

Preliminary Data Sheet

Model Number: N-3F-2K

Rechargeable Solid-State Lithium Thin Film Battery
NanoEnergy® series

1. Features

- All solid-state
- Long calendar life
- Fast recharge
- Eco-friendly
- Ultra thin
- Flexible
- Long cycle life

2. Chemistry

The battery has LiCoO₂ cathode, LiPON ceramic electrolyte, and Li anode.

3. Electrical Properties

Model Number	N-3F-2K
Characteristics	
Foot Print (mm, ± 0.15mm)	25.4 x 25.4
Maximum Thickness (mm)	0.3
Operating Voltage (V)	4.2 - 3.6
Minimum capacity (mAh) ⁽¹⁾	3
Maximum internal resistance (Ω) ⁽²⁾	30
Maximum continuous discharge current (mA)	5
Maximum pulsed discharge current (mA)	20
Operation temperature (°C) ⁽³⁾	-40 to +80
Recoverable self-discharge (mAh per month, maximum) ⁽⁴⁾	0.3
Calendar life (year, to minimum of 2.1 mAh) ⁽⁵⁾	5 years
Typical charge time (minute, to minimum of 2.4 mAh)	30
Cycle life (to minimum of 2.1mAh) ⁽⁶⁾	1000

(1) Discharged at 0.3mA or lower; at 30 degree C; cut off voltage is 3.6V

(2) Tested at 30 degree C; estimated internal resistances are 50, 95, 185, 390, and 880 Ohm at 20, 10, 0, -10°C, and -20°C respectively.

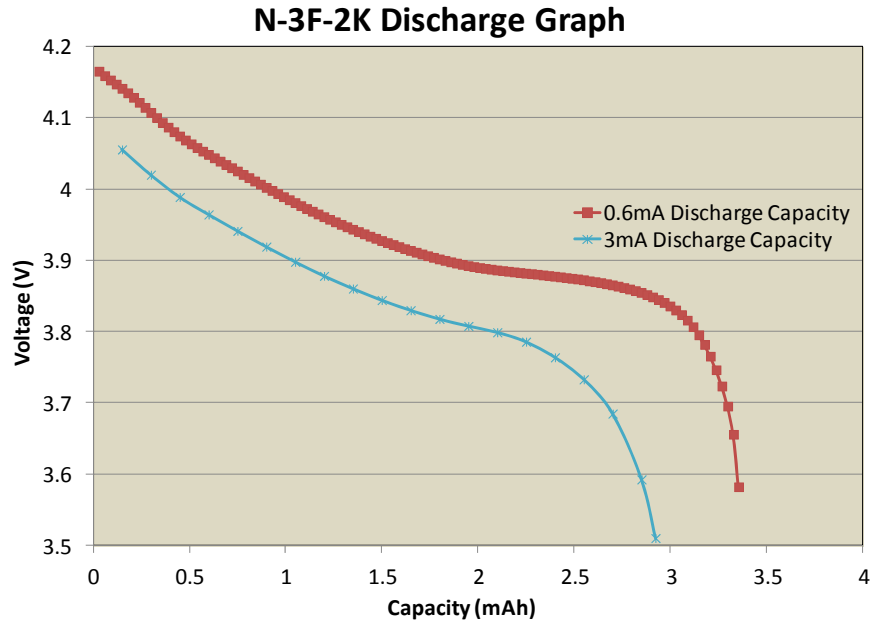
(3) Operate at 60°C or above reduces the cycle life and calendar life

(4) Room temperature storage; capacity measured at 0.3mA or lower

(5) Room temperature storage; capacity measured at 0.3mA or lower after full recharge

(6) Capacity measured at 0.3mA or lower, at 30°C; discharge capacity in cycle test is 2.1mAh; cycled at room temperature

4. Typical discharge curve



6. Recommended charge and discharge procedures

6.1 Charge

Battery can be charged with a $4.2V \pm 0.05V$ constant voltage source with or without current limit. More than 90% of the total capacity is recharged when the charge current falls below 0.1mA.

Please contact Front Edge Technology for fast charge process.

6.2 Discharge

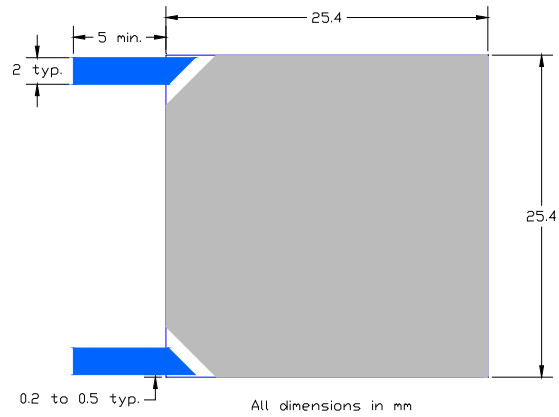
When discharge under constant current or constant load, the cut off voltage should be no less than 3.0V. Cut off voltage can be lowered to 2.4V for pulsed discharge.

7. Battery contacts

Connection to the battery can be made directly onto the metal pads on the battery using conductive epoxy. Pre-attached metal foil tabs for contacts are available. Typical metal foils are Ni. Detailed dimensions are shown below.

CONFIDENTIAL

FET SPEC#: (preliminary)
REV NUMBER:
DATE: 05, February 2013



8. Shipment

Batteries are fully charged at 4.2V prior to shipment. Each battery is individually packaged in a plastic box; model number and serial number are marked on the top of the box.