

APPLICATION NOTE

THIN CELL TERMINATIONS

Many customers have selected lithium manganese dioxide or “Li-MnO₂” as the primary lithium battery solution in their device. Today’s demand for high performance, small footprint, reliable, and cost-effective electronic products can be realized by identifying the best match between the Li-MnO₂ battery and its application. This often involves defining and selecting the best method of connection between the cell and the PCBA.

Ultralife offers its customers the best of both worlds by providing convenient and competitively inexpensive options for performing cell terminations on your Ultralife Thin Cells. Choose from any of the following options:

CONNECTORS



Ultralife can have your Thin Cells shipped from the factory with spot welded wires to connector housing terminals of your choice (quoted a la carte). This allows for a direct plug-in and removes any distance requirements between tabs. This is ideal for applications that require drop-in replacement.

TAB EXTENSIONS - BARE

Ultralife can weld a nickel tab to the standard stainless steel cathode tab, making both tabs bare nickel, which allows for easy welding of the Thin Cell’s flat strip terminations to gold plated copper pads on PCBA’s using either resistance or laser welding machines.

TAB EXTENSIONS – SS AND Ni

Ultralife can manufacture the thin cell with any length stainless steel cathode and nickel anode tabs (from 2mm to 200mm). This flexibility allows you to request a custom length and then use laser welding equipment to connect the stainless steel and nickel tabs directly to the PCBA. Resistance welding is not recommended for stainless steel.



TAB EXTENSIONS - TINNED

Considering bare tab extensions? Ultralife can have your nickel tabs tinned with lead-free solder (RoHS compliant) to allow customers to solder the thin cell directly to a PCBA, eliminating the need for resistance or laser welding machinery. This method does involve heat applied near the cell, and has the possibility to compromise the seal and reduce the usable lifetime and/or capacity of the cell. Ultralife can provide soldering temperature, tip size, and dwell time recommendations.



SOLDERING WARNING

Ultralife recommends customers avoid soldering directly to the cells completely. Direct soldering methods, such as tunnel reflow and wave soldering, will short the cell and compromise the polymeric seal between the foil pouch and metallic tabs. This seal is important and prevents outside contaminants and moisture from entering the cell - degrading the performance.



While welding is the preferred method of connection, it is important to note that welding directly to a battery may cause leakage, venting, or in extreme cases, explosion and/or fire. Therefore, only interconnect the cells by spot welding to the flat strip (tab) terminations and perform spot welding behind safety shields.

PLEASE CONTACT ULTRALIFE CORPORATION’S TECHNICAL SUPPORT TEAM TO FIND OUT HOW WE CAN GET A THIN CELL INTO YOUR APPLICATION TODAY!

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