

# BA684C

## Military rechargeable Li-ion battery

7.2 V high energy Li-ion battery with high performance and durability

Saft's BA684C battery is compatible with military applications requiring safety, reliability, long operating life under cycling conditions and offers excellent performance in temperature environments from  $-35^{\circ}\text{C}$  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 battery energy density (198 Wh/l and 101 Wh/kg)
- Cycle life more than 1800 cycles at 100% DoD at C/2 discharge, C/ charge
- Aluminium alloy 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) <sup>(i)</sup>	6.3 Ah
Nominal voltage	7.2 V
Nominal energy	45.3 Wh
Recommended maximum discharge current <sup>(ii)</sup>	Continuous 5.0 A <sup>(iv)</sup> ( $+20^{\circ}\text{C}$ )
(limited by the electronic protection circuit)	
Identification resistor	15 k $\Omega$ $\pm$ 1%

### Physical characteristics (battery)

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
Camouflage colour	NATO green / desert sand
Saft part number	08645Z
NATO / OTAN stock number (NSN)	6140 14 597 8164

### Operating conditions

Typical cut-off voltage	5.0 V
Charging method	Constant current/Constant voltage
Charging voltage	8.2 $\pm$ 0.05V
Maximum continuous charge current <sup>(iii)</sup>	5.0 A <sup>(iv)</sup> ( $\sim$ 1C rate)
Operating temperatures	Charge <sup>(iii)</sup> $-30^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ Discharge <sup>(iii)</sup> $-35^{\circ}\text{C}$ to $+60^{\circ}\text{C}$
Storage & transportation temperatures	Recommended $+10^{\circ}\text{C}$ to $+30^{\circ}\text{C}$ Allowable $-40^{\circ}\text{C}$ 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  $0^{\circ}\text{C}$  and above  $+60^{\circ}\text{C}$ , consult Saft

[iv] Limited by the electronic protection circuit

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## Independent five segment fuel gauge

- Assess 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

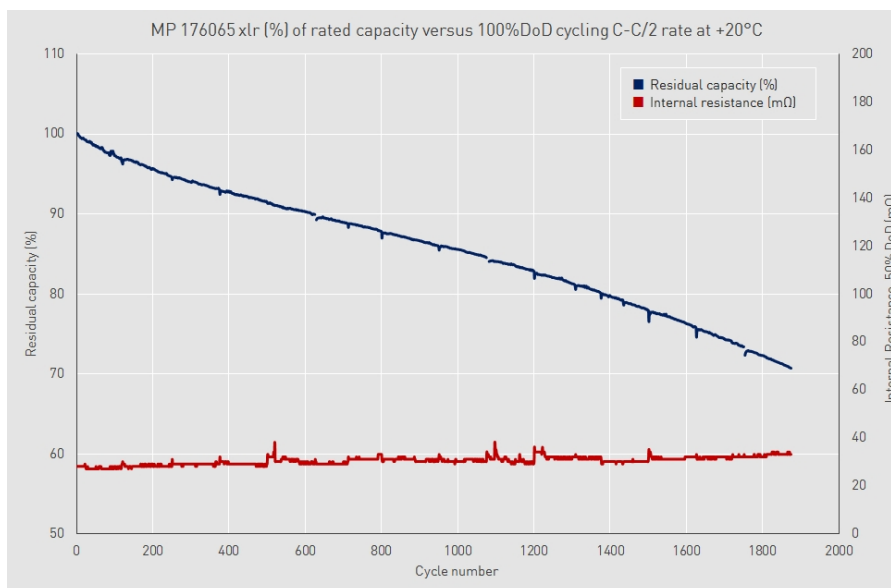
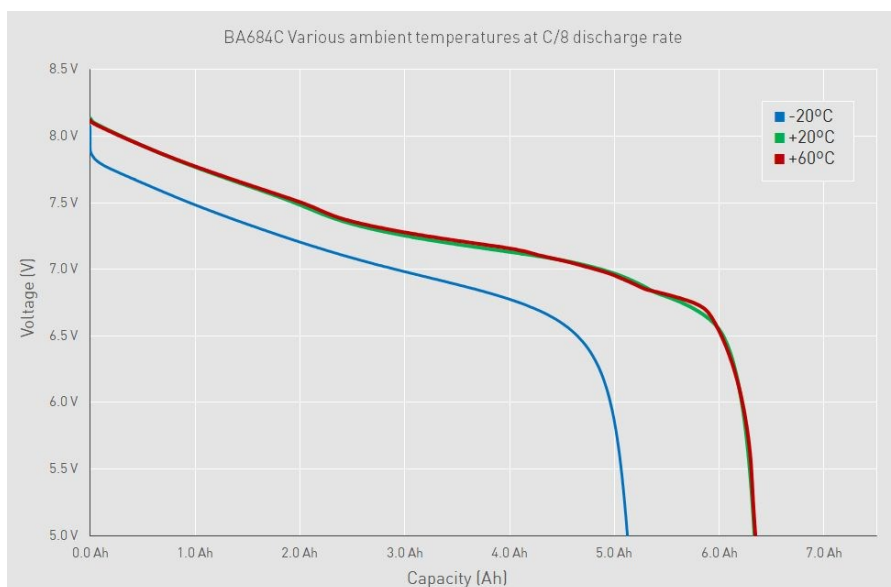
## Transport and Storage

- 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 (+60°C)
Low Temperature	MIL-STD 810E (-20°C)
Vibration	MIL-STD 810C
Shock	MIL-STD 810E
Salt Fog	MIL-STD 810E
Immersion	MIL-STD 810E
NATO / OTAN Stock Number (NSN)	6140 14 597 8164
Saft's Part Number	08645Z



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