

50 Amp Hour Cell

Key Features

Based on Altairnano's patented manufacturing process, our products exhibit some of the most exceptional performance in the marketplace today. Replacing graphite with a new high surface area nano lithium-titanate oxide based anode material, Altairnano's products feature unique fast-charge, abuse tolerance, and extreme long life along with cold temperature charging. Some of our key advantages include:

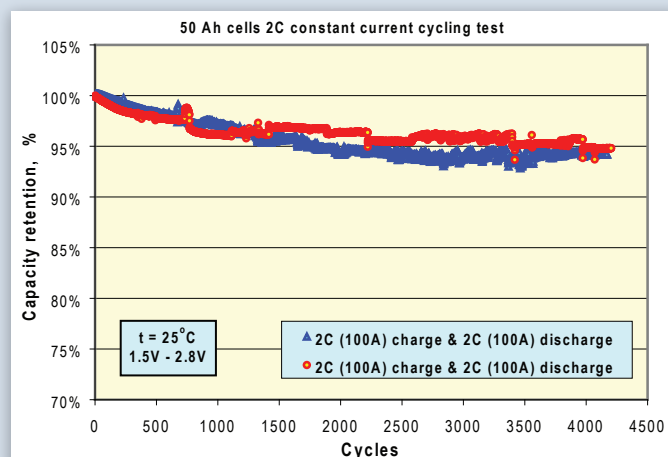
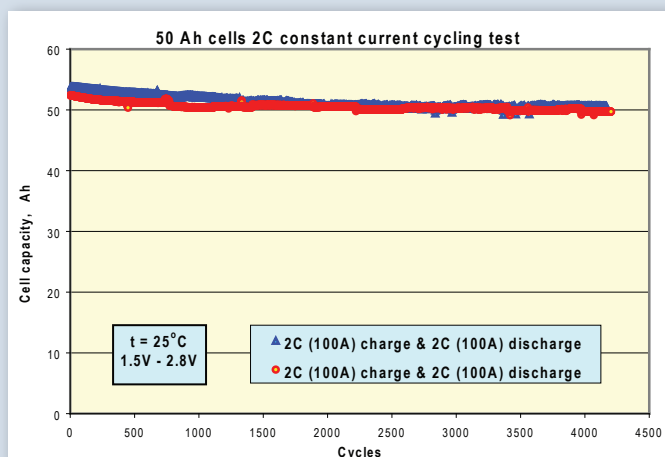
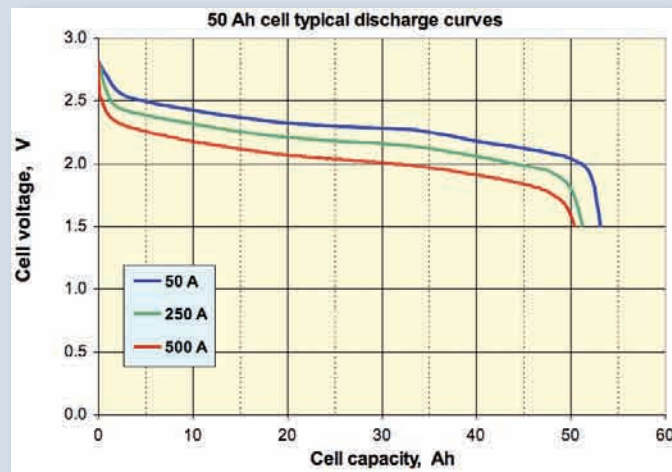
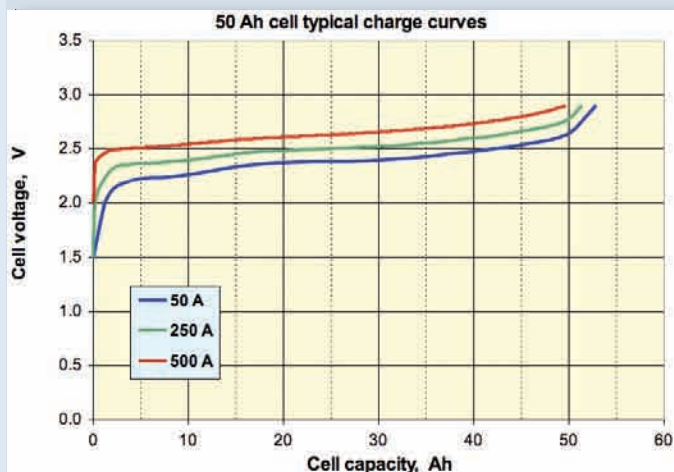
- Large configuration choices
- Greater temperature versatility with ranges of -40° Celsius to 55° Celsius
- Increased level of power (3 times more powerful than existing batteries)
- Long cycle life (exceeding 5,000 charges)
- Fast charge/discharge rates (within 10 minutes)
- Higher levels of operational abuse tolerance than existing batteries



Nano Lithium-Titanate
Battery Cell – 50Ah

CELL SPECIFICATIONS	
Operating temperature range	-40°C to +55°C
Recommended storage temperature	-40°C to +55°C
Nominal voltage	2.3 V
Nominal capacity (1C charge/1C discharge)	50 Ah
Internal discharge impedance (10 sec, DC)	0.55 m ohms typical
Internal charge impedance (10 sec, DC)	0.55 m ohms typical
Internal impedance 1 kHz AC	0.40 m ohms typical
Recommended standard charge/discharge	50 A & constant current
Recommended fast charge	300 A & constant current
Max continuous discharge	300 A & constant current
Pulse charge/discharge rate (10 sec pulse)	500 A max
Cell weight	1.6 kg
Physical dimensions (W x H x T)	256 mm x 259 mm x 13 mm
Typical power (10 sec pulse 50% SOC), at 25°C	1250 W & 760 W/kg
Typical energy, 1C at 25°C	116 Wh & 72 Wh/kg
Expected calendar life at 25°C	20 years
CYCLE LIFE	
At 2C charge & 2C discharge, 100% DOD, 25°C	>12,000 cycles
At 1C charge & 1C discharge, 100% DOD, 55°C	>4,000 cycles
RECOMMENDED CUT OFF / CHARGE CUT OFF VOLTAGE	
Recommended cut off voltage in the range -40°C to +30°C	1.5 V
Recommended cut off voltage in the range +30°C to +55°C	2.0 V
Recommended charge cut off voltage at +20°C to +55°C	2.8 V
Recommended charge cut off voltage at -40°C to +20°C	2.9 V

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Altairnano Lithium Titanate Battery technology is possibly the safest lithium battery technology available. The cells described in this data sheet have no graphitic anodes which are a weak component in other lithium technologies. However, the electrolyte is flammable. Given the possibility of mechanical or externally caused fire and/or heat damage, the designer of systems using these cells should implement adequate temperature control and physical protection of the cells. Altairnano requires the values on this data sheet not be exceeded in operation or storage. Design of battery systems must follow the instructions and requirements of the companion instruction sheet available from Altairnano dated October 1, 2008 and entitled "Instructions for design and use of Altairnano nLTO battery cells."

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204 Edison Way, Reno, Nevada 89502
tel: 775.856.2500 fax: 775.856.1619
www.altairnano.com