

6. Precautions on use

6-1 Limits on use

Because an accident or malfunction of the SLB could result in injury or damage to property, NICHICON requests you confer with NICHICON in advance if you are considering using the product in a situation requiring a high degree of reliability, such as those indicated below.

(1) Aircraft, (2) spacecraft, (3) generator control equipment, (4) medical instrument, (5) transport equipment, (6) traffic signaling device, (7) fire protection, or (8) crime prevention equipment

- When using the SLB, please design the equipment based on the delivery specifications. NICHICON is not liable for any problems that may occur in your equipment without checking the delivery specifications.
- In addition, NICHICON is not liable for any incidental or indirect damages related to the customer's product that uses our product.
- Since it is difficult to prevent failures by testing only individual parts, be sure to perform the necessary evaluation tests after incorporating the SLB into your device to make sure that no problems may occur.
- If the SLB does not conform to the specifications, NICHICON will provide repair and replacement for free, or compensate for the amount equivalent to the sales price of the subject product.
- If you have any objections or doubts about the contents of this technical note, please contact NICHICON before ordering. If you have not contacted Nichicon before placing the order, NICHICON will assume that you have accepted the contents of the delivery specifications.

6-2 Storage conditions

The SLB should be stored in an environment where condensation is not present and within the recommended temperature range for storage (5 to 35°C). The SLB has a low rate of self-discharge. If the voltage drops below 2.15V, please apply a supplementary charge to 2.4V across the terminals. If the voltage across the terminals falls below 2.0V, do not use a supplementary charge, but contact NICHICON.

6-3 Precautions on settings

1. The SLB has a limited life.
2. A range for the operation and storage of the SLB has been set. Degradation of its electrical characteristics increases substantially if the SLB is used in temperatures that exceed the maximum level.
3. If the discharge current is large, a voltage drop occurs when discharge is initiated. Please confirm the circuit discharge current and the SLB internal resistance values (DCR).

4. When the SLB is connected in series, a voltage imbalance can cause the voltage on certain cells to exceed their rated upper or lower voltages. We recommend the use of overcharge/over-discharge countermeasures, such as voltage monitoring circuit devices.
5. The SLB is polarized. Do not apply a reverse voltage.
6. Avoid placing heat generating components in the SLB's vicinity or on the back surface of the printed wiring board.
7. When mounting, provide insulation to the contact parts such as the board.

6-4 Solder mounting

1. The SLB is not compatible with flow mounting or reflow solder mounting. When mounting, take care to avoid mounting methods such as solder mounting or connector mounting in which the main part of the SLB would exceed the warranted temperature range.
2. When mounting this product, please avoid excessive mechanical stress, vibration, or pressure, as this could result in degradation of electrode terminals or electrical characteristics.
3. If solder mounting, we recommend mounting under these conditions.
Solder: Core thread solder (recommended: $\phi 1.2\text{mm}$)
Solder type: Lead-free solder Sn-3.0Ag-0.5Cu
Soldering temperature: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$
Solder time: Within 5s per terminal
Times soldering: 2 or less per terminal
4. Do not wash after mounting.

6-5 Resin coating

If the SLB is coated with resin, metal corrosion may occur, depending on the coating resin type. The risk also exists: the terminals or the aluminum case could change shape due to shrinkage when the resin cures. Please select a resin that allows the reliability of this product to be maintained.

6-6 Disassembly

Do not disassemble the SLB, as liquid leaks and accidents could result.

6-7 Hazard

Since the chemical components are sealed in the SLB, its hazard is extremely low. However, if used improperly, the SLB may be deformed, leak, burst, generate heat, or generate irritating gas or corrosive gas. Take extreme care when using it.

6-8 Stability and reactivity

- (1) If two or more SLBs are allowed to touch without insulating the terminals, from each other, there is a possibility of explosion or sudden heat generation due to a short circuit.
- (2) If the SLB is overcharged, heated, or dropped in a fire, the electrolyte may spurt out rapidly.
- (3) If the SLB is disassembled, there is a possibility of sudden heat generation due to a short circuit.

6-9 Electrolyte leak

The electrolyte of the SLB is flammable. It may irritate the eyes, skin and mucous membranes. Please refer to the following if an electrolyte leak occurs.

- If the electrolyte gets on your skin, immediately wash the skin with soap and lukewarm water. Seek medical attention immediately if you notice any changes in your skin or if there is persistent pain.
- If the electrolyte get in your eyes, immediately rinse your eyes with water for 15 minutes then seek medical attention immediately.
- If smoke or fire occurs, extinguish the fire with carbon dioxide fire extinguisher, powder fire extinguisher, or a large amount of water.

6-10 Storage

- Do not allow the terminals to touch each other or make the terminals touch a conductor.
- Avoid storing in the following environment.
 - (A) Environments that are directly exposed to water, or environments with high-temperature and high-humidity, or environments where condensation occurs
 - (B) Environments directly exposed to oil, or environments filled with oil in a gaseous state.
 - (C) Environments directly exposed to salt water, or environments full of salt.
 - (D) Environments filled with toxic gases (hydrogen sulfide, sulfite, nitrite, chlorine, bromine, methyl bromide, ammonia, etc.).
 - (E) Environments expose to direct sunlight, ozone, ultraviolet rays or radiation.
 - (F) Environments expose to acidic or alkaline solvents.

6-11 Others

- Do not short-circuit the SLB.
Overheating of the cell may cause electrolyte leakage, explosion, or heat generation.
- Do not apply reverse voltage to the SLB.
Abnormalities may occur inside the SLB, which may cause leakage, rupture, and heat generation.
- Do not apply excessive force to the SLB.
If excessive force is applied, the parts may become damaged, and electric shock, short circuit, or liquid leakage may occur.
- Do not perform the following tests.
Overcharge test, over discharge test, nail penetration test, crush test, drop test, chemical resistance test, high temperature exposure test.
- The long-term storage performance is still under test.