

Introduction

This product specification defines the requirements and performance of the rechargeable lithium ion battery LIR18650-34-CIT.

Battery specifications

Item	Parameter	Remark
Nominal Capacity	3400mAh	0.2 C ₅ A discharge, 25°C
Nominal Voltage	3.6V	Average Voltage at 0.2C ₅ A discharge
Standard Charge Current	1.70A	Working temperature: 0~40°C
Max Charge Current	3.40A	Working temperature: 0~40°C
Charging Voltage	4.20±0.03V	CC/CV
Constant discharge current	680mA	Working temperature: -20~60°C
Maximum discharge current	1.70A	Working temperature: -20~5°C
	4.87A *	Working temperature: 5~60°C
Discharge cut-off Voltage	2.50V	
Impedance	≤100mΩ	AC 1KHz after 50% charge, 25°C
Weight	Approx: 48.5g	
Storage Temperature	≤1 month	-20~50°C
	≤3 month	-20~45°C
	≤1 year	-20~20°C
Storage humidity	65±20% RH	Best 20±5°C for long-time storage

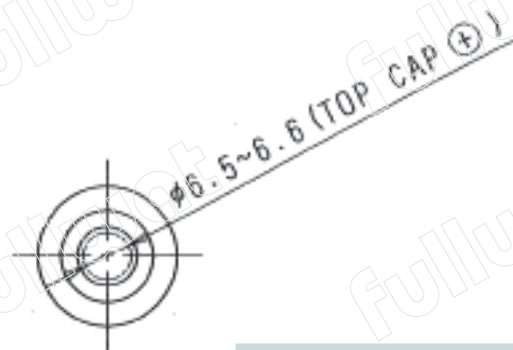
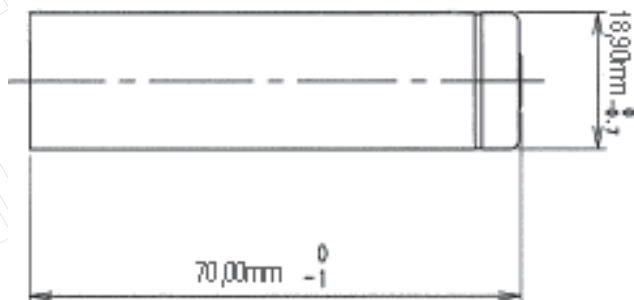
* This value is limited for the protection circuit of the battery, so discharging current will be lower than this value.

Appearance and dimension

There shall be no such defects as deep scratch, crack, rust, discoloration or leakage, which may adversely affect the commercial value of the cell.

Diameter: ≤18.90mm

Height: ≤70.0mm



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Protection circuit specifications

	Item	Specifications
Voltage	Charging voltage	4.20VDC CC/CV
Current	Current consumption	≤10μA
	Maximal continuous discharging current	3A
Over charge protection	Over charge detection voltage	4.25±0.025V
	Over charge detection delay time	700~1300ms
	Over charge release voltage	4.19±0.050V
Over discharge protection	Over discharge detection voltage	2.80±0.050V
	Over discharge detection delay time	115~175ms
	Over discharge release voltage	3.00±0.050V
Over current protection	Over current detection voltage	0.15±0.015V
	Over current detection current	5±1A
	Over current detection delay time	18±30ms
	Release condition	Cut load
Short circuit protection	Detection condition	External short circuit
	Detection delay time	100~500μs
	Release condition	Cut load
Resistance	Protection circuitry (B- to P-)	≤50mΩ
Temperature	Operating temperature range	-40~85°C
	Storage temperature range	-40~125°C

Definition of standard charging method:

At 25±2°C, the battery is charged with 0.5C₅A constant current until voltage reaches 4.20V. Then the current is reduced in order to keep 4.20V constant voltage until current declines to 50mA.

Definition of standard discharging method:

At 25±2°C, the battery is discharged with 0.2C₅A constant current until voltage reaches 2.50V.

General performance

Item	Test Methods	Performance
0.2C capacity	After standard charge, battery is stored 0.5h. Then discharge with standard discharging method.	≥300min
1.0C capacity	After standard charge, battery is stored 0.5h. Then discharge with constant current 1.0C ₅ A to voltage 2.50V.	≥54min
Cycle life	Battery is standard charged, stay 5min, the discharge at constant current 1.0 C ₅ A to 2.50V, stay 5min. Repeat above steps continuously until discharging capacity less than 60% of the rated capacity.	≥300 cycles
Storage characteristics	After standard charge, battery is stored in a temperature controlled environment at 25°C±2°C for 30 days. After storage, battery shall be discharged with standard discharging method.	≥240min

Safety test

Item	Test Methods	Performance
Drop test	After standard charge, battery is dropped onto a wooden floor from 1.0 meter height for 1 cycle, 2 drops from each battery terminal and 1 drop from the side of battery can. (Total number of drops = 3).	No leakage, no temperature rising.
Vibration test	After standard charge, battery is vibrated for 90 minutes per each of the three mutually perpendicular axis (x, y, z) with total excursion of 0.8mm, frequency of 10Hz to 55Hz and sweep of 1Hz change per minute	No leakage
Heating test	After standard charge, battery is heated in a circulating air oven at a rate of 5°C per minute to 130°C. At 130°C, oven is to remain for 10 minutes before test is discontinued.	No explosion, no fire.
Impact test	After standard charge, battery is impacted with their longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of a 15.8mm diameter bar.	No explosion, no fire.
Crush test	After standard charge, battery is crushed with their longitudinal axis parallel to the flat surface of the crushing apparatus.	No explosion, no fire.

Caution and Prohibition in Handling

Warning for using the lithium ion rechargeable battery. Mishandling of the battery may cause heat, fire and deterioration in performance. Be sure to observe the following.

Caution

- When using the application equipped with the battery, refer to the user's manual before usage.
- Please read the specific charger manual before charging.
- Charge time should not be longer than specified in the manual.
- When the cell is not charged after long exposure to the charger, discontinue charging..
- Battery must be charged at operating temperature range 0 ~ 45°C
- Battery must be discharged at operating temperature range -20 ~ 60°C.
- Please check the positive (+) and negative (-) direction when install battery.
- Battery must not be used to assemble in battery packs.
- Battery must be stored separately.
- Battery must be stored in a dry area with low temperature for long-term storage.
- Do not place the battery in direct sunlight or heat.
- Do not use the battery in high static energy environment where the protection device can be damaged.
- When rust or smell is detected on first use, please return the product to the seller immediately.
- The battery must be away from children or pets
- When battery life span shortens after long usage, please exchange to new batteries

Prohibitions

- Do not use different charger. Do not use cigarette jacks (in cars) for charging.
- Do not charge with constant current more than maximum charge current.
- Do not disassemble or reconstruct the battery.
- Do not throw or cause impact.
- Do not pierce a hole in the battery with sharp things. (such as nail, knife, pencil, drill)
- Do not use with other batteries or cells.
- Do not solder on battery directly.
- Do not press the battery with overload in manufacturing process, especially ultrasonic welding.
- Do not use old and new cells together.
- Do not expose the battery to high heat. (such as fire)
- Do not put the battery into a microwave or high pressure container.
- Do not use the battery reversed.
- Do not connect positive(+) and negative(-) with conductive materials (such as metal, wire)
- Do not allow the battery to be immersed in or wetted with water or sea-water.