Rolled-Ribbon Battery Modules

Don’t see what you need?

The Rolled-Ribbon Battery Module design is very flexible. As a result, many more product variations are possible than can be shown in this product brief. Further, custom battery modules can easily be created for alternative cell sizes and stack-ups. Please contact the Rolled-Ribbon Battery Company for assistance with any battery module requirements that you might have.

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Rolled-Ribbon® Battery Modules

Rolled-Ribbon Battery Modules have a flexible design that enables the packaging of Rolled-Ribbon cells into modules for scalable battery systems.

The unique Rolled-Ribbon cell design enables the construction of battery systems with stacked-cell battery modules that provide unparalleled performance and are “tough as nails”.

Battery modules do not require welding of any kind, which means that cell failures no longer require the scrapping of entire battery modules. Failed cells can be removed and replaced. Cells can be harvested from battery modules and repurposed.

The cell design provides a large cell terminal surface area for high rate capability and high thermal conductivity, resulting in cooler operation with minimal temperature gradients and thermal management. BETTER CELLS … BETTER BATTERIES!

Rolled-Ribbon Advantages

- **Flexible, Modular, Scalable**
- **Stacked-Cell Design**
- **No Welding – Serviceable**
- **High Rate Capability**
- **High Thermal Conductivity**
- **Rugged, Durable Construction**

Applications

- **Industrial Equipment**
- **Utility Vehicles**
- **Electric Vehicles**
- **Marine Vessels**
- **Transportable Power Systems**
- **Microgrids – Grid Energy Storage**
- **Uninterruptible Power Systems**

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Rolled-Ribbon Li-ion LFP Battery Modules

Characteristic/Battery Module	Units	48V-S	24V-M	48V-M	36V-L	48V-L
Series-Parallel Configuration		1C15S1P	1C08S1P	1C15S1P	1C12S1P	1C15S1P
Cell Package	mm	136x15	165x15	165x15	165x28	165x28
Li-ion Formulation		LFPE	LFPE	LFPE	LFPE	LFPE
Nominal Voltage	V	48.0	25.6	48.0	38.4	48.0
Capacity (@23°C, 1C)						
Coulombic	Ah	15	22	22	45	45
Energy	Wh	720	560	1,050	1,728	2,160
Voltage Range	V	37.5-54.7	20.0-29.2	37.5-54.7	30.0-43.8	37.5-54.7
Ambient Operating Temperatures						
Discharging	°C			-20 to +45		
Charging	°C			0 to +45		
Storage	°C			-20 to +45		
Discharging Characteristics (@23°C)						
Standard (1C)	A	15	22	22	45	45
Maximum Continuous (5C)	A	75	110	110	225	225
Peak < 15 sec (10C)	A	150	220	220	450	450
Charging Characteristics (@23°C)						
Charge Mode				CC-CV		
Standard (1C)	A	15	22	22	45	45
Maximum Continuous (2C)	A	30	44	44	90	90
Peak < 15 sec (4C)	A	60	88	88	180	180
Power/Energy (@23°C)						
Peak Power (10C)	kW	7.2	5.6	10.5	17.3	21.6
Volumetric Densities						
Standard Energy (1C)	Wh/L	100	88	110	132	138
Standard Power (1C)	W/L	100	88	110	132	138
Peak Power (10C)	W/L	1,006	888	1,108	1,325	1,381
Gravimetric Densities						
Standard Energy (1C)	Wh/kg	67	55	70	91	96
Standard Power (1C)	W/kg	67	55	70	91	96
Peak Power (10C)	W/kg	679	554	700	914	960
DCIR (@50% DOD)	mΩ	< 45.0	< 17.2	< 32.3	< 13.2	< 16.5
Physical Characteristics						
Endcap Dimensions	mm	149x156	171x180	171x180	171x180	171x180
Length Overall	mm	307.5	204.6	307.5	426.6	507.8
Battery Weight	kg	10.6	10.1	15.0	18.9	22.5

NOTE: The above are just a few examples of Battery Modules based on a few select Rolled-Ribbon cell sizes with the LFPE electrochemical formulation. The Battery Module design, itself, is based solely on cell sizes and the number of cells per cell stack, which can be from four to sixteen. It is independent of the electrochemical formulations used in the Rolled-Ribbon cells.

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