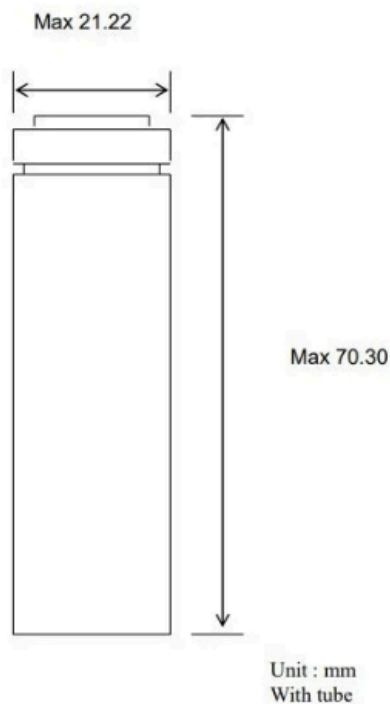


Datasheet: Samsung SDI Li-Ion Cell INR21700-50S

created by: "C. Schieszler"

Overview

- **Type:** 21700 cylindrical cell
- **Capacity:** 5000 mAh (typ.)
- **Price:** €6.95
- **Manufacturer:** Samsung SDI



Item	Specification
3.1 Standard discharge capacity	Typ. 5,000mAh , Min. 4,900mAh -Charge: 0.5C(2.5A), 4.20V, 0.05C(250mA) cut-off @ RT -Discharge: 0.2C(1A), 2.5V cut-off @ RT *1C=5,000mA
3.2 Rated discharge capacity	4,800mAh -Charge: 1.2C(6A), 4.20V, 0.02C(100mA) cut-off @ RT -Discharge: 10A, 2.5V cut-off @ RT
3.3 Nominal voltage	3.6V
3.4 Standard charge	CCCV, 2.5A, 4.20 V, 250mA cut-off
3.5 Rated charge	CCCV, 6A, 4.20 V, 100mA cut-off
3.6 Charging time	Standard charge : 150min / 250mA cut-off(@ RT) Rated charge: 100min / 100mA cut-off(@ RT)
3.7 Max. continuous discharge (Surface temperature)	20A(Without temperature cut) 35A(With 80°C. temperature cut)
3.8 Discharge cut-off voltage	2.5V (End of discharge)
3.9 Cycle life	① Capacity \geq 2,940mAh @ after 250cycles (60% of the standard capacity @ RT) - Charge : 6A, 4.20V, CCCV 100mA cut-off @ RT - Discharge: 20A, 2.5V cut-off @ RT ② Capacity \geq 2,940mAh @ after 100cycles (60% of the standard capacity @ RT) - Charge : 6A, 4.20V, CCCV 100mA cut-off @ RT - Discharge: 35A, 2.5V cut-off (80°C cut-off, re-discharge release < 50°C) @ RT

3.10 Retention characteristics	Capacity recovery(after the storage) \geq 4,320 mAh (90% of the rated capacity @ RT) - Charge : 6A, 4.20V, CCCV 100mA cut-off @ RT - Storage : 30 days (@ 60°C) - Discharge : 10A, 2.5V cut-off @ RT
3.11 Cell weight	72.0g max
3.12 Cell dimension	Height : Max 70.30mm Diameter : Max 21.22mm
3.13 Operating temperature (Ambient)	Charge : 0 to 45°C Discharge: -20 to 60°C
3.14 Operating temperature ⁽²⁾ (Surface)	Charge : 0 to 50°C (recommended recharge release < 45°C) Discharge: -20 to 80°C (must re-discharge release < 60°C)
3.15 Storage temperature ⁽³⁾ (Recovery 90% after storage)	1 year 0~25°C 3 months 0~45°C 1 month 0~60°C

	Discharge condition			
Current	10A	15A	20A	30A
Relative Capacity	100%	95%	95%	93%

Electrical Data

Parameter	Value
Nominal Voltage	3.6 V – 3.7 V
Capacity (typ.)	5000 mAh
Energy	~18 Wh
Charge Cut-off Voltage	4.2 V
Discharge Cut-off Voltage	2.5 – 2.8 V
Max. Continuous Discharge	30 A (6C)
Max. Pulse Discharge	45 A (short-term)
Max. Charge Current	7.5 A (recommended)
Internal Resistance	< 20 mΩ (typ.)

Mechanical Data

Parameter	Value
Diameter	21.1 mm \pm 0.1 mm
Length	70.4 mm \pm 0.2 mm
Weight	approx. 70 g

Parameter	Value
Form Factor	Cylindrical 21700

Operating Conditions

Condition	Range
Charging Temperature	0 °C – 45 °C
Discharging Temperature	–20 °C – +60 °C
Storage Temperature	–20 °C – +25 °C (long term)

Safety Notes

- No integrated BMS → must be used with a protection circuit.
- Protect against short-circuit, overcharge, and mechanical damage.

Cycle Life

- 250–500 charge cycles at 80% remaining capacity (depending on use).

Source

Based on manufacturer specifications (Samsung SDI) and distributor information (e.g. Enerprof, NKON).