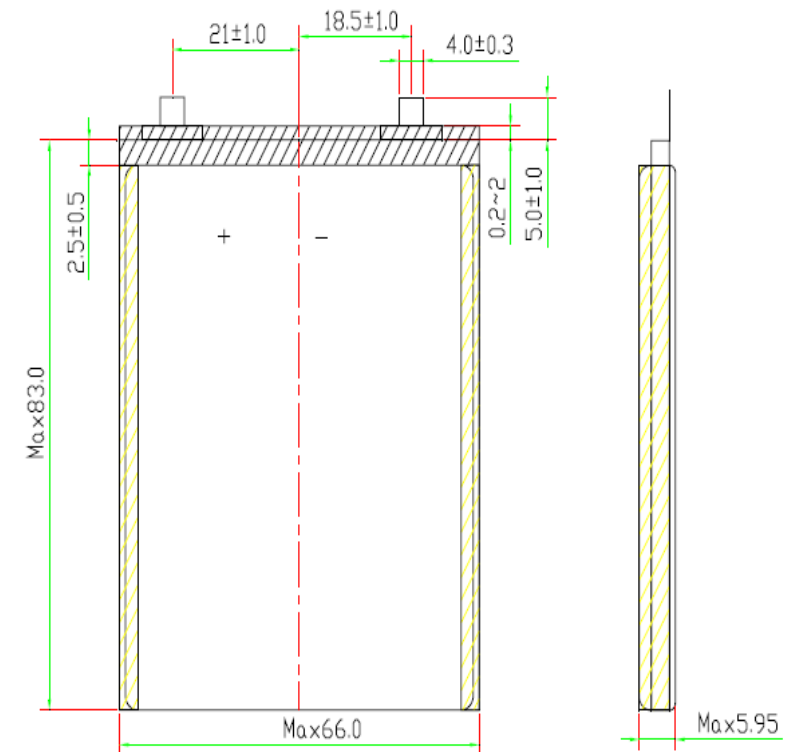


Superior *L*ithium *P*olymer *B*attery

LECS 606683HV 4550

No.	Items	Specifications	Remark
1	Rated Capacity	Typical: 4550mAh Min: 4500mAh	Charge: Standard charge Discharge: Standard discharge
2	Nominal Voltage	3.8V	
3	Charge Limited Voltage	$4.350^{+0.03}_{-0.02}$ V	
4	Discharge Cut-off Voltage	3.0V	
5	Standard Charge	Max 0.3C (1350mA) to 4.0V , Max 0.1C (450mA) to 4.35V, then CV to 0.02C cut off	temperature : 10~20°C
		Max 0.5C (2250mA) to 4.35V, then CV to 0.02C cut off	temperature : 20~45°C
6	Standard Discharge	Using 0.2C (900mA) constant current discharge to the Discharge Cut-off Voltage	
7	Maximum Continuous Charge Current	0.5C (2250mA)	
8	Maximum Continuous Discharge Current	0.5C (2250mA)	
9	Operating Temperature and Humidity Range	Charge: 0~45°C Humidity: Less than 85% RH	The charge current should be less than 0.1C if the temperature less than 10°C. The temp. means cell surface temp.
		Discharge: -20~60°C Humidity: Less than 85% RH	
10	Storage Temperature and Humidity Range	1 month: -20~60°C 3 month: -20~45°C 1 year: -20~25°C Humidity: 45%~ 90% RH	The battery should cycle once in three month. Recommended storage temperature is 25°C of SOC 50%.
11	Weight	74.0g or less	



No.	Items	Criteria	Test Condition
1	Open Circuit Voltage	3.86-3.95V	Measure cells at $25 \pm 5^\circ\text{C}$, 50% SOC.
2	Internal Impedance	$\leq 50 \text{ m}\Omega$	Measure cells using an alternate current impedance meter at 1KHz at $25 \pm 5^\circ\text{C}$ after received.
3	Rated Capacity (0.2C ₅ A)	$\geq 4500 \text{ mAh}$	Standard discharged after the standard charged cells rest 10 min at $25 \pm 5^\circ\text{C}$. Three cycles are permitted.
4	High Rated Capacity	$\geq 4050 \text{ mAh}$	Discharged at 0.5C ₅ A rate after the standard charged cells rest 10min at $25 \pm 5^\circ\text{C}$. Three cycles are permitted.
5	Temperature Characteristics	Residual Capacity: $60^\circ\text{C} \geq 4275 \text{ mAh}$ $0^\circ\text{C} \geq 3600 \text{ mAh}$ $-20^\circ\text{C} \geq 2700 \text{ mAh}$ Appearance: No deformation, No leakage, No ruptures.	Measured the high rate capacity as the initial capacity. Stored the recharged cells for 3 hrs at $60 \pm 2^\circ\text{C}$, $0 \pm 2^\circ\text{C}$, $20 \pm 2^\circ\text{C}$, and then quickly discharged at this temperature, but Standard discharged at $-20 \pm 2^\circ\text{C}$ & $0 \pm 2^\circ\text{C}$ exceptionally. Checked the cells' appearance after rest for 2 hrs at room temperature.
6	Storage Characteristics	Residual Capacity: $\geq 3600 \text{ mAh}$ Impedance increase: $\leq 50 \text{ m}\Omega$ Swelling: $\leq 0.6\text{mm}$ Appearance: No leakage	Measured the high rate capacity as the initial capacity. Stored the recharged cells for 7 days at $60 \pm 2^\circ\text{C}$ and test the thickness at $60 \pm 2^\circ\text{C}$ and then rest for 2 hrs at room temperature, standard discharged after checked the cells' appearance and impedance.
		Residual Capacity: $\geq 4050 \text{ mAh}$ Recoverable Capacity: $\geq 4275 \text{ mAh}$ Impedance: $\leq 50 \text{ m}\Omega$ Swelling: $\leq 0.1\text{mm}$ Appearance: No leakage, No damage	Measured the high rate capacity as the initial capacity. Stored the recharged cells for 30 days at room temperature. Quickly discharged after checked the cells' appearance and impedance. Measured recoverable quickly discharge capacity and recoverable impedance.
7	Cycle Life (25°C)	Residual Capacity: $\geq 3600 \text{ mAh}$ Impedance: $\leq 100 \text{ m}\Omega$ Thickness after cycle: $\leq 63 \text{ mm}$	Carry out 400cycles (0.5C charge/0.5C discharge) at $25 \pm 5^\circ\text{C}$.

No.	Items	Criteria	Test Condition
1	Overcharge Characteristics	The maximum Temperature: $\leq 150^{\circ}\text{C}$ Appearance: No rupture, No fire, No smoke, No leakage.	Cell is discharged at $0.5C_{50}A$ till 3V, then is recharged to 4.8V with $1C_{50}A$. The test is terminated either the charge current drops to 20mA at constant voltage; or the total charge time is over 8hrs.
2	Overdischarge Characteristics	The maximum Temperature: $\leq 150^{\circ}\text{C}$ Appearance: No rupture, No fire, No smoke, No leakage.	Cell is charged with standard charge condition, then is discharged with $1C_{50}A$ current to -10V or $\Delta V > 0$ or the total discharge time is longer than 2.5hrs.
3	Short circuit Characteristics	The maximum Temperature: $\leq 150^{\circ}\text{C}$ Appearance: No rupture, No fire, No smoke, No leakage.	Rest cells for 30min at $25 \pm 2^{\circ}\text{C}$ after standard charged. Connect Cell terminals with 1.5mm^2 copper lead (electric resistance: $50\text{m}\Omega$ or less) and leave for 1 hour.
4	Hot Oven Characteristics	The maximum Temperature: $\leq 200^{\circ}\text{C}$ Appearance: No explode	The standard charged cell is to be heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of $5 \pm 2^{\circ}\text{C}/\text{min}$. The oven is to remain for 10 minutes at $130 \pm 2^{\circ}\text{C}$ before the test is discontinued.
5	Impact Test	No fire, No explode	After standard charged, the cell is to be placed on a flat surface. A 5/8 inch (15.8mm) diameter bar is to be placed across the center of the sample. A 20 pound (9.1kg) weight is to be dropped from a height of 24 ± 1 inch (610 \pm 25mm) onto the sample.
6	Crush Test	No fire, No explode	After standard charged, the cell is to be crushed between two flat surfaces. The force for the crushing is to be applied by a hydraulic ram with a 1.25inch (32mm) diameter piston. The crushing is to be continue until a pressure reading of 2500 psig (17.2MPa) is reached on the hydraulic ram, applied force of 3000 pounds (13KN). Once the maximum pressure has been obtained it is to be released.