NATURE POWER

NA48100-ES (48V100Ah)

Nature Battery delivers safe lithium iron phosphate Battery solutions for Telecom application.

Overview

The NA 48V100Ah backup lithium iron phosphate battery system is developed for backup of Telecom equipment. Under normal condition, grid AC power supply to rectifier module and the Telecom loads and charge battery pack; When the AC power fail, rectifier module stop power supply, the battery serves for Telecom equipment, to ensure the Telecom equipment runs normally; when the AC power is switched on again, power rectifier module for Telecom equipment recover to while charge the battery pack.

Features

- RS485 communication output for monitoring
- Built-in automatic protection for overcharge, Over- discharge and overtemperature conditions
- State of charge and state of health indication
- Built-in battery control for efficient operation
- Internal cell balancing
- Compatible with standard Telecom rectifier
- Maintenance free

Specifications		NA48100-ES
Voltage		51.2 V
Number of cell		16 cell
Nominal Capacity (40°C , 0.5C)		100 Ah
Weight (Approximate)		42.6±0.3Kg
Energy	Normal energy (40°C , 0.5C)	5120 Wh
	Volumetric energy density	153Wh/L
	Gravimetric energy density	112Wh/kg
Dimensions (W*D*H)	Width*Depth* Height	462mm*480mm*177mm
Impedance	(Max, at 1000Hz.)	≤25mΩ
Standard Discharge 25°C	Max. constant current	100A
	Cut-off voltage	42V
Standard charge 25℃	Charge Voltage	54-55V
	Max. constant current	100A
	Recommended charging current and me	20A(0.2C) for5.2 hours
Round trip efficiency (%)		＞96%
Calendar life	25°C	＞12 years
Cycle life (0.2C, 25°C)		80% DOD 4000 cycles
Recommend operating temperature		Charging: 0°C ~60°C
		Discharging: -20°C ~ 60°C
Recommend storage temperature		Recommended range: 0℃ ~ 60℃

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NO.	Type		Function	Se ng value	Remarks
				PKG48100-ES51.2V100Ah	
1	Voltage	Charge	Cell Voltage Protection	3.90V Protection	Recover at 3.6V
2			Total Voltage Protection	57V Protection	Recover at 54.0V
3		Discharge	Cell Voltage Protection	2.3V Protection	Recover at 3.1V
4			Total Voltage Protection	42V Protection	Recover at 46.5V
5	Current	charge	Normal	≤100A	
6		Discharge	Normal	≤100A	
7			Over Current Protection 1	＞100A and ＜150A	Delay 30s ,recovery in every 60s
			Over Current Protection 2	＞150A and ＜300A	Delay 3s ,recovery in every 60s
8			Short Circuit Protection	≥300A	Delay 300uS
9	Temp	Cell Temp 1	Low temp protection	Charging ＜ -10℃ Discharging ＜- 20℃	Delay 1~2S
10		Cell Temp 2	High temp protection	Charging ＞70℃ Discharging ＞75℃	Delay 1~2S
11		PCB	Range	≥95℃	Recovery at 75℃
12	Cell Balance	Balance	Make all cells be balance during charging process. Current: 150mA	$V_{Max.}$≥3.40V and $V_{Max.}$ -V_{Min}≥40mV, Start balance	All cell voltages＜3.4V or $V_{Max.}$ - V_{Min}≤40mV or discharge S balance

Battery Status.

1. Stop/Transport Mode. In working mode, turn off air switch, battery will go to STOP mode with low self-discharge. In STOP mode, charging MOS and discharging MOS are turn off, battery cannot charge, discharge or communicate.

2. Working Mode. In STOP mode, connect the battery to SMPS, turn on air switch, battery will go to working mode. In working mode, BMS will monitor battery voltage, current, and temp and communication is available, charging MOS and discharging MOS are closed, Battery will operate as the settings.

3. Sleep Mode. Aer turn on the battery, if the battery voltage below low voltage protection, BMS will go to sleep mode in 1 minute. In sleep mode, charging MOS and discharging MOS are closed; BMS will check the current in every 1 min, if there is charging current connecting; battery will turn to working mode.

4. Error Mode. In working mode, if there is: ①.Battery cells, ΔU＞1V, or ②.Any cell voltage＞3.9V or ＜2.3V, or ③. Battery temp is ＜-20℃ or +75℃. BMS will go to error mode, ALM will bright and other LED will shut down, and go to STOP mode, charging MOS and discharging MOS are turn off. Need to make troubleshoot.

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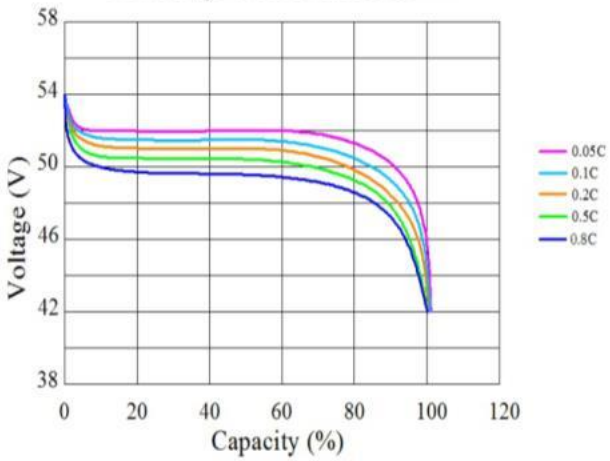
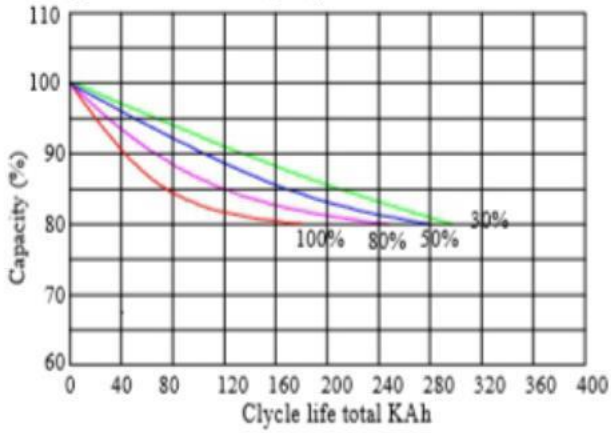
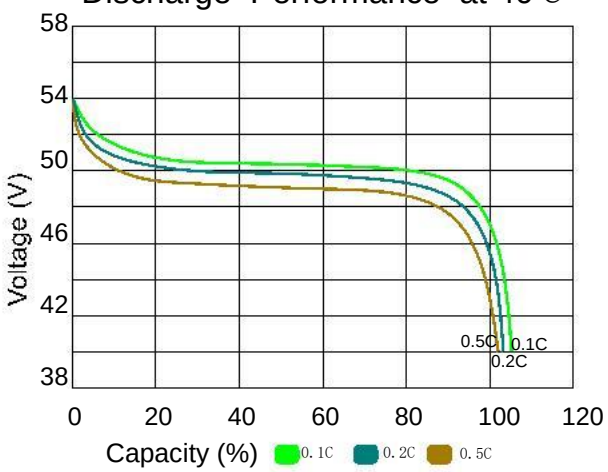
Discharge Performance at 25°C



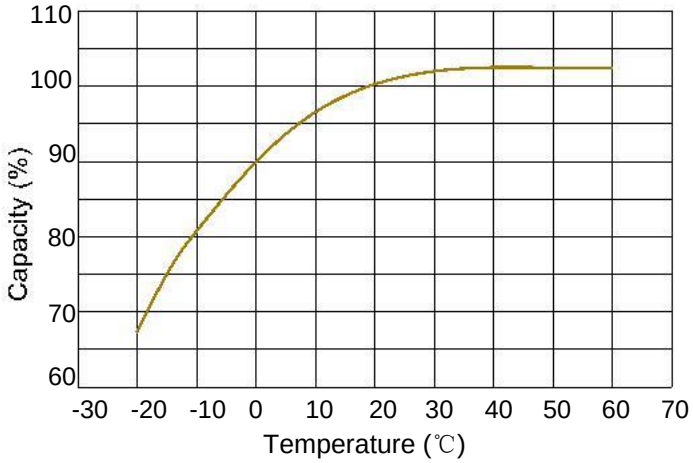
Cycles life total capcity with DOD at 25℃ 0.8C



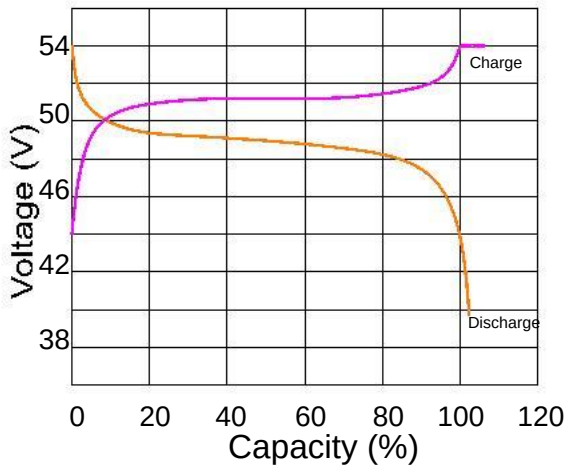
Discharge Performance at 40℃



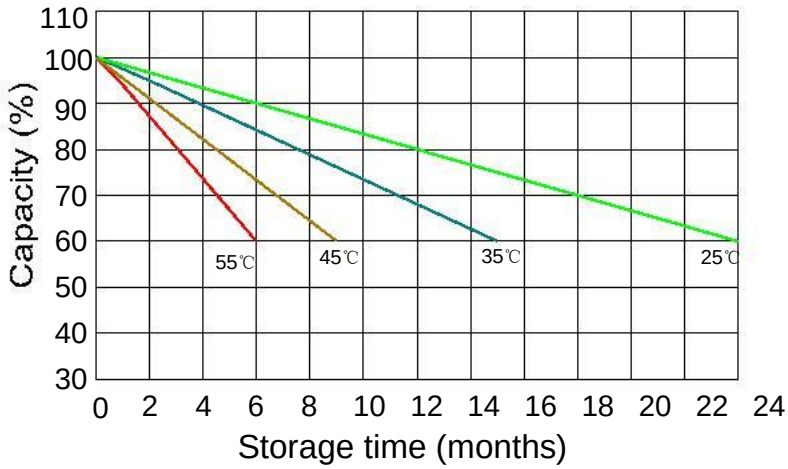
Temperature effects on capacity at 0.5C



Charge and Discharge at 40℃, 0.5C



Self-discharge at different temperatures



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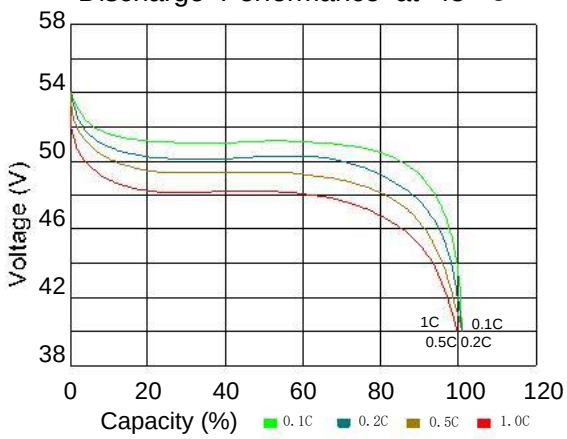
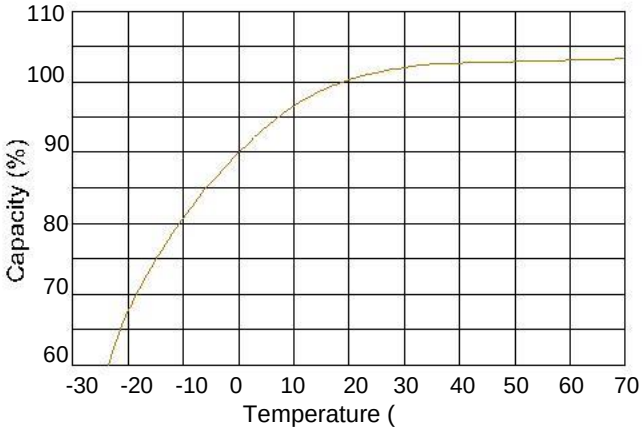
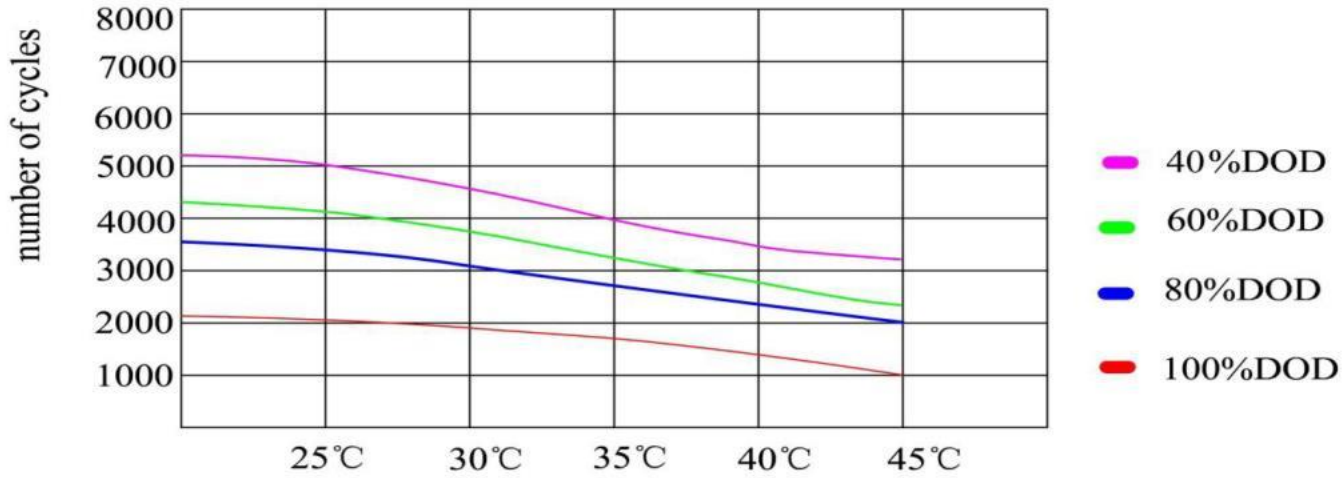
Discharge Performance at 45 ℃



Temperature effects on capacity at 0 .2C



Number of cycles VS DOD at different temp



Performance may vary depending on, but not limited to cell usage and application. If cell is used outside specifications, performance will diminished. All specifications are subject to change without notice. All information provided herein is believed, but not guaranteed, to be current and accurate.