



Wise Energy Technologies

Product specification Doc# 20220828PSR-01

12V 30Ah Battery Module

Lithium-Titanate Battery Module

- High Cycle life
- Wide operating temperature range
- High power, Rapid Charge
- Outstanding safety
- Low cost stationary use



Performance Characteristics	Value
Norminal voltage	12V
Voltage range	9~12.5V
Capacity	30Ah
Typical discharge energy	345Wh
Specific energy	59Wh/kg
Internal impedance	5mΩ
Maximum continuous discharge or charge current	30A
Life Characteristics	
Cycle life at 1C charge and 1C discharge at 25℃	>16000 to 80% of initial capacity
Cycle lift at 1C charge and 1C discharge at 55℃	>4000 to 80% of initial capacity
Calendar life at 25℃	15years
Temperature Limits	
Operating temperature range	-40~60℃ cell temperature
Module Dimensions	
Dimensions	L174xW149xH120 mm
Weight	5.6kg
BMS parameters	

Address : Zhongneng Science&technology Park, #168 Tanlong North Road, Tanzhou Town, Zhongshan City, P.R. China
Telephone: +86 189 2692 3685



Wise Energy Technologies

Cell overcharge protection voltage	2.9±0.05V
Cell overcharge protection release voltage	2.75±0.05V
Cell overdischarge protection voltage	1.7±0.05V
Cell overdischarge protection release voltage	2.1±0.05V
Overall module overcharge protection voltage	14.25V
Overall overcharge protection release voltage	13.75V
Overall module overdischarge protection voltage	8.5V
Overall overdischarge protection release voltage	9V
Discharge current level 1 alarm	36A±3%
Discharge current level 2 protection	45A±3%
Charge current protection	45A±3%
General protection/release delay	1sec
Short circuit protection conditions	External load short circuit
Charge/discharge low/ high temperatuer alarm	-38/63°C
Charge/discharge low/high temperatuer protection	-40/60°C
Self-current current consumption during operation	35mA
Communication	Uart、RS485
Accuracy	Current detection accuracy: $\leq (\pm 3\% \text{FSR})$ Voltage detection accuracy: $\leq \pm 15\text{mV}$ Temperature detection accuracy: $\leq 2^\circ\text{C}$ SOC average accuracy: $\leq 8\sim 10\%$



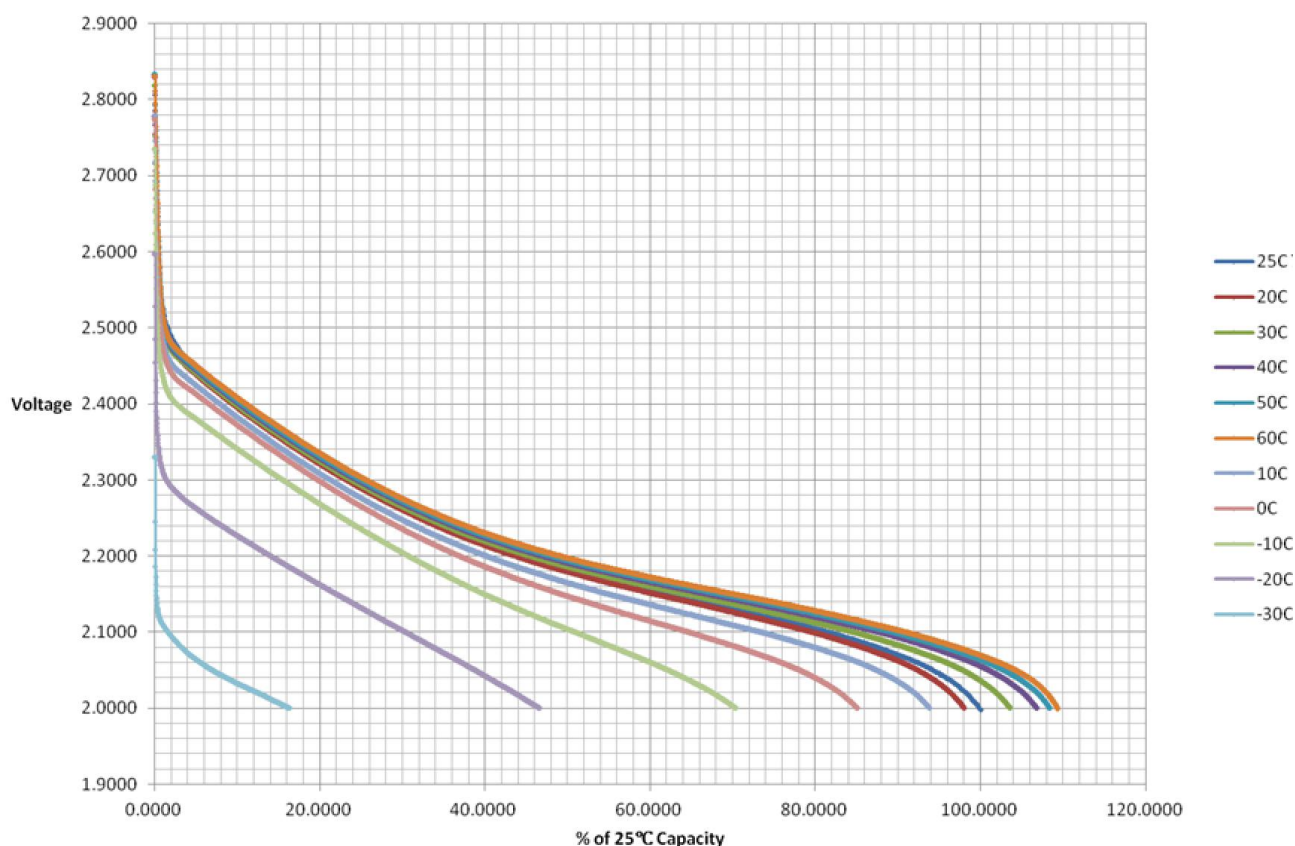
Wise Energy Technologies

30Ah cell and module life table

DOD (%)	Average Cell Temperature (°C)						
	25	30	35	40	45	50	55
Cycle Life (cycles to 80% of original charge capacity)							
100	16,003	12,702	10,082	8,003	6,352	5,042	4,002
90	19,757	15,682	12,447	9,880	7,842	6,224	4,941
80	25,005	19,847	15,753	12,504	9,925	7,878	6,253
70	32,659	25,923	20,576	16,332	12,963	10,289	8,167
60	44,453	35,284	28,006	22,230	17,644	14,005	11,116
50	64,012	50,809	40,329	32,011	25,408	20,167	16,008
40	100,018	79,388	63,014	50,016	39,700	31,512	25,012
30	177,810	141,135	112,024	88,918	70,578	56,020	44,466
20	400,073	317,554	252,055	200,066	158,800	126,046	100,048
10	1,600,292	1,270,215	1,008,220	800,264	635,201	504,184	400,191

Cell charge and discharge data under different temperatures

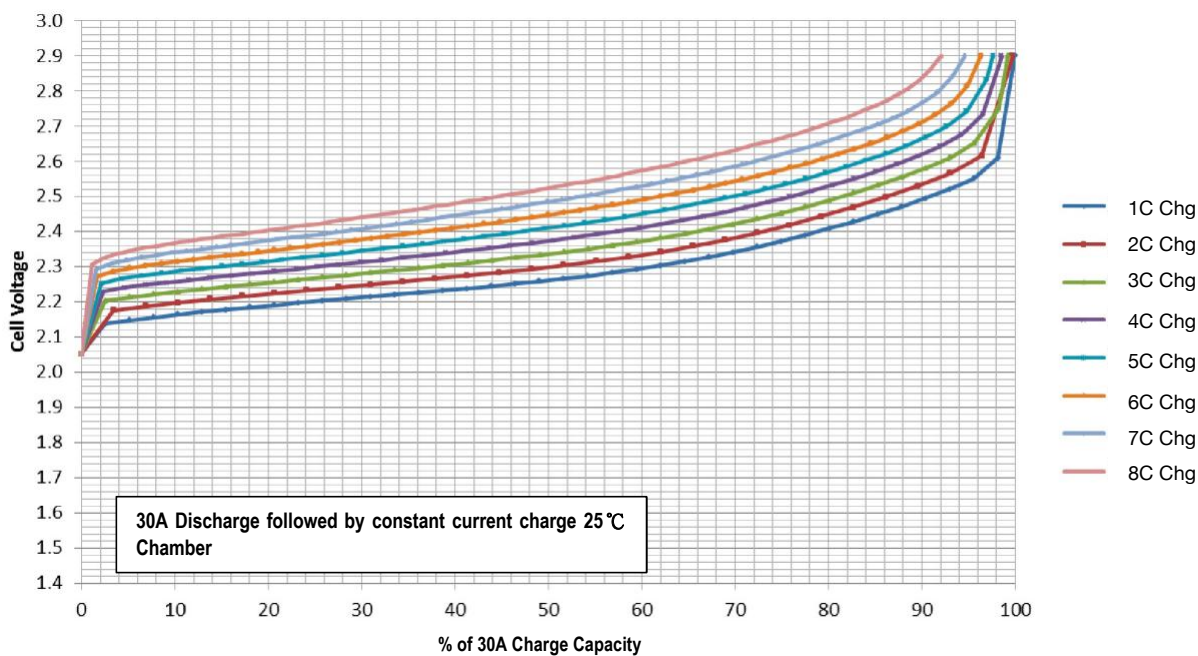
Cell SN: 1200015121410006



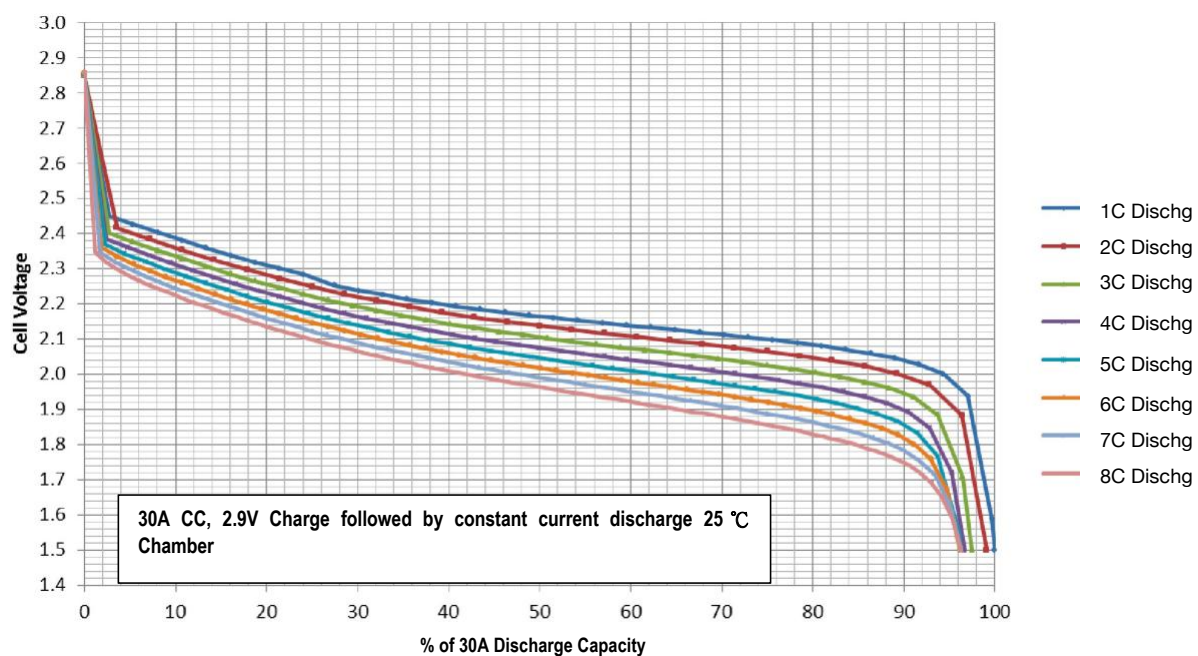


Wise Energy Technologies

Cell charge data under different C rate



Cell discharge data under different C rate





Wise Energy Technologies

30Ah cell datasheet

Performance Characteristics		Nominal Values
Nominal Voltage		2.3V
Capacity		30Ah
Typical high rate capacity (180 amp at 25°C)		> 28.5Ah
Typical energy (30 amp at 25°C)		69Wh
Pulse power (FreedomCar, 10 sec pulse, 50% SOC at 25°C) (Charge/Discharge)		690W
Energy density		145Wh/l
Charge / Discharge capacity at -20°C		≥88% / ≥70% of initial capacity
Charge/ Discharge capacity at -40°C		≥53% / ≥48% of initial capacity
Power density 1		66W/l
Specific energy		66Wh/kg
Specific power 1		/
Internal charge impedance (10 sec DC pulse 50% SOC, at 25°C)		< 1mΩ
Internal discharge impedance (10 sec DC pulse 50% SOC, at 25°C)		< 1mΩ
Max continuous charge		180A
Max continuous discharge		180A
Pulse charge/discharge rate (10 sec pulse)		300A
Internal impedance (1000 hertz AC, 10% SOC 25°C)		≤1.0mΩ
Life Characteristics		
Cycle life at 1C charge and 1C discharge, 100% DOD, 25°C		>16000 to 80% initial capacity
Cycle life at 1C charge and 1C discharge, 100% DOD, 55°C		>1000 to 95% initial capacity
Calendar life at 25° C		25 年
Temperature Limits ²		
Operating temperature range		-40°C to +65°C cell temperature
Storage temperature range ²		-5°C to +28°C environment temperature
Voltage Limits ³		
Discharge cut off voltage at 0°C to +60°C / -30°C to 0°C		1.5V
Charge cut off voltage at 0°C to +60°C		2.9V
Module Dimensions		
Height (H) x Width (W) x Thickness(T)		97.0mmx173.0mmx28.5mm
Weight		1.03kg
Design Standards		
Transportation Specifications		TBD

¹ Power at 25°C for 10 sec is calculated using FreedomCar discharge formulas.

² Optimal storage temperature is 25°C. Recommended charge and discharge current ≤ 30A when temperature is lower than 0°C

³ In battery systems, the battery management system must enforce the voltage limits at the individual cell level.