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PART NUMBER 1030U-11C
ITEM NAME 1029 NM NANOSECOND Q-SWITCH LASER (FLASH SERIES)

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.

Current configurations in production:

Variant	Pulse duration, ns	Pulse energy, µJ	Peak power, kW	Polarization
	1.3	100 to 120	77 to 92	Random

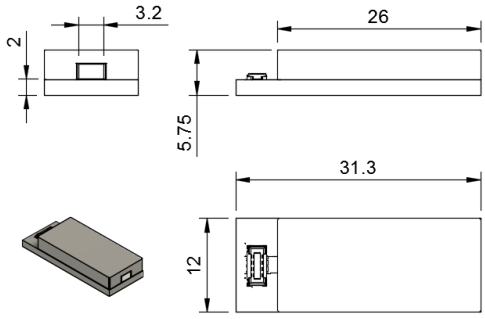
**Other parameters can be developed based on customer specifications. Please refer to the specifications table below for possible parameter ranges.*

SPECIFICATIONS

Specifications updated: *21 September 2020*

Parameter	Minimum Value	Typical Value	Maximum Value
Central Wavelength, nm	1028	1030	1032
Longitudinal modes	-	Multiple	-
Spectral line width FWHM, nm	-	0.7	1
Average output power, mW	-	20	Heat dissipation limited
Pulse duration, ns	-	1.3	-
Repetition rate, Hz (pulse-on-demand mode)	single-shot	20 [1]	100
Repetition rate, kHz (burst mode)	1	2 [2]	10
Pulse energy, µJ	100	150 [3]	250
Pulse-to-pulse stability, %	-	5	10
Transversal modes	-	TEM00	-
Beam Diameter at Aperture (1/e2), mm	-	0.2	-
Beam divergence (full angle), mrad	-	5 [4]	10
M^2 effective	-	2 [5]	4
Polarization direction	-	Horizontal / unpolarized	-
Polarization contrast (in polarized version)	-	100:1	500:1
Control interface type	-	SlimStack Hybrid Power Receptacle (Molex 104249-0810)	-

DRAWING



Operation mode	-	APC, pulse detection	-
Input voltage, VDC	-	1.65	2
External laser diode driver requirement	-	+2 V DC, 12A [6]	-
Dimensions (L-W-H), mm	-	31.3 x 12 x 5.8 [7]	-
Beam height from the base, mm	-	3	-
Heat-sinking requirement, °C/W	not needed (for low duty cycle single shot opperation)	-	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	-	No [8]	-
Reverse voltage protection	-	No	-
Storage temperature, °C (non-condensing)	-20	-	70
Net weight, kg	-	0.008	-
Electrical energy consumption, mJ	-	48 [9]	-
Warranty, months	-	14 (Limited) [10]	-
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)	-

[1] There are two operational modes: pulse-on-demand mode (1) and free-running bust mode (2). Repetition rates of 100 Hz are applicable for pulse-on-demand, higher frequencies are applicable for the free-running mode.
[2] Pulse repetition rate is current-dependent. Burst duration is heat dissipation limited. Typical burst duration is about 1 second, but can be extended by using a good heat sinking solution.
[3] Peak power limitations apply. Max. peak power currently is 300 kW in for unpolarized radiation and 100 kW for polarized radiation. We put constant R&D efforts to increase this further.
[4] The laser is not collimated internally.
[5] Optical design is optimized for highest peak power.
[6] A demo electronics board is provided with the first order of 5 pcs.
[7] Only laser head.
[8] Overheat protection can be implemented by an itegrator, by using an internal NTC (10K) thermistor.
[9] e.g. 1W @20Hz pulse repetition rate in single-pulse triggering mode.
[10] 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.