

DLT-DKS-1550

Kerr soliton frequency comb generators @ 1550 nm

Product datasheet / Ver 1.1

Kerr soliton frequency comb generators

- Broadband spectrum spanning C+L bands
- Free Spectral Range (FSR): 10-1000 GHz
- 14-pin butterfly package for direct use or bare die for package-level integration
- Proven and documented performance
- Seamless operation via external standard tunable lasers

Applications

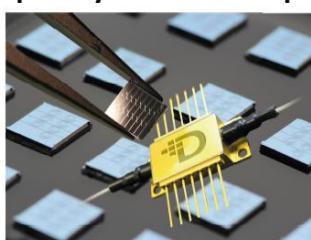
- Optical communications
- Microwave photonics
- Optical ranging
- Frequency metrology
- Quantum computing



Deeplight's Kerr soliton frequency comb generators enable direct access to the Dissipative Kerr Soliton (DKS) technology for proof-of-concept demonstrations and system-level experiments. These products are designed for a wide range of applications such as **optical communications, microwave photonics, or optical ranging**.

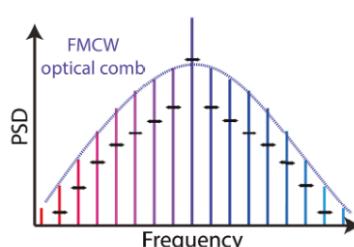
Our technology is based on **ultra-low-loss silicon nitride Photonic Integrated Circuits (PICs)**. Building upon the groundbreaking manufacturing experience of our academic partner EPFL, Deeplight's Kerr frequency generators are not subject to a thermal drag, allowing for seamless frequency-comb generation via wavelength scans provided by benchtop tunable lasers.

The key feature of our frequency comb generators is **their proven performance**, documented in a full characterization report, and the associated operating instructions, which allow for direct use in more complex system-level experiments.



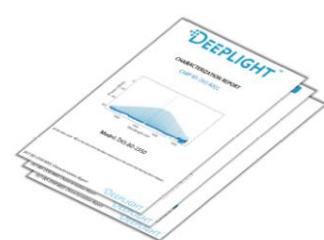
Direct technology access:

Bare die or butterfly package



Kerr soliton frequency comb:

Broadband and low phase noise



Proven performance:

Fully characterized units with operation instructions

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The following performance parameters are given for a typical DLT-DKS-1550 product and might vary from device to device.

Parameters	Min.	Typ.	Max.	Units	Comments
Input and Output Interface		FC/APC			PM Panda fiber. Only applies to butterfly packaged
Free spectral range (FSR)	10		1000	GHz	
Intrinsic Quality factor	8×10^6	10×10^6	15×10^6		
Centre wavelength	1545	1550	1560	nm	
Centre frequency tunability	100		300	GHz	
Power per line of 5 lines at both sides of centre peak		-25	-20	dBm	
3dB Bandwidth	20	30		nm	Corresponding to >35 lines for 100 GHz FSR
Footprint (W×L×H)		30×50×15		mm ³	Custom 14-pin butterfly. Only applies to butterfly packaged

DLT-DKS-1550 is available either as individual bare dies or packaged inside a custom 14-pin butterfly unit. This unit can be shipped with a passive box for easy connection to temperature controller.

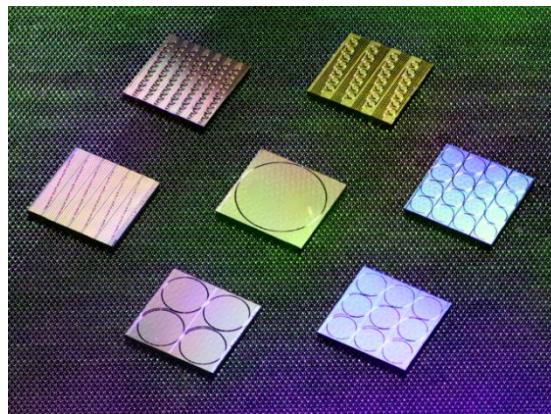


Figure 1. Bare dies for Kerr frequency comb generation with different FSR

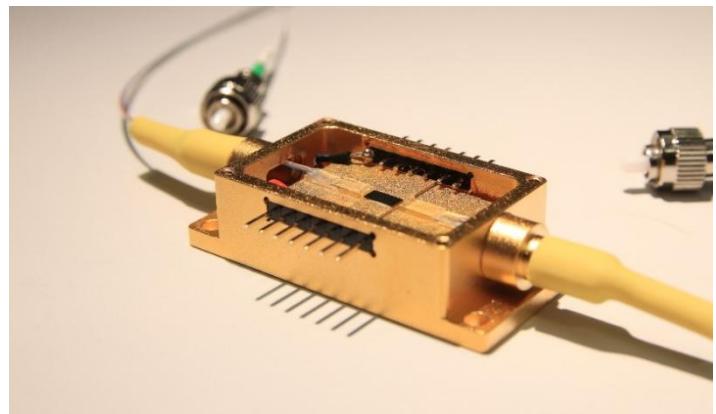


Figure 2. Custom 14-pin butterfly package with input and output fibers

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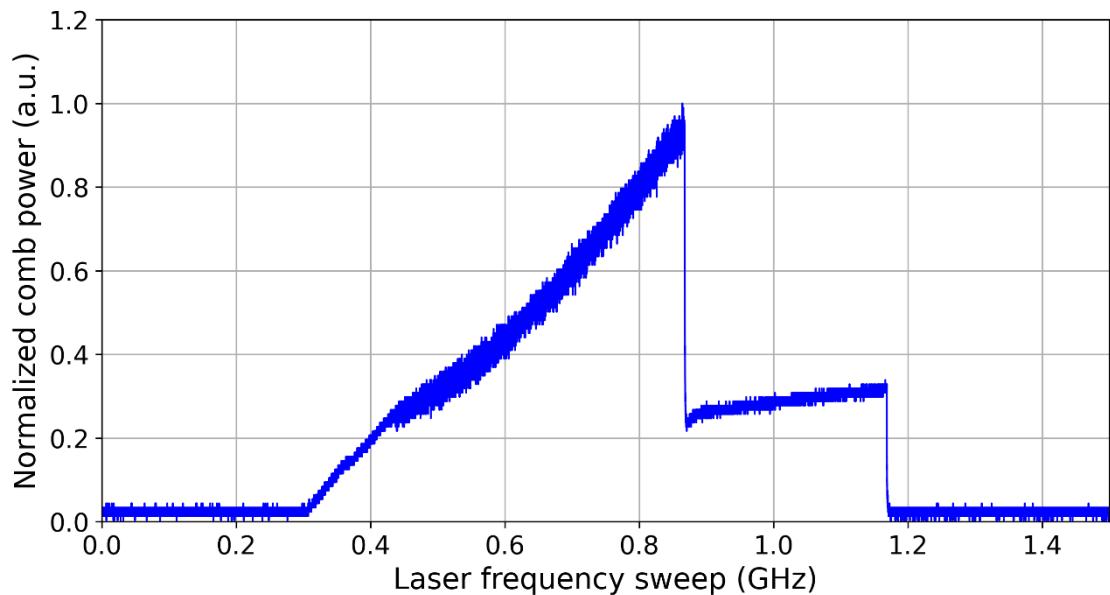


Figure 3. Comb power as a function of pump laser frequency from DLT-DKS-1550 with 100 GHz FSR

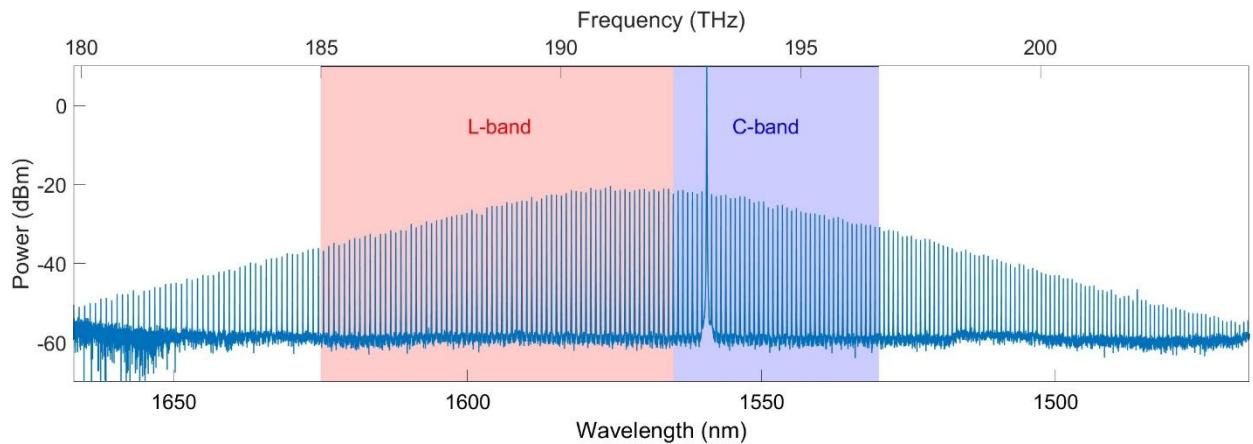


Figure 4. Optical frequency comb spectrum output from DLT-DKS -1550 with 100 GHz FSR. Shaded areas correspond to telecommunication L and C bands

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