



## Primary CF<sub>x</sub> Hybrid Cell



### Safe, Reliable, Lightweight Cell for Operation at Extreme Temperatures

Li/CF<sub>x</sub>-MnO<sub>2</sub> Primary Electrochemistry  
Rate-Optimized, High Energy Pouch Cell

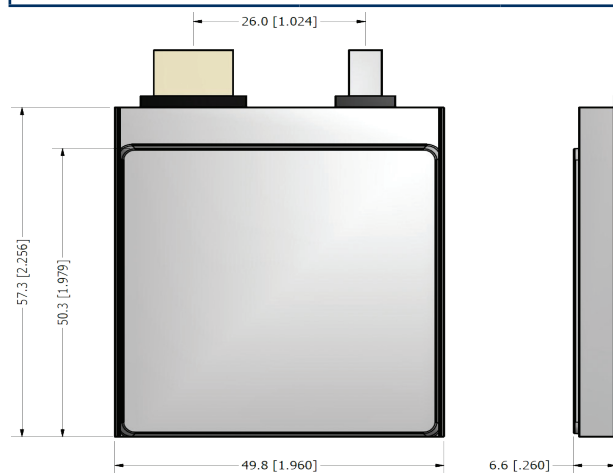
#### Features and Benefits

- Higher volumetric capacity and lower weight than Li/MnO<sub>2</sub>
- Optimized electrolyte for low-temperature performance
- Minimal voltage delay at -40°C (-40°F)
- No maintenance required
- Low self discharge: 0.7%/year at 20°C (68°F)
- Long shelf life:
  - >7 years at 20°C (68°F)
  - 5 years at ≤ 45°C (113°F)
- Shut-down separator
- Safety demonstrated to UN/DOT 38.3
- Altitude, thermal, vibration, shock and impact
- External short circuit and forced discharge
- Improved battery packaging efficiency over cylindrical cells retardant ABS

#### Applications

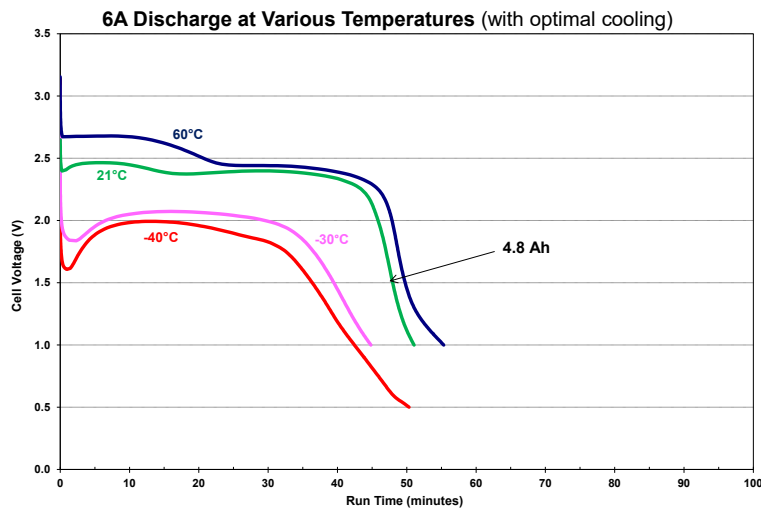
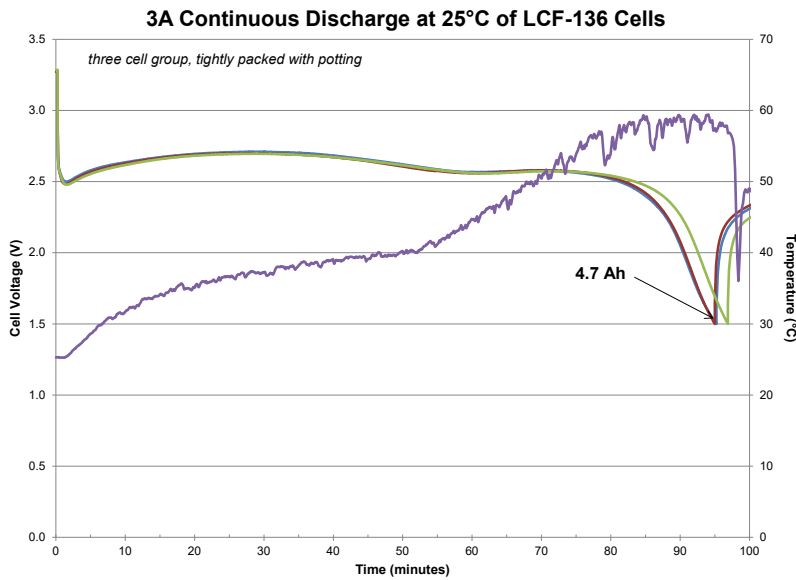
- High-power applications at low temperature
- Portable one-time use power
- Survival and emergency equipment
- Surveillance
- Unmanned aerial vehicle (UAV), underwater unmanned vehicle (UUV) and autonomous underwater vehicle (AUV)

Specifications		
Part Number	LCF-136	
Weight	29.5 g	
Continuous Current <sup>2</sup>	3A at 20°C (68°F)	
Maximum Pulse Current <sup>2</sup>	10A for 20 sec	
Discharge/Load Current	0.5A	2.0A
Nominal Voltage	2.6V	2.5V
Voltage Range	3.4-1.5V	3.3-1.5V
Capacity <sup>1</sup>	4.9Ah	4.6Ah
Specific Energy <sup>1</sup>	415 Wh/kg	390 Wh/kg
Energy Density <sup>1</sup>	640 Wh/L	610 Wh/L
Operating/Storage Temperature	-40 to +60°C (-40 to +140°F)	
Transportation	UN 3090 Class 9	
<sup>1</sup> Determined with either a 0.5A or 2A continuous discharge, as noted <sup>2</sup> Thermal management required to achieve higher discharge rates - contact EaglePicher for specific application details		



Shown with pouch edges folded.

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## Maximum Continuous Current Capability<sup>1</sup>

Ambient/Operating Temperature °C (°F)	Maximum Continuous Current (A)
-20 (-4)	8
0 (32)	7
20 (68)	6
50 (122)	3

<sup>1</sup> Single-cell capability; depending upon the resulting heat dissipation capabilities once integrated into a battery within the application, these best-case continuous discharge rates could be de-rated by 30-50% from these maximums if unable to shed the generated heat from the cell - conductive mounting and convective airflow required for optimal performance ( $\geq 17W/m^2K$ ).

## Capacity De-rating as a Function of Maximum Power

Discharge Rate (W)	Capacity (Ah)
0.1	4.9
1.0	4.9
2.5	4.8
5.0	4.6
10.0	4.5
22.3	4.2