SMOLTEK

Revolutionizing nano size capacitors with carbon technology.

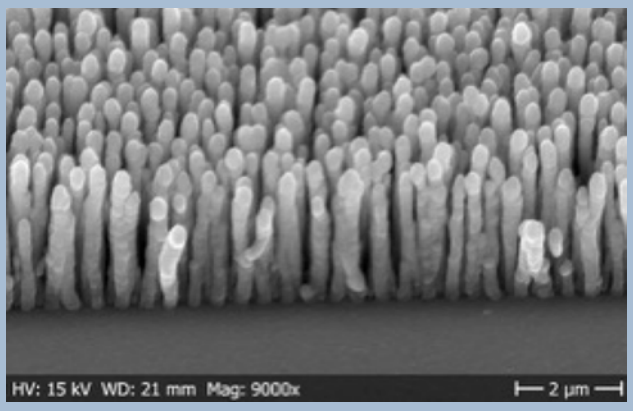
CNF-MIM Capacitor

Smoltek's carbon nanofiber metal-insulator-metal capacitor technology (CNF-MIM) is based on the company's innovative and patent protected PECVD synthesis process for growing high-quality and vertically aligned nanofibers.

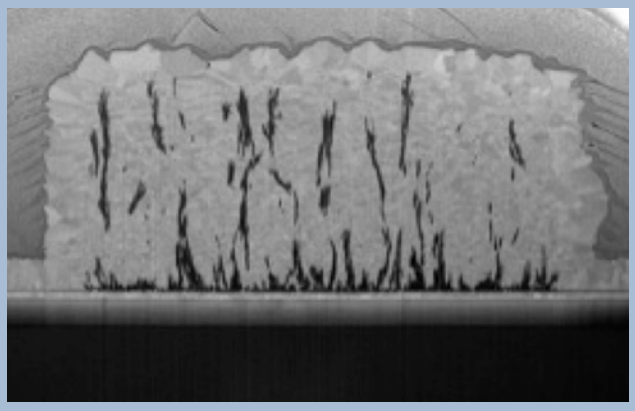
CNF-MIM technology exploits the high surface-to-volume ratio offered by a forest of carbon nanofibers to create a high-density capacitor with low ESR and low ESL at a thickness below 100 um.

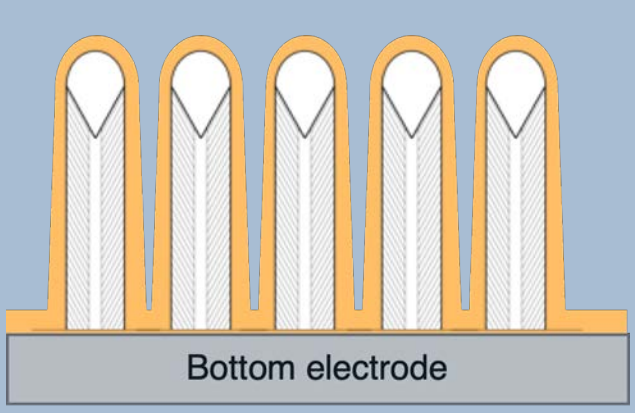
Smoltek aims to launch its Gen One technology in Q3-25 with a capacitance density of 300 nF/mm2, ESR of 50 mΩ, and ESL of 1 pH in a form factor only 100 um thick.

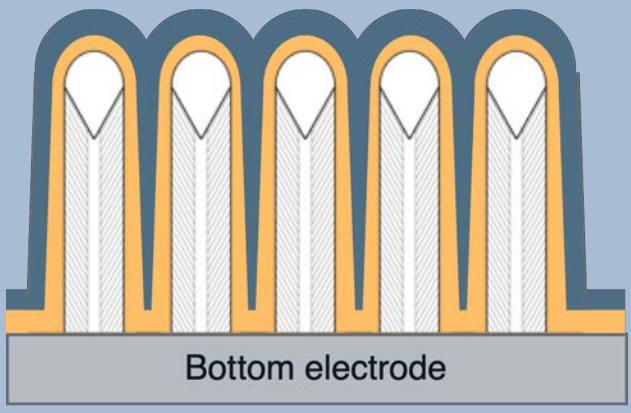
CNFs coated with the conformal field oxide



CNF-MIM after the top electrode deposited







Bottom electrode Conformal field oxide Top electrode

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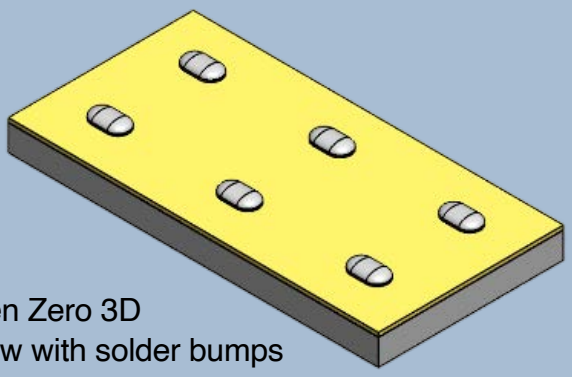
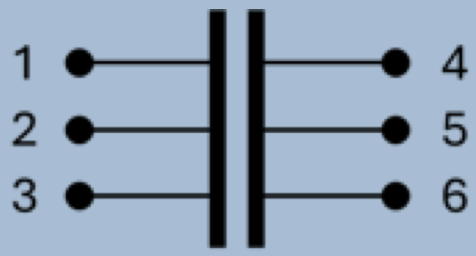
Smoltek Gen Zero



Gen Zero 3D
view with solder bumps

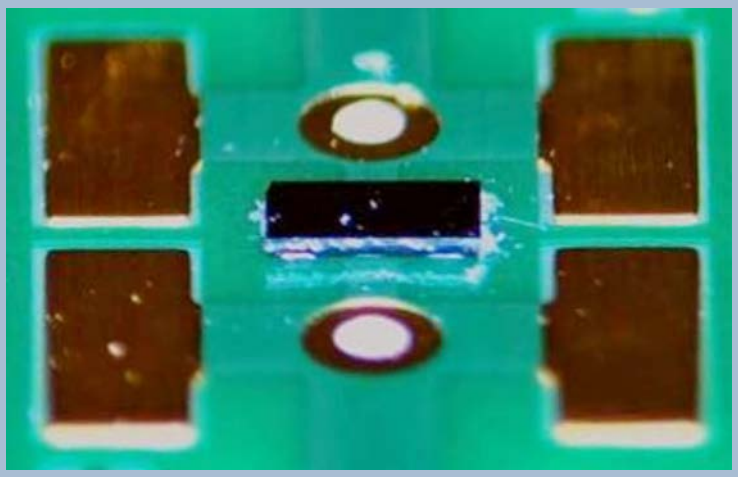


Gen Zero CNF-MIM Block diagram

SMOLTEK Gen Zero Silicon Capacitor (basis for CNF-MIM)

Gen Zero Key Features:

- 0402 (1000 um x 500 um) form factor with 6 solderable pads
- Extremely low height profile of **100 µm**
- High volumetric capacitance Density of up to 252 nF/mm^2
- Extremely low leakage current below 10 nA at @ 2v DC bias
- Less than 5% DC voltage coefficient of capacitance
- ESR at 1kHz of 1500 mOhm



Gen-Zero capacitor soldered to a PCB

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