

TINY BATTERIES

TOWARDS HIGHLY INTEGRATED ENERGY STORAGE SOLUTIONS

+ WHAT IS TINY ?

TINY is a solid-state rechargeable thin film battery, introducing CEA-Leti's latest electrochemical energy storage solution for IoT devices. This technology addresses companies' rapidly growing interest in a range of integrated power sources that will help them embed higher energy density while reducing both the footprint and cost. TINY microbatteries make IoT devices even more compact and energy efficient. CEA-Leti's 100% solid state Lithium ion micro-batteries are manufactured using conventional MEMS production equipment. With typical sizes in the mm³ range, they safely operate within the μ Ah to mAh capacity.

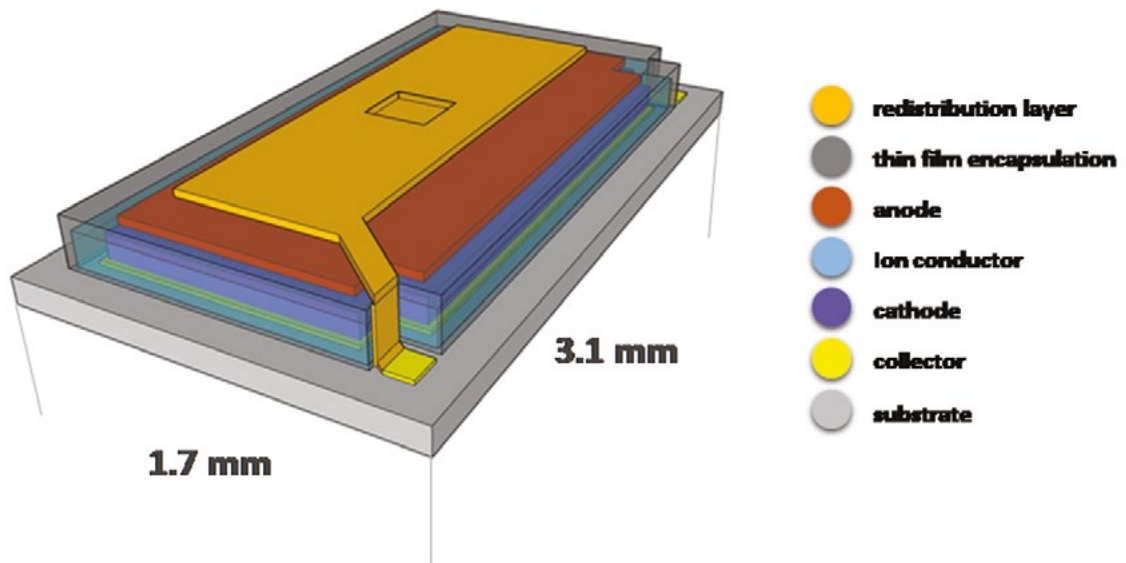
+ APPLICATIONS

Leti's technology is tailored to several components including:

- Wearable/implantable devices to be used in:
 - Medical and healthcare monitoring
- Self-powered sensors to be used in:
 - Industry 4.0
 - Transportation
 - Buildings/structural health monitoring
- Standby/back-up power to be used in:
 - Dust computing
 - Portable devices

+ WHAT'S NEW?

To achieve miniaturized and ultra-high energy density microbatteries, CEA-Leti worked on an aggressive design and very thick electrode ($20+\mu\text{m}$) device architectures, the whole being achieved using advanced microfabrication technologies. The TINY batteries exhibit 5mm^2 of footprint, a total thickness of $100\mu\text{m}$ and $20\mu\text{Ah}$ of discharge capacity, which is the highest reported energy density for microbatteries with such dimensions.



+ WHAT'S NEXT?

CEA-Leti is currently working on:

- Increasing energy and power densities
- Stacking of TINY batteries
- Novel designs tailored for specific IoT applications

INTERESTED IN THIS TECHNOLOGY?

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