

Illustrative render generated from published specifications

18.15 × 64.85 mm
45 g

Samsung
INR18650-15MM



Live page & updates

Samsung · released 2010

18650 NMC

1,500 mAh CAPACITY	23 A RATED CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	5.4 Wh ENERGY · 120 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 #149 of 169 Lowest in databaseHighest Higher discharge than 95% of 18650 cells in our database. Great for high-drain builds.	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	Usable for powerwalls but lower capacity means you'll need more cells to hit your target kWh.
Ebike packs	Not enough discharge for ebike use. Voltage sag would be a problem under load.
Car audio	Enough discharge to handle amplifier bursts without voltage sag.
High-drain vaping	Below the 25A Mooch CDR threshold that high-drain vaping needs. Use a higher-drain cell.
Flashlights	Lower capacity means shorter runtime. Better cells are available for flashlight use.
Power tools	Sufficient discharge and capacity for most power tool packs.

IDENTITY

Manufacturer	Samsung
Model	INR18650-15MM
Format	18650
Chemistry	NMC
Year released	2010
Wrap colour	☒ Blue (Light)
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	5.4 Wh
Specific energy	120 Wh/kg
Volumetric density	321.84 Wh/L
Power density (mass)	1,840 W/kg
Power density (volume)	4,935 W/L
Capacity ranking	#149 of 169 18650s

PHYSICAL

Diameter	18.15 mm
Length	64.85 mm
Weight	45 g

ELECTRICAL

Rated capacity	1,500 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	5.4 Wh
Max continuous discharge	23 A (datasheet)
Discharge C-rate	15.3C
Standard charge current	750 mA
Typical charge time	2 h
Standard discharge	300mA
Cycle life	250 cycles

C-RATE CONVERSION · 1,500 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.3 A	5h 00m
0.5C	0.75 A	2h 00m
1C	1.5 A	1h 00m
2C	3 A	30m
3C	4.5 A	20m
5C	7.5 A	12m

8C	12 A	7m 30s
10C	15 A	6m
15C	22.5 A	4m

Highlighted row is closest to the rated 23 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	750 mA	~2h 00m
1C	1,500 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	4.5 Ah	49 Wh
7S	25.2 V	29.4 V	21	4.5 Ah	113 Wh
10S	36 V	42 V	30	4.5 Ah	162 Wh
13S	46.8 V	54.6 V	39	4.5 Ah	211 Wh
14S	50.4 V	58.8 V	42	4.5 Ah	227 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 3,000 mAh · 76 Wh 46 A max · ≈0.63 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 6,000 mAh · 281 Wh 92 A max · ≈2.34 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 6,000 mAh · 346 Wh 92 A max · ≈2.88 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 9,000 mAh · 130 Wh 138 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 INR18650-15MM (this cell)	1,500	23 A	5.4	45 g	120
ATL INR18650	2,000	6 A	7.4	45 g	164
Cham CMICR18650F8	2,000	5.1 A	7.4	45 g	164
Great Power ICR 18650	2,000	4 A	7.4	44 g	168
HYB ICR18650NM	2,000	—	7.4	—	—
Samsung ICR18650-20	2,000	4 A	7.4	—	—

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-inr18650-15mm
Manufacturer datasheet	https://www.batteryspace.com/prod-specs/9720.pdf
Full cell database	cellsaviors.com/cell-database