Primary lithium battery
LSH 20 HTS

3.6 V Primary lithium-thionyl chloride (Li-$SOCl_2$)
High power, high temperature, super robust
D-size spiral cell

Benefits

- High drain/high pulses capable
- Superior voltage response
- Ability to perform reliably in demanding temperature environments *(-60°C to +120°C)* with very severe vibration/shock constraints
- High and stable operating voltage
- Superior drain capability
- Low self-discharge rate *(less than 3% after 1 year of storage at +20°C)*

Key features

- Stainless steel container
- Hermetic glass-to-metal sealing
- Built-in safety vent
- Non-flammable electrolyte
- Ability to withstand
  - axial vibration 20 GRMS 2-100 Hz
  - radial vibration 30 GRMS 2-100 Hz
  - sine 30 G peak 30 to 2000 Hz
  - random 20 GRMS 30 to 1000 Hz
- Restricted for transport *(Class 9)*

Main applications

- Oil drilling and all downhole high temperature environments
- Measure While Drilling *(MWD)*
- Oil and gas well monitoring
- Military *(ejection seat beacons, ...)*
- Space vehicles
- Launchers

Cell size references	UM1 – R20 – D

Electrical characteristics

(typical values relative to cells stored for one year or less at + 30°C max.)		
Nominal capacity *(at 50 mA + 70°C 2.0 V cut off. The capacity restored by the cell varies according to current drain, temperature and cut off)*		12.0 Ah
Open circuit voltage	(at + 20°C)	3.67 V
Nominal voltage	(at 3 mA + 20°C)	3.6 V
Pulse capability : Typically up to 4000 mA. *(The voltage readings may vary according to the pulse characteristics, the temperature, and the cell's previous history. Fitting the cell with a capacitor may be recommended in severe conditions. Consult Saft)*		
Maximum recommended continuous current *(at +70°C, to maintain cell heating within safe limits. Battery packs may imply lower level of maximum current and may request specific thermal protection. Consult Saft)*		1000 mA
Storage	*(recommended)* *(for more severe conditions, consult Saft)*	+ 30°C (+ 86°F) max
Operating temperature range *(48 hours excursions up to +125°C possible for individual cells)*		- 60°C/+120°C (-76°F/+248°F)

Physical characteristics

Diameter *(max)*	33.4 mm (1.32 in)
Height *(max)*	61.6 mm (2.42 in)
Typical weight	100 g (3.5 oz)
Li metal content	approx. 4.0 g
Custom battery packs available on request.	

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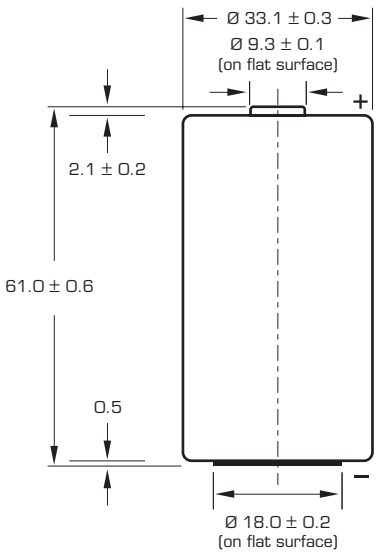
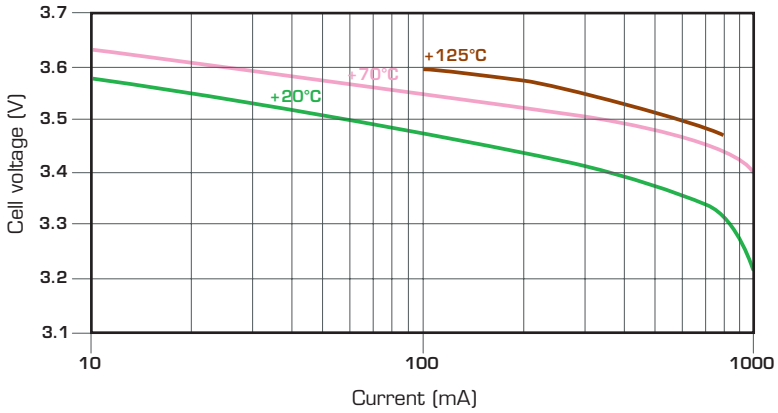
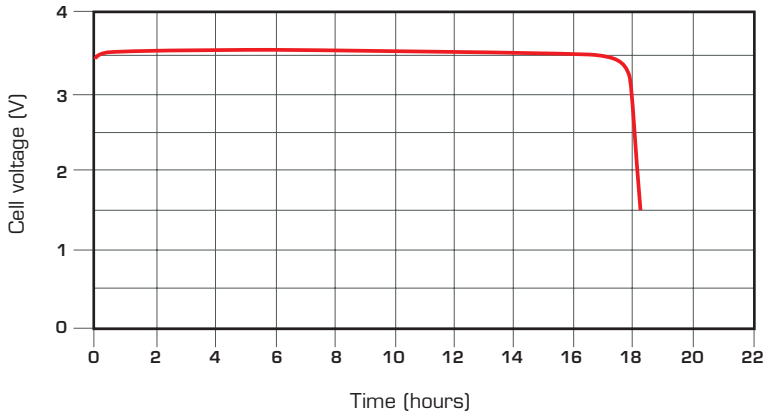


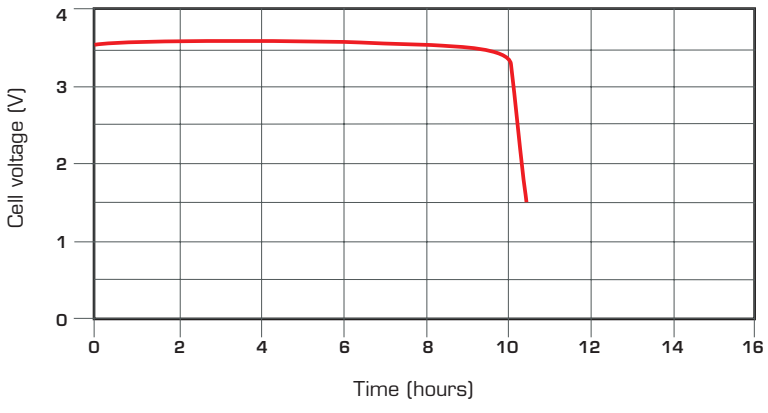
Overall dimensions in mm



Cell voltage versus Current and Temperature (at mid-discharge)



Typical discharge under 500 mA at 100°C



Typical discharge under 500 mA at 120°C

Storage

- The storage area should be clean, cool (preferably not exceeding + 30°C), dry and ventilated.

Warning

- Fire, explosion and burn hazard.
- Do not recharge, short circuit, crush, disassemble, heat above 125°C (257°F), incinerate, or expose contents to water.
- Do not solder directly to the cell (use tabbed cell versions instead).

Saft
Specialty Battery Group
12, rue Sadi Carnot
93170 Bagnolet – France
Tel +33 (0)1 49 93 19 18
Fax +33 (0)1 49 93 19 69

www.saftbatteries.com

Doc. N° 31057-2-1006

For more details on primary lithium technologies please refer to Primary Lithium Batteries Selector Guide Doc N° 31048-2.

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