EAGLEPICHER TECHNOLOGIES

Primary CFx Hybrid Cell

Li/CF_x-MnO_2 Primary Electrochemistry
Rate-Optimized, High Energy Pouch Cell

High-Rate, Reliable Cell for Operation at Extreme Temperatures

Features and Benefits

- Higher energy and lower weight than Li/MnO_2
- 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
- Safety demonstrated to MIL-PRF-32271A:
  - Nail penetration, crush, short-circuit and impact
- Improved battery packaging efficiency over cylindrical cells

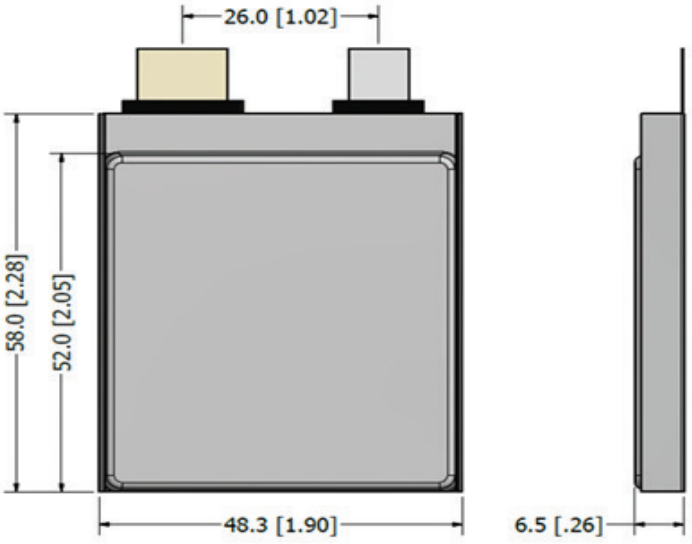
Applications

- High-power applications at low temperature
- Portable one-time use power
- Survival and emergency equipment
- Surveillance
- Vehicles: unmanned aerial (UAV), autonomous (AUV), unmanned aircraft systems (UAS) and unmanned underwater (UUV)
- Loitering missiles/munitions

Specifications

Part Number	LCF-136HR
Weight	29.5 g (0.07 lb)
Continuous Current/Power[1]	refer to tables on page 2
Maximum Pulse Current	20A for 20 sec
Voltage Range, Nominal	3.3-1.5V, 2.65V
Operating Temperature	-40 to +60°C (-40 to +140°F)
Transportation	UN 3090 Class 9

[1] Thermal management can improve discharge capabilities - contact EaglePicher for specific application details



Shown with pouch edges folded. Dimensions: mm (in.)

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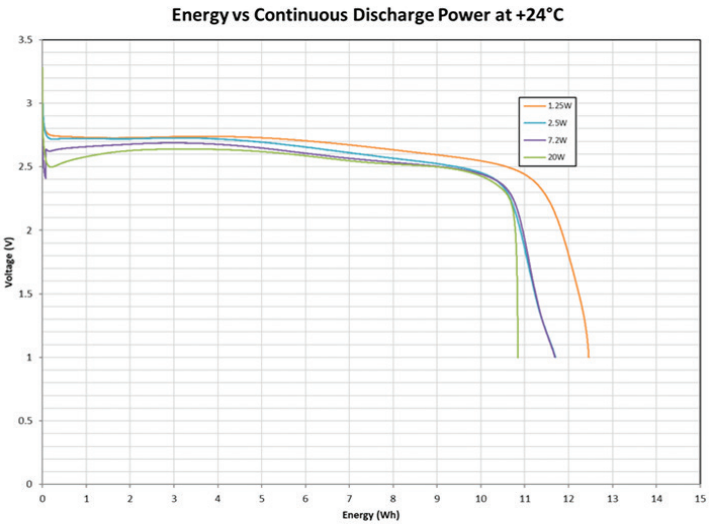
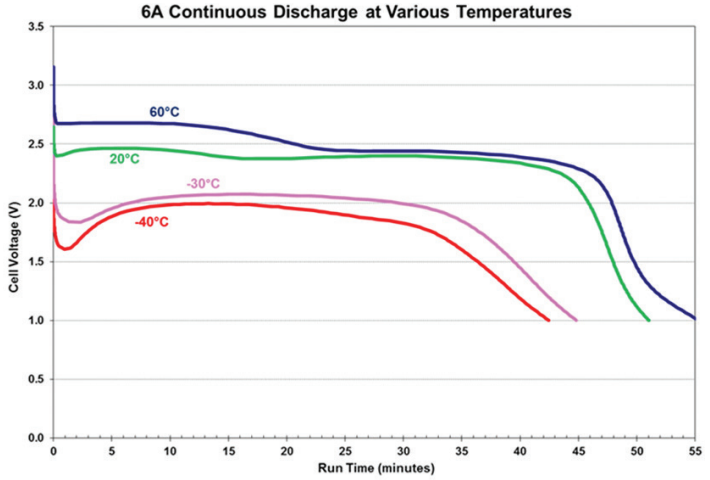


Capacity De-rating as a Function of Maximum Power[1]

Discharge Rate (W)	Capacity (Ah)	Energy (Wh)	Specific Energy (Wh/kg)	Energy Density (Wh/L)
1.25	4.9	12.5	422	684
2.5	4.7	11.7	397	643
7.2	4.8	11.7	396	642
20	4.1	10.3	350	566
50	2.6	6.4	218	353

[1] Single-cell capability; depending upon the resulting heat dissipation capabilities once integrated into a battery with 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 require for optimal performance (≥17W/m²K).



Maximum Continuous Current Capability[1]

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

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