

How to Select Battery Contacts

A practical guide to choosing MPD springs, clips and retainers for a custom battery cavity or PCB assembly.

Start with the complete battery interface

Identify the exact cell format, chemistry, terminal shape, dimensions and tolerance range. Then define how the cell will be inserted, held and replaced. A contact provides the electrical path, while the surrounding cavity or enclosure must control position, polarity and user access.

Make five decisions in order

- 1 Identify both terminals. Choose the positive and negative contact geometry for the actual cell, including flat or recessed terminals and the expected travel at each end.
- 2 Set the mechanical stack. Check cavity length, cell tolerances, contact height, spring deflection, insertion path and clearance for battery removal.
- 3 Choose the attachment. Surface mount and through hole contacts suit different PCB processes; loose springs, leaf contacts and snap in clips can serve molded housings.
- 4 Check electrical performance. Verify current, contact resistance, plating, temperature and compatibility with the cell and environment on the exact part drawing.
- 5 Test retention and service. Measure continuity under shock and vibration, repeated replacement, contact wear and possible corrosion or cell leakage.

Examples from MPD product photography



AA SMT clip



AAA PCB clip



CR2032 retainer



Negative spring

Product images: MPD part pages at battery-contacts.com. Check the exact mating cell and current drawing before design release.

Choose the contact family

MPD offers separate contacts for molded cavities, board mounted clips, spring contacts, coin cell retainers and cylindrical cell clips. Select by cell geometry first, then assembly method.

Cell or interface	MPD starting example	Selection cue
AAA and AA clips	BK-82 AAA through hole clip; BK-53 AA surface mount clip	Compare PCB footprint, cell orientation, insertion height and assembly process.
Loose cylindrical springs	BCAAA and BCAA contact springs	Size cavity and spring travel for the cell tolerance and required contact force.
Coin cell retainer	BC-2003 surface mount CR2032 retainer	Check coin cell thickness, retention, removal path and the negative PCB pad or separate contact.
Coin cell negative spring	BK-6317 negative contact for many CR cells	Use when the cavity needs a separate compliant negative contact; validate the mating cell.
Large cylindrical cells	BK-874 D cell contact; MPD C cell springs and contacts	Check cavity support, spring travel, electrical load and vibration.
18650 or specialty clips	BK-18650-CLIP, plus cell specific contact options	Verify protected cell length, diameter, chemistry, retention and battery management design.

Match the contact to manufacturing

Mounting	Typical application	What to check
Surface mount	Automated board assembly	Land pattern, reflow compatibility, packaging and height above PCB
Through hole / PC pins	Board insertion and wave solder	Hole pattern, solder access and mechanical loading
Molded cavity contact	Battery compartment in a plastic housing	Locking tabs, spring preload, wire or PCB connection, service cycle
Retainer and PCB pad	Low profile coin cell on a board	Positive retainer fit, negative pad geometry, polarity and isolation

A coin cell retainer often uses a PCB pad as one electrode. Check MPD’s recommended land pattern and whether the design needs a dedicated negative contact instead.

Worked selection examples

Low profile CR2032 backup supply

A replaceable coin cell sits on a compact PCB. Start with BC-2003 for a surface mount retainer. Check the cell thickness and negative pad pattern, then validate insertion clearance and continuity after vibration. If access or retention needs more structure, compare a covered holder.

Two AA cells in a molded enclosure

The plastic housing forms its own battery compartment. Begin with an AA spring such as BCAA and a suitable opposing contact. Set the cavity geometry with minimum and maximum cell lengths, measure spring compression and test the assembled compartment.

AAA cell on a PCB

The design calls for board mounted metal clips. Compare BK-82 through hole and other AAA options with the PCB process and enclosure. Verify polarity, part spacing and battery replacement forces.

Alarm contact for a coin cell

A compact device needs a compliant negative terminal. Start with BK-6317, which MPD describes as a negative spring for many CR cell sizes and alarm contact applications. Test the exact cell and mating positive contact.

MPD compared with another supplier

Compare exact parts at the same cell tolerances and test conditions. MPD’s advantage is the breadth of separate contacts and clips plus support for custom cavity and contact designs when an off the shelf part misses the fit.

Comparison point	MPD option to assess	Check on any alternative
Cell fit	Contacts for AAAA through D, coin cells and 18650 formats	Does it cover the full cell dimension and terminal range?
Manufacturing	Surface mount, PC pin and molded cavity choices	Are mounting drawings and packaging suitable for production?
Reliability	Contact geometry and spring options for the specified assembly	What continuity, force and service cycle evidence exists?
Design change	MPD can modify contact shape, materials or mounting	Can the supplier provide samples and qualify a revised geometry?

Qualify the final contact design

- Test the shortest and longest permitted cells, several brands and both terminal profiles. Measure spring deflection without permanent deformation.
- Confirm continuity and voltage drop at the highest expected current, including temperature extremes and after insertion and removal cycles.
- Test shock, vibration and drop conditions in the complete enclosure. Watch for cell movement, contact damage and accidental reversal.
- Check contact material and plating against the environment, humidity, leakage and storage period; confirm the exact part's compliance documents.
- Verify polarity markings and whether the battery is accessible to users. Qualify the cell chemistry and protection electronics separately from the metal contact.

When a standard contact does not fit

MPD is a custom manufacturer. Send the cell drawing and dimensional range, contact position, cavity or PCB drawing, desired plating, current, expected replacement cycles, environmental requirements and annual volume. MPD can discuss a modified contact, mating pair, spring or suitable substitute. Samples allow physical fit and electrical checks before production.

Request samples and engineering help

Samples are available on request. Email sales@memoryprotectiondevices.com or call MPD at (631) 249-0001. Include the battery type, mounting method, current and enclosure drawing so MPD can suggest the right contact options.

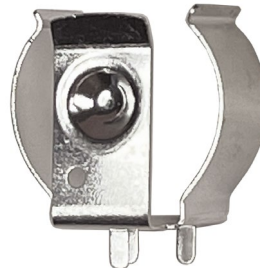
More MPD product examples



AA spring



AA SMT contact



18650 clip



D cell contact

MPD sources

Battery contacts and springs <https://www.battery-contacts.com/battery-contacts.php>

Coin cell retainers <https://www.battery-contacts.com/coin-cell-retainers.php>

Product pages and images <https://www.battery-contacts.com/>

MPD custom manufacturing and quality <https://www.battery-contacts.com/about.php>

Battery holder and contact catalog <https://www.memoryprotectiondevices.com/documents/catalogs/MPD-Battery-Holders.pdf>

Illustrative selections only. Confirm specifications and availability with MPD before design release.