

Lithium Battery Datasheet & Runtime Review Checklist

Use this two-page worksheet before approving an exact cell or a same-size substitute. It separates published values from the evidence the final product actually needs.

Decision rule

Approve delivered watt-hours above the real device cutoff under the real duty cycle—not the largest mAh label.

1. Datasheet identity and conditions

☐	Exact manufacturer, model, revision and publication date	Evidence / limit: _____
☐	Typical and minimum/rated capacity; discharge current, cutoff and temperature	Evidence / limit: _____
☐	Nominal energy and voltage; maximum charge voltage and charge profile	Evidence / limit: _____
☐	Continuous and pulse-current limits with duration and temperature boundary	Evidence / limit: _____
☐	ACIR frequency/SOC and DCIR pulse amplitude, duration, SOC and sampling points	Evidence / limit: _____

2. Product operating envelope

☐	Battery voltage window and real device undervoltage cutoff	Evidence / limit: _____
☐	Current or constant-power waveform, including startup and repeated pulses	Evidence / limit: _____
☐	Converter behavior near low voltage; peak power and firmware shutdown logic	Evidence / limit: _____
☐	Ambient, enclosure and starting-temperature range	Evidence / limit: _____
☐	Runtime target, mission profile and target service life	Evidence / limit: _____

3. Complete pack resistance budget

☐	Cell dynamic resistance at relevant SOC, temperature and pulse duration	Evidence / limit: _____
☐	Tabs/welds, PCM/BMS MOSFETs, fuse, connector, wire and device contacts	Evidence / limit: _____
☐	Worst acceptable production resistance and measurement method	Evidence / limit: _____
☐	Loaded-voltage margin at lowest approved SOC and temperature	Evidence / limit: _____

Validation and Release Evidence

Run the production-intent pack in the final device. Record synchronized voltage, current, BMS state, device state and temperature.

Test	Method	Decision closed	Pass / evidence
Reference capacity	Supplier-matched method	Identity, minimum capacity, lot consistency	☐ _____
Dynamic load	Real device waveform	Minimum loaded voltage, delivered Wh, cutoff margin	☐ _____
Low-SOC cutoff map	Controlled SOC steps	Exact point where required load can no longer be supported	☐ _____
Thermal path	Repeat to steady state	Cell, BMS, fuse, connector and wire temperatures	☐ _____
Margin and aging	Cold + worst resistance + aged samples	Production and end-of-life margin	☐ _____

Release record

Exact cell and supplier route	_____
Datasheet revision	_____
Pack BOM / drawing revision	_____
Firmware / cutoff revision	_____
Approved temperature and SOC range	_____
Maximum pack resistance	_____
Critical pulse limit	_____
Revalidation triggers	_____

Engineering approval	Name: _____ Date: _____
Quality / sourcing approval	Name: _____ Date: _____

Important: This checklist supports engineering review; it does not replace supplier documentation, final-device testing, certification or product-specific safety assessment.