

Attracting Tomorrow



CeraCharge®

World's first rechargeable
solid-state SMT battery

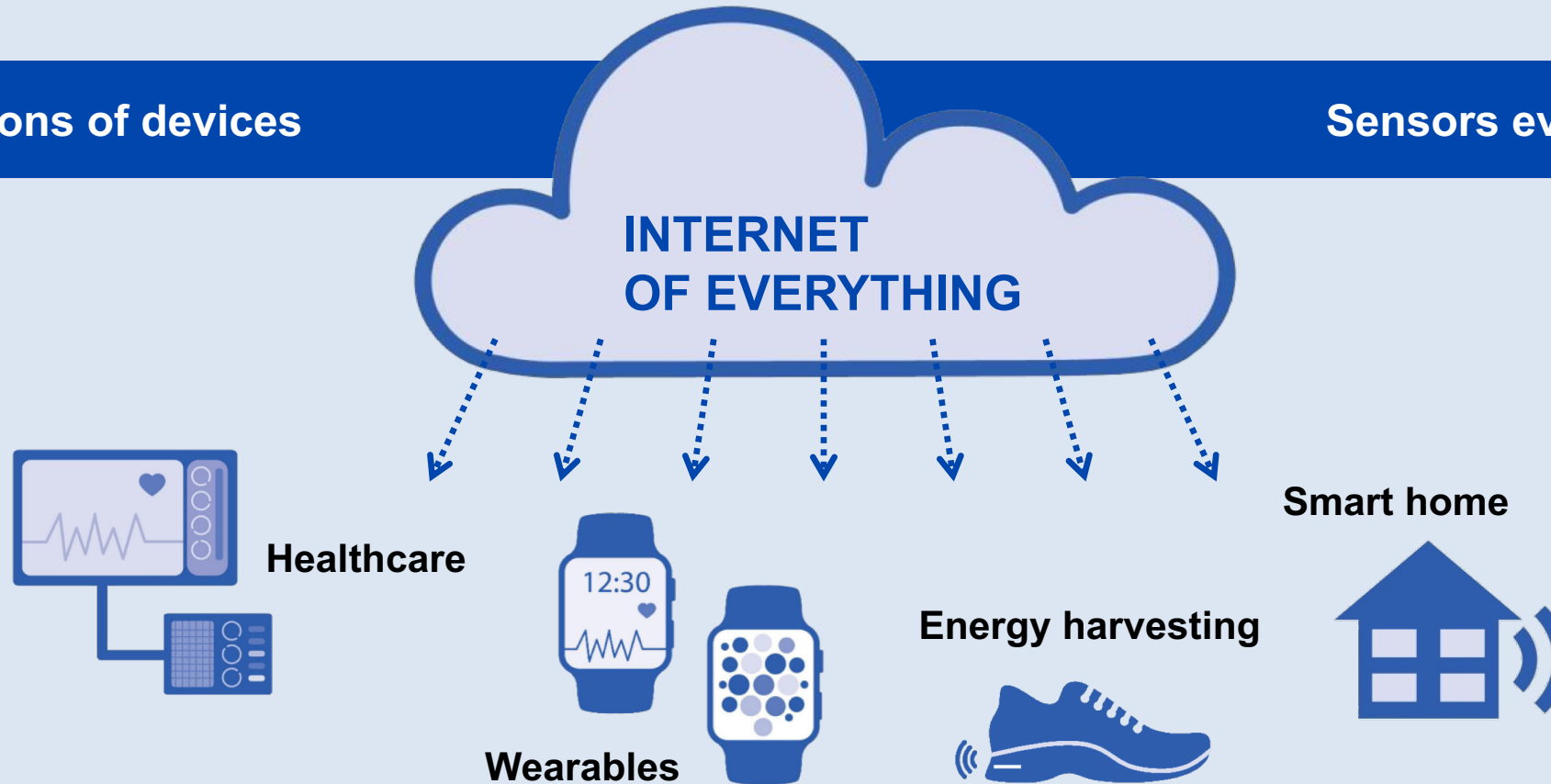
TDK Electronics AG
Piezo & Protection Devices Business Group
Multilayer Technology
Munich, Germany
November 2020



Demand for a new battery technology

Billions of devices

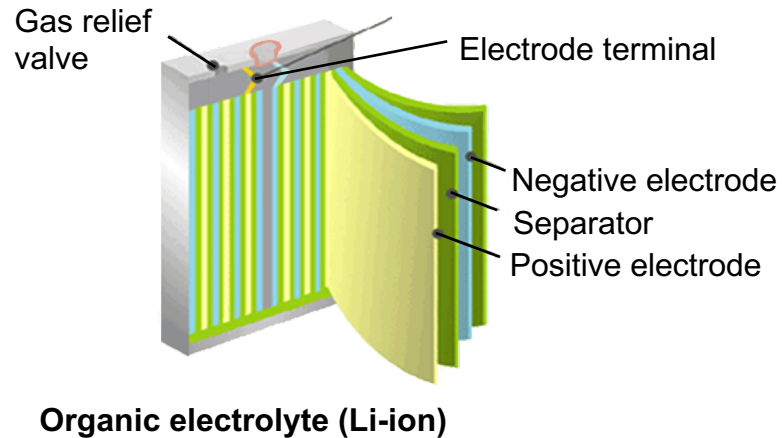
Sensors everywhere



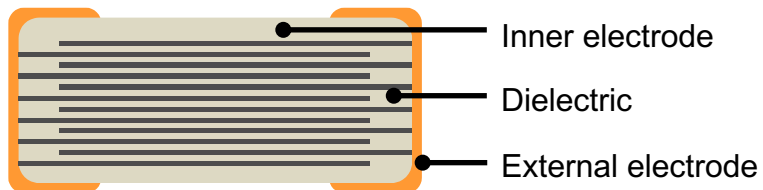
New application fields drive the demand for compact, safe, rechargeable energy sources

CeraCharge®: World's first solid-state SMT-compatible Li-ion battery

Li-ion battery



Multilayer ceramic



High-energy Li-ion
battery technology

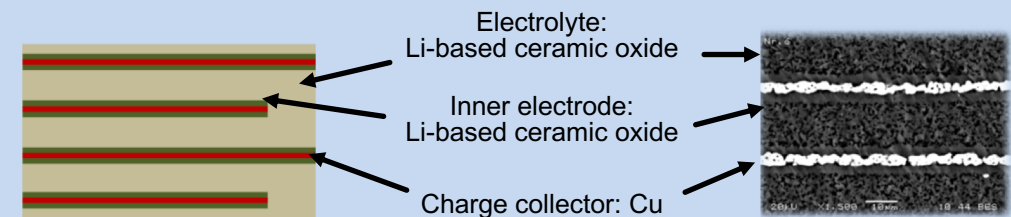
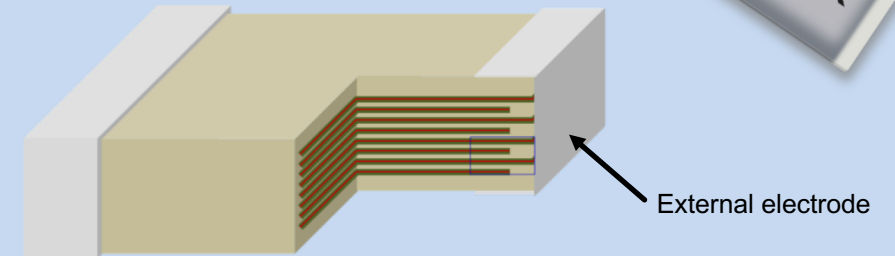
High-volume
production process

CeraCharge®

All solid-state

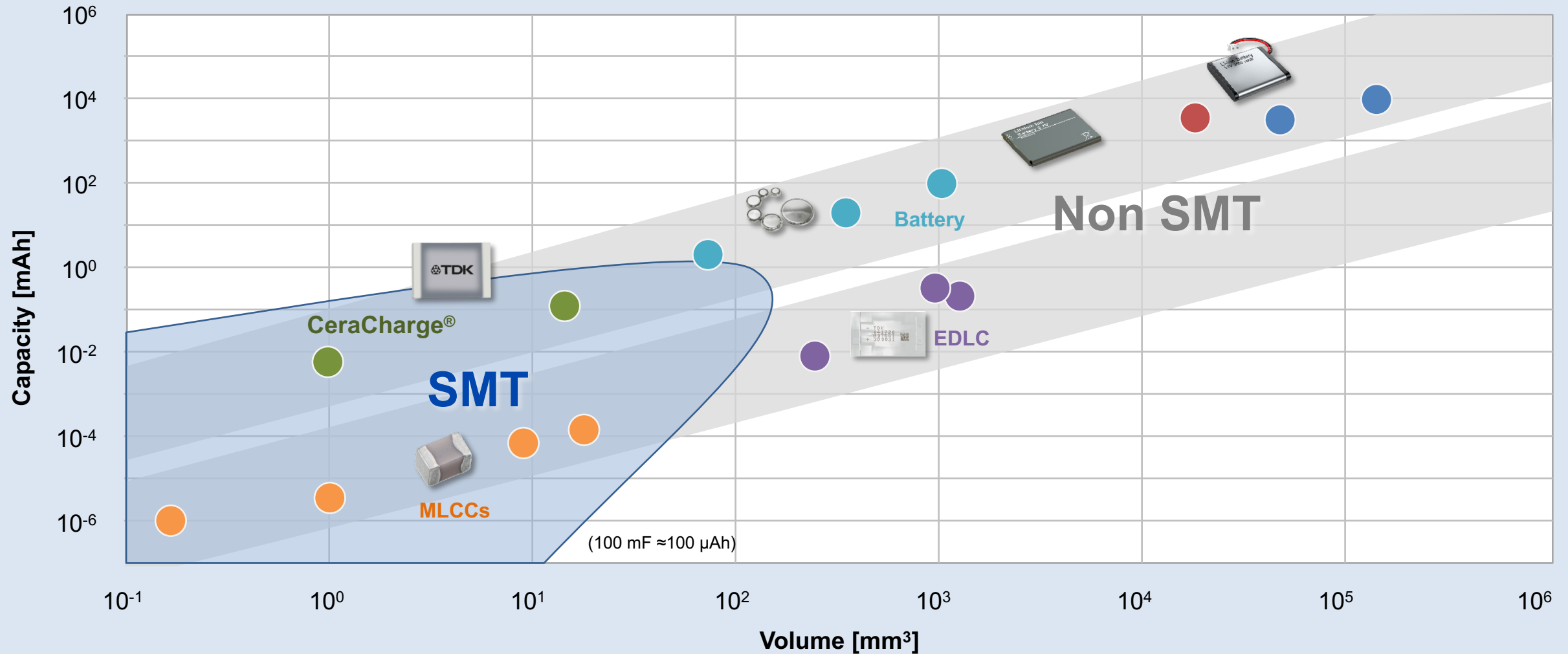
All-ceramic multilayer battery

- High safety
- SMT-compatible
- Suitable for reflow soldering

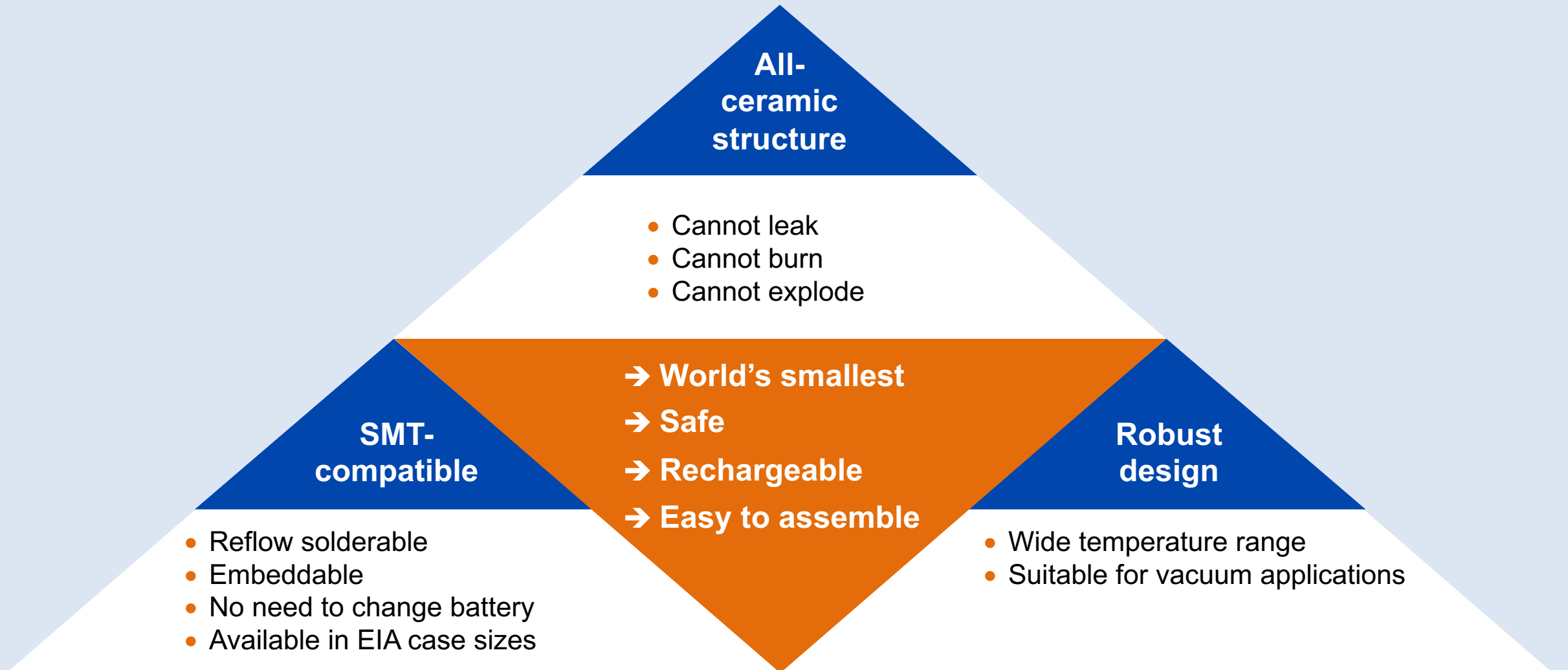


CeraCharge® combines the advantages of Li-ion batteries with the safety and manufacturing benefits of ceramic multilayer components

Comparison of energy storage devices



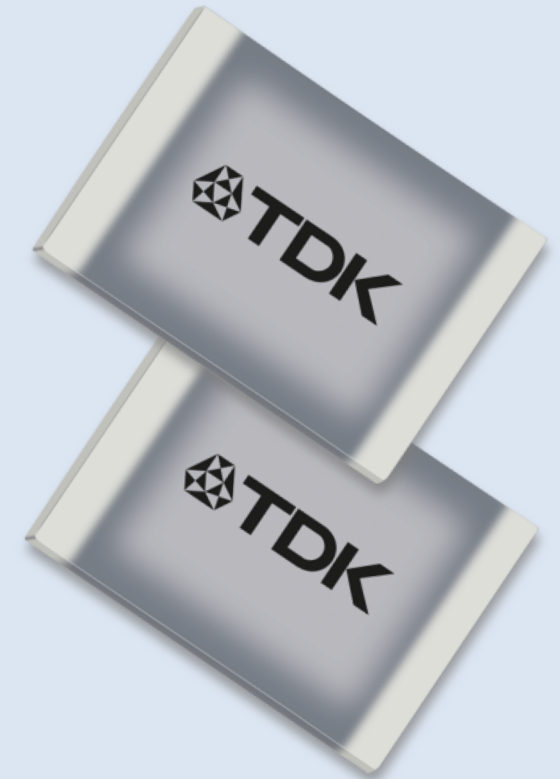
Unique features



Key figures

Size 1812

Nominal voltage	[V]	1.5
Operating voltage	[V _{op}]	0 to 1.6
Nominal capacity	[μAh]	100
Nominal discharge current	[μA]	20
Operating temperature	[°C]	–20 to +80
Case size	[EIA]	1812
Dimensions	[mm]	4.4 x 3.0 x 1.1
Weight	[g]	0.04

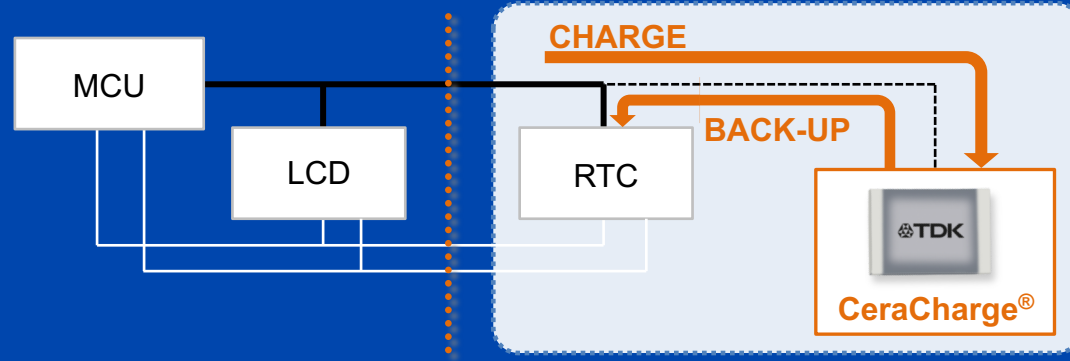


CeraCharge® offers 1000 times the capacity of a capacitor in the same case size

Main applications

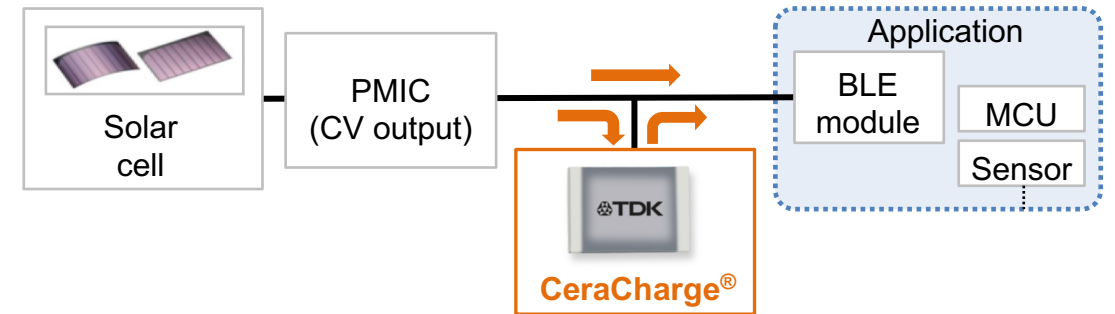
Real-time clock

Backup battery



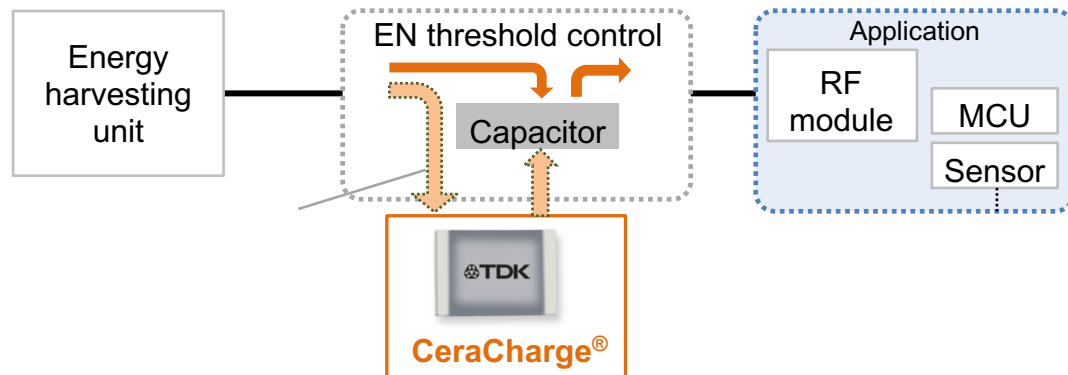
Internet of Things: Beacon

Energy storage (battery)



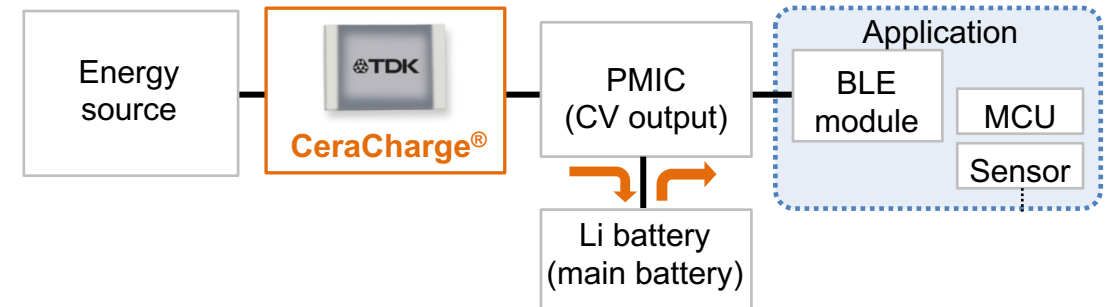
Energy harvesting

Energy storage



Wearables

Sub-battery for voltage and current smoothing





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