

BA684D

Military rechargeable Li-ion battery

7.3 V high energy Li-ion battery with high performance and **reliability**

Saft's BA684D battery is compatible with military applications requiring safety, reliability, long operating life under cycling conditions and offers excellent performance in temperature environments from -35°C to $+60^{\circ}\text{C}$.

Benefits

- Excellent operating lifetime in calendar and cycling with a very stable internal resistance
- Long shelf life with extremely low capacity loss in storage
- Smaller environmental footprint than other technologies

Key features

- High energy density (133 Wh/l and 117 Wh/kg)
- Cycle life more than 1800 cycles at 100% DoD at C/2 discharge, C/ charge
- Aluminium alloy NATO green casing
- Ingress protection (IP 68)
- Operates in any orientation
- Maintenance free
- No memory effect
- **Manufactured in the EU**

Designed to meet all major quality, safety and environmental standards

- Safety: UL 1642 and IEC 62133-2:2017
- Transport: UN 3480, UN 38.3
- Quality: ISO 9001:2009
- Environment: ISO 14001, RoHS and REACH compliant

Typical applications

- Laser designator
- Tactical radio
- ALI 142, TRC 9100, PR4G
- Surveillance equipment



Electrical characteristics

Typical capacity (at C/5 rate, $+20^{\circ}\text{C}$, 2.5V cut-off) ⁽ⁱ⁾	6.8 Ah
Nominal voltage	7.3 V
Nominal energy	49.6 Wh
Recommended maximum discharge current ⁽ⁱⁱ⁾	Continuous 5.0 A ^(iv) ($+20^{\circ}\text{C}$) (limited by the electronic protection circuit)

Physical characteristics (sleeved cell)

Length (maximum)	67.4 mm
Width (maximum)	38.1 mm
Height (maximum including terminals)	89.0 mm
Typical weight	450 g
Volume (including terminals)	0.228 l
IEC battery designation	21NP/39/68/89
Saft internal battery designation	2s1p MP 176065 xlr
Saft part number	08646A
NATO / OTAN stock number (NSN)	6140 14 599 2477

Operating conditions

Typical cut-off voltage	5.0 V
Charging method	Constant current/Constant voltage
Charging voltage	$8.4 \pm 0.05\text{V}$
Maximum continuous charge current ⁽ⁱⁱⁱ⁾	5.0 A ^(iv) ($\sim 1\text{C}$ rate)
Operating temperatures	Charge ⁽ⁱⁱⁱ⁾ -30°C to $+60^{\circ}\text{C}$ Discharge ⁽ⁱⁱⁱ⁾ -35°C to $+60^{\circ}\text{C}$
Storage & transportation temperatures	Recommended $+10^{\circ}\text{C}$ to $+30^{\circ}\text{C}$ Allowable -40°C to $+60^{\circ}\text{C}$

[i] Can vary depending on temperature and discharge rate

[ii] Can vary depending on temperatures. Consult Saft

[iii] For optimised charging below 0°C and above $+60^{\circ}\text{C}$, consult Saft

[iv] Limited by the electronic protection circuit

BA684D rechargeable Li-ion battery



Independent five segment fuel gauge

- Asses and verify the batteries state of charge at any time.
- Verify the state of charge prior to transportation or use.
- The fuel gauge does not use battery energy while the display is inactive

Electronic Protection Circuit

Built-in protection devices at battery and cell level ensures safe operation and user safety in case of abusive or extreme conditions. These conditions include, but are not limited to;

- Over voltage protection
- Under voltage protection
- Over current protection
- Short circuit protection
- Over temperature protection
- Fuse protection as an option
- NTC integrated in circuit
- Zero volt (0V) battery protection
- UL94-V0

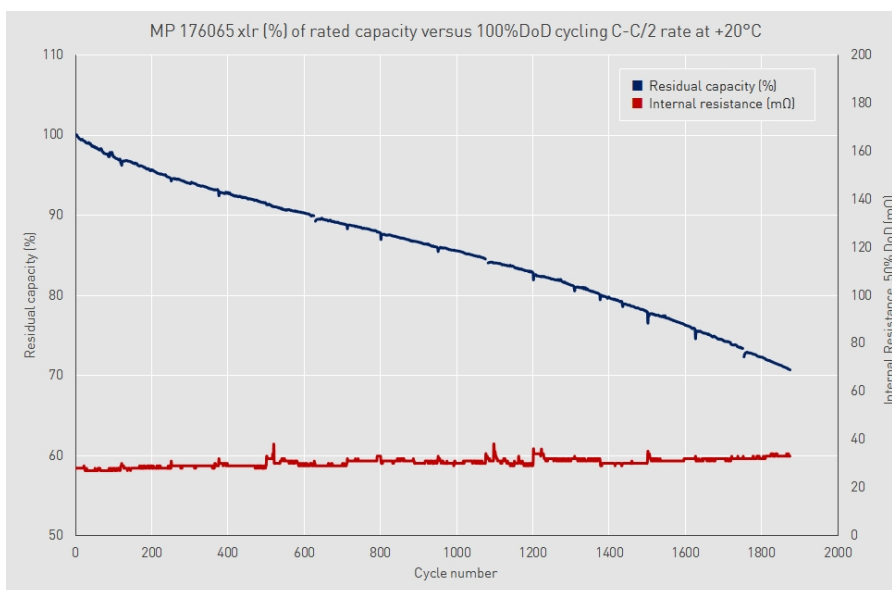
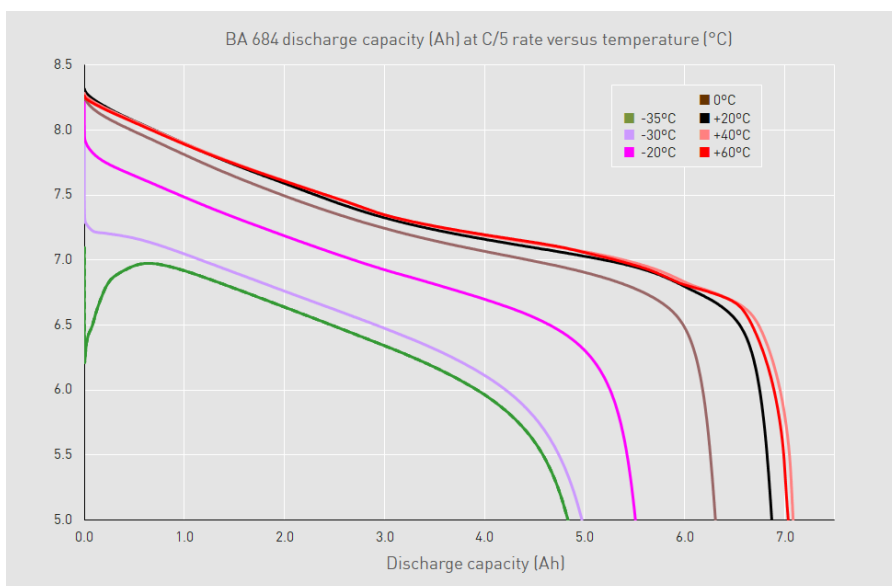
Transport and Storage

- The storage area should be clean, cool (preferably between +10°C and +30°C), dry and ventilated
- For long-term storage, keep the battery state of charge within a 30% to 15% range.

Warnings

- Do not crush, short-circuit, incinerate, dismantle, immerse in any liquid or heat above +85°C
- Observe charging conditions at all times
- Do not solder or weld directly to battery terminals
- Do not disassemble
- Do not disable, disconnect or modify the electronic protection circuit

Environmental requirement	MIL-STD reference
High Temperature	MIL-STD 810E, 501.3 (+60°C)
Low Temperature	MIL-STD 810E, 502.3 (-20°C)
Vibration	MIL-STD 810C, 514.2 H
Shock	MIL-STD 810E, 516.4
Salt Fog	MIL-STD 810E, 509.3 I
Immersion	MIL-STD 810E, 512.3
NATO/ OTAN Stock Number (NSN)	6140 14 599 2477
Saft's Part Number	08646A



Saft

26, Quai Charles Pasqua,
92300 Levallois Perret -France
Tel.: +33 (0)1 49 93 19 18
Fax: +33 (0)1 49 93 19 69
www.saftbatteries.com

Saft America, Inc.

313 Crescent Street
Valdese, NC 28690—USA
Tel.: +1 (828) 874 41 11
Fax: +1 (828) 879 39 81
www.saftbatteries.com

Doc N°: 54083-2-0320

Edition: March 2020

Information in this document is subject to change without notice and becomes contractual only after written confirmation by Saft.

Published by the Communication Department

Photo credit: Saft

Produced by CE Marketing Department

