



LithiumWerks™

18650 Lithium Ion Power Cell

Nanophosphate® Technology

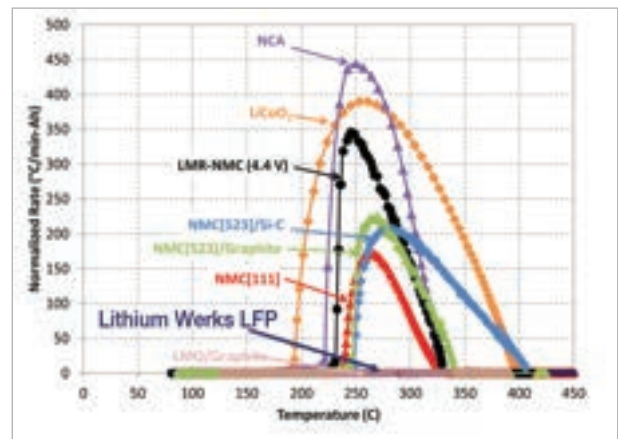
Lithium Werks' APR18650 cells are best for Power.Safety.Life.™ applications. They deliver very high power due to their use of patented Nanophosphate® battery technology. Based on lithium iron phosphate chemistry (LiFePO_4), the cells are inherently safe over a wide range of temperatures and conditions. Whether the application requires outstanding cycle life or stable float reliability, the Lithium Werks' APR18650 cells are suitable for a wide variety of power, pulse, or stand-by applications.

Nanophosphate® battery technology offers thermal-stable chemistry, faster charging, consistent output, low capacity loss over time, and superior total cost of ownership (TCO). It provides the foundation for safe systems while meeting the most demanding customer requirements. Multiple layers of protection are employed at the chemistry, cell and system level to achieve an energy storage solution with superior safety and abuse tolerance compared to metal oxide lithium-ion chemistries.

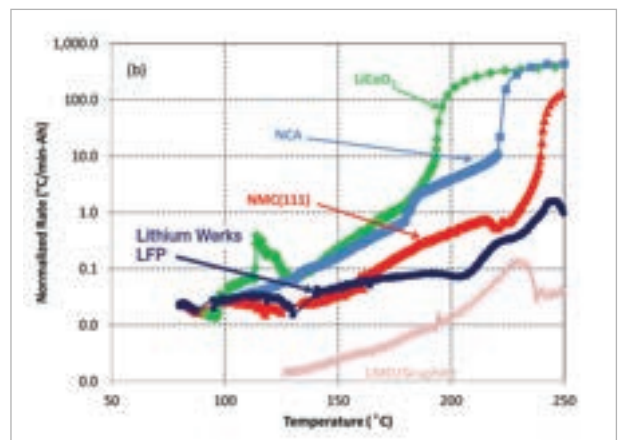
Applications

- Uninterruptible Power Supplies
- Frequency regulation
- Aviation/Aerospace
- Medical devices
- Engine starting
- Energy storage
- Industrial equipment
- Electrified mobility devices
- Telecom & 5G battery back-up

Inherent Safety of LFP



Electro-chemistry	Lithium Werks LFP	NMC (111)	NCA	LiCoO ₂
Thermal Runaway Characteristic	Low-Energy, Non-Propagating	High-Energy, Propagating		
Probability of Propagation	Very Low	Very High (pack-level mitigation required)		
Runaway Onset Temp (°C)	≥210	≥160	≥120	
Peak Thermal Runaway Temp	≈250	≥750		
Peak Rate of Temp Increase (°C/min-Ah)	<2.0	>150	>400	



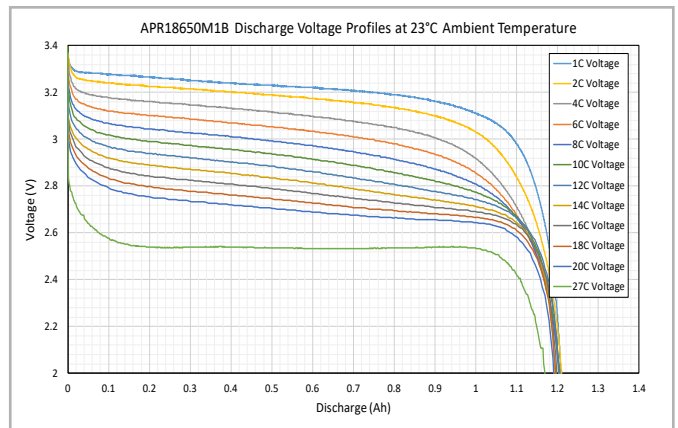
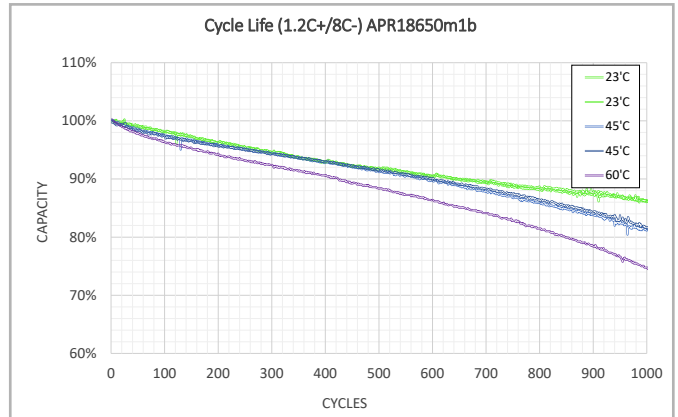
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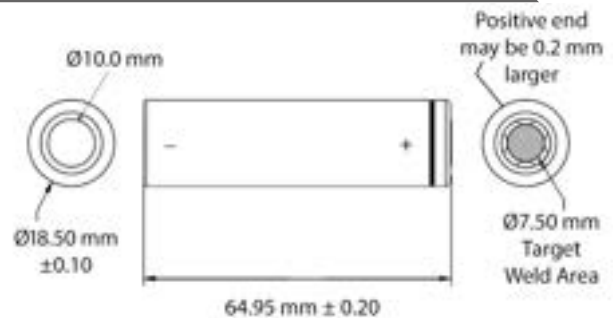
Specs for APR18650M1B

Nominal Ratings	
Voltage	3.3 V
Capacity @ 23 °C Typical (Min)	1.2 Ah (1.15 Ah)
Energy @ 23 °C	3.96 Wh
Impedance (1kHz AC)	<16 mΩ
Cycle Life at 1C/1C, 100% DOD	> 4000 cycles
Discharging	
Max Continuous Discharge Current	30 A (25C rate)
Max Pulse Discharge Current (10s)	50 A (42C rate)
Minimum Voltage / HPPC Pulse	2 V / 1.6 V
Temperature	-30 °C to 60 °C
Charging	
Recommended Charge Current	1.5 A (1C rate)
Max Continuous Charge Current	4 A (3C rate)
Max Pulse Charge Current (10s)	10 A (8C rate)
Recommended Charge Voltage	3.6 V
Terminate Charge @ 3.6 V	< 50 mA
HPPC Pulse Voltage	3.8 V
Float Voltage	3.5 V
Temperature Range (Charging current at <40mA when under 0 °C for some applications)	0 °C to 60 °C
Storage	
Storage Temperature	-40 °C to 70 °C
Mechanical	
Diameter	Ø18.5 +/- 0.1 mm
Length	64.95 +/- 0.2 mm
Mass	41.5 +/- 1.0 g
Certifications	
Transportation	UN 3480 (UN38.3), CIQ
Safety	UL 1642, IEC 62133-2
Quality System	ISO-9001, TS-16949, IATF-16949
Environmental	ISO-14001, REACH, RoHS
Transportation	
Shipped	@ 30% SOC
Part Number 300949-001	

Cell Data



Dimensions



Dimensions shown are for reference only. Please contact your sales representative for the released print.



18650 Data Sheet
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Performance may vary depending on, but not limited to cell usage and application. If cell is used outside specifications, performance will diminish.