



Swing Key® 442 Lithium-ion block

Boston-Power's Swing Key 442 block is a high performance lithium-ion rechargeable battery with industry leading safety, energy density and long cycle life, making it an ideal energy storage solution for battery electric vehicles, e-bikes, e-scooters and plug-in hybrid electric vehicles.



Swing Key 442 blocks are a standard battery "building block" for electric vehicles that combine the advantages of small cells with large format cells and deliver:

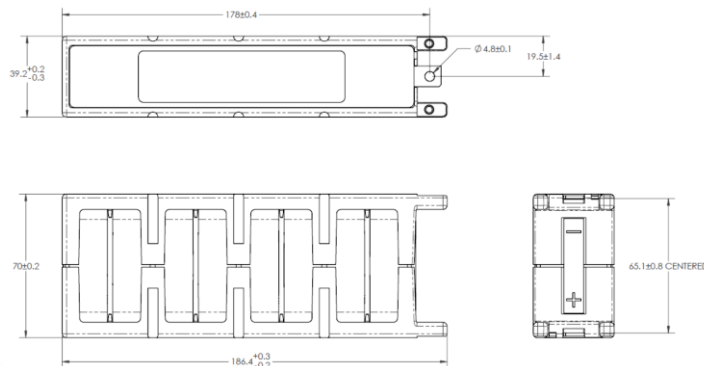
- Unparalleled system safety
- Cost-effective thermal management
- Common hardware compatible with next-gen capacity
- Ease of implementation

They form the foundation for our Swing RESS™ (Rechargeable Energy Storage System), demonstrated in multiple vehicle applications today.

Certifications

UN 38.3 (cell and block), UL1642 (cell)

Dimensions & Terminal Locations



Specifications¹

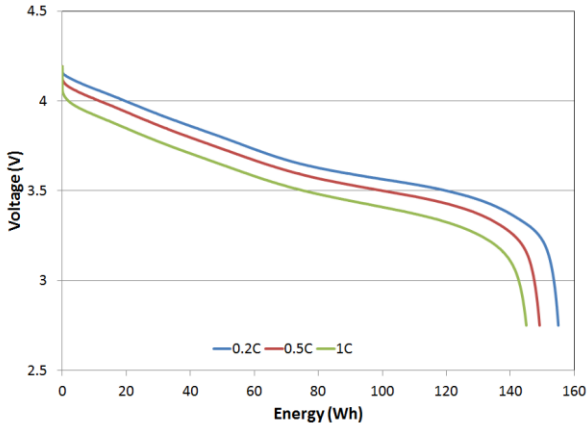
		Swing Key 442
Configuration		8 Parallel, 1 Series
Nominal capacity		42Ah
Nominal energy		155Wh
Nominal voltage		3.65V
Energy density	Gravimetric	171Wh/kg
	Volumetric	329Wh/L
Cycle life to 80% capacity		~2000 cycles @ 90% DOD
Standard charging method CC/CV (Constant Current/Constant Voltage)		29.4A to 4.2V
Operating voltage range		2.75V to 4.2V
Maximum continuous discharge ²		70A
Peak pulse discharge (10s) ²		176A
Nominal Impedance (1kHz)		2.35mΩ
Nominal module weight		0.90kg
Operating temperature	Charge	-20 to 60°C
	Discharge	-40 to 70°C
Storage temperature ³		-40 to 60°C

¹ Testing performed at 25°C and C/5 discharge. Specification subject to change.

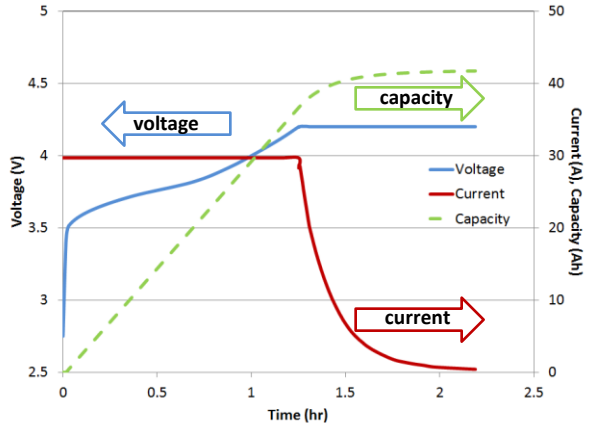
² Requires active thermal management.

³ Contact Boston-Power for specifics on operation and storage at temperature extremes.

Discharge curve



Charge Curve



Applications: This block is targeted for use in:

- Battery Electric Vehicles
- Plug-In Hybrid Electric Vehicles
- Neighborhood Electric Vehicles
- Small Task Oriented Vehicles
- Technology evaluation module
- Military power systems
- Stationary energy storage systems

Boston-Power technology advantage:

Compact Footprint	<ul style="list-style-type: none"> ▪ High energy density results in significant space and weight savings as well as allows electric vehicles to travel more miles per single charge ▪ Modular architecture provides design flexibility to scale from 0.155kWh to several MWh
High Energy Density	<ul style="list-style-type: none"> ▪ Highest energy density in its class at 171Wh/kg and 329Wh/L ▪ Enables dependable, long runtime across multiple market segments
Long Cycle Life	<ul style="list-style-type: none"> ▪ Swing Key block supports deep cycling with calendar life up to 10 years ▪ Cell technology promotes wide range of operating temperatures
Safety	<ul style="list-style-type: none"> ▪ Independent and distributed safety features ▪ Optional monitoring electronics optimize performance and provide redundant safety
Environmental Sustainability	<ul style="list-style-type: none"> ▪ Batteries developed from sustainable, non-toxic and recyclable materials

Specifications subject to change without notice. © Boston-Power, Inc., 2012, 2013. All rights reserved. "Boston-Power logo," "Sonata®," "Swing®" and "Swing Key®" are registered trademarks of Boston-Power, Inc., which retains sole rights to their use.