Cautions

Use the Switch within the rated voltage and current ranges, otherwise the Switch may have a shortened life expectancy, radiate heat, or burn out.

This particularly applies to the instantaneous voltages and currents when switching.

Correct Use

■ Handling

Operation

Do not repeatedly operate the Switch with excessive force. Applying excessive pressure or applying additional force after the plunger has stopped may deform the disc spring of the Switch, resulting in malfunction. Do not apply force in excess of 29.4N for 1 minute to Side-actuated models.

Be sure to set up the Switch so that the plunger will operate in a straight vertical line. A decrease in the life of the Switch may result if the plunger is pressed off-center or from an angle.

■ Dust Protection

The Switches are not sealed and should be protected with a resin sheet as shown below when used in dust-prone environments.

■ PCBs

The Switch is designed for a 1.6-mm thick, single-side PCB.

Using PCBs with a different thickness or using double-sided, through-hole PCBs may result in loose mounting, improper insertion, or poor heat resistance in soldering. These effects will occur, depending on the type of holes and patterns of the PCB. Therefore, it is recommended that a verification test is conducted before use.

If the PCBs are separated after mounting the Switch, particles from the PCBs may enter the Switch.

■ Soldering

General Precautions

Before soldering the Switch on a multilayer PCB, test to confirm that soldering can be performed properly. Otherwise the Switch may be deformed by the soldering heat on the pattern or lands of the multilayer PCB.

Do not solder the Switch more than twice, including rectification soldering. An interval of five minutes is required between the first and second soldering.

Automatic Soldering Baths

(B3F, B3W, B3WN, B3M, B3J)

Soldering temperature: 260°C max.
Soldering time: 5 s max. for a 1.6-mm thick single-side PCB
Preheating Temp: 100°C max. (ambient Temp.) within 60 s.

Make sure that no flux will rise above the level of the PCB. If flux overflows onto the mounting surface of the PCB, it may enter the Switch and cause a malfunction.

Reflow Soldering (Surface Mounting)

(B3FS, B3SN, B3S)

Solder the terminals within the heating curve shown in the following diagram.

Note: The above heating curve applies if the PCB thickness is 1.6 mm.

The peak temperature may vary depending on the reflow bath used. Confirm the conditions beforehand.

Do not use an automatic soldering bath for surface-mounted Switches. The soldering gas or flux may enter the Switch and damage the Switch’s push-button operation.
Manual Soldering (All Models)
Soldering temperature: 350°C max. at the tip of the soldering iron
Soldering time: 3 s max. for a 1.6-mm thick, single-side PCB
Before soldering the Switch on a PCB, make sure that there is no unnecessary space between the Switch and the PCB.

■ Washing

Washable and Non-washable Models

<table>
<thead>
<tr>
<th>Washable (sealed types)</th>
<th>B3W, B3WN, B3S, B3SN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-washable (Standard types)</td>
<td>B3F, B3FS, B3M, B3J, B3D, B3DA</td>
</tr>
</tbody>
</table>

Standard Switches are not sealed, and cannot be washed. Doing so will cause the washing agent, together with flux or dust particles on the PCB, to enter the Switch, resulting in malfunction.

Washing Methods

Washing equipment incorporating more than one washing bath can be used to clean washable models, provided that the washable models are cleaned for one minute maximum per bath and the total cleaning time does not exceed three minutes.

Washing Agents

Apply alcohol-based solvents to clean washable models. Do not apply any other agents or water to clean any washable model, as such agents may degrade the materials or performance of the Switch.

Washing Precautions

Do not impose any external force on washable models while washing.
Do not clean washable models immediately after soldering. The cleaning agent may be absorbed into the Switch through respiration as the Switch cools. Wait for at least three minutes after soldering before cleaning washable models.
Do not use Sealed Switches while submerged in water or in locations exposed to water.

■ Switch Packaging (Taping Specification Models)

Radial Types

The tape is packaged by fan-folding into the box, as shown in the following diagram.

---

### Packaging Specifications for Embossed Tape

(B3FS-1000P/-1002P, B3SN)

![Diagram of packaging specifications]

**Model A**
- B3FS-1000P: 3.9 mm
- B3FS-1002P: 3.6 mm

**Standards**
- Conforms to JEITA.

**Package**
- 3,000 Switches

**Heat resistance**
- 50°C for 24 hours (without deformation)

**Note:** Switches with ground terminals are packaged with the ground terminal on the opposite side of the guide hole.

---

**Switch Packaging (Taping Specification Models)**

**Radial Types**

The tape is packaged by fan-folding into the box, as shown in the following diagram.

---

**Model | A | B | C**
--- | --- | --- | ---
B3F | 50 mm | 325 mm | 275 mm
B3WN | 53 mm | 326 mm | 350 mm

---

**Standards**
- Conforms to JEITA.

**Package**
- 1,000 Switches

**Heat resistance**
- 60°C for 24 hours (without deformation)
B3FS-1050P

Note: Switches with ground terminals are packaged with the ground terminal on the opposite side of the guide hole.

LEDs (B3J)

Make sure that the polarity of the LEDs is correct. The polarity is not indicated on the Switch, but the positive pole is located on the back surface of the Switch on the side without the OMRON mark.

Connect limiting resistors to the LEDs. The Switch does not have built-in limiting resistors, so satisfy the LED characteristics by obtaining the limiting resistance according to the following formula based on the voltage to be used.

\[
R = \frac{E - VF}{IF}
\]

Standards
Conforms to JEITA.

Package
1,000 Switches

Heat resistance
60°C for 24 hours (without deformation)

B3S

Note: Switches with ground terminals are packaged with the ground terminal on the opposite side of the guide hole.
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