XIDAS IOT

RHB -1530

Rechargable High-Pulse Battery

99000003-A0

Overview

The model RHB-1530 is an integrated pulse capacitor and rechargeable lithium battery that provides large pulse discharge capability under extreme temperature from -40°C to 85°C. With a low trickle charge current requirement and a high energy capacity, the model RHB-1530 becomes ideal for use in energy harvesting devices for wireless IoT applications.

Wireless sensors have unique power signatures that put a strain on regular batteries. With the increase in intelligent sensing, sensors can capture and analyze machine signatures, monitor for alarms and environment, be network aware and transmit to customers networks. This results in power requirements ranging from small current drains (<1mA) when monitoring to large pulses (up to 3 A) when transmitting, dropping battery output voltages to unusable levels in undetermined times and considerably shortening standard battery lifecycles. In order to compensate for high current surges, supercaps are traditionally employed with Lithium batteries. The model RHB-1530 combines both a rechargeable lithium battery and pulse capacitor, with enough capacity to run the majority of wireless IoT application for a week without harvested power. As opposed to just a supercap with an energy harvesting device, that is more complex to integrate and hard to source at the wide industrial temperature ranges of -40°C to +85°C

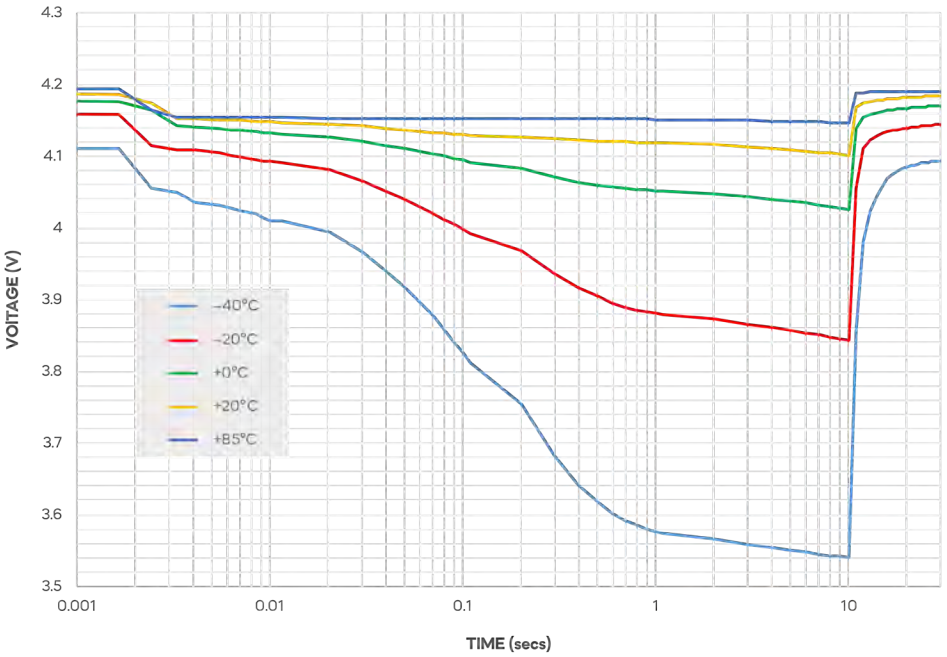
Key Features

- High working voltage: 3.6V to 4.0V
- No initial voltage delay
- Stable working voltage against high pulse currents
- Wide temperature range: -40°C to +85°C
- Designed to work with EHM-UNIV-1 Energy Harvesting Module and VEG Vibration Energy H
- 240mAH

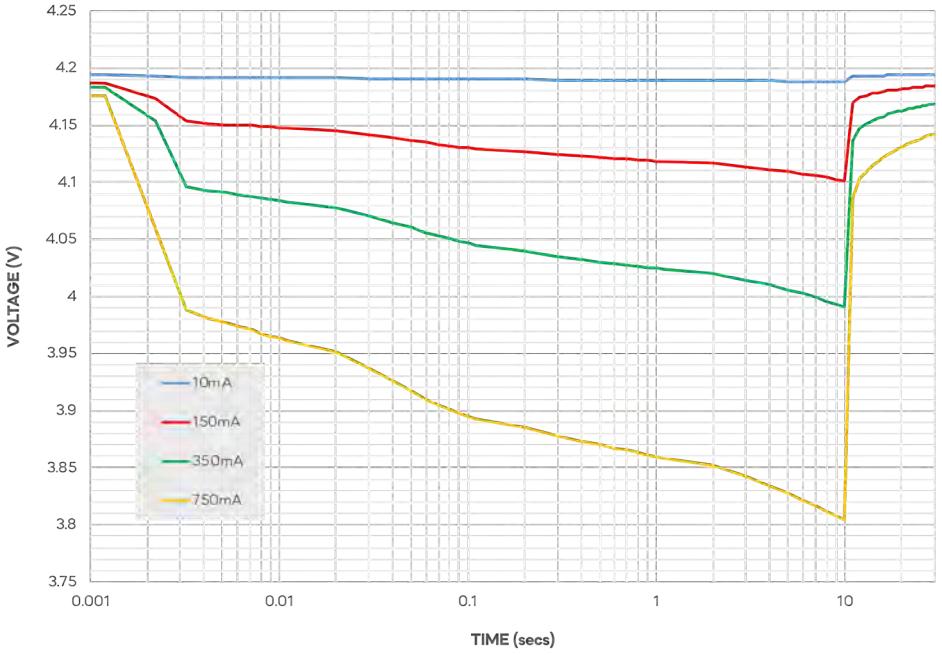
Performance Data

Nominal voltage	4 V
Capacity at full charge	240 mAh @ 4.10 V
Nominal discharge current	125 mA
Max continuous discharge current	750 mA
Pulse current capability	3000 mA
Discharge end voltage	2.5 V
Max charge voltage	4.1 V
Nominal charge current	50 mA
Temperature range	-40°C to +85°C
Cell impedance @ 1kHz,RT	max. 120mΩ
Nominal energy	max. 0.6 Wh
Height	max. 30.0mm
Diameter	max. 15.1mm
Weight	10.0g

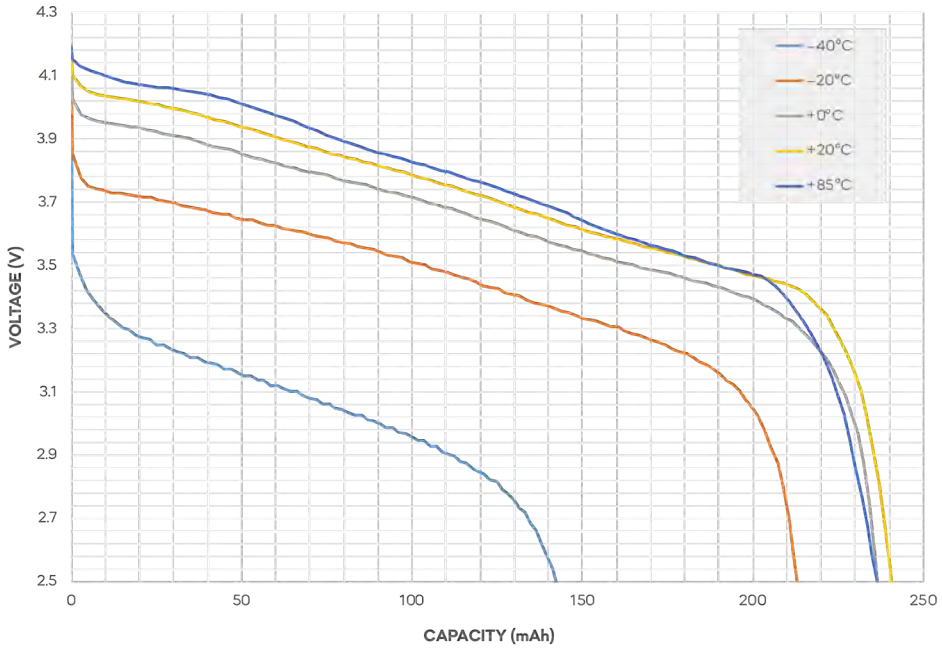
PERFORMANCE CURVE BY TEMPERATURE (@150mA, 10-SECOND DC LOAD)



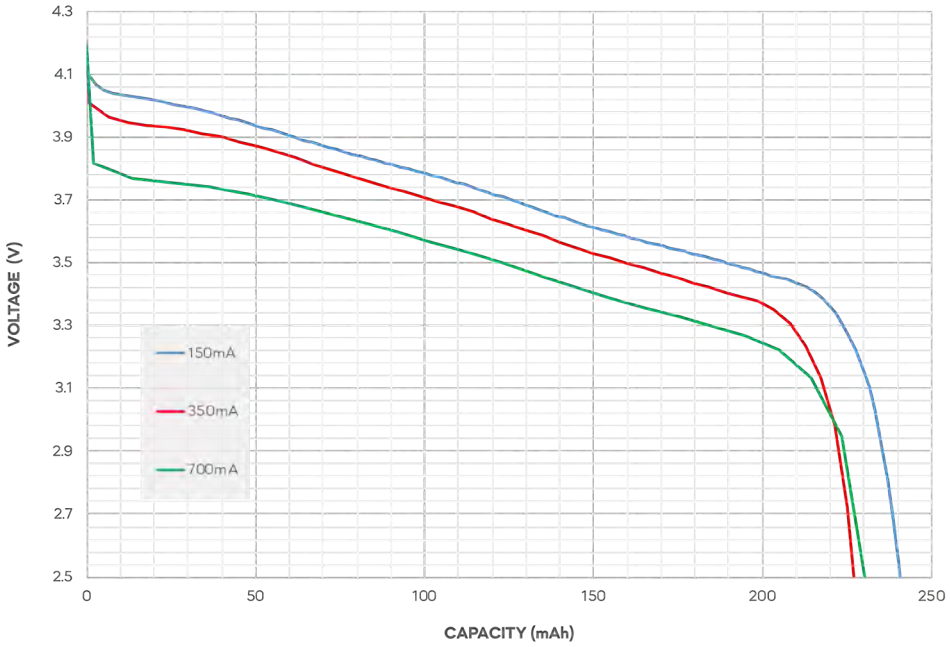
PERFORMANCE CURVE BY 10-SECOND DC LOAD (@20°C)



CAPACITY CURVE BY TEMPERATURE (@150mA DC LOAD)



CAPACITY CURVE BY DC LOAD (@20°C)



Warning

1. Fire, explosion, severe burn hazard. Do not disassemble, heat above 100°C or incinerate.
2. Use as a part of an energy harvesting and low charging current device only. Do not charge above 4.10V.

UL1642 , IEC62133 ,UN38.3

Ordering Information

Model Number	Part Number	Description
RHB-1530	86000000	Rechargable High-pulse Battery

Complimentary Products

The RHB-1530 works best in conjuction with Xidas's Energy Harvesting Module (EHM) and Vibration Energy Harvesting Generator (VEG). Here is how to order:

High Efficiency, Universal Energy Harvesting

Model Number	Part Number	Description
EHM-UNIV-1	10-301500	Energy Harvesting Module-Universal

Vibration Energy Harvesting Generator

Model Number	Part Number	Description
VEG-20	10-301000	Designed for 20 Hz vibration sources
VEG-30	10-301100	Designed for 30 Hz vibration sources
VEG-50	10-301200	Designed for 50 Hz vibration sources
VEG-60	10-301300	Designed for 60 Hz vibration sources
VEG-70	10-301400	Designed for 70 Hz vibration sources

Vibration Perpetual Power Pod (all-in-one)

Model Number	Part Number	Description
VP3-20	10-300400	Designed for 20 Hz vibation sources
VP3-30	10-300100	Designed for 30 Hz vibation sources
VP3-50	10-300300	Designed for 50 Hz vibration sources
VP3-60	10-300200	Designed for 60 Hz vibration sources
VP3-70	10-300500	Designed for 70 Hz vibration sources