18.3 × 65 mm
41 g

Highstar ISR18650-1300

Highstar · released 2019

18650 NMC

Live page & updates

1,300 mAh	20 A	3.6 V	4.68 Wh
CAPACITY	RATED CONTINUOUS	NOMINAL · 2.75 – 4.2 V	ENERGY · 114.15 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 — #269 of 279

Lowest in database — Highest

Higher discharge than 77% of 18650 cells in our database. Great for high-drain builds.

VOLTAGE OPERATING WINDOW — 1.45 V usable

Cutoff 2.75 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	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	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	May work for lighter-duty tools. Check your tool's current requirements.

IDENTITY

Manufacturer	**Highstar**
Model	**ISR18650-1300**
Format	**18650**
Chemistry	**NMC**
Year released	**2019**
Wrap colour	**Blue**
Insulator	**Grey (Dark)**
Terminal	**Flat top**
Protection	**Unprotected**

OPERATING TEMPERATURE

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

ENERGY & POWER DENSITY

Energy	**4.68 Wh**
Specific energy	**114.15 Wh/kg**
Volumetric density	**273.74 Wh/L**
Power density (mass)	**1,756 W/kg**
Power density (volume)	**4,211 W/L**
Capacity ranking	**#269 of 279 18650s**

PHYSICAL

Diameter	**18.3 mm**
Length	**65 mm**
Weight	**41 g**

ELECTRICAL

Rated capacity	**1,300 mAh**
Nominal voltage	**3.6 V**
Max charge voltage	**4.2 V**
Discharge cutoff	**2.75 V**
Energy	**4.68 Wh**
Internal resistance	**20 mΩ**
Max continuous discharge	**20 A (datasheet)**
Discharge C-rate	**15.4C**
Standard charge current	**650 mA**
Typical charge time	**2 h**
Standard discharge	**650mA**
Cycle life	**300 cycles**

C-RATE CONVERSION · 1,300 MAH

C-RATE	CURRENT	THEORETICAL RUNTIME
0.2C	0.26 A	5h 00m
0.5C	0.65 A	2h 00m
1C	1.3 A	1h 00m
2C	2.6 A	30m
3C	3.9 A	20m
5C	6.5 A	12m

8C	10.4 A	7m 30s
10C	13 A	6m
15C	**19.5 A**	**4m**

Highlighted row is closest to the rated 20 A continuous discharge.

CHARGING

RATE	CURRENT	ESTIMATED TIME TO FULL
0.5C	650 mA	~2h 00m
1C	1,300 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	3.9 Ah	42 Wh
7S	25.2 V	29.4 V	21	3.9 Ah	98 Wh
10S	36 V	42 V	30	3.9 Ah	140 Wh
13S	46.8 V	54.6 V	39	3.9 Ah	183 Wh
14S	50.4 V	58.8 V	42	3.9 Ah	197 Wh

EXAMPLE PACKS

7S2P
24V ebike / small pack

14 cells · 25.2 V

2,600 mAh · 66 Wh

40 A max · ≈0.57 kg cells

13S4P
48V ebike standard

52 cells · 46.8 V

5,200 mAh · 243 Wh

80 A max · ≈2.13 kg cells

16S4P
DIY powerwall

64 cells · 57.6 V

5,200 mAh · 300 Wh

80 A max · ≈2.62 kg cells

4S6P
Power tool replacement

24 cells · 14.4 V

7,800 mAh · 112 Wh

120 A max · ≈0.98 kg cells

SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

CELL	MAH	CONTINUOUS	WH	WEIGHT	WH/KG
Highstar ISR18650-1300 (this cell)	**1,300**	**20 A**	**4.68**	**41 g**	**114**
GP Batteries GP1865L180	1,800	1.8 A	6.7	—	—
Panasonic CGR18650HG	1,800	3.4 A	6.5	42 g	154
Panasonic CGR18650HGL	1,800	3.4 A	6.5	42 g	154
Sanyo UR18650P	1,700	—	6.3	41 g	153
Panasonic CGR18650HM	1,630	3.2 A	6	—	—

HANDLING & SAFETY

- Never charge above 4.2V or discharge below 2.75V.
- 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/highstar-isr18650-1300
Manufacturer datasheet	https://robu.in/wp-content/uploads/2021/03/1-871887-Orange-ISR...
Full cell database	cellsaviors.com/cell-database