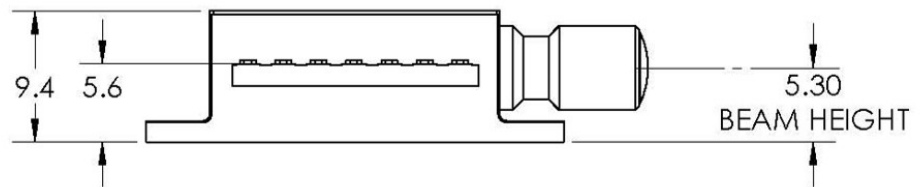
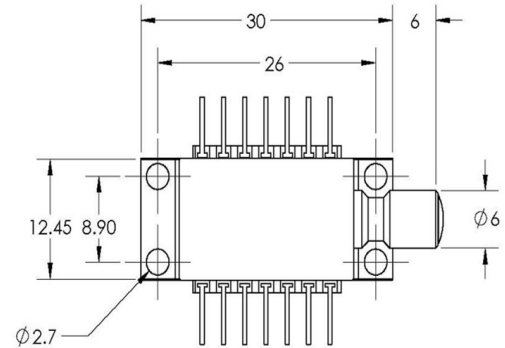
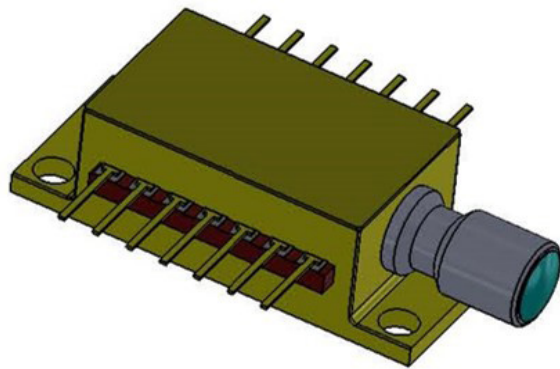
Custom Capability

- Custom wavelengths available upon request
- External TEC (e.g. No TEC inside of package optional)
- Additional Beam Homogenizer Option:

Beam Aspect Ratio	NA
150 x 300 μm	0.22 NA
75 x 150 μm	0.22 NA
50 x 150 μm	0.21 NA
33 x 100 μm	0.15 NA
50 x 50 μm	0.22 NA

Electrical Specs

Pin 1	TEC +
Pin 2	Thermistor - 10K Ohm @ 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 -



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.
6. Spot starts out rectangular and has a lens with a focal length of 7.5 mm. We recommend adding a second lens to image the rectangular beam to the spot size that you would like. The laser is focused to infinity.

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