



PART NUMBER 1030U-11C  
 ITEM NAME 1030 NM NANOSECOND Q-SWITCH LASER

## PRODUCT DATASHEET



### DESCRIPTION

An ultra-compact 1029 nm nanosecond laser is a high peak power passive Q-Switch transmitter for OEM LiDAR and range finding applications. The short pulse duration of down to fewer than 1.3 ns allows high spatial resolution, the high peak power of >70 kW allows large distances to be measured.

Apart from LiDAR, this laser is also usable in portable or even wearable Laser-induced breakdown spectroscopy (LIBS) analyzers, portable and wearable LiDAR systems, and micro-scale material processing.

Please note, that this product is laser-head-only for OEM. Driver electronics and pulse generator come separately within μFlash Integrator's kit (contact Integrated Optics support for more info) or can be implemented by end-user.

### Current configurations in production:

Variant	Pulse duration, ns	Pulse energy, μJ	Peak power, kW	Polarization
	1.3	150	115	Random

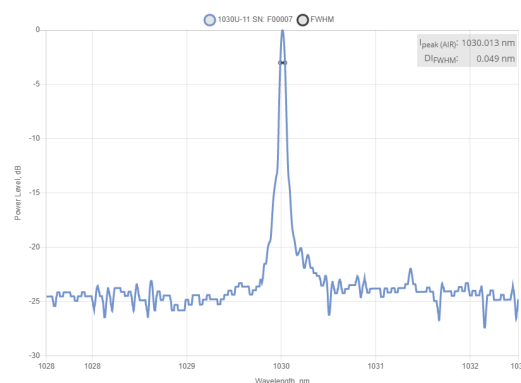
*\*Other parameters can be developed based on customer specifications. Please refer to the specifications table below for possible parameter ranges.*

### SPECIFICATIONS

Specifications updated: 15 February 2024

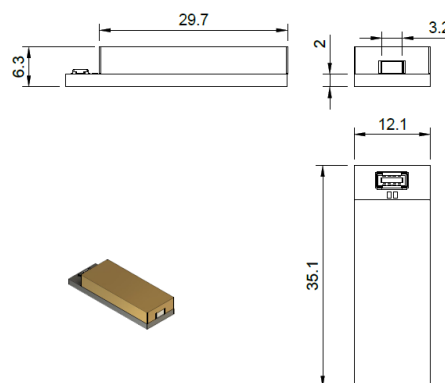
Parameter	Minimum Value	Typical Value	Maximum Value
Central wavelength, nm	1028	1030	1032
Longitudinal modes	-	Multiple	-
Spectral line width FWHM, nm	-	0.7	1
Pulse duration, ns	-	1.3	-
Repetition rate, Hz (pulse-on-demand mode)	Pulse on demand	50	100
Pulse energy, μJ	20	100 <sup>1</sup>	150
Pulse-to-pulse stability, %	-	20	40
Transversal modes	-	TEM00	-
Beam diameter at aperture (1/e <sup>2</sup> ), mm	-	0.2	-
Beam divergence (full angle), mrad	-	5 <sup>2</sup>	10
Control interface type	-	SlimStack Hybrid Power Receptacle (Molex 104249-0810)	-
Operation mode	-	APC, pulse detection	-
Input voltage, VDC	-	1.65	2
External laser diode driver requirement	-	+2 V DC, 12A <sup>3</sup>	-
Dimensions (LxWxH), mm	-	35.1 x 12.1 x 6.3 <sup>4</sup>	-
Beam height from the base, mm	-	3	-

### TYPICAL SPECTRUM



Typical spectrum of 1030U-11C nm passive Q-Switch DPSS laser. Measured with 10 pm resolution.

### DRAWING



Heat-sinking requirement, °C/W	not needed (for low duty cycle single shot operation)	-	1 (needed for higher rep. rate operation)
Operating temperature, °C	20	30	40
Warm up time	-	Instantly operational at operating temperature	-
Temperature stabilization	-	No	-
Overheat protection	-	NTC in laser head	-
Reverse voltage protection	-	No	-
Storage temperature, °C (non-condensing)	-20	-	70
Net weight, kg	-	0.008	-
Electrical energy consumption, mJ	-	48 <sup>5</sup>	-
Warranty, months	-	14 (Limited) <sup>6</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)	-

<sup>1</sup> Peak power limitations apply. Max. peak power currently is 115 kW for unpolarized radiation. Polarized radiation is available on request. Higher pulse energy versions might be developed based on NRE contracts.

<sup>2</sup> The laser is not collimated internally.

<sup>3</sup> A demo electronics board is provided with the first order of 5 pcs.

<sup>4</sup> Only laser head.

<sup>5</sup> e.g. 1W @20Hz pulse repetition rate in single-pulse triggering mode.

<sup>6</sup> Warranty is not applicable to faults of the pump laser diode - a component which is sensitive to electronics circuitry design and operational regimes. Please consult with Integrated Optics regarding most appropriate driving circuit design, duty cycles, etc.

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