

## Mechanical Key Switch (SMD)

## B3SN

### Low Profile Surface-mounted Switch Meeting High-density Mounting Requirements

- Ideal mechanical key switch for surface-mounting.
- Compact and more than 1 mm thinner than conventional mechanical key switches.
- Available with ground terminals for protection against static electricity.
- Sealed construction provides high reliability in dusty or humid environments.



### Ordering Information

Type	Bags (100/bag)	Embossed tape (see note)
Without ground terminal	B3SN-3012	B3SN-3012P
With ground terminal	B3SN-3112	B3SN-3112P

Note: Switched on embossed tape must be order in units of 3,000.

### Specifications

#### ■ Ratings/Characteristics

Switching capacity	5 to 24 VDC, 1 to 30 mA (resistive load)
Insulation voltage	30 VDC
Contact configuration	SPST-NO
Contact resistance	100 mΩ max. (initial value) (Rated 5 VDC, 1 mA)
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	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s <sup>2</sup> min. (approx. 100G min.)
Life expectancy	50,000 operations min.
Ambient temperature	Operating: -25°C to 70°C (with no icing)
Ambient humidity	Operating: 35% to 85%
Weight	Approx. 0.2 g

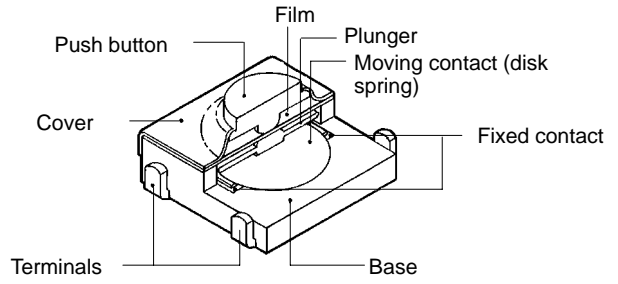
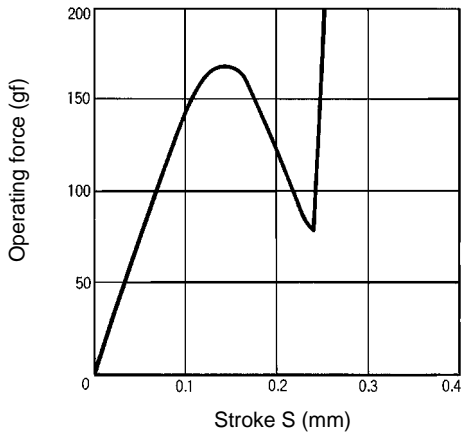
#### ■ Operating Characteristics

Item	Standard value
Operating force (OF max.)	1.57±0.49 N (160±50 gf)
Reset force (RF min.)	0.29 N (30 gf)
Pretravel (PT)	0.25±0.15 mm

Engineering Data

Nomenclature

Operating Force vs. Stroke  
(Typical)

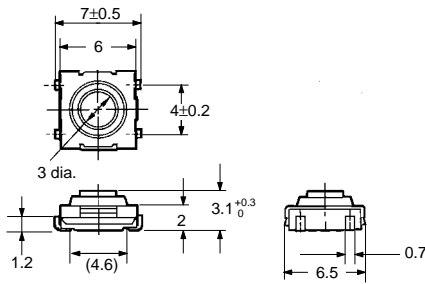
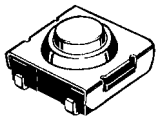


Dimensions

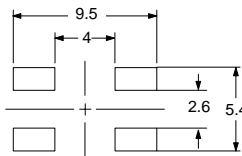
Note: 1. Unless otherwise specified, a tolerance of  $\pm 0.4\text{mm}$  applies to all dimensions.

Without Ground Terminal

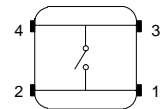
B3SN-3012  
B3SN-3012P



PCB Mounting  
(Top View)

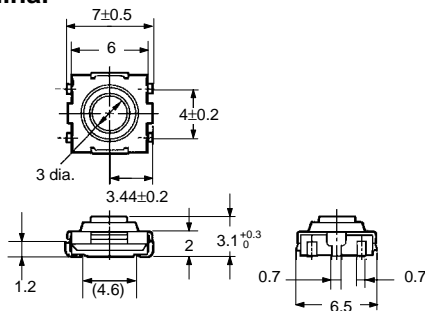
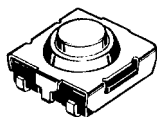


Terminal Arrangement  
/Internal Connections  
(Top View)

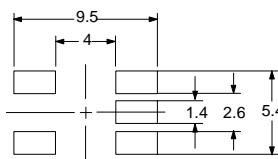


With Ground Terminal

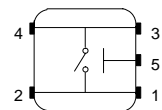
B3SN-3112  
B3SN-3112P



PCB Mounting  
(Top View)



Terminal Arrangement  
/Internal Connections  
(Top View)



# Precautions

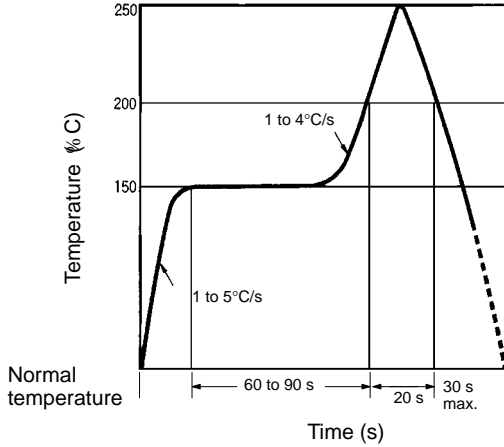
## Reflow Soldering

### IR Method

Attach a thermocouple to one side of the terminal with high-temperature solder and use it to set the reflow oven to a peak terminal temperature of 250°C. The optimum heating curve is shown below.

### VPS Method

In the case of VPS-method soldering using fluorocarbon FC-70, the heating time must not exceed 30 seconds at a temperature more than 200°C.



**Note:** The above heating curve applies if the thickness of the circuit board is 1.6 mm.

Do not apply additional force to the plunger once it has stopped moving.

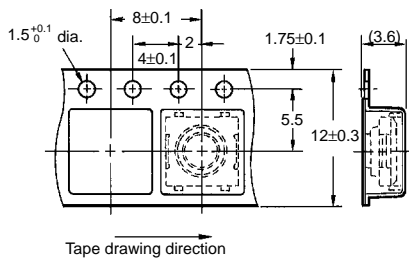
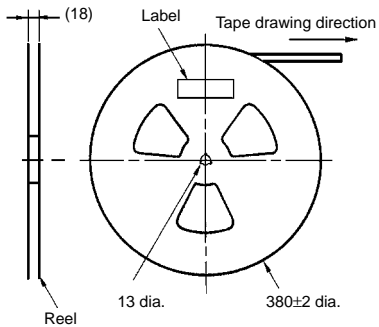
Do not repeatedly press the plunger off-center or from an acute angle.

B3SN Switches are designed to allow submersed washing after soldering. When washing, follow the guidelines given as follows:

1. Clean with alcohol solvents. Do not use chlorine solvents or water.
2. When using ultrasonic cleaning in two- or three-tank systems, do not clean for more than one minute at a time or for more than three minutes total.
3. Do not apply external force to the switch while washing.
4. Do not wash immediately after soldering. Allow components to stand for at least three minutes before washing.
5. The switch cannot be used where subject to direct contact with water.

## Key Switch Packing

Key switches are packed on tape as shown below.



<b>Standard</b>	Conform to EIAJ standards
<b>Package</b>	3,000 switches
<b>Heat resistance</b>	50°C for 24 hours (not to be deformed)

**Note:** The ground terminals of the switches are on the guide hole side of the package.