

Illustrative render generated from published specifications

21.35 × 70.3 mm
67 g

Reliance RS50

Reliance · released 2024

21700 NMC

MOOCH-TESTED · 70 A



Live page & updates

4,950 mAh CAPACITY	70 A MOOCH CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	17.82 Wh ENERGY · 265.97 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 21700S #36 of 72 Lowest in databaseHighest Higher discharge than 100% of 21700 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	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	Above the 25A Mooch CDR threshold. Suitable for regulated and mechanical mods.
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		PHYSICAL	
Manufacturer	Reliance	Diameter	21.35 mm
Model	RS50	Length	70.3 mm
Format	21700	Weight	67 g
Chemistry	NMC	ELECTRICAL	
Year released	2024		
Wrap colour	Blue		
Terminal	Flat top		
Protection	Unprotected		
OPERATING TEMPERATURE		Rated capacity	4,950 mAh
Charging	0°C to 60°C	Nominal voltage	3.6 V
Discharging	-40°C to 80°C	Max charge voltage	4.2 V
ENERGY & POWER DENSITY		Discharge cutoff	2.5 V
		Energy	17.82 Wh
		Internal resistance	4 mΩ
		Max continuous discharge	70 A (mooch)
		Discharge C-rate	14.1C
Energy	17.82 Wh	Standard charge current	2,500 mA
Specific energy	265.97 Wh/kg	Typical charge time	2 h
Volumetric density	708.05 Wh/L	Standard discharge	2500mA
Power density (mass)	3,761 W/kg		
Power density (volume)	10,013 W/L		
Capacity ranking	#36 of 72 21700s		
C-RATE CONVERSION · 4,950 MAH			
C-RATE	CURRENT	THEORETICAL RUNTIME	
0.2C	0.99 A	5h 00m	
0.5C	2.48 A	2h 00m	
1C	4.95 A	1h 00m	
2C	9.9 A	30m	
3C	14.85 A	20m	
5C	24.75 A	12m	

8C	39.6 A	7m 30s
10C	49.5 A	6m

Highlighted row is closest to the rated 70 A continuous discharge.

CHARGING

Rate	Current	Estimated Time to Full
0.5C	2,475 mA	~2h 00m
1C	4,950 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	14.9 Ah	160 Wh
7S	25.2 V	29.4 V	21	14.9 Ah	374 Wh
10S	36 V	42 V	30	14.9 Ah	535 Wh
13S	46.8 V	54.6 V	39	14.9 Ah	695 Wh
14S	50.4 V	58.8 V	42	14.9 Ah	748 Wh

EXAMPLE PACKS

7S2P 24V ebike / small pack 14 cells · 25.2 V 9,900 mAh · 249 Wh 140 A max · ≈0.94 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 19,800 mAh · 927 Wh 280 A max · ≈3.48 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 19,800 mAh · 1,140 Wh 280 A max · ≈4.29 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 29,700 mAh · 428 Wh 420 A max · ≈1.61 kg cells
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SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Reliance RS50 (this cell)	4,950	70 A	17.82	67 g	266
BAK 53E	5,300	10 A	19.1	69 g	277
Samsung INR21700-53G	5,300	10 A	19.1	72 g	265
LG M50T	5,014	14 A	18.1	70 g	258
Ampace JP50P1	5,000	40 A	18	72 g	250
Amprius INR21700-50Q	5,000	50 A	18	70 g	257

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/reliance-rs50
Manufacturer datasheet	https://cdn.shopify.com/s/files/1/0588/8055/7127/files/Relianc...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-r...
Full cell database	cellsaviors.com/cell-database