

Illustrative render generated from published specifications

18.15 × 64.85 mm  
45 g

Samsung  
INR18650-15M



Live page & updates

Samsung · released 2010

18650   NMC

MOOCH-TESTED · 23 A

1,500 mAh  
CAPACITY

23 A  
MOOCH CONTINUOUS

3.6 V  
NOMINAL · 2.5 – 4.2 V

5.4 Wh  
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. The cell image is an illustrative render generated from published specifications, not a photograph.

CAPACITY AMONG 18650S      #149 of 169

Lowest in database      Highest

Higher discharge than 95% of 18650 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        | 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         | Enough discharge to handle amplifier bursts without voltage sag.                              |
| High-drain vaping | Usable in regulated mods at moderate wattage. Not recommended for mechanical mods.            |
| Flashlights       | Lower capacity means shorter runtime. Better cells are available for flashlight use.          |
| Power tools       | Sufficient discharge and capacity for most power tool packs.                                  |

IDENTITY

|               |                                    |
|---------------|------------------------------------|
| Manufacturer  | Samsung                            |
| Model         | INR18650-15M                       |
| Format        | 18650                              |
| Chemistry     | NMC                                |
| Year released | 2010                               |
| Wrap colour   | <div><div></div>Blue (Light)</div> |
| Insulator     | <div><div></div>White</div>        |
| Terminal      | Flat top                           |
| Protection    | Unprotected                        |

OPERATING TEMPERATURE

|             |               |
|-------------|---------------|
| Charging    | 0°C to 50°C   |
| Discharging | -20°C to 75°C |

ENERGY & POWER DENSITY

|                        |                    |
|------------------------|--------------------|
| Energy                 | 5.4 Wh             |
| Specific energy        | 120 Wh/kg          |
| Volumetric density     | 321.84 Wh/L        |
| Power density (mass)   | 1,840 W/kg         |
| Power density (volume) | 4,935 W/L          |
| Capacity ranking       | #149 of 169 18650s |

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                 |
| 5C     | 7.5 A   | 12m                 |

PHYSICAL

|          |          |
|----------|----------|
| Diameter | 18.15 mm |
| Length   | 64.85 mm |
| Weight   | 45 g     |

ELECTRICAL

|                          |              |
|--------------------------|--------------|
| Rated capacity           | 1,500 mAh    |
| Nominal voltage          | 3.6 V        |
| Max charge voltage       | 4.2 V        |
| Discharge cutoff         | 2.5 V        |
| Energy                   | 5.4 Wh       |
| Internal resistance      | 25 mΩ        |
| Max continuous discharge | 23 A (mooch) |
| Discharge C-rate         | 15.3C        |
| Standard charge current  | 750 mA       |
| Typical charge time      | 2 h          |
| Standard discharge       | 1500mA       |
| Cycle life               | 250 cycles   |

|     |        |        |
|-----|--------|--------|
| 8C  | 12 A   | 7m 30s |
| 10C | 15 A   | 6m     |
| 15C | 22.5 A | 4m     |

Highlighted row is closest to the rated 23 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 |
|--------|---------|---------------|-------------|----------|--------|
| 3S     | 10.8 V  | 12.6 V        | 9           | 4.5 Ah   | 49 Wh  |
| 7S     | 25.2 V  | 29.4 V        | 21          | 4.5 Ah   | 113 Wh |
| 10S    | 36 V    | 42 V          | 30          | 4.5 Ah   | 162 Wh |
| 13S    | 46.8 V  | 54.6 V        | 39          | 4.5 Ah   | 211 Wh |
| 14S    | 50.4 V  | 58.8 V        | 42          | 4.5 Ah   | 227 Wh |

EXAMPLE PACKS

|                                                                                                                                                  |                                                                                                                                                |                                                                                                                                           |                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>7S2P</div> <div>24V ebike / small pack</div> <div>14 cells · 25.2 V</div> <div>3,000 mAh · 76 Wh</div> <div>46 A max · ≈0.63 kg cells</div> | <div>13S4P</div> <div>48V ebike standard</div> <div>52 cells · 46.8 V</div> <div>6,000 mAh · 281 Wh</div> <div>92 A max · ≈2.34 kg cells</div> | <div>16S4P</div> <div>DIY powerwall</div> <div>64 cells · 57.6 V</div> <div>6,000 mAh · 346 Wh</div> <div>92 A max · ≈2.88 kg cells</div> | <div>4S6P</div> <div>Power tool replacement</div> <div>24 cells · 14.4 V</div> <div>9,000 mAh · 130 Wh</div> <div>138 A max · ≈1.08 kg cells</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|

## SIMILAR CELLS

Same format and chemistry, within  $\pm 500$  mAh.

| CELL                                    | MAH          | CONTINUOUS  | WH         | WEIGHT      | WH/KG      |
|-----------------------------------------|--------------|-------------|------------|-------------|------------|
| <b>Samsung INR18650-15M (this cell)</b> | <b>1,500</b> | <b>23 A</b> | <b>5.4</b> | <b>45 g</b> | <b>120</b> |
| ATL INR18650                            | 2,000        | 6 A         | 7.4        | 45 g        | 164        |
| Cham CMICR18650F8                       | 2,000        | 5.1 A       | 7.4        | 45 g        | 164        |
| Great Power ICR 18650                   | 2,000        | 4 A         | 7.4        | 44 g        | 168        |
| HYB ICR18650NM                          | 2,000        | —           | 7.4        | —           | —          |
| Samsung ICR18650-20                     | 2,000        | 4 A         | 7.4        | —           | —          |

## 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         | <a href="https://cellsaviors.com/cell-database/samsung-inr18650-15m">cellsaviors.com/cell-database/samsung-inr18650-15m</a>                       |
| Manufacturer datasheet   | <a href="https://www.batteryspace.com/prod-specs/9720.pdf">https://www.batteryspace.com/prod-specs/9720.pdf</a>                                   |
| Independent test (Mooch) | <a href="https://www.e-cigarette-forum.com/threads/bench-test-results-s...">https://www.e-cigarette-forum.com/threads/bench-test-results-s...</a> |
| Full cell database       | <a href="https://cellsaviors.com/cell-database">cellsaviors.com/cell-database</a>                                                                 |