

WORLD FIRST · AVAILABLE NOW

100 GHz soliton combs at 1 μm

Copper-free silicon nitride is what made it possible

DLT-DKS-1060 · Kerr soliton frequency comb generators, 1030 to 1080 nm

Bulk silicon wafers carry copper into the silicon nitride during the high temperature anneal, and the absorption it leaves behind shortens the soliton step until there is nothing left to tune into.¹ Near 1 μm , where the material dispersion already fights back, that margin is gone.

Our copper-free wafers remove it at the substrate level, so the step stays long enough to enter in one move and the comb starts the same way at every power up.¹ You get this as a product: a Kerr comb chip, as a bare die for your own integration or as a fibre pigtailed 14-pin butterfly module.

OPERATING BAND

1030 to 1080 nm

pump 1060 nm

PLATFORM

Silicon nitride

copper-free PIC

COMB STATE

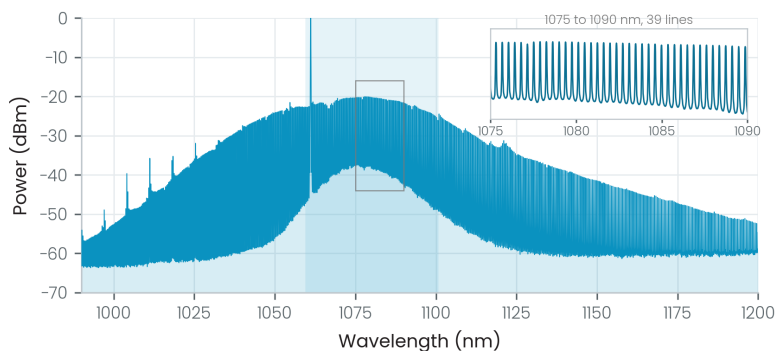
Single soliton

deterministic start

LINE SPACING

100 GHz

other FSR on request



Measured single soliton spectrum. Ytterbium pumped copper-free silicon nitride device. More than 580 comb lines across roughly 990 to 1200 nm, smooth sech² envelope, residual pump near 1060 nm.

KEY SPECIFICATIONS

- Operating band 1030 to 1080 nm
- Free spectral range 100 GHz
- 3 dB bandwidth 40 nm, equivalent to 10 THz
- More than 580 lines 990 to 1200 nm
- Package bare die or 14-pin butterfly

+ Deterministic

One step into the single soliton state, simplifying initialization schemes.

+ Yb pumping

Narrow-linewidth Yb seed plus Yb doped fibre amplifier.

+ Integrated photonic platform

Comb source integrating essential photonic building blocks on a single chip.

+ Scalability

The copper-free flow and the Damascene process stay CMOS fab compatible.

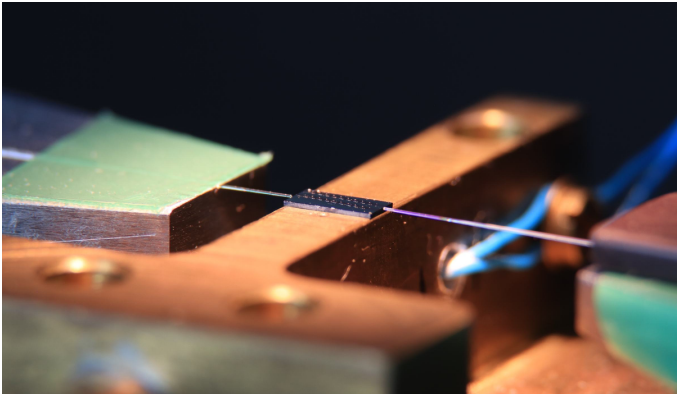
APPLICATIONS

- Multiphoton microscopy, CARS and SRS
- Optical coherence tomography at 1060 nm
- Optical clocks and AMO, Rb, Cs, Yb
- Dual comb spectroscopy, C-H and O-H
- Astrocombs and f-2f self referencing

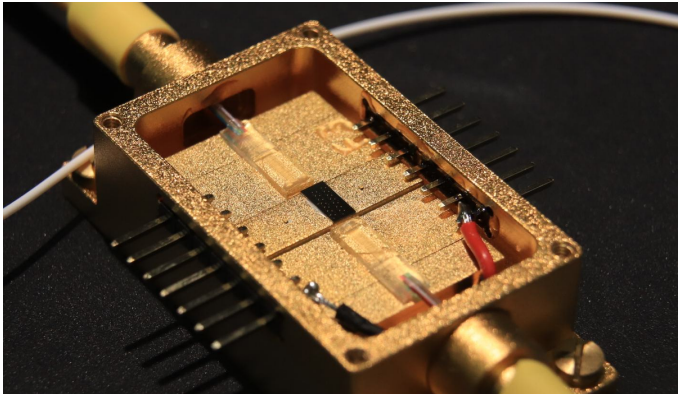
¹ X. Ji et al., Deterministic soliton microcombs in Cu-free photonic integrated circuits, Nature (2025), doi 10.1038/s41586-025-09598-4.

DLT-DKS-1060

The first 100 GHz soliton comb at 1 μm · available now



Bare die. A comb generator die on its mount, with input and output fibres coupled for characterization.



14-pin butterfly. The packaged device, fibre pigtailed, shown with the lid off.

Typical performance parameters

Parameter	Min.	Typ.	Max.	Unit	Comments
Pump and centre wavelength	1030	1061	1080	nm	Yb band, other wavelengths on request
Free spectral range		100		GHz	Other FSR on request
Comb 3 dB bandwidth		40 / 10		nm / THz	sech ² envelope, single soliton
Power per line near envelope peak	-25	-20		dBm	Without amplification, OSA 0.01 nm
Intrinsic quality factor		5 × 10 ⁶			At 1 μm, copper-free process
Input and output interface		FC/APC			PM Panda fibre, BF model only
Package		bare die or 14-pin butterfly			BD die level, BF fibre pigtailed

Values are given for a typical device and may vary from device to device.

Ordering information

Product code	Form	Included with every unit
DLT-DKS-BD-1060	Bare die, for die level integration	Full characterization report and operating instructions.
DLT-DKS-BF-1060	14-pin butterfly, fibre pigtailed	

Bring your comb experiment into the ytterbium band.

Request a quote or discuss your integration with our photonics experts.

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