NS LITHIUM

NIPRESS all about batteries

LITHIUM BATTERY

Li-ion ($LiFePO_4$) Battery

NS - 4850 - TB

48 V 50AH

Application :

- Telecommunication
- Backup Power

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1. Scope

This specification is applied to the reference battery in this Specification that manufactured by PT. Nipress Tbk.

2. Product Specification

Table 1

	No.	Item	General Parameter		Remarks
Package	1	Rated Capacity	Typical	50Ah	Standard discharge after standard charge (package)
			Minimum	50Ah	
	2	Nominal Voltage	48V		Mean Operation Voltage
	3	Voltage at end of Discharge	40V - 44.8V		Discharge Cut-off Voltage
	4	Charging Voltage	56.8V - 58.4V		
	5	Internal Impedance	≤110mΩ		Internal resistance measured at AC 1 KHz after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times
	6	Standard charge	Constant Current 10A Constant Voltage 56.8V– 58.4V 0.01CA cut-off		Charge time : Approx 6 h
	7	Standard discharge	Constant current : 10A end Voltage 40V-44.8V		
	8	Maximum Continuous Charge Current	25A		PCM Continuous 25 A
	9	Maximum Continuous Discharge Current	35A		PCM Continuous 35A
	10	Operation Temperature Range	Charge : 0 ~ 45 ^{0}C		60 ± 25 % R.H. Bare Cell
			Discharge : -20 ~ 60^{0}C		

Continuous the table 2

	No.	Item	General Parameter	Remark
Package	11	Storage Temperature Range	Less than 12 months : -20 ~ 25 ^{0}C	60 ± 25% R.H. at the shipment state
			Less than 3 months : -20 ~ 40 ^{0}C	
			Less than 7 day : -20 ~ 65 ^{0}C	
	12	Dimensions	442*385*132.5mm	
	13	Weight	31.5kg	

3. Battery Management System

3.1 BMS Specification

1. The BMS is designed for 16 series lithium battery
2. The BMS Have all function which are

Over charge detection function

Over discharge detection function

Over current detection function

Short detection function

Balance function

Communicate function

Alarm function

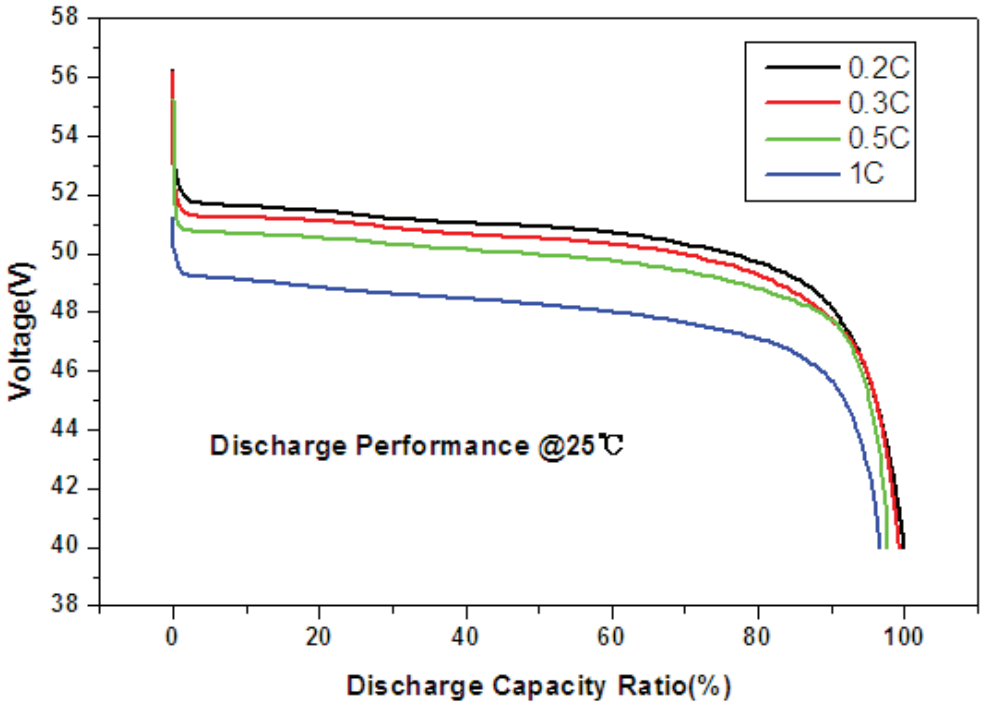
3.2 BMS Protect Parameter

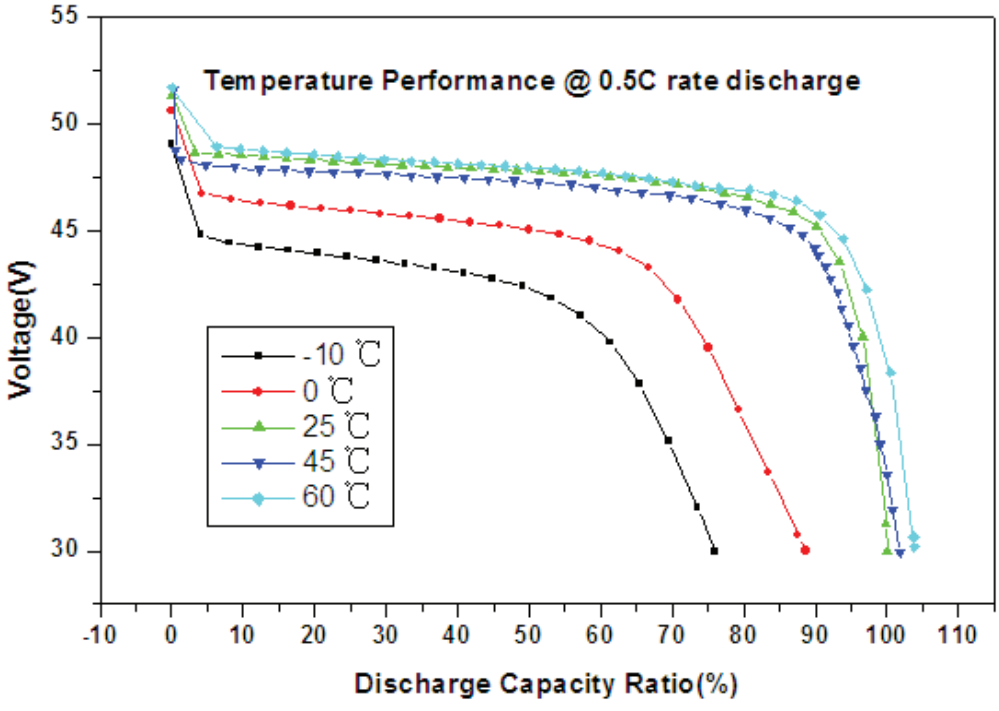
48V 16S LIFEPO4 BMS Module Specification. Model number : LB-T16X-TX13

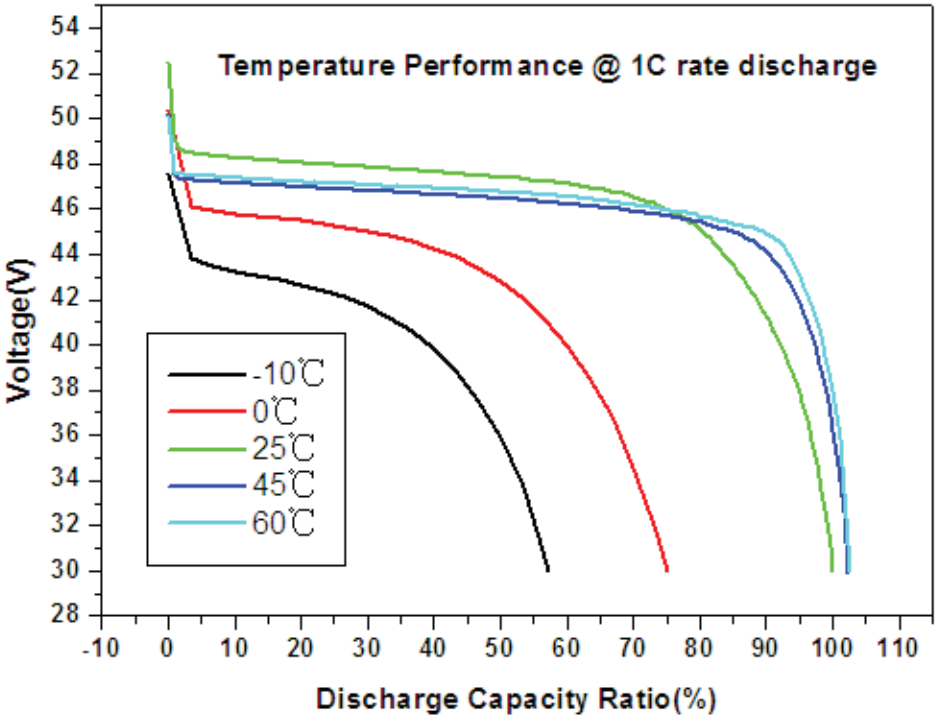
Item	Content	Criterion
Unit cell over charge protection	Over charge detection voltage	3.80 ± 0.02V
	Over charge detection delay time	Spec.Value 1.0s
	Over charge release voltage	3.34 ± 0.02V
Unit cell discharge protection	Over discharge detection voltage	2.5 ± 0.02V
	Over discharge detection delay time	Spec.Value 1.0s
	Over discharge release voltage	2.75 ± 0.02V
Over current protection	Over Current protection current 1	35 ± 2A
	Over current detection delay time1	≤2500ms
	Discharging over current protection current2	41.3 ± 2A
	Over current detection protection delay time2	≤100ms
	Over current protection current	25 ± 2A
Short circuit protection	Short circuit protection current	80 ± 4A
	Protection condition	Disconnect load
	Detection delay time	≤300μs
	Protection release condition	Disconnect load
Current consume	Current consume in normal opration	≤20mA
	Internal consume when not working	≤350μA
Temperature protection	Charge high temperature protection	65 ± 5 ^{0}C
	Charge high-temperature recover	55 ± 5 ^{0}C
	Discharge high-temp.protection	75 ± 5 ^{0}C
	Discharge high-temp. recover	65 ± 5 ^{0}C
	Charge Low-temp.protection	-10 ± 5 ^{0}C
	Charge Low-Temp.recover	-1 ± 5 ^{0}C
	Discharge Low-temp.protection	-25 ± 5 ^{0}C
	Discharge Low-Temp.recover	-20 ± 5 ^{0}C
Balancing	Balance starting voltage	3.5V
	Balance starting voltage different	20mV
Communication	With RS232 and RS485 standard communication interface, to real-time monitor through computer battery pack capacity (SOC), battery pack/battery voltage, battery pack/battery current, Environment, battery pack temperature, charging/discharging.	
Alarm	Fuction with over-temperature,over charge,over discharge, over current, short	

4.Appendix

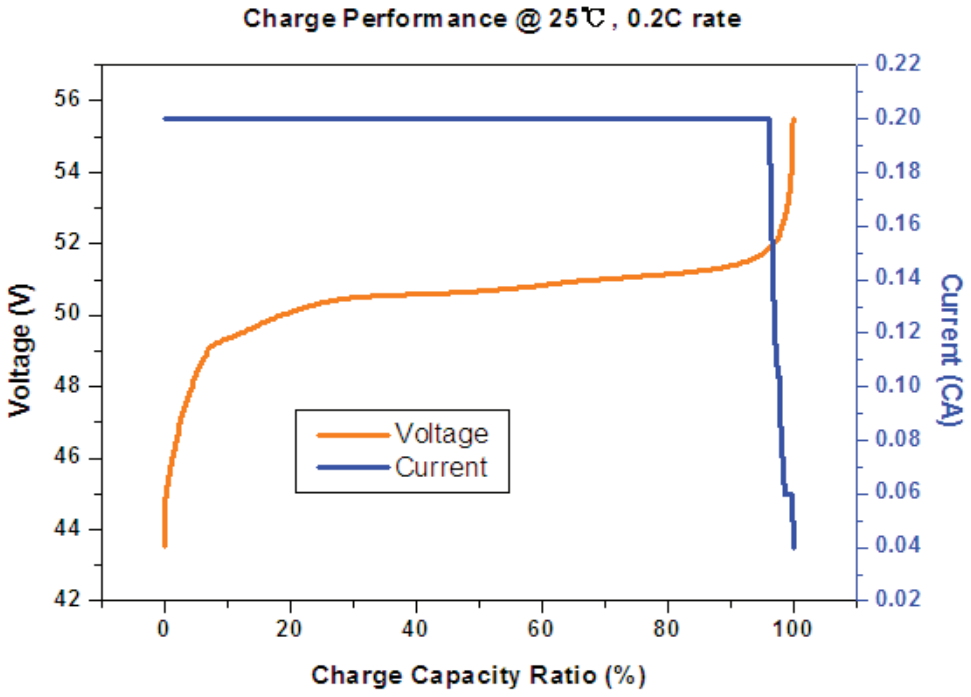
4.1 Discharge Curve







4.2 Charge Curve



Charge efficiency

48V Charge performance @ 25^{0}C, 0.2C rate		
Charge time (min)	Charge capacity ratio(%)	Charge voltage(V)
0	0.0	43.5
30	9.8	49.3
60	19.7	50.1
90	29.5	50.5
120	39.4	50.6
150	49.2	50.7
180	59.1	50.8
210	68.9	51.0
240	78.8	51.1
270	88.6	51.3
300	95.1	54.4
330	100.0	54.4