

Illustrative render generated from published specifications

21.7 × 70.2 mm
70 g

Molice1 P42A

Molice1 · released 2018

21700 NMC

MOOCH-TESTED · 45 A



Live page & updates

4,000 mAh CAPACITY	45 A MOOCH CONTINUOUS	3.6 V NOMINAL · 2.5 – 4.2 V	14.4 Wh ENERGY · 205.71 WH/KG
-----------------------	--------------------------	--------------------------------	----------------------------------

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 #49 of 72 Lowest in database Highest Higher discharge than 82% of 21700 cells in our database. Great for high-drain builds.	VOLTAGE OPERATING WINDOW 1.7 V usable 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	Enough discharge to handle amplifier bursts without voltage sag.
High-drain vaping	Above the 25A Moolch 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

Manufacturer	Molicel
Model	P42A
Format	21700
Chemistry	NMC
Year released	2018
Wrap colour	■ Grey
Insulator	■ Black
Terminal	Flat top
Protection	Unprotected

OPERATING TEMPERATURE

Charging	0°C to 45°C
Discharging	-40°C to 60°C

ENERGY & POWER DENSITY

Energy	14.4 Wh
Specific energy	205.71 Wh/kg
Volumetric density	554.65 Wh/L
Power density (mass)	2,314 W/kg
Power density (volume)	6,240 W/L
Capacity ranking	#49 of 72 21700s

PHYSICAL

Diameter	21.7 mm
Length	70.2 mm
Weight	70 g

ELECTRICAL

Rated capacity	4,000 mAh
Nominal voltage	3.6 V
Max charge voltage	4.2 V
Discharge cutoff	2.5 V
Energy	14.4 Wh
Internal resistance	10 mΩ
Max continuous discharge	45 A (mooch)
Discharge C-rate	11.3C
Standard charge current	4,200 mA
Typical charge time	1 h
Standard discharge	840mA
Cycle life	500 cycles

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
5C	20 A	12m

8C	32 A	7m 30s
10C	40 A	6m

Highlighted row is closest to the rated 45 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	2,000 mA	~2h 00m
1C	4,000 mA	~1h 00m
Standard	4,200 mA	~0h 57m

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 90 A max · ≈0.98 kg cells	13S4P 48V ebike standard 52 cells · 46.8 V 16,000 mAh · 749 Wh 180 A max · ≈3.64 kg cells	16S4P DIY powerwall 64 cells · 57.6 V 16,000 mAh · 922 Wh 180 A max · ≈4.48 kg cells	4S6P Power tool replacement 24 cells · 14.4 V 24,000 mAh · 346 Wh 270 A max · ≈1.68 kg cells
---	--	---	---

SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Molicel P42A (this cell)	4,000	45 A	14.4	70 g	206
BAK 45D	4,500	30 A	16.2	69 g	235
Dmegc 45E	4,500	13 A	16.2	70 g	231
Epoch P45B	4,500	45 A	16.2	70 g	231
Molicel P45B	4,500	45 A	16.2	70 g	231
Samsung INR21700-45T	4,500	35 A	16.2	72 g	225

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/molice-p42a
Manufacturer datasheet	https://www.molicel.com/wp-content/uploads/INR21700P42A-V4-800...
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-m...
Full cell database	cellsaviors.com/cell-database