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SPECIFICATION SHEET FOR IFR26650PC-2200

1 Scope

This technical data stipulates technical specification and requirements of cylindrical Li-ion cell IFR26650PC-2200 manufactured by TYSONIC Battery Inc.

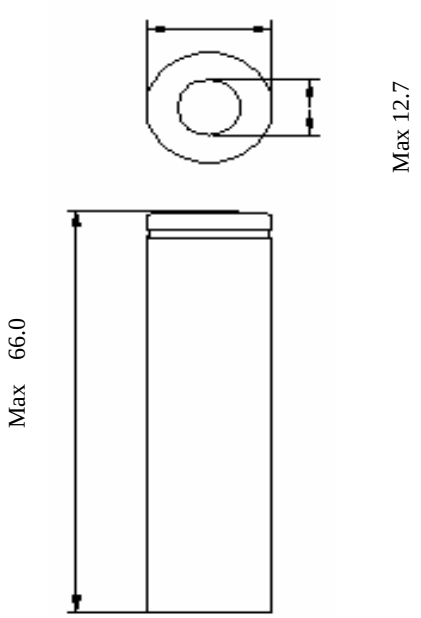
2 Main Technical Specification

Main Technical Specification,see table 1.

Table 1 Main Technical Specification

Items	Main technical parameter
Dimension (including outer shrink PVC or paper tube)	Φ=26.4mm±0.3mm H=65.5mm±0.5mm
Rated voltage	3.2V
Capacity	Rated capacity:2200mAh Min.capacity≥2160mAh constant current discharge at 440mA till voltage of 2.0V at 23ºC ±3ºC
Standard charge	Charge at constant current of 1100mA till voltage of 3.65V,then charge at constant voltage till current is less than 44mA
Cycle life	300 times charge @2200mA/ discharge @22000mA; remaining capacity≥80% of rated capacity
Weight	Approx.80g
Impedance	8mΩ～12mΩ
Max. charge voltage	3.65V
Max.safe charging voltage	4.2V
Temperature scope	Charging: 45ºC Discharging:-20ºC--60ºC Storage:-5 ºC -- 35ºC

Unit: mm



3 Performance

Performance see table 2.

Table 2 performance test

S/N	Items	Test conditions	Requirements
1	Appearance &structure	By vision	Battery appearance clean, No deformation, no obvious scratch, No mechanical damage, no rust, no leakage.
2	Standard test conditions	Tests shall be carried out at an ambient temperature of 23℃±3℃ and humidity of 65%±20%RH unless special specified.	
3	Standard charge	Constant charge at 1100mA to voltage of 3.65V,then constant charge at 3.65V till the charge current is less than 440mA.	
4	Rapid Charge	Charge at a constant current of 4400mA to 3.65V,then charge at a constant voltage of 3.65V till the charge current is less than 110mA.	

5	Shipment voltage	Inspect before delivery	≥3.20V
6	Rated capacity	1.discharge at constant current of 1100mA to cut-off voltage of 2.0V before charge; 2. after standard charge, rest it for 10min; 3.discharge at constant current of 440mA to cut-off voltage of 2.0V,test the capacity	2200mAh
7	Discharge performance of large current	1. discharge battery at constant current of 1100mA to cut-off voltage of 2.0V before charge; 2. charge battery at constant current of 2200mA to voltage of 3.65V,change into charge at constant voltage 3.65V to charge current is less than 44mA,then rest it for 10min; 3. discharge at constant current of 22A to cut-off voltage of 2.0V,test the capacity	≥95% of rated capacity
8	Cycle life	After charge in term of standard charge, rest it for 10min,then change into charge at constant current of 2200mA to cut-off voltage of 2.0V, rest it for 20min after end of discharge, then make for the next cycle. When discharge capacity of any one cycle is less than 70% of rated capacity, cycle life is over.	≥1000cycles
9	Cycle life of large current	Charge at a constant current of 2200mA to 3.65V, then charge at a constant voltage of 3.65V until the charge current is less than 44mA,store it for 10min; Then discharge at a constant current of 22A to 2.0V and rest for 45min.Repeat the cycle until the discharge capacity is less than 80% of its nominal capacity. Cycle life is over.	≥300cycles
10	Max.discharge current	After full charge in term of standard charge, rest it for 10min, then discharge at 50A continuously.	Continuously discharge to voltage of 2.0V
11	Low temperature performance	After full charge in term of standard charge, store it into lower temperature box of -10ºC ±2ºC for 24hrs, then at this conditions, discharge battery at constant current of 440mA to voltage of 2.0V.After end of discharge, take battery from low temperature box, rest if for 2hrs at room temperature, see appearance of battery.	Discharge time shouldn't less than 3.5h, see appearance of battery, should be no deformation, no breakage.
12	Capacity retention	After standard charge in term of standard charge, place battery at ambient temperature of 20ºC ±5ºC for 28d,then at this conditions, discharge at constant current of 2200mA to cut-off voltage of 2.75V.	Discharge time should be not less than 51min

13	Impedance	After standard charge in term of standard charge, Test the internal resistance with A/C internal resistance tester of 1KHz within 1h.	8mΩ-12mΩ

4. Mechanical characteristics

Mechanical characteristics see table 3.

Table 3 test condition of mechanical characteristics

S/N	Test items	Test conditions	Requirements
1	Vibration test	Full charged battery is to be subjected to simple harmonic with an amplitude of 0.76mm (1.52mm total maximum excursion)with frequency to be varied at the rate of 1Hertz per minute between 10 Hertz and 55Hertz,and return in 90min±5min.The battery is to be tested in three mutually perpendicur direction.	No obvious damage, leakage, smoking or explosion. Voltage shall be not less than 3.2V.
2	Drop test	Full charged battery is to be dropped from a height of 1m to a board of 18mm～20mm.	The battery shall not catch fire or explode. No obvious deformation or smoking. Discharge the sample with a constant current of 2200mAh to 2.0V,discharge time shall be not less than 51min.

5 Safety characteristics

Safety characteristics see table 4.

Table 4 test condition of safety characteristics

S/N	Items	Test conditions	Requirements
1	Thermal shock test	After stabilization in room temperature, a full charged battery is to be heated in a gravity convection or circulating air oven with the rate of 5ºC /min±2ºC /min to 130ºC ±2ºC and remain for 10 minutes.	No fire, no explosion
2	Short-circuit test	Full charged battery shall be shot-circuited by connecting the positive and negative terminals of the battery with a thermocouple in circulating air	No fire, no explosion Temperature<150℃

		oven(Total resistance of whole circuit shall be less than 50 mΩ).Temperature of battery shall be examined. The test is to be continued until the temperature is 10℃ lower than peak value.	
3	Over-charge test	1) Store the battery for 10min after standard discharging. 2) Store the battery for 10min after standard charging at temperature of 23℃±3℃,humidity of 65%±20%RH. 3) Charge the battery at a constant current of 6.6A to 10.0V and remain for 7h.The test is to be continued until the temperature drops to 20% of peak value.	No fire, no explosion
4	Impact test	A hammer of 10Kg is to be dropped from a height of 1m to the top of the battery.	No fire, no explosion
5	Penetrate test	After full charge for battery as standard methods, penetrate by a steel nail with diameter of 2.5mm into battery.	No fire, no explosion
6	Forced discharge	Discharge the battery at a constant current of 440mA for 12.5h after standard charging. The test may discontinue when a protective device works.	No fire, no explosion

6. Warranty

The battery is warranted within one year after EX-factory date. Discharge the battery with voltage less than 3.0V at current of 440mA～2200mA to 3.6V every three months.

7. Transportation

The battery shall be delivered in cartons by car,train,ship or plane, and avoid severed collision,impact,crush,sun-baked and wringing. The battery shall be half charged when delivered.

8. Operation instruction

——Do not heat or dispose into fire;

——No not short-circuit the positive and negative terminals of the battery with metallic conductor;

——Do not disassemble;

——Do not weld the battery directly;

——The battery shall be charged, used and stored away from static places;

——Do not use the battery with primary batteries. Do not use with battery of different packag, different model or different brands;

——If the electrolyte leaks on skin or clothes, wash immediately with clean water;

——If the electrolyte leaks into eyes, do not rub, wash with clean water immediately and

contact physician;

——Keep the battery out of reach of children;

——Use the battery under the following temperature requirement: charge under 0ºC ~45ºC, discharge under -10ºC~60ºC .

9 . Others

9.1 The contents do not included in this technical data shall be negotiated by both party concerned.

9.2 It is our right to revise this technical data without notifying any customer.