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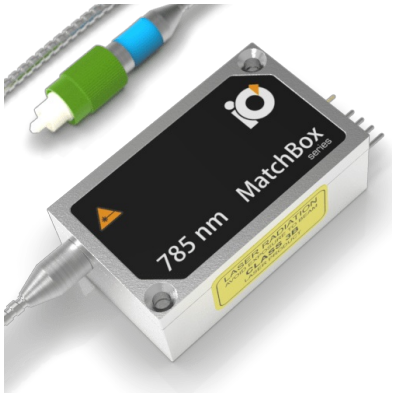
PART NUMBER 0785L-25A
ITEM NAME 785 NM SLM LASER (VBG DIODE; PM FIBER)

PRODUCT DATASHEET



DESCRIPTION

Single-frequency 785 nm laser is a VBG stabilized diode, fiber-coupled to a polarization-maintaining (PM) fiber. Such configuration is particularly suitable for high-resolution scanning imaging using Raman scattering. SLM 785 nm laser features a very stable central wavelength over the wide temperature range and between different turn-on/off cycles, which makes it ideal for terahertz Raman and other high-end applications. Precise alignment of the PM fiber provides a high polarization extinction ratio with minimum polarization rotation during twist and bend of the fiber. VBG spectrum stabilization not only ensures single-longitudinal-mode (SLM) oscillation but also provides a high (>50 dB) side-mode suppression ratio, thus reducing requirements for laser line clean-up filters. For a top-notch scientific setup a notch clean-up filter can be added to the interior of the laser - please contact us for such customization.

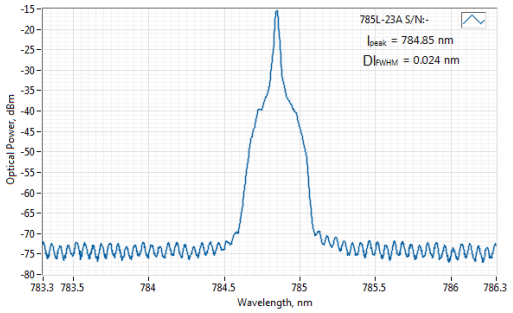
Note:
In optical systems with strong back-reflections (e.g. more than 10%), the laser must be protected by using an optical isolator with at least 20 dB isolation. Typical applications include interferometry, confocal microscopy (especially working with reflective samples), etc. Failure to comply with these requirements will render the warranty void for cases of COD (Catastrophic Optical Damage) of laser diode facets.

SPECIFICATIONS

Specifications updated: *28 December 2021*

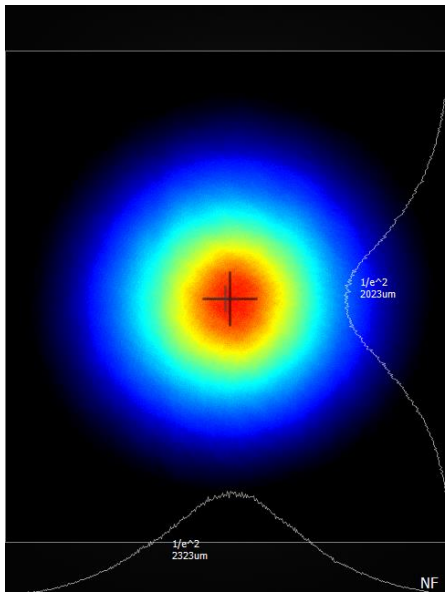
Parameter	Minimum Value	Typical Value	Maximum Value
Central Wavelength, nm	784.7	784.8	785.1
Longitudinal modes	-	Single	-
Spectral line width FWHM, pm	-	0.1 [1]	1
Output power, mW	-	80 [2]	100
Side-mode suppression ratio (SMSR), dB	40	50	60
Power stability, % (RMS, 8 hrs)	0.02	0.05 [3]	0.25
Power stability, % (peak-to-peak, 8 hrs)	0.1	0.3 [4]	1
Intensity noise, % (RMS, 20 Hz to 20 MHz)	0.1	0.25 [5]	0.6
Transversal modes	-	TEM00	-
Polarization direction	-	Aligned within the slow axis of the PM fiber and the key position.	-
Polarization extinction ratio (from PM fiber), dB	20	27	40
Control interface type	-	UART [6]	-
Operation mode	-	APC (CW)	-
Modulation bandwidth, MHz	-	N/A [7]	-
Input voltage, VDC	4.8	5	5.3
External power supply requirement	-	+5 V DC, 1.5 A	-
Dimensions, mm	-	50 x 30 x 18 [8]	-
Fiber Length, m	0.95	1	1.1

TYPICAL SPECTRUM



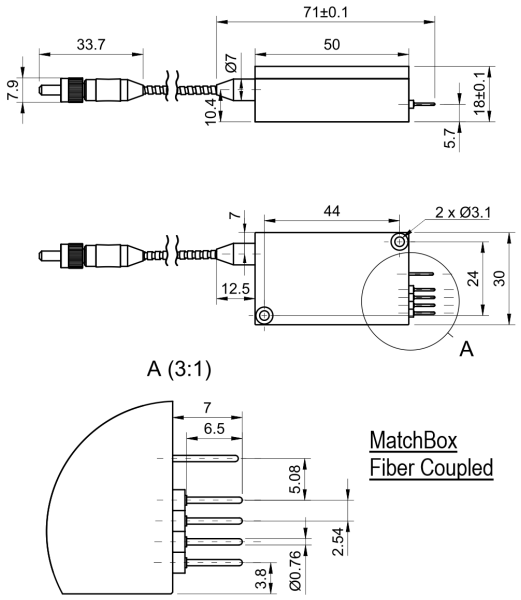
Typical spectrum of 0785 nm diode laser. Measured with 20 pm resolution.

TYPICAL NEAR FIELD



Heat-sinking requirement, °C/W	-	1	-
Optimum heatsink temperature, °C	15	20	30
Warm up time, mins (cold start)	0.2	1	2
Temperature stabilization	-	Internal TEC	-
Overheat protection	-	Yes	-
Storage temperature, °C (non-condensing)	-10	-	50
Net weight, kg	0.1	0.12	0.14
Max. power consumption, W	0.4	2	10
Warranty, months (op. hrs)	-	14 (10000) [9]	-
RoHS	-	Yes	-
CE compliance	-	- General Product Safety Directive (GPSD) 2001/95/EC - (EMC) Directive 2004/108/EC	-
Laser Safety Class	-	3B	-
OEM lasers are not compliant with	-	IEC60825-1:2014 (compliant using additional accessories)	-
Country of origin	-	Lithuania	-

DRAWING



[1] Measured with a scanning Fabry-Perot interferometer having 7.5 Mhz resolution, with scanning frequency of about 10 Hz. Interferometer testing is not provided for each laser being manufactured, the standard test is OSA measurement with 10-20 pm resolution instead.

[2] The optical power of SLM lasers shall not be tuned and SLM performance is not guaranteed at power ratings other than the factory preset. However, the power setting capability is not disabled. External attenuators are recommended.

[3] The long term power test is carried out at constant laser body temperature (+/-0.1 °C) using an optical power meter with an input bandwidth of 10 Hz. The actual measurement rate has a period of about 20 seconds to 1 minute.

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[5] Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.

[6] Break-out-boxes AM-C8 and AM-C3 can be used for conversion of UART communication to either USB or RS232.

[7] SLM lasers shall not be modulated - use external modulators instead.

[8] Excluding control interface pins and an output window/fiber assembly.

[9] Whichever occurs first. The laser has an integrated operational hours counter.

Note: Product specifications are subject to change without prior notice to improve reliability, function or design or otherwise.