


 PART NUMBER 0405L-15A  
 ITEM NAME 405 NM LASER (DIODE; PM FIBER)

## PRODUCT DATASHEET



### DESCRIPTION

Polarization-maintaining fiber coupled 405 nm diode laser features extreme brightness combined with perfect beam shape and virtually perfect Gaussian intensity distribution. 405 nm is efficiently used in UV stereo-lithography, otherwise - 3D printing. Small footprint ant flexible fiber delivery makes this laser easy to integrate into compact stereolithography machines. Other applications of this laser include fluorescence spectroscopy or imaging, photobleaching, and many more.

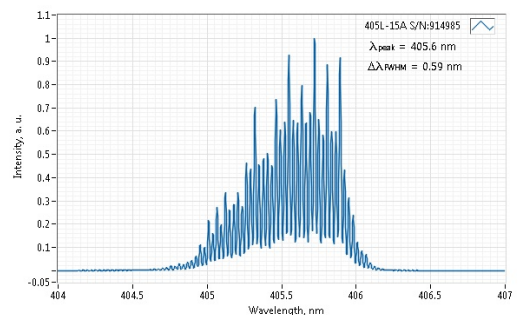
405 nm lasers are provided from Integrated Optics with standardized ultra-compact package, convenient +5 power supply and wide thermal operational range - from 15 to 45 deg. Centigrade by maintaining the same power and wavelength stability.

### SPECIFICATIONS

Last edited on: 24 January 2019

Parameter	Minimum Value	Typical Value	Maximum Value
Central Wavelength, nm	400	405	410
Longitudinal modes	-	multiple	-
Spectral line width FWHM, nm	-	0.5	1
Output power, mW	-	80 <sup>1</sup>	-
Power stability, % (RMS, 8 hrs)	-	1 <sup>2</sup>	2
Power stability, % (peak-to-peak, 8 hrs)	-	1 <sup>3</sup>	3
Noise, % (RMS, 20 Hz to 20 MHz)	-	0.25 <sup>4</sup>	0.6
Transversal modes	-	TEM00	-
M <sup>2</sup> effective	-	1.05	1.1
Polarization direction	-	Aligned within the slow axis of the PM fiber and the key position.	-
Polarization extinction ratio (from PM fiber), dB	-	10	-
Control interface type	-	UART/USB	-
Operation mode	-	APC (CW)	-
Modulation bandwidth, MHz	-	optional <sup>5</sup>	-
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 <sup>6</sup>	-
Fiber Length, m	0.95	1	1.1
Heat-sinking requirement, °C/W	-	1	-
Optimum heatsink temperature, °C	15	20	30

### TYPICAL SPECTRUM



Typical spectrum of 405 nm diode laser. Measured with 10 pm resolution.

Warm up time, mins (cold start)	0.1	0.5	1
Temperature stabilization	-	Yes	-
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) <sup>7</sup>	-
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	-

<sup>1</sup> The optical power can be tuned from virtually 0% to 100%. However, other specifications, such as central wavelength, power stability, noise, polarization ratio, beam shape, quality and circularity are not guaranteed at power levels other than factory preset power. Significantly worse power stability is to be expected at very low power levels, e.g. <3% from specified nominal power.

<sup>2</sup> Long term power test is carried out using an optical power meter with an input bandwidth of 10 Hz. Actual measurement rate has a period of about 20 seconds to 1 minute.

<sup>3</sup> Long term power test is carried out using an optical power meter with an input bandwidth of 10 Hz. Actual measurement rate has a period of about 20 seconds to 1 minute.

<sup>4</sup> Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.

<sup>5</sup> TTL digital modulation up to 10 MHz.

<sup>6</sup> Excluding control interface pins and an output window/fiber assembly.

<sup>7</sup> 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.