

Illustrative render generated from published specifications

18.33 × 64.85 mm
45 g

Samsung
INR18650-25R



Live page & updates

Samsung · released 2014

18650 NMC

MOOCH-TESTED · 20 A

2,500 mAh CAPACITY	20 A MOOCH CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	9 Wh ENERGY · 200 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 18650S #63 of 169 Lowest in database Highest Higher discharge than 91% of 18650 cells in our database. Great for high-drain builds.	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.
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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	Usable in regulated mods at moderate wattage. Not recommended for mechanical mods.
Flashlights	Decent runtime. Works well for most flashlights.
Power tools	Sufficient discharge and capacity for most power tool packs.

IDENTITY

Manufacturer	Samsung
Model	INR18650-25R
Format	18650
Chemistry	NMC
Year released	2014
Wrap colour	Green
Insulator	White
Terminal	Flat top
Protection	Unprotected

OPERATING TEMPERATURE

Charging	0°C to 50°C
Discharging	-20°C to 75°C

ENERGY & POWER DENSITY

Energy	9 Wh
Specific energy	200 Wh/kg
Volumetric density	525.92 Wh/L
Power density (mass)	1,600 W/kg
Power density (volume)	4,207 W/L
Capacity ranking	#63 of 169 18650s

PHYSICAL

Diameter	18.33 mm
Length	64.85 mm
Weight	45 g

ELECTRICAL

Rated capacity	2,500 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	9 Wh
Internal resistance	18 mΩ
Max continuous discharge	20 A (mooch)
Discharge C-rate	8C
Standard charge current	1,250 mA
Typical charge time	2 h
Standard discharge	500mA

C-RATE CONVERSION · 2,500 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.5 A	5h 00m
0.5C	1.25 A	2h 00m
1C	2.5 A	1h 00m
2C	5 A	30m
3C	7.5 A	20m
5C	12.5 A	12m

8C	20 A	7m 30s
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Highlighted row is closest to the rated 20 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	1,250 mA	~2h 00m
1C	2,500 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	7.5 Ah	81 Wh
7S	25.2 V	29.4 V	21	7.5 Ah	189 Wh
10S	36 V	42 V	30	7.5 Ah	270 Wh
13S	46.8 V	54.6 V	39	7.5 Ah	351 Wh
14S	50.4 V	58.8 V	42	7.5 Ah	378 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 5,000 mAh · 126 Wh 40 A max · ≈0.63 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 10,000 mAh · 468 Wh 80 A max · ≈2.34 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 10,000 mAh · 576 Wh 80 A max · ≈2.88 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 15,000 mAh · 216 Wh 120 A max · ≈1.08 kg cells
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SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Samsung INR18650-25R (this cell)	2,500	20 A	9	45 g	200
LG LGABD11865	3,000	—	11.3	—	—
LG LGDBD11865	3,000	5.8 A	11.3	48.5 g	232
Samsung ICR18650-30B	2,950	5.9 A	11.2	48 g	232
Samsung ICR18650-30A	3,000	6 A	11.1	48 g	231
LG LGDBHG21865	3,000	20 A	10.8	47 g	230

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 Savors page	cellsaviors.com/cell-database/samsung-inr18650-25r
Manufacturer datasheet	https://files.batteryjunction.com/frontend/files/samsung/datas...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/samsung-25r-blue-wra...
Full cell database	cellsaviors.com/cell-database