

Illustrative render generated from published specifications

18.4 × 64.85 mm
45 g

Samsung
INR18650-13B



Live page & updates

Samsung

18650 NMC

1,300 mAh CAPACITY	23 A RATED CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	4.68 Wh ENERGY · 104 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 #162 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	Too low capacity for practical powerwall use. You'd need too many cells.
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	May work for lighter-duty tools. Check your tool's current requirements.

IDENTITY

Manufacturer	Samsung
Model	INR18650-13B
Format	18650
Chemistry	NMC
Wrap colour	Purple
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	4.68 Wh
Specific energy	104 Wh/kg
Volumetric density	271.4 Wh/L
Power density (mass)	1,840 W/kg
Power density (volume)	4,802 W/L
Capacity ranking	#162 of 169 18650s

C-RATE CONVERSION · 1,300 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.26 A	5h 00m
0.5C	0.65 A	2h 00m
1C	1.3 A	1h 00m
2C	2.6 A	30m
3C	3.9 A	20m
5C	6.5 A	12m

PHYSICAL

Diameter	18.4 mm
Length	64.85 mm
Weight	45 g

ELECTRICAL

Rated capacity	1,300 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	4.68 Wh
Internal resistance	60 mΩ
Max continuous discharge	23 A (datasheet)
Discharge C-rate	17.7C
Standard charge current	650 mA
Typical charge time	2 h
Standard discharge	260mA

8C	10.4 A	7m 30s
10C	13 A	6m
15C	19.5 A	4m

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

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	650 mA	~2h 00m
1C	1,300 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	3.9 Ah	42 Wh
7S	25.2 V	29.4 V	21	3.9 Ah	98 Wh
10S	36 V	42 V	30	3.9 Ah	140 Wh
13S	46.8 V	54.6 V	39	3.9 Ah	183 Wh
14S	50.4 V	58.8 V	42	3.9 Ah	197 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 2,600 mAh · 66 Wh 46 A max · ≈0.63 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 5,200 mAh · 243 Wh 92 A max · ≈2.34 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 5,200 mAh · 300 Wh 92 A max · ≈2.88 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 7,800 mAh · 112 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 INR18650-13B (this cell)	1,300	23 A	4.68	45 g	104
GP Batteries GP1865L180	1,800	1.8 A	6.7	—	—
Panasonic CGR18650HG	1,800	3.4 A	6.5	42 g	154
Panasonic CGR18650HGL	1,800	3.4 A	6.5	—	—
Sanyo UR18650P	1,700	—	6.3	—	—
Panasonic CGR18650HM	1,630	3.2 A	6	—	—

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-inr18650-13b
Full cell database	cellsaviors.com/cell-database