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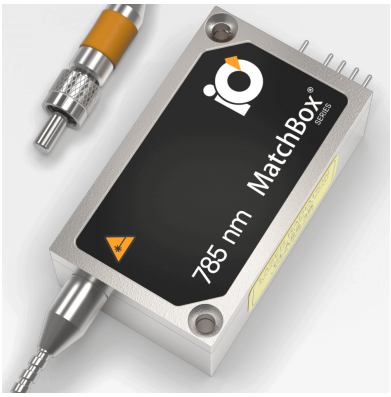
PART NUMBER 0785L-44A
ITEM NAME 785 NM LASER

PRODUCT DATASHEET



DESCRIPTION

High power 785 nm narrow spectrum laser for industrial Raman applications. Fiber-coupled to a multimode fiber which results in circular, nearly top-hat homogeneous beam output. This high-power SLM laser found its applications in industrial Raman Spectroscopy and other sensing applications.
Despite its high output power, this ultra-compact self-contained laser module can be used the same way as any other laser in the MatchBox series. A stainless steel fiber jacket ensures robustness in harsh industrial environments. This 785 nm unit features good center wavelength stability (even if the output power is tuned) and wide operational temperature range.

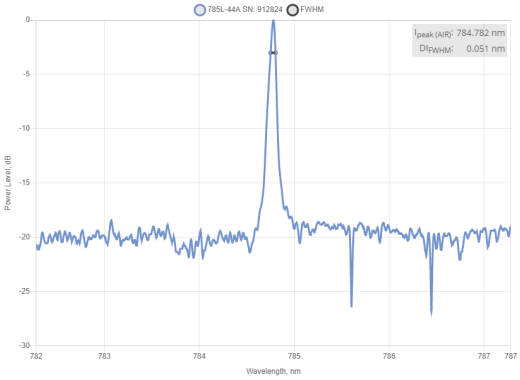
Note:
In optical systems with strong back-reflections (e.g. more than 10%), the laser must be protected by using an optical isolator with at least 20 dB isolation. Typical applications include interferometry, confocal microscopy (especially working with reflective samples), etc. Failure to comply with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

SPECIFICATIONS

Specifications updated: *11 April 2024*

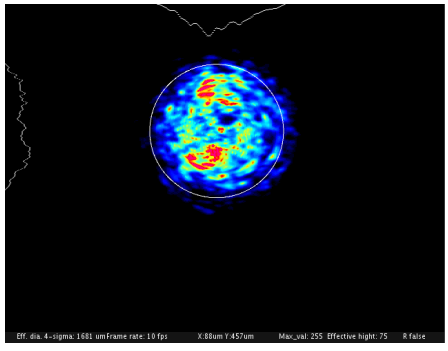
Parameter	Minimum Value	Typical Value	Maximum Value
Central wavelength, nm	784.5	785	785.5
Longitudinal modes	-	Narrow Spectrum	-
Spectral line width FWHM, pm	30	50	80
Output power, mW	-	800	1100
Power tuning range, %	10	-	100
Side-mode suppression ratio (SMSR), dB	-	50	-
Power stability, % (RMS, 8 hrs)	-	0.05 [1]	0.5
Power stability, % (peak-to-peak, 8 hrs)	-	2 [2]	3
Intensity noise, % (RMS, 20 Hz to 20 MHz)	-	0.3 [3]	1
Transversal modes	-	Multiple	-
Operation mode	-	APC (CW)	-
Modulation bandwidth, MHz	-	N/A [4]	-
Control interface type	-	UART [5]	-
Input voltage, VDC	4.8	5	5.3
External power supply requirement	-	+5 V DC, 1.5 A	-
Dimensions (WxDxH), mm	-	50 x 30 x 18 [6]	-
Fiber length, m	0.95	1	1.1
Heat-sinking requirement, °C/W	-	1	-
Optimum heatsink temperature, °C	18	25	32
Warm up time, mins (cold start)	0.2	1	2
Temperature stabilization	-	Internal TEC	-
Overheat protection	-	Yes	-

TYPICAL SPECTRUM



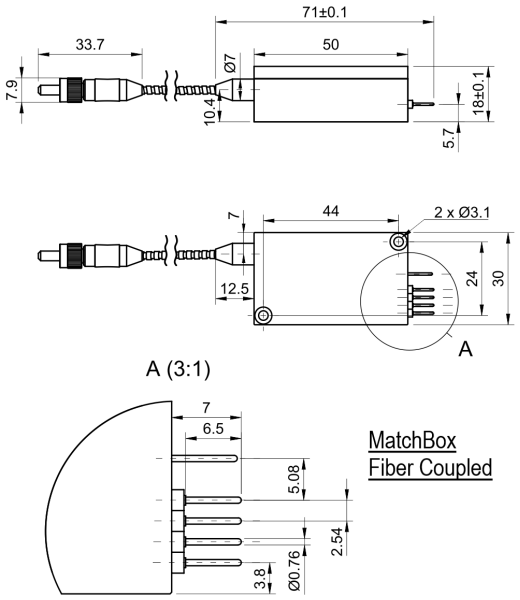
Typical spectrum of 0785 nm diode laser. Measured with 20 pm resolution.

TYPICAL NEAR FIELD



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) [7]	-
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] 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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[3] Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.
[4] SLM lasers shall not be modulated - use external modulators instead.
[5] Break-out-boxes AM-C8 and AM-C3 can be used for conversion of UART communication to either USB or RS232.
[6] Excluding control interface pins and an output window/fiber assembly.
[7] 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.