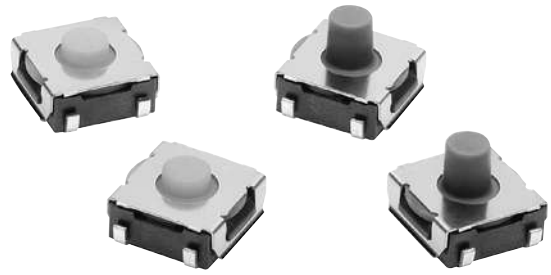
OMRON

Middle Stroke Tactile Switch | B3SL

Surface-mounting Sealed Tactile Switch.
Middle Stroke and Crisp Clicking Action.

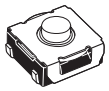
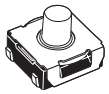
- RoHS compliant.
- Sealed construction conforming to IP67 (IEC 60529) provides high contact reliability in dusty environments. (✻ Excluding the terminal section.)
- Crisp click feeling and middle stroke with rubber plunger.
- Tape packing is available.

RoHS Compliant (Refer to page 3 for details.)



NEW

Ordering Information

Type	Plunger	Height	Operating force (OF)	Embossed tape	
				Model	Minimum order
6 × 6 mm B3SL Series	 (Flat type)	3.4 mm	1.96 N {200 gf}	B3SL-1002P	2,000
	 (Flat type)	5.1 mm		B3SL-1022P	1,400

Note: Orders must be made in multiples of the minimum order. Switches are not sold individually.

Ratings/Characteristics

Item	B3SL-1002P	B3SL-1022P
Switching capacity	1 to 50 mA at 5 to 12 VDC (resistive load)	
Ambient operating temperature	–25 to 90°C at 60% max. (with no icing or condensation)	
Ambient operating humidity	35% to 85% (at 5 to 35°C)	
Contact configuration	SPST-NO	
Contact resistance	100 mΩ max. (initial value) (for 1 mA at 5 VDC)	
Insulation resistance	100 MΩ min. (at 250 VDC)	
Dielectric strength	250 VAC, 50/60 Hz for 1 min	
Bounce time	5 ms max.	
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude	
Shock resistance	Destruction: 1,000 m/s^2 {approx. 100 G} max.	
Durability	100,000 operations min.	
Operating force	30 N max.	

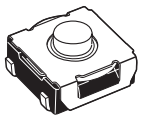
Operating Characteristics

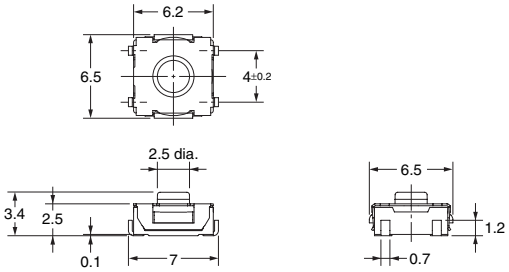
Item / Operation type	B3SL-1002P	B3SL-1022P
Operating force (OF)	1.96 ± 0.49 N {200 ± 50 gf}	
Releasing force (RF)	0.35 N min. {35 gf}	
Pretravel (PT)	0.3 ± 0.2 mm	0.5 ± 0.2 mm

Dimensions

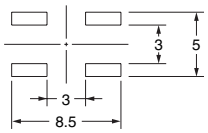
Note: All units are in millimeters unless otherwise indicated.

B3SL-1002P

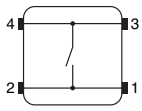




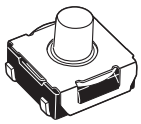
PCB Pad
(Top View)

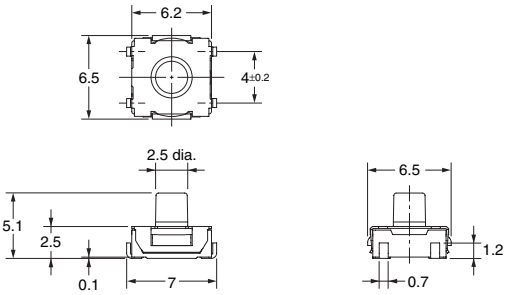


Terminal Arrangement/ Internal Connections
(Top View)

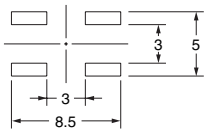


B3SL-1022P

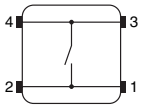




PCB Pad
(Top View)



Terminal Arrangement/ Internal Connections
(Top View)



Note: Unless otherwise specified, a tolerance of ±0.2 mm applies to all dimensions.

Safety Precautions

Note: Refer to *Safety Precautions* in *Tactile Switches* (Cat. No. X037) for details on general safety precautions.

■ Precautions for Correct Use

Storage

Storage Environment

To prevent degradation, such as discoloration, in the terminals during storage, do not store the Switch in locations that are subject to the following conditions.

1. High temperature or humidity
2. Corrosive gases
3. Direct sunlight

Storage condition

Store the Switches in the packaging box.

After the packaging box is opened, use the contents as quickly as possible. When storing leftover parts, make sure that appropriate measures are taken against humidity and corrosive gases.

Handling

Usage Environment

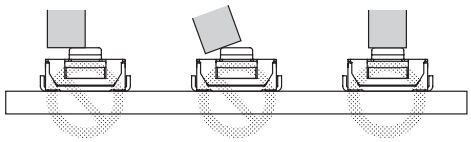
Before installing the Switch, make sure that the area of installation is not subject to corrosive gases emitted from surrounding parts.

1. Do not use in areas subject to high temperatures, high humidity, or toxic gases such as sulfuric gas (H_2S, SO_2), ammonia gas (NH_3), nitric gas (HNO_3), or chlorine gas (Cl_2). It can cause corrosive damage to the contacts and result in malfunction.
2. If there is silicon in the atmosphere, it may stop the contacts from functioning properly.
   If silicon products, such as silicon oil, silicon filler, or silicon wires, are used in the surrounding area, install a contact protection circuit to prevent arching or remove the silicon source.
   The Switch is not completely sealed. The following situations may cause water to enter inside the Switch, resulting in a malfunction due to contact failure or corrosion.

- Using the Switch in an outdoor environment where it is exposed to water drops for an extended period of time
- Using the Switch in an underwater setting where it is subject to strong water pressure.

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 disk spring of the Switch, resulting in malfunction.
- Be sure to set up the Switch so that the plunger will operate in a straight vertical line. If the plunger is pressed of-center or from an angle it may cause deformation or damage to some parts. This may result in deterioration of durability or malfunction.



Electrical Standards

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.

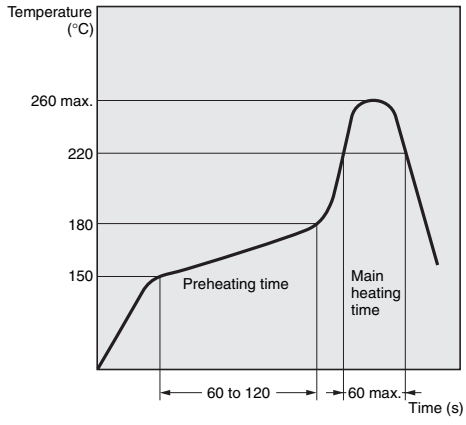
Soldering

Soldering Precautions

1. Before any kind of soldering, test to confirm that soldering can be performed properly. Otherwise the Switch may be deformed by the soldering heat depending on the type of PCB, pattern, or lands of the PCB.
2. Do not solder the Switch more than twice, including rectification soldering. Wait for at least five minutes between the first and second soldering to allow the temperature to return to normal. Continuous soldering may cause the casing to melt or deteriorate the Switch characteristics.

Reflow Soldering Conditions

Firmly attach a thermocouple to the surface of the terminals with solder that has a high melting point and set the reflow oven so that the peak temperature of the terminals is 260°C or less.
The following figure shows the temperature profile.



Manual Soldering

1. Soldering temperature: 350°C max. at the tip of the soldering iron
2. Soldering time: 3 s max. for a 1.6-mm thick, single-side PCB

Washing

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.

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.

RoHS Compliant

The "RoHS Compliant" designation indicates that the listed models do not contain the six hazardous substances covered by the RoHS Directive.

Reference:

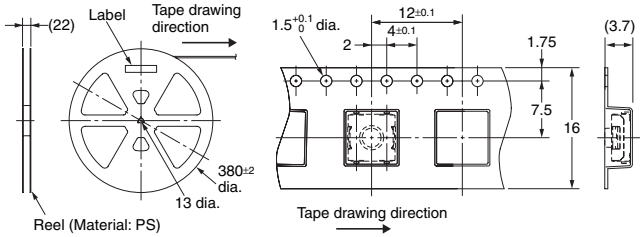
The following standards are used to determine compliance for the six substances.

Lead:	1,000 ppm max.
Mercury:	1,000 ppm max.
Cadmium:	100 ppm max.
Hexavalent chromium:	1,000 ppm max.
PBB:	1,000 ppm max.
PBDE:	1,000 ppm max.

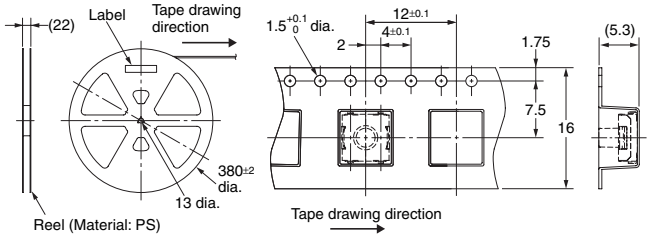
Packaging Specifications

The packaging specifications for B3SL Switches in embossed taping are given below.

B3SL-1002P



B3SL-1022P



Standards	Conforms to JIS.
Package	2,000 Switches (B3SL-1002P) 1,400 Switches (B3SL-1022P)
Heat resistance	60°C for 24 hours (without deformation)

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. A173-E1-01A **In the interest of product improvement, specifications are subject to change without notice.**

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Switch Division
Manual Switch Department

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