

18.33 × 64.85 mm
48 g

18650

NMC

CAPACITY

RATED CONTINUOUS

NOMINAL · 2.5 – 4.2 V

ENERGY · 225 WH/KG

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.

Lowest in database

Highest

Top tier for both capacity and discharge. One of the best all-around 18650 cells.

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 Moolich 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	Sufficient discharge and capacity for most power tool packs.

IDENTITY

Manufacturer	Samsung
Model	INR18650-30Q
Format	18650
Chemistry	NMC
Year released	2014
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	10.8 Wh
Specific energy	225 Wh/kg
Volumetric density	631.1 Wh/L
Power density (mass)	1,125 W/kg
Power density (volume)	3,156 W/L
Capacity ranking	#15 of 169 18650s

PHYSICAL

Diameter	18.33 mm
Length	64.85 mm
Weight	48 g

ELECTRICAL

Rated capacity	3,000 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	10.8 Wh
Internal resistance	18 mΩ
Max continuous discharge	15 A (datasheet)
Discharge C-rate	5C
Standard charge current	1,500 mA
Typical charge time	2 h
Standard discharge	600mA

C-RATE CONVERSION · 3,000 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.6 A	5h 00m
0.5C	1.5 A	2h 00m
1C	3 A	1h 00m
2C	6 A	30m
3C	9 A	20m
5C	15 A	12m

Highlighted row is closest to the rated 15 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	1,500 mA	~2h 00m
1C	3,000 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	9 Ah	97 Wh
7S	25.2 V	29.4 V	21	9 Ah	227 Wh
10S	36 V	42 V	30	9 Ah	324 Wh
13S	46.8 V	54.6 V	39	9 Ah	421 Wh
14S	50.4 V	58.8 V	42	9 Ah	454 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 6,000 mAh · 151 Wh 30 A max · ≈0.67 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 12,000 mAh · 562 Wh 60 A max · ≈2.5 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 12,000 mAh · 691 Wh 60 A max · ≈3.07 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 18,000 mAh · 259 Wh 90 A max · ≈1.15 kg cells
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SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Samsung INR18650-30Q (this cell)	3,000	15 A	10.8	48 g	225
LG LGEBMJ11865	3,500	10 A	12.7	—	—
LG LGDBMJ11865	3,500	10 A	12.7	49 g	259
LG LGABF1L1865	3,350	4.9 A	12.2	49 g	248
LG LGGBF1L1865	3,350	4.9 A	12.2	—	—
Panasonic NCR18650B	3,350	4 A	12.1	47.5 g	254

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-inr18650-30q
Manufacturer datasheet	https://files.batteryjunction.com/frontend/files/samsung/datas...
Full cell database	cellsaviors.com/cell-database