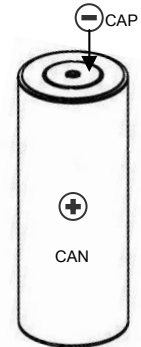


Proper Operation of A123Systems High Power Lithium-ion cells
Summary usage and care guidelines

Handling Precautions

- CAUTION - do not short circuit; these cells are capable very high discharge currents.
- DO NOT rotate the negative tab (cap) relative to the can, this can cause internal damage to the cell.
- Note that the can is the positive terminal and the cap is the negative terminal (see diagram at right).



Specification

Cell Type	ANR26650-M1
Model no.	FS300001-001
Nominal voltage	3.3V
Nominal capacity	2.3Ah
Nominal dimensions	26mm ø x 66.5mm ht.
Nominal cell weight	70g

Cell charging parameters: CC-CV (constant current – constant voltage)

Recommended charge current (0°C to 60°C ambient temp):	3A
Recommended charge voltage:	3.6V
Recommended cut-off current for CV hold (indicating 100% SOC):	0.05A
Recommended <i>float-charge</i> voltage (-20°C to 60°C ambient temp):	3.45V
Maximum <i>continuous charge</i> current (20°C to 60°C ambient):	10A
Maximum recommended charge voltage:	3.8V
Maximum allowable charge voltage:	4.2V MAX
Fast charge time:	15 minutes

CELL
 FS300001-001
 MAX VOLTAGE RANGE
 4.2V - 2.0V

Cell discharging parameters (-30°C to +60°C ambient temperature)

Recommended discharge cut-off voltage:	2.0V
Maximum <i>continuous discharge</i> current:	60A

Cell temperature parameters (skin temperature)

Maximum recommended cell temperature:	70°C
Maximum allowable cell temperature:	85°C
Allowable storage temperature range:	-50°C to +60°C

Recommended charge method: CC-CV

The cell should be charged at the recommended charge current until the normal charge voltage is reached. Apply a constant voltage hold at the recommended charge voltage until the cut-off current for CV hold is reached (or 30 minutes, whichever comes first). The cell will be charged to 100% state of charge (SOC).

Recommended float charge method

If the voltage of the cell is to be held at the charge voltage (after reaching 100% state of charge) for prolonged periods of time, the charge voltage should be lowered to the recommended float-charge voltage.

Recommended fast charge method

Charge the cell at the maximum continuous charge current until the maximum recommended charge voltage is reached. Apply a constant voltage hold at the maximum recommended cell voltage until the total charge time reaches the fast charge time. The cell will be charged to over 96% SOC. Fast charge should not be attempted outside the recommended temperature range and should be stopped if the cell exceeds the maximum allowable cell temperature.

Recommended discharge method

For optimum life, the cell should not be continuously discharged faster than the maximum cell continuous discharge current or allowed to self-heat greater than the maximum recommended cell temperature. Operation above the max recommended cell temperature will result in degraded cell performance. Discharge should be stopped when the cell reaches the recommended discharge cut-off voltage or the maximum allowable cell temperature. Operation above the maximum allowable cell temperature will result in physical damage to the cell. At low temperatures, the maximum available discharge current will decrease.

The cell can be discharged at greater than the maximum continuous discharge current in pulses, but the cell should not be allowed to exceed the maximum allowable cell temperature. During pulse discharges, the cell voltage can safely fall below the recommended discharge cut-off voltage. Although it is safe to discharge the cell below the recommended discharge cut-off voltage, the cell should not be left at this level, and should be recharged to prevent permanent capacity loss and damage to the cell.