

Illustrative render generated from published specifications

18.3 × 65 mm
39 g

A123Systems

APR18650M1A



Live page & updates

A123Systems

18650

LFP

MOOCH-TESTED · 30 A

1,100 mAh CAPACITY	30 A MOOCH CONTINUOUS	3.3 V NOMINAL · 2 – 3.6 V	3.63 Wh ENERGY · 93.08 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 #167 of 169 Lowest in database Highest Higher discharge than 98% of 18650 cells in our database. Great for high-drain builds.	VOLTAGE OPERATING WINDOW 1.6 V usable Cutoff 2 V Nominal 3.3 V Max 3.6 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	Above the 25A Mooch CDR threshold. Suitable for regulated and mechanical mods.
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	A123Systems
Model	APR18650M1A
Format	18650
Chemistry	LFP
Wrap colour	Yellow
Insulator	White
Terminal	Flat top
Protection	Unprotected

OPERATING TEMPERATURE

Discharging	-30°C to 60°C
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ENERGY & POWER DENSITY

Energy	3.63 Wh
Specific energy	93.08 Wh/kg
Volumetric density	212.33 Wh/L
Power density (mass)	2,538 W/kg
Power density (volume)	5,791 W/L
Capacity ranking	#167 of 169 18650s

PHYSICAL

Diameter	18.3 mm
Length	65 mm
Weight	39 g

ELECTRICAL

Rated capacity	1,100 mAh
Nominal voltage	3.3 V
Max charge voltage	3.6 V
Discharge cutoff	2 V
Energy	3.63 Wh
Internal resistance	12 mΩ
Max continuous discharge	30 A (mooch)
Discharge C-rate	27.3C
Standard charge current	1,500 mA
Typical charge time	0.7 h
Standard discharge	5000mA
Cycle life	1,000 cycles

C-RATE CONVERSION · 1,100 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.22 A	5h 00m
0.5C	0.55 A	2h 00m
1C	1.1 A	1h 00m
2C	2.2 A	30m
3C	3.3 A	20m
5C	5.5 A	12m
8C	8.8 A	7m 30s

10C	11 A	6m
15C	16.5 A	4m
20C	22 A	3m
25C	27.5 A	2m 24s

Highlighted row is closest to the rated 30 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	550 mA	~2h 00m
1C	1,100 mA	~1h 00m
Standard	1,500 mA	~0h 44m

Constant-current phase only. Real charge time runs longer because of the constant-voltage taper at the end.

SERIES PACK CONFIGURATIONS

Voltagess 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
4S	13.2 V	14.4 V	12	3.3 Ah	44 Wh
8S	26.4 V	28.8 V	24	3.3 Ah	87 Wh
16S	52.8 V	57.6 V	48	3.3 Ah	174 Wh

EXAMPLE PACKS

4S1P 12V system 4 cells · 13.2 V 1,100 mAh · 15 Wh 30 A max · ≈0.16 kg cells	4S2P 12V with more capacity 8 cells · 13.2 V 2,200 mAh · 29 Wh 60 A max · ≈0.31 kg cells	8S1P 24V system 8 cells · 26.4 V 1,100 mAh · 29 Wh 30 A max · ≈0.31 kg cells	16S1P Powerwall / 48V ebike 16 cells · 52.8 V 1,100 mAh · 58 Wh 30 A max · ≈0.62 kg cells
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SIMILAR CELLS

Same format and chemistry, within ± 500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
A123Systems APR18650M1A (this cell)	1,100	30 A	3.63	39 g	93
Lishen (LS) IFR-18650EC	1,500	5 A	4.8	42 g	114
Sony US18650FT	1,100	10 A	3.5	38.8 g	91

HANDLING & SAFETY

- Never charge above 3.6V or discharge below 2V.
- 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/a123systems-apr18650m1a
Manufacturer datasheet	https://www.batteryspace.com/prod-specs/6612.pdf
Independent test (Mooch)	https://www.e-cigarette-forum.com/threads/bench-test-results-v...
Full cell database	cellsaviors.com/cell-database