

Illustrative render generated from published specifications

18.35 × 65.05 mm
48 g

Amprius
INR18650/40



Live page & updates

Amprius · released 2024

18650

NMC

MOOCH-TESTED · 12 A

4,000 mAh CAPACITY	12 A MOOCH CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	14.4 Wh ENERGY · 300 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

#2 of 279

Lowest in databaseHighest

More capacity than 100% of 18650 cells in our database. One of the higher-capacity options.

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.

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		PHYSICAL	
Manufacturer	Amprius	Diameter	18.35 mm
Model	INR18650/40	Length	65.05 mm
Format	18650	Weight	48 g
Chemistry	NMC	ELECTRICAL	
Year released	2024		
Protection	Unprotected		
OPERATING TEMPERATURE			
Charging	0°C to 45°C	Rated capacity	4,000 mAh
Discharging	-20°C to 60°C	Nominal voltage	3.6 V
ENERGY & POWER DENSITY		Max charge voltage	4.2 V
		Discharge cutoff	2.5 V
		Energy	14.4 Wh
		Internal resistance	25 mΩ
		Max continuous discharge	12 A (mooch)
		Discharge C-rate	3C
Energy	14.4 Wh	Standard charge current	2,000 mA
Specific energy	300 Wh/kg	Typical charge time	2 h
Volumetric density	837.05 Wh/L	Cycle life	600 cycles
Power density (mass)	900 W/kg		
Power density (volume)	2,511 W/L		
Capacity ranking	#2 of 279 18650s		

C-RATE CONVERSION · 4,000 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.8 A	5h 00m
0.5C	2 A	2h 00m
1C	4 A	1h 00m
2C	8 A	30m
3C	12 A	20m

Highlighted row is closest to the rated 12 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
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0.5C	2,000 mA	~2h 00m
1C	4,000 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	12 Ah	130 Wh
7S	25.2 V	29.4 V	21	12 Ah	302 Wh
10S	36 V	42 V	30	12 Ah	432 Wh
13S	46.8 V	54.6 V	39	12 Ah	562 Wh
14S	50.4 V	58.8 V	42	12 Ah	605 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 8,000 mAh · 202 Wh 24 A max · ≈0.67 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 16,000 mAh · 749 Wh 48 A max · ≈2.5 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 16,000 mAh · 922 Wh 48 A max · ≈3.07 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 24,000 mAh · 346 Wh 72 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
Amprius INR18650/40 (this cell)	4,000	12 A	14.4	48 g	300
Vapcell N41	4,050	10 A	14.6	48 g	304
Vapcell N40	4,000	10 A	14.4	48 g	300
Vapcell F38	3,800	10 A	13.7	48 g	285
Vapcell N36	3,650	8 A	13.1	48 g	274
LG LGEBMJ11865	3,500	10 A	12.7	49 g	260

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/amprius-inr1865040
Manufacturer datasheet	https://kulr.ai/wp-content/uploads/2025/08/Amprius-SA-10-Datas...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-a...
Full cell database	cellsaviors.com/cell-database