NPP Power Co., Ltd



NSFD050Q10 12V50Ah

LiFePO₄ Lithium Battery

Longer Cycle Life: Offers up to 15 times longer cycle life and 5 times longer float/calendar life than lead acid battery.

Lighter Weight: About 40% weight of a comparable lead acid battery, save up to 60% in weight.

Quick Charge: Short charge time compared with lead acid battery.

Low Self-Discharge: Lower self-discharge compared with lead acid battery, longer storage time without recharging.

Superior Safety: Multi-protection methods built inside to protect the battery from overcharge, over discharge and short circuit situation.

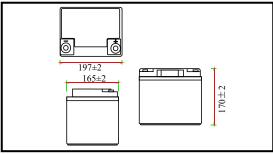
High Efficient: Higher round-trip energy efficiency of the average (92%) than lead acid battery 80% (discharge from 100% to 0% and back to 100% charged).



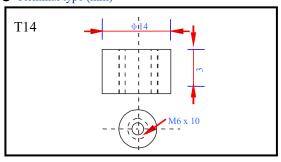
Specifications

Nominal voltage		12V
Nominal capacity		50Ah
Dimensions	Length	197±2mm (7.76inch)
	Width	165±2mm (6.50inch)
	Height	170±2mm (6.69inch)
	Total height	170±2mm (6.69inch)
Approx. weight		6.30kg (13.89lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



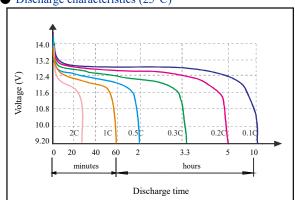
Characteristics

A0°C 101% Capacity affected by temperature 25°C 100% O°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge 0°C~60°C (-4°F~140°F Emperature range Charge 0°C~45°C (32°F~113°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) 0.2CA Constant Current to 14. then Constant Voltage 14.6V Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (Bluetooth optional) Application connection 1 string 1 parallel			T
Electrical Parameters (25°C) Months Self Discharge Charge Efficiency Discharge Efficiency Discharge Efficiency Parameters (25°C) Discharge Efficiency Discharge Efficiency Discharge Efficiency Parameters (25°C) Discharge Efficiency Discharge Efficiency Parameters (25°C) Discharge Efficiency Parameters (Fully charged, 25°C) Cycle life A0°C Capacity affected by temperature Capacity affected by temperature Discharge Discharge Charge Charge Charge Charge Charge Charge Charge O°C~ 45°C (32°F ~ 113°F) Storage O°C~ 40°C (32°F ~ 104°F) Water Dust Resistance IP64 Charge Voltage Charge Voltage Charge Current Maximum Charge Current Discharge Current Discharge Charge Current Discharge Cut Off Voltage Tisup Communicate Protocol (optional) Default none (Bluetooth optional) Default none (Bluetooth optional) Default none (Bluetooth optional)	Parameters	Rated Voltage	12.8V
Harameters (25°C) Months Self Discharge <3% Charge Efficiency 99.5%@ 0.2C Discharge Efficiency 96-99%@ 1C Terminal type T14 Internal resistance (Fully charged, 25°C) ≤16mΩ Cycle life >3000 cycles @ 0.2C 100%D.0 Cycle life >3000 cycles @ 0.2C 100%D.0 Cycle life Discharge 0.2C Loons @ 0.2C loons @ 0.2C loons @ 0.2C loons how Operating loon Charge Cycle loon Charge Cycle for Cycle fo		Rated Capacity (C ₅)	50Ah@25°C
Months Self Discharge Charge Efficiency 99.5%@ 0.2C Discharge Efficiency 99.5%@ 0.2C Discharge Efficiency 96-99%@ IC Terminal type T14 Internal resistance (Fully charged, 25°C) ≤16mΩ Cycle life >3000 cycles @ 0.2C 100%D.6 Capacity affected by temperature 25°C 100% Capacity affected by temperature 0°C 90% -10°C 75% Nominal operating temperature 25°C± 3°C (77°F± 5°F) Operating temperature Charge 0°C~ 45°C (32°F ~ 113°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) 0.2CA Constant Current to 14. then Constant Voltage 14.6V Until the current drops to 0.02C before use, rest 30 minutes Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (Bluetooth optional) Application connection 1 string 1 parallel		Energy	640Wh
Discharge Efficiency 96-99%@ 1C Terminal type		Months Self Discharge	<3%
Terminal type Internal resistance (Fully charged, 25°C) ≤16mΩ Cycle life A0°C Capacity affected by temperature O°C Operating temperature Discharge Charge O°C~ 40°C (32°F ~ 110°F) Water Dust Resistance IP64 Charge Voltage Charge Charge O°C~ 40°C (32°F ~ 104°F) Water Dust Resistance IP64 Charge Voltage Charge Current Charge Current Doscharge Continuous Discharge Current Doscharge Communicate Protocol (optional) Default none (RS485 option Default none (Bluetooth option Application connection I string I parallel		Charge Efficiency	99.5%@ 0.2C
Internal resistance (Fully charged, 25°C) ≤16mΩ Cycle life >3000 cycles @ 0.2C 100%D.0 40°C 101% Capacity affected by temperature 25°C 100% 0°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge 0°C~ 40°C (32°F ~ 140°F) Charge 0°C~ 40°C (32°F ~ 113°F) Storage 0°C~ 40°C (32°F ~ 104°F) Water Dust Resistance IP64 Charge Voltage 14.6V O.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes Charge Current 25A Charge Cur off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 150A (<100ms)		Discharge Efficiency	96-99%@ 1C
Cycle life >3000 cycles @ 0.2C 100%D.0 40°C 101% 25°C 100% 10°C 75% Nominal operating temperature 25°C± 3°C (77°F± 5°F) Operating temperature Charge 0°C ~ 45°C (32°F ~ 113°F) Tange Storage 0°C ~ 40°C (32°F ~ 104°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) 0.2CA Constant Current to 14. then Constant Voltage 14.6V Until the current drops to 0.02C Day the constant Current to 10A Maximum Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (Bluetooth optional) Application connection 1 string 1 parallel	Terminal type		T14
A0°C 101% Capacity affected by temperature 25°C 100% O°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge 0°C~60°C (-4°F~140°F Emperature range Storage 0°C~45°C (32°F~113°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) 0.2CA Constant Current to 14. then Constant Voltage 14.6V Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (Bluetooth optional) Application connection 1 string 1 parallel	Internal resistance (Fully charged, 25°C)		≤16mΩ
Capacity affected by temperature 0°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge Charge Storage Charge Charge Voltage Charge Voltage Charge Current Discharge Current Standard Charge Mode (25°C±2°C, <75%RH) Charge Current Charge Current Charge Current Charge Current Discharge Curr	Cycle life		>3000 cycles @ 0.2C 100%D.O.D
affected by temperature 0°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge Storage Charge Charge Voltage Charge Voltage Charge Current Charge Current Maximum Charge Current Charge Cut off Voltage Continuous Discharge Current Maximum Pulse Current SoC (optional) Application connection Po°C 90% 90% -10°C 90% 90% 90°C ±3°C (77°F±5°F) 25°C±3°C (70°F±5°F) -20°C~60°C (-4°F~140°F) -20°C~40°C (32°F~113°F) -20°C~40°C (32°F~104°F) 0.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes 10A 150A (<100ms) 11.2V Communicate Protocol (optional) Default none (Bluetooth optional) Default none (Bluetooth optional) 1 string 1 parallel	affected by	40°C	101%
temperature 0°C 90% -10°C 75% Nominal operating temperature 25°C±3°C (77°F±5°F) Operating temperature Charge 0°C~60°C (-4°F~140°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 50A Maximum Pulse Current 1.2V Communicate Protocol (optional) Default none (RS485 option SOC (optional) Application connection 1 string 1 parallel		25°C	100%
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Operating temperature range Charge Charge Charge O°C~ 40°C (-4°F ~ 140°F) Storage O°C~ 40°C (32°F ~ 113°F) Water Dust Resistance Charge Voltage Charge Voltage 14.6V 0.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes Charge Current Charge Cut off Voltage Continuous Discharge Current Maximum Pulse Current Discharge Cut Off Voltage Communicate Protocol (optional) SOC (optional) Application connection D°C~ 40°C (32°F ~ 113°F) 0°C~ 40°C (32°F ~ 104°F) 0.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes 10A 15A 15OA (<100ms) Discharge Cut off Voltage 11.2V Communicate Protocol (optional) Default none (RS485 option		-10°C	75%
temperature range Charge Storage O°C~ 45°C (32°F ~ 113°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) Charge Current Maximum Charge Current Charge Cut off Voltage Continuous Discharge Current Maximum Pulse Current Discharge Cut Off Voltage Communicate Protocol (optional) Application connection Storage O°C~ 45°C (32°F ~ 113°F) O°C~ 45°C (32°F ~ 104°F) Inserting the proposition of	Nominal operating temperature		25°C± 3°C (77°F± 5°F)
temperature range Storage 0°C~ 45°C (32°F ~ 113°F) Water Dust Resistance IP64 Charge Voltage 14.6V Standard Charge Mode (25°C±2°C, <75%RH) 0.2CA Constant Current to 14. then Constant Voltage 14.6V Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (RS485 option SOC (optional) Application connection 1 string 1 parallel	Operating	Discharge	- 20°C~ 60°C (-4°F ~ 140°F)
Storage Water Dust Resistance Charge Voltage 14.6V 0.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes Charge Current Maximum Charge Current Charge Cut off Voltage Continuous Discharge Current Maximum Pulse Current Discharge Cut Off Voltage Communicate Protocol (optional) SOC (optional) Application connection I string 1 parallel	temperature	Charge	0°C~ 45°C (32°F ~ 113°F)
Charge Voltage 14.6V 0.2CA Constant Current to 14. then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes Charge Current 10A Maximum Charge Current 25A Charge Cut off Voltage 14.6V Continuous Discharge Current Maximum Pulse Current 50A Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) SOC (optional) Default none (RS485 option application connection 1 string 1 parallel	range	Storage	0°C~ 40°C (32°F ~ 104°F)
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Standard Charge Mode (25°C±2°C, <75%RH) Charge Current Charge Current Charge Cut off Voltage Continuous Discharge Current Discharge Cut Off Voltage Discharge Cut Off Voltage Communicate Protocol (optional) Application connection then Constant Voltage 14.6V until the current drops to 0.02C before use, rest 30 minutes 10A 45A 25A 14.6V Continuous Discharge Current 50A 150A (<100ms) 11.2V Communicate Protocol (optional) Default none (RS485 option 1 string 1 parallel	Charge Voltage		14.6V
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Maximum Pulse Current 150A (<100ms) Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (RS485 option SOC (optional) Default none (Bluetooth option Application connection 1 string 1 parallel	Charge Cut off Voltage		14.6V
Discharge Cut Off Voltage 11.2V Communicate Protocol (optional) Default none (RS485 option SOC (optional) Default none (Bluetooth option Application connection 1 string 1 parallel	Continuous Discharge Current		50A
Communicate Protocol (optional) SOC (optional) Application connection Default none (RS485 option Default none (Bluetooth option 1 string 1 parallel	Maximum Pulse Current		150A (<100ms)
SOC (optional) Application connection Default none (Bluetooth option 1 string 1 parallel	Discharge Cut Off Voltage		11.2V
Application connection 1 string 1 parallel	Communicate Protocol (optional)		Default none (RS485 option)
	SOC (optional)		Default none (Bluetooth option)
Cells 4 Strings	Application connection		1 string 1 parallel
	Mechanical	Cells	4 Strings
Container ABS		Container	ABS

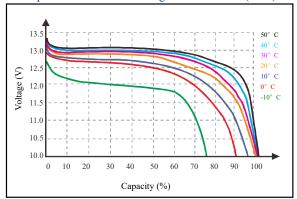
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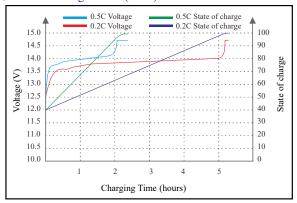
Discharge characteristics (25°C)



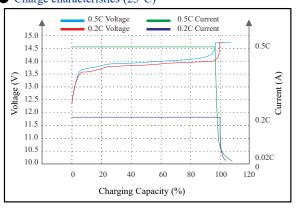
• Temperature affect on discharge characteristics (0.5C)



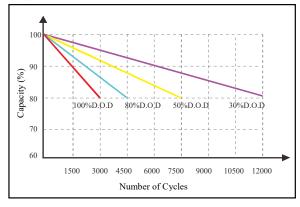
State of Charge Curve (25°C)



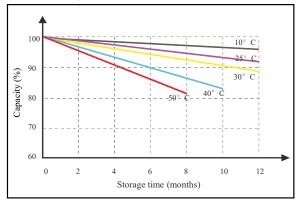
• Charge characteristics (25°C)



• Cycle life on D.O.D (25°C)



Self Discharge Characteristics Curve



Note 2: The above curves are based on laboratory testing data @ 25°C 40%RH.





