

Illustrative render generated from published specifications

21.22 × 70.3 mm
67 g

Samsung

INR21700-40T5



Live page & updates

Samsung · released 2024

21700

NMC

MOOCH-TESTED · 35 A

4,000 mAh CAPACITY	35 A MOOCH CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	14.4 Wh ENERGY · 214.93 WH/KG
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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 #49 of 72 Lowest in databaseHighest 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 VNominal 3.6 VMax 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.
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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	INR21700-40T5
Format	21700
Chemistry	NMC
Year released	2024
Wrap colour	Cyan
Terminal	Flat top
Protection	Unprotected

OPERATING TEMPERATURE

Charging	0°C to 50°C
Discharging	-20°C to 60°C

ENERGY & POWER DENSITY

Energy	14.4 Wh
Specific energy	214.93 Wh/kg
Volumetric density	579.2 Wh/L
Power density (mass)	1,881 W/kg
Power density (volume)	5,068 W/L
Capacity ranking	#49 of 72 21700s

C-RATE CONVERSION · 4,000 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.8 A	5h 00m
0.5C	2 A	2h 00m
1C	4 A	1h 00m
2C	8 A	30m
3C	12 A	20m
5C	20 A	12m

PHYSICAL

Diameter	21.22 mm
Length	70.3 mm
Weight	67 g

ELECTRICAL

Rated capacity	4,000 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	14.4 Wh
Internal resistance	12 mΩ
Max continuous discharge	35 A (mooch)
Discharge C-rate	8.8C
Standard charge current	2,000 mA
Typical charge time	2 h
Standard discharge	800mA

8C

32 A

7m 30s

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

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	2,000 mA	~2h 00m
1C	4,000 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	12 Ah	130 Wh
7S	25.2 V	29.4 V	21	12 Ah	302 Wh
10S	36 V	42 V	30	12 Ah	432 Wh
13S	46.8 V	54.6 V	39	12 Ah	562 Wh
14S	50.4 V	58.8 V	42	12 Ah	605 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 8,000 mAh · 202 Wh 70 A max · ≈0.94 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 16,000 mAh · 749 Wh 140 A max · ≈3.48 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 16,000 mAh · 922 Wh 140 A max · ≈4.29 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 24,000 mAh · 346 Wh 210 A max · ≈1.61 kg cells
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SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Samsung INR21700-40T5 (this cell)	4,000	35 A	14.4	67 g	215
BAK 45D	4,500	30 A	16.2	69 g	235
Dmegc 45E	4,500	13 A	16.2	70 g	231
Epoch P45B	4,500	45 A	16.2	70 g	231
Molicel P45B	4,500	45 A	16.2	70 g	231
Samsung INR21700-45T	4,500	35 A	16.2	72 g	225

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-inr21700-40t5
Manufacturer datasheet	https://www.master-instruments.com.au/file/65531/1/Samsung-INR...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-s...
Full cell database	cellsaviors.com/cell-database