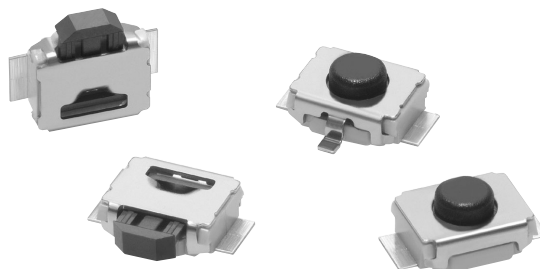


# Ultra-small Tactile Switch B3U

## Ultra-small-sized Tactile Switch with High Contact Reliability: 1.2 × 3 × 2.5 mm (H × W × D)

- Industry's smallest switch\* allows high-density mounting on PCBs for mobile equipment.  
\*As of October 2006 (according to OMRON survey).
- Dust-proof construction provides high reliability in dusty environments.
- Surface mounted: Ideal for high-density mounting.
- Models with ground terminals are available for protection against static electricity.
- RoHS Compliant



**NEW**

## Ordering Information

Operation type	Order unit		Embossed taping	
			Without ground terminal	With ground terminal
Top-actuated	3,500 pieces	Without boss	B3U-1000P	B3U-1100P
		With boss	B3U-1000P-B	B3U-1100P-B
Side-actuated	4,000 pieces	Without boss	B3U-3000P	B3U-3100P
		With boss	B3U-3000P-B	B3U-3100P-B

Note: Orders must be made in multiples of the order unit specified above.

## Operating Characteristics

Item	Operation type	Top-actuated (B3U-1000 Series)	Side-actuated (B3U-3000 Series)
Operating force (OF)		153 ± 50 gf	162 ± 50 gf
Releasing force (RF)		20.3 gf. min.	
Pretravel (PT)		0.15 <sup>+0.2</sup> <sub>-0.1</sub> mm	0.2 <sup>+0.2</sup> <sub>-0.1</sub> mm

## Specifications

### ■ Ratings/Characteristics

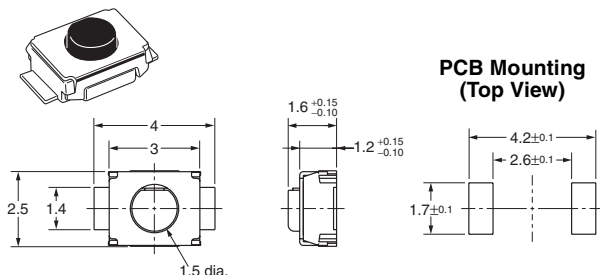
Item	Operation type	Top-actuated (B3U-1000 Series)	Side-actuated (B3U-3000 Series)
Switching capacity		1 to 50 mA, 5 to 12 VDC (resistive load)	
Ambient operating temperature		-25 to 70° C, 60% humidity (with no icing or condensation)	
Ambient humidity		35% to 85% (at 5 to 35° C)	
Contact configuration		SPST-NO	
Contact resistance		100 mΩ max. (initial value) (rated: 1 mA, 5 VDC)	
Insulation resistance		100 MΩ min. (at 100 VDC)	
Dielectric strength		250 VAC, 50/60 Hz for 1 min	
Bounce time		5 ms max.	
Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude	
Shock resistance		1,000 m/s <sup>2</sup> max.	
Life expectancy		200,000 operations min.	100,000 operations min.
Maximum operating force		30 N max.	
Weight		Approx. 0.022 g	

# Dimensions

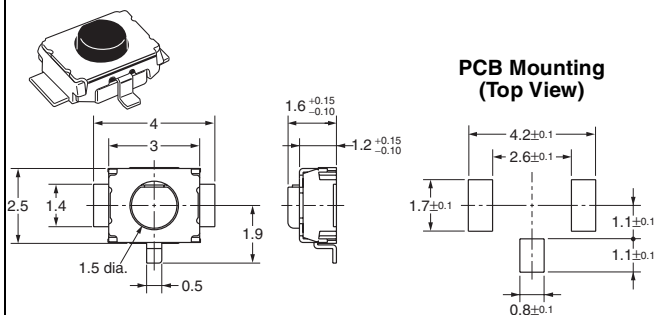
**Note:** All dimensions are in millimeters unless otherwise indicated. Unless otherwise specified, a tolerance of  $\pm 0.2$  mm applies to all dimensions.

## ■ Top-actuated Models

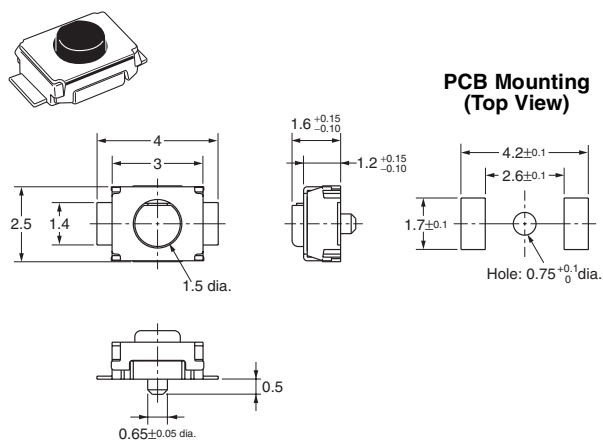
### Without Ground Terminal, without Boss B3U-1000P



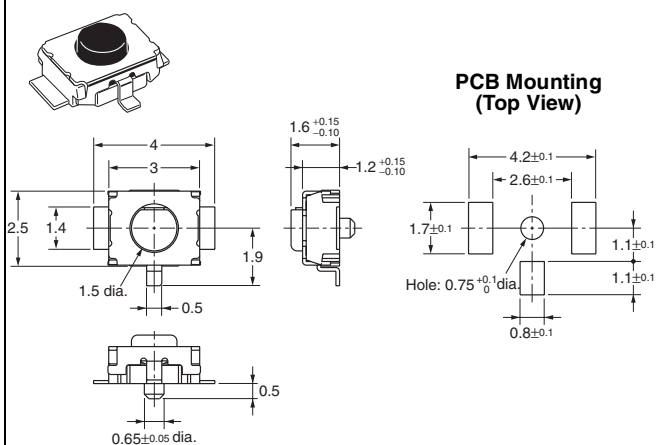
### With Ground Terminal, without Boss B3U-1100P



### Without Ground Terminal, with Boss B3U-1000P-B



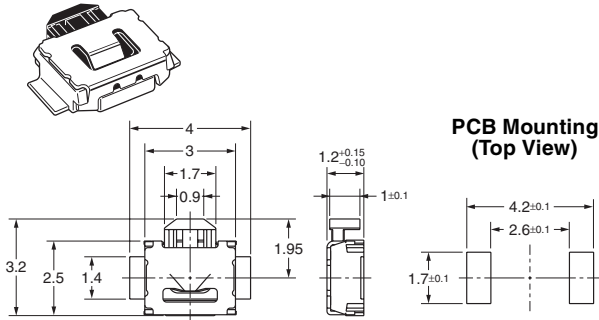
### With Ground Terminal, with Boss B3U-1100P-B



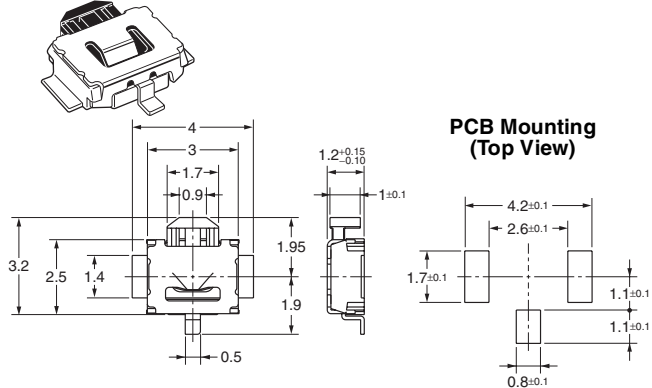
### Side-actuated Models

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

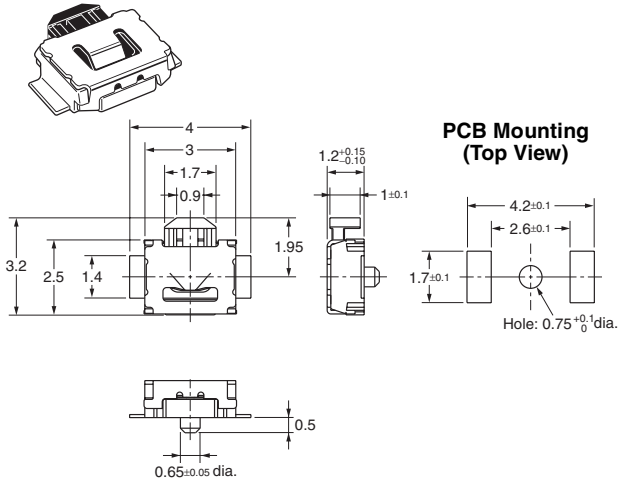
#### Without Ground Terminal, without Boss B3U-3000P



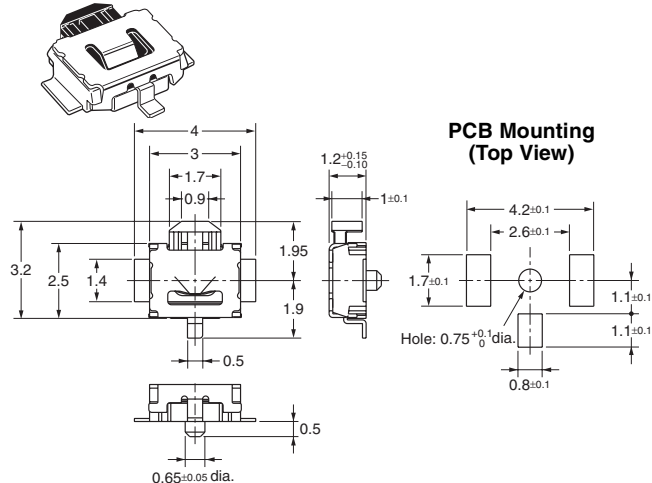
#### With Ground Terminal, without Boss B3U-3100P



#### Without Ground Terminal, with Boss B3U-3000P-B



#### With Ground Terminal, with Boss B3U-3100P-B



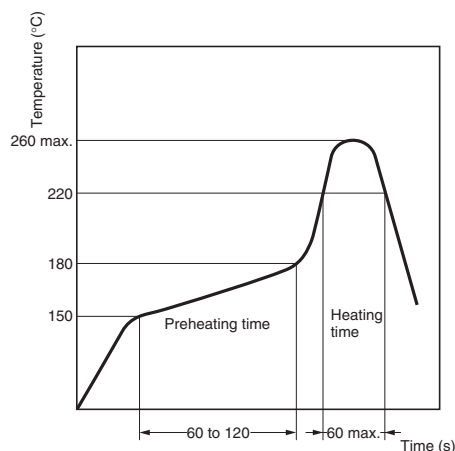
# Precautions

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

## ■ Precautions for Correct Use

### Soldering

Perform reflow soldering within the ranges shown in the terminal temperature profile in the following diagram.



### Washing

B3U Switches 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.

### Compliance with RoHS Directive

The “RoHS Compliant” designation indicates that the product does not contain the following 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.

### Storage and Operating Environment

Do not store the product under the following conditions to prevent discoloration and other deterioration of the terminals.

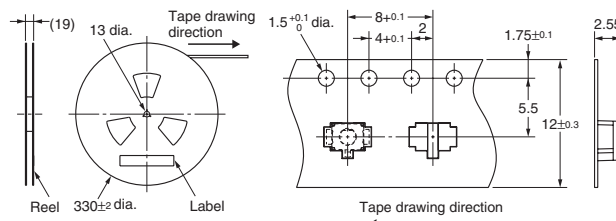
1. Locations subject to high temperatures or humidity
2. Locations containing corrosive gases
3. Locations subject to direct sunlight

The Switch is not provided with a watertight or drip-proof construction. Do not install or operate the product in locations subject to water spray or splashes.

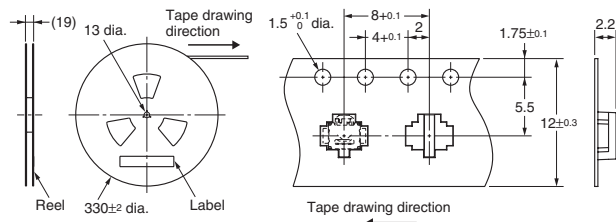
### Packaging Specifications

The specifications for B3U Switches packaged on embossed tape are as follows:

#### B3U-1000 Series



#### B3U-3000 Series

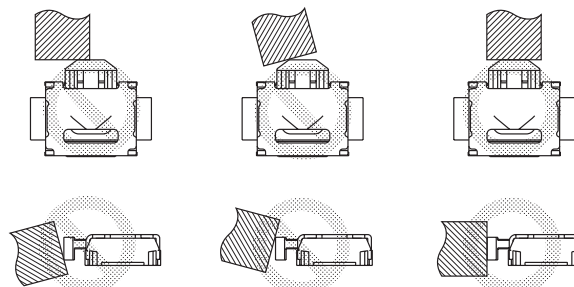


<b>Standards</b>	Conforms to JEITA.
<b>Package</b>	3,500 Switches (B3U-1000 Series) 4,000 Switches (B3U-3000 Series)
<b>Heat resistance</b>	50° C for 24 hours (without deformation)

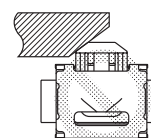
### Operation

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.

Be sure to set up the Switch so that the plunger will be pressed straight in. The life of the Switch may be reduced if the plunger is pressed off-center or from an angle. Do not apply pressure from above or below the plunger. Doing so may deform or damage parts or cause faulty operation.



Do not operate the plunger from the side. Doing so may deform or damage the Switch.



# Omron Electronic Components, LLC

## Terms and Conditions of Sales

### I. GENERAL

- Definitions:** The words used herein are defined as follows.
  - Terms:** These terms and conditions
  - Seller:** Omron Electronic Components LLC and its subsidiaries
  - Buyer:** The buyer of Products, including any end user in section III through VI
  - Products:** Products and/or services of Seller
  - Including:** Including without limitation
- Offer/Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
- Distributor:** Any distributor shall inform its customer of the contents after and including section III of these Terms.

### II. SALES

- Prices/Payment:** All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at time of shipment. Payments for Products received are due net 30 days unless otherwise stated in the invoice. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice.
- Discounts:** Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (a) the invoice is paid according to Seller's payment terms and (b) Buyer has no past due amounts owing to Seller.
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- Orders:** Seller will accept no order less than 200 U.S. dollars net billing.
- Currencies:** If the prices quoted herein are in a currency other than U.S. dollars, Buyer shall make remittance to Seller at the then current exchange rate most favorable to Seller; provided that if remittance is not made when due, Buyer will convert the amount to U.S. dollars at the then current exchange rate most favorable to Seller available during the period between the due date and the date remittance is actually made.
- Governmental Approvals:** Buyer shall be responsible for all costs involved in obtaining any government approvals regarding the importation or sale of the Products.
- Taxes:** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Seller or required to be collected directly or indirectly by Seller for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Seller.
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- Force Majeure:** Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping/Delivery:** Unless otherwise expressly agreed in writing by Seller:
  - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
  - Delivery and shipping dates are estimates only; and
  - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier must be presented in detail in writing to Seller within 30 days of receipt of shipment.

### III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Product/s.
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  - Outdoor use, use involving potential chemical contamination or electrical interference.
  - Use in consumer Products or any use in significant quantities.

- Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
  - Systems, machines, and equipment that could present a risk to life or property.
- Prohibited Use:** NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
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- Buyer Remedy:** Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that there shall be no liability for Seller or its affiliates unless Seller's analysis confirms that the Products were handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Seller before shipment.
- Limitation on Liability:** SELLER AND ITS AFFILIATES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. FURTHER, IN NO EVENT SHALL LIABILITY OF SELLER OR ITS AFFILIATES EXCEED THE INDIVIDUAL PRICE OF THE PRODUCT ON WHICH LIABILITY IS ASSERTED.
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- Amendment:** These Terms constitute the entire agreement between Buyer and Seller relating to the Products, and no provision may be changed or waived unless in writing signed by the parties.
- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.

# Certain Precautions on Specifications and Use

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1. Suitability for Use. Seller shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in Buyer's application or use of the Product. At Buyer's request, Seller will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
    - (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
    - (ii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
    - (iii) Use in consumer products or any use in significant quantities.
    - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.
- NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
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