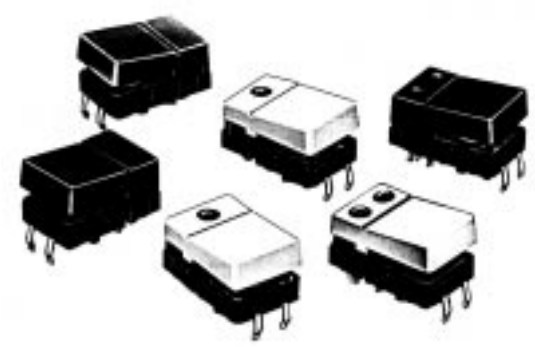
OMRON

Back

Mechanical Key Switch (Hinged) B3J

Hinged Design Developed through Human Engineering

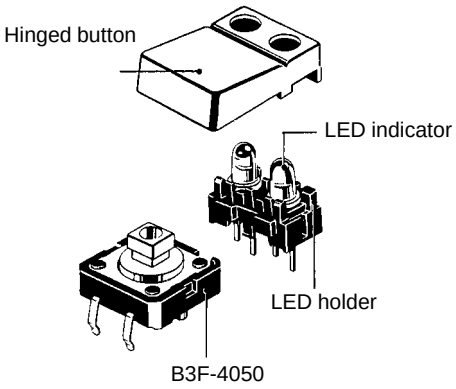
- Quick, superior snap action through hook-type hinge construction.
- Available with 1 or 2 LEDs or without LEDs.
- Available in 8 hinge button colors for a total of 56 button color/LED variations.
- Used in audio equipments, office equipments, transmitters, measuring instruments, TVs, and VCRs.



Ordering Information

Color of hinged button	No LED	One LED			Two LEDs		
		Red	Yellow	Green	Red/Yellow	Red/Green	Yellow/Green
Light gray	B3J-1000	B3J-2000	B3J-3000	B3J-4000	B3J-5000	B3J-6000	B3J-7000
Black	B3J-1100	B3J-2100	B3J-3100	B3J-4100	B3J-5100	B3J-6100	B3J-7100
Orange	B3J-1200	B3J-2200	B3J-3200	B3J-4200	B3J-5200	B3J-6200	B3J-7200
Yellow	B3J-1300	B3J-2300	B3J-3300	B3J-4300	B3J-5300	B3J-6300	B3J-7300
Blue	B3J-1400	B3J-2400	B3J-3400	B3J-4400	B3J-5400	B3J-6400	B3J-7400
Green	B3J-1500	B3J-2500	B3J-3500	B3J-4500	B3J-5500	B3J-6500	B3J-7500
White	B3J-1600	B3J-2600	B3J-3600	B3J-4600	B3J-5600	B3J-6600	B3J-7600
Light green	B3J-1700	B3J-2700	B3J-3700	B3J-4700	B3J-5700	B3J-6700	B3J-7700

Structure



Specifications

■ Ratings

Switching capacity	5 to 24 VDC, 1 to 50 mA (resistive load)
Insulation voltage	30 VDC

■ Characteristics

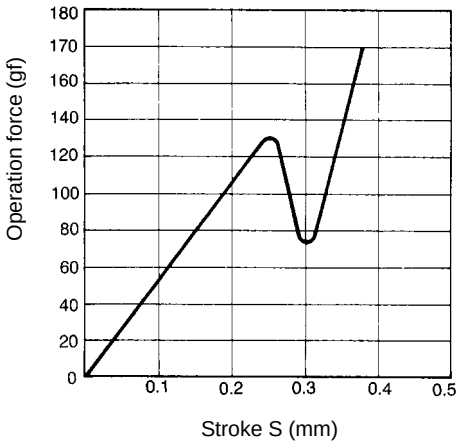
Contact configuration	SPST-NO
Contact resistance	100 mΩ max. (at 5 VDC, 1 mA)
Insulation resistance	100 MΩ min. (at 250 VDC)
Dielectric strength	500 VAC, 50/60 Hz for 1 min
Bounce time	5 ms max.
Vibration	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock	Destruction: 1,000 m/s^2 min. (approx. 100G min.) Malfunction: 100 m/s^2 min. (approx. 10G min.)
Life expectancy	3,000,000 operations min.
Ambient temperature	–25°C to 70°C (with no icing)
Ambient humidity	35% to 85%
Weight	Approx. 1.5 to 1.7 g

■ Operating Characteristics

Item	B3S-1000
Operating force (OF)	1.27±0.49 N (130±50 gf)
Reset force (RF min.)	0.29 N (30 gf min.)
Pretravel (PT)	$0.3^{+0.2}/_{-0.1}$ mm

Engineering Data

Operating Force vs. Stroke (Typical)



■ Built-in LED Performance

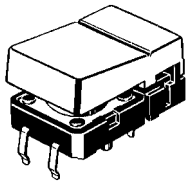
Item		Red	Yellow	Green
Forward voltage V_F	Standard value (V)	2.0	2.0	2.1
Forward current I_F	Standard value (mA)	20	20	20
Permissible loss P	Absolute maximum value (mW)	84	84	84
Reverse voltage V_R	Absolute maximum value (V)	5	5	5

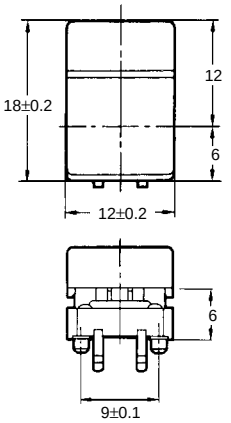
Note: Since the built-in LED doesn't contain any limiting resistors, externally connect limiting resistors within the limits shown in the above table.

Dimensions

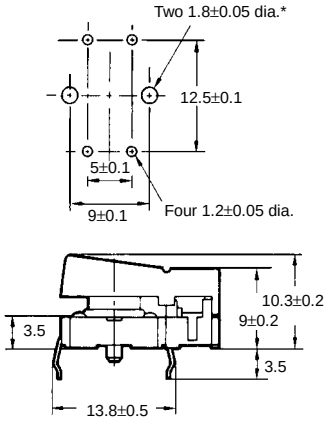
Note: All units are in millimeters unless otherwise indicated. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Types with no LED
B3J-1□00

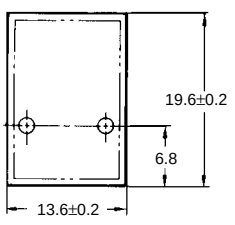




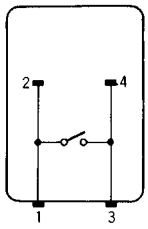
PCB Mounting (Top View)



Panel Cutout

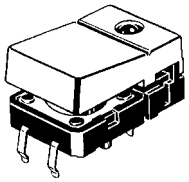


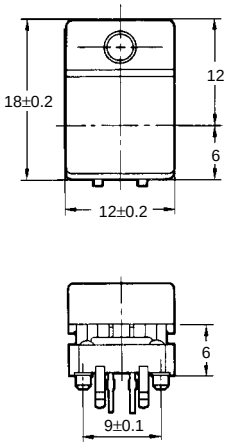
Terminal Arrangement /Internal Connections (Top View)



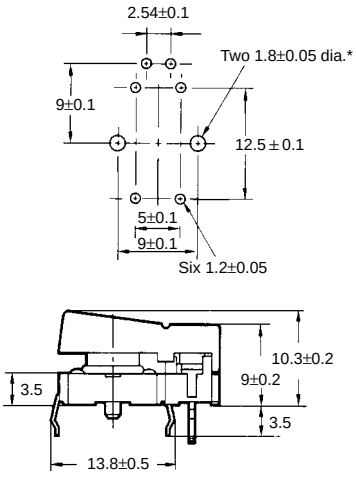
*Fit the projection of the Switch into this hole to secure the Switch.

1 LED Types
B3J-2□00, -3□00, -4□00

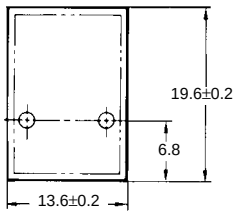




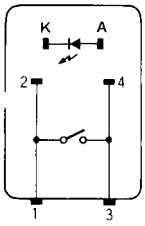
PCB Mounting (Top View)



Panel Cutout

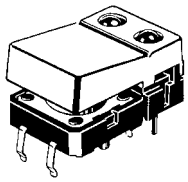


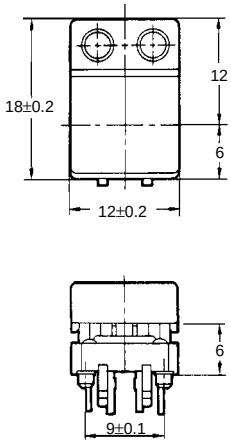
Terminal Arrangement /Internal Connections (Top View)



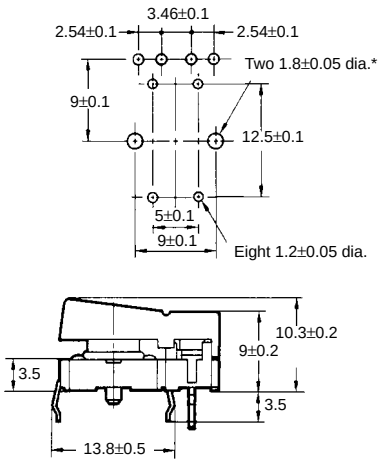
*Fit the projection of the Switch into this hole to secure the Switch.

2 LED Types
B3J-5□00, -6□00, -7□00

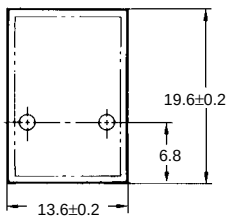




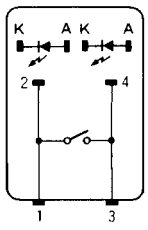
PCB Mounting (Top View)



Panel Cutout



Terminal Arrangement /Internal Connections (Top View)



*Fit the projection of the Switch into this hole to secure the Switch.

Precautions

- Do not apply additional force to the plunger once it has stopped moving.
- Solder at 260°±5°C within five seconds and within two tries.
- The Switches are not sealed and must be protected with a resin sheet as shown below when used in dust-prone environments.
- Do not wash the Switches. The Switches may be damaged by solvents if either wiped off using solvents of immersed in solvents.
- Do not allow flux or flux foam to penetrate onto the component side of the PCB.
- Use a single-sided PCB with a thickness of 1.6 mm. The Switches may be damaged due to instability or heat from soldering if other PCBs (other thickness or through holes) are used. If is it necessary to use another PCB, test the compatibility and processing in advance.

Indicators

- Connect a limiting resistor to the indicator. Since the Switch dos not contain any limiting resistor, obtain a limiting resistance according to the following formula depending on the voltage to be used so as to satisfy indicator characteristics.

$$\text{Limiting resistance [R]} = \frac{\text{Voltage used [V]} - \text{Indicator forward voltage } [V_F]}{\text{Indicator forward current } [I_F]} \ (\Omega)$$

