

Illustrative render generated from published specifications

18.6 × 65.2 mm  
46.5 g

Panasonic  
CGR18650E



Live page & updates

Panasonic · released 2006

18650   NMC

|                                          |                                              |                                                 |                                                     |
|------------------------------------------|----------------------------------------------|-------------------------------------------------|-----------------------------------------------------|
| <div>2,550 mAh</div> <div>CAPACITY</div> | <div>4.9 A</div> <div>RATED CONTINUOUS</div> | <div>3.6 V</div> <div>NOMINAL · 3 – 4.2 V</div> | <div>9.18 Wh</div> <div>ENERGY · 197.42 WH/KG</div> |
|------------------------------------------|----------------------------------------------|-------------------------------------------------|-----------------------------------------------------|

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.

|                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>CAPACITY AMONG 18650S</div> <div>#60 of 169</div> <div><div></div></div> <div>Lowest in databaseHighest</div> <div>A mid-range 18650 cell. Solid for builds that don't need extreme capacity or discharge.</div> | <div>VOLTAGE OPERATING WINDOW</div> <div>1.2 V usable</div> <div><div></div></div> <div>Cutoff 3 VNominal 3.6 VMax 4.2 V</div> <div>Below nominal the cell sags fast under load; above it, the last of the capacity fills slowly on the constant-voltage taper.</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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       | 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       | Decent runtime. Works well for most flashlights.                                                    |
| Power tools       | Not enough discharge or capacity for power tool use.                                                |

| IDENTITY               |                              | PHYSICAL                 |                   |
|------------------------|------------------------------|--------------------------|-------------------|
| Manufacturer           | Panasonic                    | Diameter                 | 18.6 mm           |
| Model                  | CGR18650E                    | Length                   | 65.2 mm           |
| Format                 | 18650                        | Weight                   | 46.5 g            |
| Chemistry              | NMC                          | ELECTRICAL               |                   |
| Year released          | 2006                         |                          |                   |
| Wrap colour            | <div><div></div> Pink</div>  |                          |                   |
| Insulator              | <div><div></div> White</div> |                          |                   |
| Terminal               | Button top                   |                          |                   |
| Protection             | Unprotected                  |                          |                   |
| ENERGY & POWER DENSITY |                              | Rated capacity           | 2,550 mAh         |
| Energy                 | 9.18 Wh                      | Nominal voltage          | 3.6 V             |
| Specific energy        | 197.42 Wh/kg                 | Max charge voltage       | 4.2 V             |
| Volumetric density     | 518.18 Wh/L                  | Discharge cutoff         | 3 V               |
| Power density (mass)   | 379 W/kg                     | Energy                   | 9.18 Wh           |
| Power density (volume) | 996 W/L                      | Max continuous discharge | 4.9 A (datasheet) |
| Capacity ranking       | #60 of 169 18650s            | Discharge C-rate         | 1.9C              |
|                        |                              | Standard charge current  | 1,715 mA          |
|                        |                              | Typical charge time      | 1.5 h             |
|                        |                              | Standard discharge       | 490mA             |
|                        |                              | Cycle life               | 500 cycles        |

C-RATE CONVERSION · 2,550 MAH

| C-RATE | CURRENT | THEORETICAL RUNTIME |
|--------|---------|---------------------|
| 0.2C   | 0.51 A  | 5h 00m              |
| 0.5C   | 1.28 A  | 2h 00m              |
| 1C     | 2.55 A  | 1h 00m              |
| 2C     | 5.1 A   | 30m                 |

Highlighted row is closest to the rated 4.9 A continuous discharge.

CHARGING

| RATE     | CURRENT  | ESTIMATED TIME TO FULL |
|----------|----------|------------------------|
| 0.5C     | 1,275 mA | ~2h 00m                |
| Standard | 1,715 mA | ~1h 29m                |

1C

2,550 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           | 7.6 Ah   | 83 Wh  |
| 7S     | 25.2 V  | 29.4 V        | 21          | 7.6 Ah   | 193 Wh |
| 10S    | 36 V    | 42 V          | 30          | 7.6 Ah   | 275 Wh |
| 13S    | 46.8 V  | 54.6 V        | 39          | 7.6 Ah   | 358 Wh |
| 14S    | 50.4 V  | 58.8 V        | 42          | 7.6 Ah   | 386 Wh |

EXAMPLE PACKS

|                                                                                                                   |                                                                                                                 |                                                                                                            |                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>7S2P</b><br>24V ebike / small pack<br><br>14 cells · 25.2 V<br>5,100 mAh · 129 Wh<br>10 A max · ≈0.65 kg cells | <b>13S4P</b><br>48V ebike standard<br><br>52 cells · 46.8 V<br>10,200 mAh · 477 Wh<br>20 A max · ≈2.42 kg cells | <b>16S4P</b><br>DIY powerwall<br><br>64 cells · 57.6 V<br>10,200 mAh · 588 Wh<br>20 A max · ≈2.98 kg cells | <b>4S6P</b><br>Power tool replacement<br><br>24 cells · 14.4 V<br>15,300 mAh · 220 Wh<br>29 A max · ≈1.12 kg cells |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|

SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

| CELL                            | MAH   | CONTINUOUS | WH   | WEIGHT | WH/KG |
|---------------------------------|-------|------------|------|--------|-------|
| Panasonic CGR18650E (this cell) | 2,550 | 4.9 A      | 9.18 | 46.5 g | 197   |
| LG LGABD11865                   | 3,000 | —          | 11.3 | —      | —     |
| LG LGDBD11865                   | 3,000 | 5.8 A      | 11.3 | 48.5 g | 232   |
| Samsung ICR18650-30B            | 2,950 | 5.9 A      | 11.2 | 48 g   | 232   |
| Samsung ICR18650-30A            | 3,000 | 6 A        | 11.1 | 48 g   | 231   |
| LG LGDBHG21865                  | 3,000 | 20 A       | 10.8 | 47 g   | 230   |

HANDLING & SAFETY

- Never charge above 4.2V or discharge below 3V.

- 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      | <a href="https://cellsaviors.com/cell-database/panasonic-cgr18650e">cellsaviors.com/cell-database/panasonic-cgr18650e</a>                         |
| Manufacturer datasheet | <a href="https://www.megacellmonitor.com/pdf/vendor_specs/SPEC_PANASONI...">https://www.megacellmonitor.com/pdf/vendor_specs/SPEC_PANASONI...</a> |
| Full cell database     | <a href="https://cellsaviors.com/cell-database">cellsaviors.com/cell-database</a>                                                                 |