

The logo features the word "ULTRA" in a bold, italicized, white sans-serif font. This is followed by "LiFE" in a similar italicized font, but with a red square dotting the "i" and a registered trademark symbol (®) at the end. The background of the entire page is a dark grey to black gradient with a pattern of squares that become increasingly transparent and smaller as they move from the left towards the right.

ULTRALiFE®

2EXL7593

3.6V 3.0Ah Li-ion Battery Assembly

File ID	Author	Approval	Circulation	Release Date	Pack ID	Page	Rev
SP-2EXL7593-Rev-X01	S. Hubbard	M. MacWillie	Sales	2025-04-03	2EXL7593	1/6	X01

Part Number: 2EXL7593

Key Features:

- Samsung INR18650-30Q cells
- Integrated protection circuit ensures operation with safe limits 1S1P configuration
- With 10k NTC thermistor lead
- Molex Nano-Fit 1053071203 connector
- Designed to meet IEC 62133 and UL 2054

Regulatory Approvals:

- UN 38.3

Electrical Characteristics:

Nominal Voltage	3.6V
Capacity (Typical, @ 25C)	3000mAh
Capacity (Minimum @ 600mA, 2.5V cut-off, 25C)	2950mAh
Energy (Typical, @ 25C)	10.80Wh
Voltage Range	2.5V – 4.2V
Continuous Charge Current (Standard)	1500mA
Continuous Discharge Current (Max @ 25C)	3000mA
Charge Termination Current (4A charge @ 25C)	100mA
Thermistor Manufacturer Part Number	NCP15XH103F03RC
Thermistor Nominal Resistance (@ 25C)	10k Ω
Thermistor B Constant(25/85C)	3434K

Mechanical Characteristics:

Dimensions	Length (Typical)	69.00 mm
	Diameter (Typical)	19.33 mm

Environmental Characteristics:

Charge Temperature (Ambient)	0C to +45C
Discharge Temperature (Ambient *Note ¹)	-20C to 60C
Storage Temperature (Ambient, @30% SOC*Note ²)	0C to 23C (1 year)
	0C to 45C (3 months)
	0C to 60C (1 months)

Note 1: Maximum cell surface temperature = 70C. Maximum surface temperature is defined as the point in the pack where the cell surface temperature is the highest.

Note 2: Capacity recovery > 80% for all specified storage conditions if stored at 30% state of charge.

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Serialization:

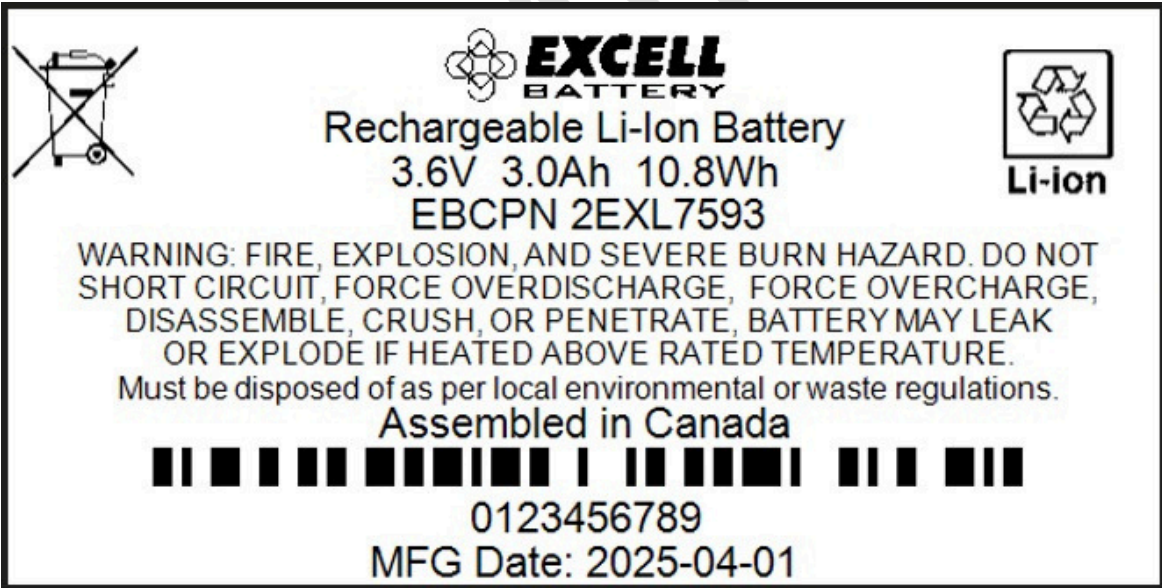
Packs will be serialized per Excell's standard serialization format BYZZZNNNN where:

- B = Excell Battery branch
 - 1 = Surrey
 - 3 = Calgary
 - 4 = Houston
- YY = The last two digits of the current year
- ZZZ = The day of the year the serial batch was created
- NNNN = Incremental number within the serial batch

For example, the first battery in a batch produced in Surrey on April 1,2025 would be: 1251000001.

Labelling:

Packs will have the following labels affixed to the surface of the battery:

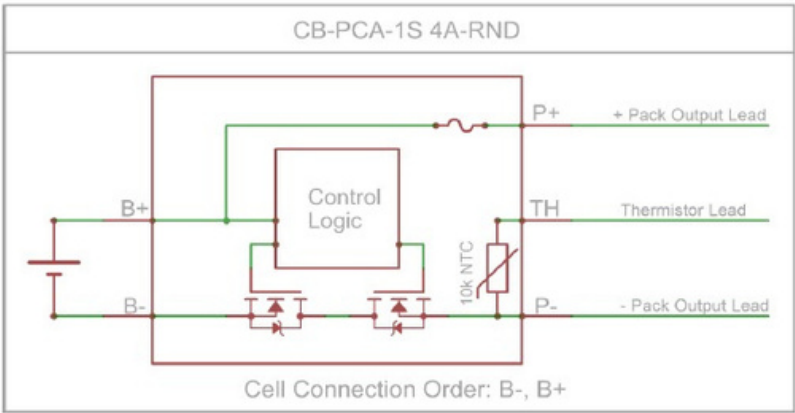


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Protection Circuit Thresholds:

Parameter	Min.	Typ.	Max.	Unit
Maximum Recommended Constant Operating Current		3.000		A
Overdischarge Detection Voltage	2.265	2.300	2.335	V
Overdischarge Release Voltage	2.250	2.300	2.350	V
Overdischarge Detection Delay	102.400	128.000	153.600	ms
Overdischarge Release Delay		n/a		ms
Overcharge Detection Voltage	4.260	4.280	4.300	V
Overcharge Release Voltage	4.050	4.080	4.110	V
Overcharge Detection Delay	0.800	1.000	1.200	S
Overcharge Release Delay Time		n/a		ms
Discharge Overcurrent Threshold	3.340	4.000	4.220	A
Discharge Overcurrent Delay	12.800	16.000	19.200	ms
Discharge Overcurrent Release Delay		n/a		S
Charge Overcurrent Threshold	4.050	4.500	5.350	A
Charge Overcurrent Delay	6.400	8.000	9.600	ms
Charge Overcurrent Release Delay		n/a		S
Short Circuit Detection Threshold	18.000	23.000	27.000	A
Short Circuit Detection Delay	224.000	280.000	336.000	us
Redundant Safety Fuse				A
Operating Ambient Temperature	-40.000		85.000	°C
Storage Temperature	-40.000		125.000	°C

Protection Circuit Block Diagram:



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SP-2EXL7593-Rev-X01	S. Hubbard	M. MacWillie	Sales	2025-04-03	2EXL7593	5/6	X01

Cell Specification:

Model	INR18650-30Q	Version No.	1.0
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1. Scope

This product specification has been prepared to specify the rechargeable lithium-ion cell ('cell') to be supplied to the customer by Samsung SDI Co., Ltd.

2. Description and model

- 2.1 Description lithium-ion rechargeable cell
2.2 Model name INR18650-30Q
2.3 Site Manufactured in Korea, Malaysia & China

3. Nominal specifications (*1)

Item	Specification
3.1 Standard discharge capacity	Min. 2,950mAh - Charge: 0.5C(1.5A), 4.20V, 0.02C(150mA) cut-off @ RT - Discharge: 0.2C(600mA), 2.5V cut-off @ RT * 1C = 3,000mA
3.2 Rated discharge capacity	Min. 2,900mAh - Charge: 4A, 4.20V, CCCV 100mA cut-off @ RT - Discharge: 10A, 2.5V cut-off @ RT
3.3 Nominal voltage	3.6V
3.4 Standard charge	CCCV, 1.5A, 4.20V, 150mA cut-off
3.5 Rated charge	CCCV, 4A, 4.20V, 100mA cut-off
3.6 Charging time	Standard charge : 132min / 150mA cut-off (@ RT) Rated charge: 60min / 100mA cut-off (@ RT)
3.7 Max. continuous discharge	15A (@ RT)
3.8 Discharge cut-off voltage	2.5V (End of discharge)
3.9 Cycle life	Capacity ≥ 1,770mAh @ after 250cycles (60% of the standard capacity @ RT) - Charge : 1.5A, 4.20V, CCCV 150mA cut-off @ RT - Discharge: 15A, 2.5V cut-off @ RT
3.10 Storage characteristics	Capacity recovery(after the storage) ≥ 2,320mAh (80% of the rated capacity @ RT) - Charge : 4A, 4.20V, CCCV 100mA cut-off @ RT - Storage : 30 days (@ 60℃) - Discharge : 10A, 2.5V cut-off @ RT

Item	Specification
3.11 Cell weight	48.0g max
3.12 Cell dimension	Height : Max. 65.00 mm Diameter : Max. 18.40 mm
3.13 Operating temperature(*2)	Charge : 0 to 45℃ (Ambient) Discharge: -20 to 60℃ (Ambient)
3.14 Storage temperature(*3)	1 year 0~23℃ 3 months 0~45℃ 1 month 0~60℃

Note (*1): Protection function of the battery pack should be set within the specified charge, discharge and temperature range in the Cell Specification.

Note (*2): Discharge OTP(over temp. protection) should not be over 70℃ of the cell surface temperature. Protection set should be based on the location of the cell surface with the highest temp increase part of the battery pack.

Note (*3): If the cell is kept as ex-factory status (30% of charge), the capacity recovery rate is more than 80%.

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Revisions:

Revision	Date	Description of Change	DQP / ECO #
X01	2025-04-03	Preliminary	DQP-4239

PRELIMINARY