

## 40Ah Solid-State Anode-Free Cell 495Wh/kg

### Key Specifications

Capacity	40Ah	Voltage	3.85V
Model	PE40N-EF	Operating Temp	-43°C to 55°C

### Product Overview

Model Number	PE40N-EF
Series	Anode-Free
Cell Structure	Pouch
Nominal Capacity (Ah)	40.0
Nominal Voltage (V)	3.85
Cell Weight (g)	316
Energy Density (Wh/kg)	495
Max. Continuous Charge Rate	0.5C
Max. Continuous Discharge Rate	3C
Max. Pulse Charge Rate	1C
Max. Pulse Discharge Rate	5C
Cycle Life (times)	200–600
Operating Temperature (°C)	-43°C to 55°C
Dimensions (T×W×H, mm)	5.4×74×172
Design Standards	GB/T 38058-2019, GB 31241-2022
Certification Standards	UN38.3, RoHS
Sample MOQ	10 pcs (Negotiable)

Sample Lead Time	7–15 working days
Bulk Lead Time	45 days (subject to volume & requirements)



**PE40N-EF** Anode-Free Pouch Cell  
Next-Generation High-Energy Anode-Free Technology

495 Wh/kg High Energy Density | 40.0Ah Large Capacity | 3C 3C Discharge High Power

-43°C to 55°C Wide Operating Temperature | Safer Anode-Free Technology | 200-600 Cycle Life

IDEAL FOR HIGH-DEMAND APPLICATIONS: Electric Vehicles, Energy Storage, Robotics, Drones, Marine, Portable Power

Higher Energy: Anode-free design delivers industry-leading energy density. | Enhanced Safety: Reduced internal resistance for improved safety. | Longer Life: Stable performance with extended cycle life. | Eco-Friendly: Lower carbon footprint, sustainable for the future.

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Operating Temperature (°C)	-43°C to 55°C
Dimensions (T-W-H, mm)	5.4x76x172
Design Standards	GB/T 36628-2019, GB 31041-2022
Certification Standards	UN38.3, RoHS
Sample MOQ	10 pcs (Pkg: 10/20)
Sample Lead Time	7-15 working days
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## Solution

For long-endurance UAVs, electric aviation prototypes, and weight-sensitive mobile power systems, the hard limit is often not pack voltage. It is mass. A conventional cell can deliver the current, but once the pack is sized for real mission time, the extra weight starts taking back the endurance it was meant to create.

The PE40N-EF is designed for programs where high energy density is the first requirement, not an afterthought. With 40 Ah capacity, 3.85 V rated voltage, 316 g cell weight, and 495 Wh/kg energy density, it gives pack engineers more usable energy in the same mass budget. The 3C continuous discharge and 5C pulse discharge ratings also keep it practical for systems that see takeoff, climb, acceleration, or short high-load events.

The -43°C to 55°C operating range makes the cell suitable for cold-region and high-altitude work where standard lithium cells can lose output quickly. For cell-level selection and pack integration support, see LiTrue's [battery cell](#) product range.

## Application Areas

- Long-Endurance UAVs: 495 Wh/kg energy density helps increase flight time without adding unnecessary pack weight.
- High-Altitude Platforms: the -43°C low-temperature capability supports aircraft and equipment operating in cold air environments.
- Electric Aviation Prototypes: 3C continuous discharge and 5C pulse discharge give engineers more margin for takeoff, climb, and transient load testing.

- Portable Mission Power: the 40 Ah capacity and 316 g cell weight fit field systems where carried mass directly affects operating time.
- Custom Battery Pack Development: PE40N-EF can be used as the base cell for LiTrue's [custom battery pack](#) projects when high specific energy is the main design target.

## FAQs

### What is the main advantage of the PE40N-EF cell?

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Its main advantage is high specific energy. The cell is rated at 40 Ah, 3.85 V, 316 g, and 495 Wh/kg, making it suitable for systems where every gram affects endurance, payload, or operating range.

### How much current can this cell support?

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At 40 Ah, 0.5C continuous charging equals 20 A, and 3C continuous discharge equals 120 A. For pulse operation, 1C charging equals 40 A, and 5C discharge equals 200 A. Final pack current limits should still be validated with the BMS, thermal structure, and duty cycle.

### Can this cell be used in cold environments?

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Yes. The listed operating temperature range is -43°C to 55°C. That makes PE40N-EF relevant for high-altitude UAVs, winter-region equipment, and outdoor mission systems where low-temperature output matters.

### What pack voltage can be built with PE40N-EF?

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Each cell is rated at 3.85 V nominal. A 12S pack is about 46.2 V nominal, while a 14S pack is about 53.9 V nominal. LiTrue can support series-parallel configuration, BMS matching, and mechanical pack design through its [engineering team](#).