18.2 × 65 mm
40 g

Valence IFR-18650EC

Valence

18650 LFP

Live page & updates

1,500 mAh	4.5 A	3.2 V	4.8 Wh
CAPACITY	RATED CONTINUOUS	NOMINAL · 2 – 3.65 V	ENERGY · 120 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.

CAPACITY AMONG 18650S — #251 of 279

Lowest in database — Highest

A mid-range 18650 cell. Solid for builds that don't need extreme capacity or discharge.

VOLTAGE OPERATING WINDOW — 1.65 V usable

Cutoff 2 V — Nominal 3.2 V — Max 3.65 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	Usable for powerwalls but lower capacity means you'll need more cells to hit your target kWh.
Ebike packs	Not enough discharge for ebike use. Voltage sag would be a problem under load.
Car audio	Not enough discharge for car audio amplifiers. You need at least 15-20A continuous for most setups.
High-drain vaping	Below the 25A Mooch CDR threshold that high-drain vaping needs. Use a higher-drain cell.
Flashlights	Lower capacity means shorter runtime. Better cells are available for flashlight use.
Power tools	Not enough discharge or capacity for power tool use.

IDENTITY

Manufacturer	**Valence**
Model	**IFR-18650EC**
Format	**18650**
Chemistry	**LFP**
Wrap colour	**Orance**
Insulator	**Grey**
Terminal	**Button top**
Protection	**Unprotected**

OPERATING TEMPERATURE

Charging	**0°C to 45°C**
Discharging	**-20°C to 60°C**

ENERGY & POWER DENSITY

Energy	**4.8 Wh**
Specific energy	**120 Wh/kg**
Volumetric density	**283.85 Wh/L**
Power density (mass)	**360 W/kg**
Power density (volume)	**852 W/L**
Capacity ranking	**#251 of 279 18650s**

PHYSICAL

Diameter	**18.2 mm**
Length	**65 mm**
Weight	**40 g**

ELECTRICAL

Rated capacity	**1,500 mAh**
Nominal voltage	**3.2 V**
Max charge voltage	**3.65 V**
Discharge cutoff	**2 V**
Energy	**4.8 Wh**
Internal resistance	**38 mΩ**
Max continuous discharge	**4.5 A (datasheet)**
Discharge C-rate	**3C**
Standard charge current	**750 mA**
Typical charge time	**2 h**
Standard discharge	**300mA**
Cycle life	**2,000 cycles**

C-RATE CONVERSION · 1,500 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.3 A	5h 00m
0.5C	0.75 A	2h 00m
1C	1.5 A	1h 00m
2C	3 A	30m
3C	**4.5 A**	**20m**

Highlighted row is closest to the rated 4.5 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	750 mA	~2h 00m
1C	1,500 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
4S	12.8 V	14.6 V	12	4.5 Ah	58 Wh
8S	25.6 V	29.2 V	24	4.5 Ah	115 Wh
16S	51.2 V	58.4 V	48	4.5 Ah	230 Wh

EXAMPLE PACKS

4S1P

12V system

4 cells · 12.8 V

1,500 mAh · 19 Wh

5 A max · ≈0.16 kg cells

4S2P

12V with more capacity

8 cells · 12.8 V

3,000 mAh · 38 Wh

9 A max · ≈0.32 kg cells

8S1P

24V system

8 cells · 25.6 V

1,500 mAh · 38 Wh

5 A max · ≈0.32 kg cells

16S1P

Powerwall / 48V ebike

16 cells · 51.2 V

1,500 mAh · 77 Wh

5 A max · ≈0.64 kg cells

SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Valence IFR-18650EC (this cell)	**1,500**	**4.5 A**	**4.8**	**40 g**	**120**
Lishen IFR-18650EC	1,500	5 A	4.8	42 g	114
A123Systems APR18650M1A	1,100	30 A	3.6	39 g	93
Sony US18650FT	1,100	10 A	3.5	38.8 g	91

HANDLING & SAFETY

- Never charge above 3.65V 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/valence-ifr-18650ec
Manufacturer datasheet	https://mm.digikey.com/Volume0/opasdata/d220001/medias/docus/8...
Full cell database	cellsaviors.com/cell-database