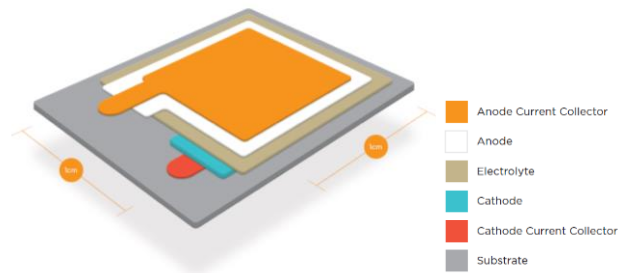


Stereax™ M250 Rechargeable Solid State Battery: 250 μ Ah, 3.5 V

Features

- Thin Form factor
- All Solid State Construction
- Fast Charge
- High Current Pulses
- High Energy Density per Footprint
- Thousands of Cycles
- Low Self-discharge
- High Operating Temperatures
- No Free Lithium: Moisture Resistant
- Eco-friendly



Graphical representation of the Stereax M250 solid state battery.

Physical Properties

Active Area:	10 mm x 10 mm
Thickness ^a :	< 750 μ m
Mass:	270 mg
Operating temperature:	-20°C to 100°C

Electrical Properties

Output Voltage (nominal):	3.5 V
Capacity (nominal):	250 μ Ah
Charging Source:	4.0 V
Charging time to 90%:	10 minutes
Charge/discharge cycles ^b :	> 5000
Peak current:	5 mA

Applications

- Autonomous Sensor Devices
- Smart Homes (HVAC, Security, Light)
- Automotive (Infotainment, Sensors)
- Logistics (Asset Tracking)
- Medical devices (Biometric Monitoring)
- Wearables

General Description

The Stereax™ M250 is the first of a family of solid state, rechargeable, thin film batteries developed by Ilika. It contains no liquid or polymer components and is the only solid state battery available without free lithium, either in the charged or discharged state, making it moisture resistant and appropriate for medical applications. Its low self-discharge allows it to be trickle-charged by an energy harvesting source such as vibration or a PV panel. Its high peak current enables the transmission of data using protocols such as Bluetooth Low Energy. The combination of energy harvester, transmitter, sensor and the M250 is ideal for integration into small, “fit and forget” autonomous sensor devices with multiple applications including Smart Homes, Vehicles and medical devices. The M250 is provided on a rigid substrate (650 μ m) whilst thinner substrates may also be used.

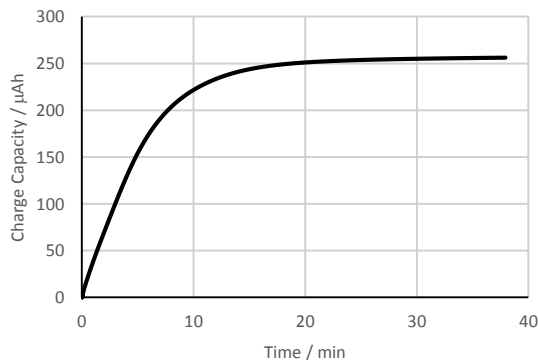
a: Thickness value includes substrate (650 μ m). Thinner substrates are available. b: 10% DoD

Specifications

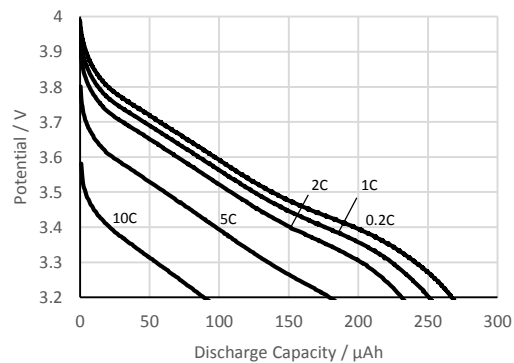
Parameter	Test conditions	Value	Unit
Capacity	1 C between 3.2 and 4.0 V	250	μAh
Nominal Voltage	25°C	3.5	V
Operating Voltage	25°C	3.2-4.0	V
Peak Current	0.5 ms, every second	5	mA
Maximum Continuous Current	25°C	10	C-rate
Standard Discharge Current	25°C	250	μA
CC/CV Charging	CC Phase	250	μA
	Voltage for CV Phase	4	V
Constant Voltage Charging	4V; Time to 90% of nominal capacity	10	min
Operating Temperature		-20°C to 100°C	°C
Cycle life	10% depth of discharge at standard discharge current; 80% of rated capacity remaining; 25°C	>5000	Cycles
	100% depth of discharge at standard discharge current; 80% of rated capacity remaining; 25°C	> 500	Cycles
Internal Resistance	Charge Cycle 1	120	Ohm

Note: All specifications contained within this document are subject to change without notice.

Typical Charge Curve



Typical Discharge Curves



Disclaimer of Warranties; As Is

The information provided in this data sheet is provided "As Is" and Ilika Technologies disclaims all representations or warranties of any kind, express or implied, relating to this data sheet and the Ilika Stereax product described herein, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, non-infringement, title, or any warranties arising out of course of dealing, course of performance, or usage of trade. Ilika Stereax products are not approved for use in life critical applications. Users shall confirm suitability of the Ilika Stereax product in any products or applications in which the Ilika Stereax product is adopted for use and are solely responsible for all legal, regulatory, and safety-related requirements concerning their products and applications and any use of the Ilika Stereax product described herein in any such product or applications.

Ilika, the Ilika logo and Stereax are trademark of Ilika technologies. All rights reserved