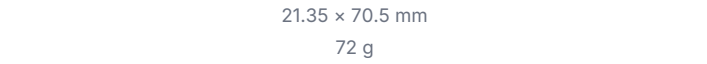

Illustrative render generated from published specifications

21.35 × 70.5 mm
72 g

Samsung INR21700-45T

Samsung

21700 · NMC

MOOCH-TESTED · 35 A

Live page & updates

4,500 mAh	35 A	3.6 V	16.2 Wh
CAPACITY	MOOCH CONTINUOUS	NOMINAL · 2.5 – 4.2 V	ENERGY · 225 WH/KG

REFERENCE ONLY — NOT AN OFFICIAL DOCUMENT

This information is gathered from multiple sources, including manufacturer datasheets, independent third-party testing, and community contributions. Cell specifications vary between production batches and change over time, and no figure here is guaranteed to be correct or current. **Always consult the manufacturer's spec sheet directly.** Use this sheet for reference only — never as the sole basis for a safety-critical decision about charging, discharging, or assembling cells. The cell image is an illustrative render generated from published specifications, not a photograph.

CAPACITY AMONG 21700S

#40 of 72

Lowest in database — Highest

A mid-range 21700 cell. Solid for builds that don't need extreme capacity or discharge.

VOLTAGE OPERATING WINDOW

1.7 V usable

Cutoff 2.5 V — Nominal 3.6 V — Max 4.2 V

Below nominal the cell sags fast under load; above it, the last of the capacity fills slowly on the constant-voltage taper.

APPLICATION SUITABILITY

Rule-of-thumb ratings from this cell's capacity and continuous discharge. Check your own load before committing.

Powerwalls	High capacity means more stored energy per cell. Fewer cells needed for a given kWh target.
Ebike packs	Good balance of capacity for range and discharge for hills. Works well in most ebike packs.
Car audio	Enough discharge to handle amplifier bursts without voltage sag.
High-drain vaping	Above the 25A Mooch CDR threshold. Suitable for regulated and mechanical mods.
Flashlights	High capacity means long runtime. Great for everyday carry and extended use.
Power tools	Sufficient discharge and capacity for most power tool packs.

IDENTITY

Manufacturer	**Samsung**
Model	**INR21700-45T**
Format	**21700**
Chemistry	**NMC**
Wrap colour	**Purple**
Insulator	**White**
Terminal	**Flat top**
Protection	**Unprotected**

OPERATING TEMPERATURE

Charging	**0°C to 45°C**
Discharging	**-20°C to 60°C**

ENERGY & POWER DENSITY

Energy	**16.2 Wh**
Specific energy	**225 Wh/kg**
Volumetric density	**641.86 Wh/L**
Power density (mass)	**1,750 W/kg**
Power density (volume)	**4,992 W/L**
Capacity ranking	**#40 of 72 21700s**

PHYSICAL

Diameter	**21.35 mm**
Length	**70.5 mm**
Weight	**72 g**

ELECTRICAL

Rated capacity	**4,500 mAh**
Nominal voltage	**3.6 V**
Max charge voltage	**4.2 V**
Discharge cutoff	**2.5 V**
Energy	**16.2 Wh**
Max continuous discharge	**35 A (mooch)**
Discharge C-rate	**7.8C**
Standard charge current	**2,250 mA**
Typical charge time	**2 h**
Standard discharge	**900mA**

C-RATE CONVERSION · 4,500 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.9 A	5h 00m
0.5C	2.25 A	2h 00m
1C	4.5 A	1h 00m
2C	9 A	30m
3C	13.5 A	20m
5C	22.5 A	12m

8C	**36 A**	**7m 30s**

Highlighted row is closest to the rated 35 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	2,250 mA	~2h 00m
1C	4,500 mA	~1h 00m

Constant-current phase only. Real charge time runs longer because of the constant-voltage taper at the end.

SERIES PACK CONFIGURATIONS

Voltages calculated from this cell's own nominal and maximum charge voltage. The 3P columns show one common parallel count as a worked example — scale the parallel group to the capacity you need.

SERIES	NOMINAL	FULLY CHARGED	CELLS AT 3P	CAPACITY	ENERGY
3S	10.8 V	12.6 V	9	13.5 Ah	146 Wh
7S	25.2 V	29.4 V	21	13.5 Ah	340 Wh
10S	36 V	42 V	30	13.5 Ah	486 Wh
13S	46.8 V	54.6 V	39	13.5 Ah	632 Wh
14S	50.4 V	58.8 V	42	13.5 Ah	680 Wh

EXAMPLE PACKS

7S2P

24V ebike / small pack

14 cells · 25.2 V

9,000 mAh · 227 Wh

70 A max · ≈1.01 kg cells

13S4P

48V ebike standard

52 cells · 46.8 V

18,000 mAh · 842 Wh

140 A max · ≈3.74 kg cells

16S4P

DIY powerwall

64 cells · 57.6 V

18,000 mAh · 1,037 Wh

140 A max · ≈4.61 kg cells

4S6P

Power tool replacement

24 cells · 14.4 V

27,000 mAh · 389 Wh

210 A max · ≈1.73 kg cells

SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Samsung INR21700-45T (this cell)	**4,500**	**35 A**	**16.2**	**72 g**	**225**
Ampace JP50P1	5,000	40 A	18	72 g	250
Amprius INR21700-50Q	5,000	50 A	18	70 g	257
BAK N21700CG	5,000	50 A	18	70 g	257
Efest 21700 5000mAh 10A	5,000	10 A	18	69 g	261
Epoch 21700 5000mAh	5,000	10 A	18	69 g	261

HANDLING & SAFETY

- Never charge above 4.2V or discharge below 2.5V.
- Store cells at around 3.6-3.8V (roughly 40-60% charge) for long-term storage.
- Don't mix cells with different capacities, chemistries, or states of charge in a pack.
- Inspect wraps before use. A torn wrap can cause a short circuit.
- Always use a BMS or balance charger appropriate for your pack configuration.
- Keep cells away from metal objects, keys, and coins. A short across the terminals can cause fire.

SOURCES & FURTHER READING

Cell Saviors page	cellsaviors.com/cell-database/samsung-inr21700-45t
Manufacturer datasheet	https://www.nkon.nl/amfile/file/download/file/209/product/5568...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-s...
Full cell database	cellsaviors.com/cell-database