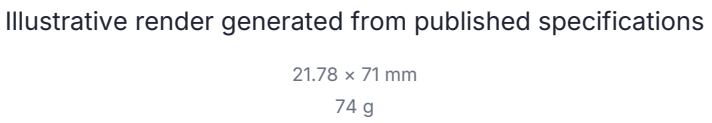

Illustrative render generated from published specifications

21.78 × 71 mm
74 g

Samsung INR21700-55E

Live page & updates

Samsung · released 2024

21700 | NMC | MOOCH-TESTED · 10 A

5,490 mAh	10 A	3.6 V	19.76 Wh
CAPACITY	MOOCH CONTINUOUS	NOMINAL · 2.5 – 4.2 V	ENERGY · 267.03 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

#15 of 72

Lowest in database — Highest

More capacity than 81% of 21700 cells in our database, but lower discharge than average.

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	Might work for smaller setups. Check your amp's peak current draw.
High-drain vaping	Below the 25A Mooch CDR threshold that high-drain vaping needs. Use a higher-drain cell.
Flashlights	High capacity means long runtime. Great for everyday carry and extended use.
Power tools	May work for lighter-duty tools. Check your tool's current requirements.

IDENTITY

Manufacturer	**Samsung**
Model	**INR21700-55E**
Format	**21700**
Chemistry	**NMC**
Year released	**2024**
Wrap colour	**Green**
Terminal	**Flat top**
Protection	**Unprotected**

OPERATING TEMPERATURE

Charging	**0°C to 45°C**
Discharging	**-10°C to 60°C**

ENERGY & POWER DENSITY

Energy	**19.76 Wh**
Specific energy	**267.03 Wh/kg**
Volumetric density	**747 Wh/L**
Power density (mass)	**486 W/kg**
Power density (volume)	**1,361 W/L**
Capacity ranking	**#15 of 72 21700s**

PHYSICAL

Diameter	**21.78 mm**
Length	**71 mm**
Weight	**74 g**

ELECTRICAL

Rated capacity	**5,490 mAh**
Nominal voltage	**3.6 V**
Max charge voltage	**4.2 V**
Discharge cutoff	**2.5 V**
Energy	**19.76 Wh**
Internal resistance	**16 mΩ**
Max continuous discharge	**10 A (mooch)**
Discharge C-rate	**1.8C**
Standard charge current	**2,665 mA**
Typical charge time	**2.1 h**
Standard discharge	**1066mA**

C-RATE CONVERSION · 5,490 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	1.1 A	5h 00m
0.5C	2.75 A	2h 00m
1C	5.49 A	1h 00m

Highlighted row is closest to the rated 10 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL

Standard	2,665 mA	~2h 04m
0.5C	2,745 mA	~2h 00m
1C	5,490 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	16.5 Ah	178 Wh
7S	25.2 V	29.4 V	21	16.5 Ah	415 Wh
10S	36 V	42 V	30	16.5 Ah	593 Wh
13S	46.8 V	54.6 V	39	16.5 Ah	771 Wh
14S	50.4 V	58.8 V	42	16.5 Ah	830 Wh

EXAMPLE PACKS

7S2P
24V ebike / small pack

14 cells · 25.2 V

10,980 mAh · 277 Wh

20 A max · ≈1.04 kg cells

13S4P
48V ebike standard

52 cells · 46.8 V

21,960 mAh · 1,028 Wh

40 A max · ≈3.85 kg cells

16S4P
DIY powerwall

64 cells · 57.6 V

21,960 mAh · 1,265 Wh

40 A max · ≈4.74 kg cells

4S6P
Power tool replacement

24 cells · 14.4 V

32,940 mAh · 474 Wh

60 A max · ≈1.78 kg cells

SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Samsung INR21700-55E (this cell)	**5,490**	**10 A**	**19.76**	**74 g**	**267**
Reliance RH60	5,850	20 A	21.1	71 g	297
Reliance RS60	5,850	50 A	21.1	71.5 g	295
Lishen LR2170SK	5,800	16 A	20.9	68 g	307
EVE INR21700-58E	5,700	16 A	20.5	71 g	289
Vapcell F56	5,600	12 A	20.2	74 g	272

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-inr21700-55e
Manufacturer datasheet	https://thebatteryshop.eu/shop_ordered/92904/pic/Samsung-INR21...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-s...
Full cell database	cellsaviors.com/cell-database