

Picosecond, high peak power Green 532nm microchip lasers

teem photonics™

Features & benefits

Ultrashort pulses

As low as 550ps durations

High peak power

Exceeding 20kW per pulse

Variety of frequency options

Free running to 40kHz
Fixed frequency to 4kHz
Triggerable to 2kHz

Excellent beam quality

Gaussian, TEM00,
 $M^2 \leq 1.3$

Efficient, air cooled

Typically dissipates
<10W from laser head
and consumes <20W

Extremely long life

High reliability pump diode, specialty optics, and sealed package contribute to MTTF over 14 years and expected lifetimes exceeding 10,000 hours (consult factory for details)

Licensed Technology

Exclusive license on Passively Q-switched pico-second microchip laser:

US Patent 5394413

Optional features

Connector receptacle for multimode fiber coupling

Photodiode output for synchronization

Manual controls for CDRH compliance

532nm Passively Q-Switched lasers: 40kHz, fixed frequency, triggered versions

For generating high peak power IR or green pulses of a few hundred picoseconds, microchip lasers are economical, compact, and reliable. 1064nm microjoule pulses are generated from a diode pumped passively Q-switched Nd:YAG microchip engine (SxP series); 532nm pulses are subsequently produced by harmonic conversion (SxG series); the same package is used for either wavelength. The SNP and SNG series are designed for high average power, either from pulse energies of 15μJ at 1064nm and 6μJ at 532nm, or from free running repetition rates up to 40kHz; the SFP and SFG series allow users to select up to three fixed frequencies, set at the factory, from 10Hz to 4kHz; the STP and STG series enable the user to trigger the laser on demand, varying the period from 100ms to 500μs, pulse to pulse.



Green 532nm SxG lasers (typical values) – Package A

Model	SNG-01.5E	SNG-03E
Peak Power (kW)	3.5	6
Average Power (mW)	25	25
Repetition rate (kHz)	12	7
Pulse Width (ps)	550	550
Energy/Pulse (μJ)	2	3.5

Green 532nm SxG lasers (typical values) – Package B

Model	SNG-05E	SNG-20F	SNG-40F	SFG-03E	STG-03E
Pulse Width (ps)	550	550	600	400	400
Energy/Pulse (μJ)	6	3.5	1.8	3.5	3.5
Peak Power (kW)	11	6	3	10	10
Repetition rate (kHz)	8	21	40	0.01 - 4	0.01 - 2
Average Power (mW)	50	70	70	≤14	≤7

Applications

- ▶ Material processing
 - Marking
 - Graphitization
 - Metal ablation
- ▶ Biophotonics
 - Nanosurgery
 - Protein crosslinking
- ▶ Instrumentation
 - Supercontinuum generation
 - Raman spectroscopy
 - Ranging
 - Differential absorption LIDAR
 - Distributed temperature sensing