

Precautions for the correct use of coin-type lithium batteries

When removing installed electronic components, be careful not to let the heat of the soldering iron or the hot air used to melt the solder damage the battery.

Case Analysis and Explanation:

The following problem sometimes occurs: Externally applied heat melts and deforms the gasket of the coin-type lithium battery mounted on the printed circuit board. Due to the deformation of the gasket, the battery gasket seal gradually weakens, and the electrolyte leaks or evaporates through the gap between the gasket and the metal cover or between the gasket and the positive terminal case. As a result, the electrical characteristics of the battery are degraded.

A plastic material with a low softening temperature is used for gaskets and separators in batteries. If the battery is heated to high temperatures, the gaskets or separators will be damaged, causing the battery to leak or deteriorate in performance.

[Overview of the problem]

Sometimes it is necessary to remove electronic components, including batteries, that have been soldered to a printed circuit board.

Hot air tools are a common method for melting solder joints to remove electronic components with multiple leads. However, hot air may heat the battery adjacent to the electronic component to be removed. In addition, when using a soldering iron to remove an installed battery and re-solder it, make sure that the heat applied by the soldering iron does not damage the battery.

<Example question>

Example 1: Electrolyte leakage at user site

Cause: When replacing or repairing electronic components with multiple leads, such as ICs and connectors, hot air at about 260°C was used to melt the solder joints on the printed circuit board that was eliminated on the production line. When using hot air, the adjacent battery was also exposed to the hot air, and its gasket melted and deformed, causing the sealing integrity of the battery to gradually deteriorate, resulting in electrolyte leakage.

Example 2: Memory wipe occurred at the user's site

Cause: When the battery with terminals is mounted on the printed circuit board, the soldering iron heats the battery to an extremely high temperature. The temperature of the battery itself rises abnormally, and the battery gasket melts and deforms. Afterwards, due to the reduced integrity of the seal, the electrolyte gradually evaporates from the battery, reducing the battery's performance.

[Countermeasures]

- (a) When removing electronic components from a printed circuit board using hot air, remove the battery first.
- For batteries with terminals, the terminals must be removed quickly to prevent the soldering iron from transferring extreme heat to the battery.
 - If the battery is mounted on a holder, remove the battery from the holder first.
- (b) Other electronic components can be removed only after following the above procedures.

When using only a soldering iron without hot air, remove the electronic components quickly to prevent the excessive heat of the soldering iron from being transferred to the battery.

Note: Due to potential safety hazards, never solder directly on the battery body, only on the terminals.

CDA also offers heat-resistant coin cells that can be used at high temperatures. Please contact us for details.

Please thoroughly inform all relevant departments, including manufacturing and sales departments or subcontractors, of these precautions.

For more detailed information, please contact the CDA Division Engineering Department.