

# Ultra-low Profile Dome Key B3D

## Single-key Type Added to Series of B3DA Ultra-low Profile Dome Arrays

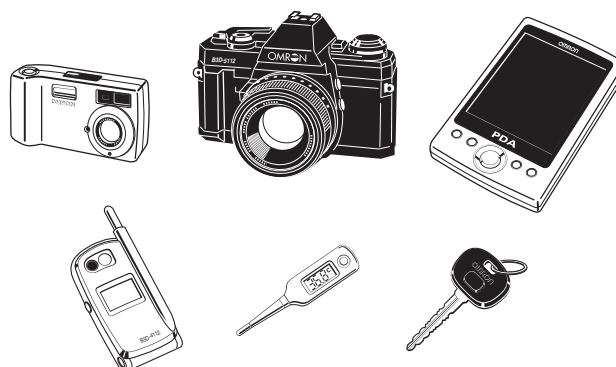
- No soldering required. Attach directly to PCB to make an ultra-low profile tactile switch. Construction provides strong resistance to static electricity by having no soldered terminals.
- Matrix adhesive used to create highly dust-proof construction with good ventilation.
- Lower profile, lighter weight, and crisp clicking action.
- Omron's unique circular contact action ensures a high level of resistance to foreign matter.
- RoHS Compliant.



## Application Examples

Use Dome Keys for the operating parts on various electronic devices that require low-profile controls, as follows:

- Operating switches with few mounted parts above PCBs.  
(Example: Camera operating buttons)
- Small orders, where initial investment in Dome Arrays is not feasible.  
(Example: Trial applications, commercial equipment, etc.)
- Applications requiring a single key only.  
(Example: Reset buttons)

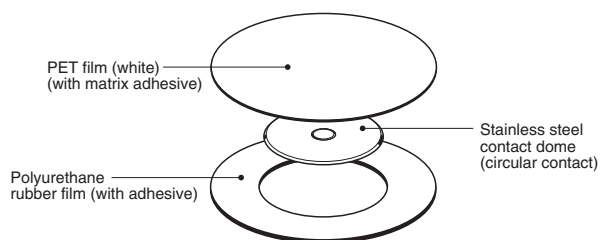


## Specifications

Item	Model	
	B3D-4112	B3D-5112
Diameter of contact dome	4-mm dia.	5-mm dia.
Operating force (OF)	approx. 170 ± 50 gf (1.67 ± 0.49 N)	
Releasing force (RF)	20 gf min. (0.2 N min.)	
Pretravel (PT)	0.2 ± 0.1 mm	
Height	0.3 ± 0.1 mm	
Life expectancy	500,000 operations min.	1,000,000 operations min.
Switching capacity	10 mA at 12 VDC (resistive)	
Minimum permissible load	1 mA at 3 VDC (resistive)	
Ambient operating temperature	-40 to 80°C (at 60% RH max.) with no icing or condensation.	
Ambient storage humidity	10% to 90% (at 40°C max.)	
Contact - base material	Stainless steel	
Plating	Silver	

**Note:** The Dome Keys are sold in units of 500 (20 sheets, with 25 Dome Keys per sheet). Orders must be made in multiples of 500 Dome Keys.

# Structure

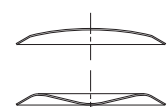
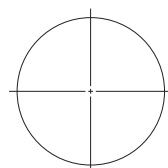


## ■ Circular Contact

When contact dome keys are attached to the PCB, any PCB dust or foreign particles will tend to collect in the center of the key when it is pressed. Therefore, poor contact occurs easily in keys that provide contact at the center point only.

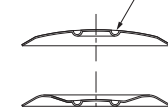
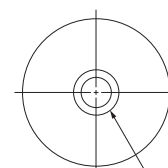
The circular contact construction provides contact along the circumference of a circle, thus preventing poor contact by avoiding the center point.

Conventional models



Contact at center point

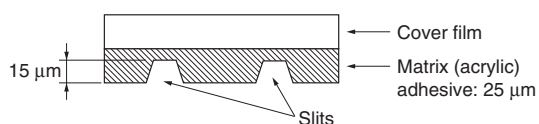
Contact dome resistant to foreign matter (circular contact)



Contact along circle circumference (circular contact)

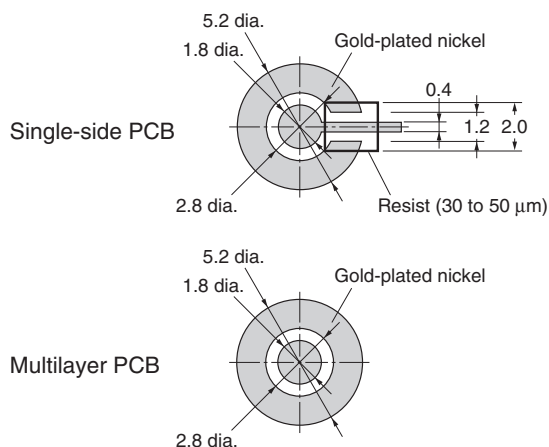
## ■ Matrix Adhesive

The surface structure of this adhesive has grid-shaped slits, as shown in the following cross-sectional diagram. These slits provide both ventilation and dust-proofing, which is required for contact dome operation.

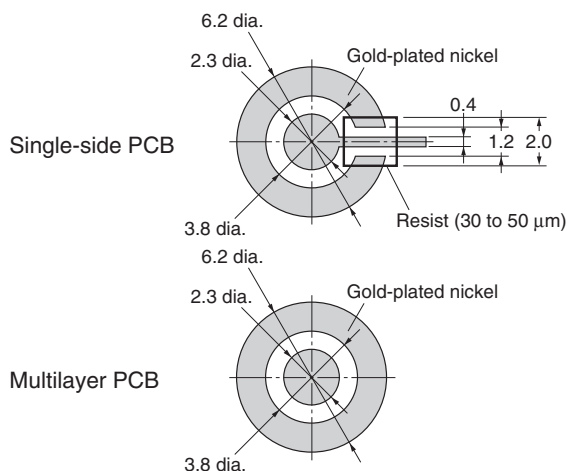


# Recommended Contact Form

## 4 mm Diameter Contact Dome (B3D-4112)



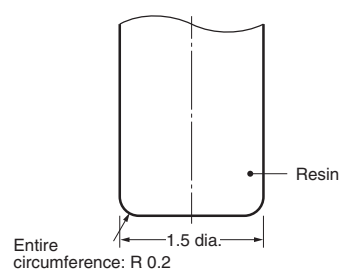
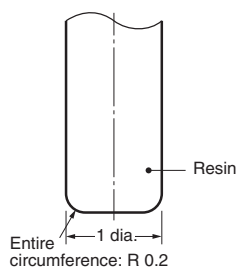
## 5 mm Diameter Contact Dome (B3D-5112)



# Recommended Operating Part Form

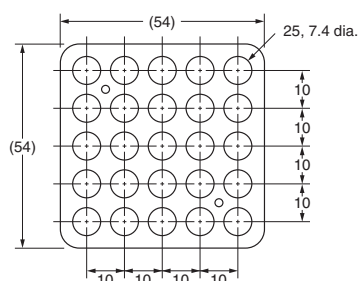
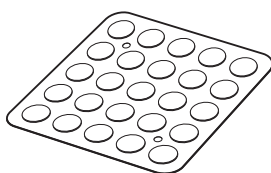
## 4 mm Diameter Contact Dome (B3D-4112)

## 5 mm Diameter Contact Dome (B3D-5112)

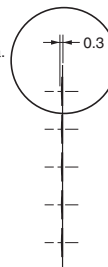


## Dimensions

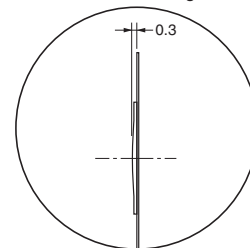
### B3D-4112



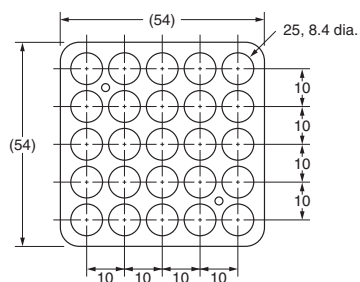
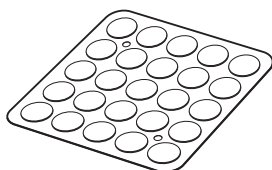
Section A



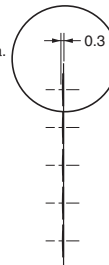
Section A enlarged



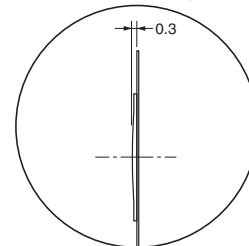
### B3D-5112



Section A

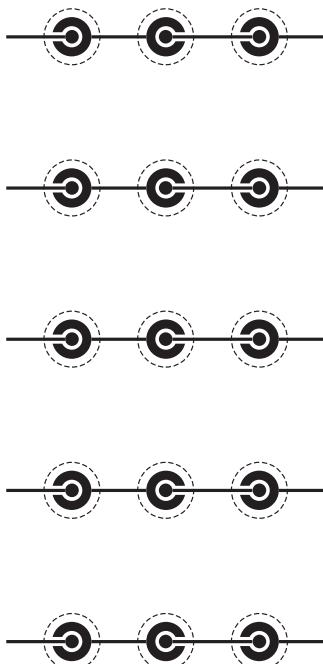


Section A enlarged

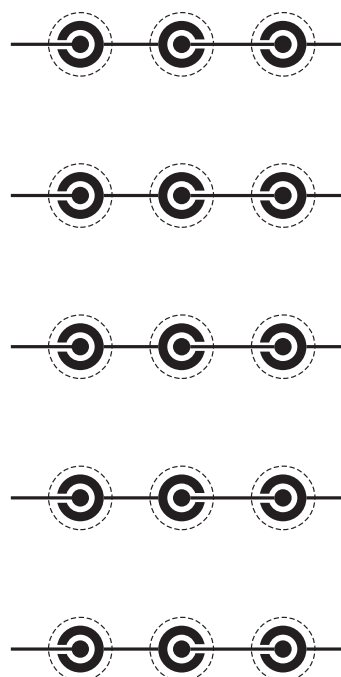


# PCB Pattern Diagrams

B3D-4112



B3D-5112



## Precautions

### ■ Attaching to the PCB

Remove the Dome Key from the sheet using tweezers or a vacuum pick-up tool, and attach it above the contact on the PCB surface, which has been wiped clean in advance. Press down on the top surface using an elastic material, such as urethane rubber, and a force of 2.94 to 4.9 N. Place a positioning mark (circle) on the PCB for easy positioning.

Make sure that the position of the Dome Key is aligned correctly before use. Significant misalignment may result in short-circuits or reduced sensitivity.

**Note:** The recommended vacuum pick-up tool is the Hozan P-835 Vacuum Pick with an M suction pad (7-mm dia.).

Do not reuse a B3D Dome Key that has been detached from the PCB. Attach a new Dome Key to the PCB.

Do not touch the contact dome with bare hands, or with unclean gloves. Doing so may damage the contact dome, which is the part that comes in contact with the PCB.

### ■ Reflow Soldering

The Dome Key cannot withstand heat from reflow soldering. Always perform reflow soldering before attaching the Dome Key to the PCB.

### ■ Washing

Do not wash the Dome Key. The Dome Key is not water-resistant and must not be exposed to water or other liquids.

### ■ Common Precautions

Be sure to read the precautions common to all Tactile Switches, contained in the Technical User's Guide, "Tactile Switches, Technical Information" for correct use.

A large grid of small, faint, repeating geometric patterns, likely a decorative background or a placeholder for a complex image. The patterns are arranged in a regular, repeating fashion across the entire page, creating a textured, woven appearance. The colors are very light, blending into the white background, which gives it a subtle, watermark-like quality. The patterns themselves are composed of simple lines and shapes, possibly representing a stylized fabric or a digital mesh.

All sales are subject to Omron Electronic Components LLC standard terms and conditions of sale, which can be found at [http://www.components.omron.com/components/web/webfiles.nsf/sales\\_terms.html](http://www.components.omron.com/components/web/webfiles.nsf/sales_terms.html)

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

---

**OMRON**<sup>®</sup>

**OMRON ELECTRONIC  
COMPONENTS LLC**

55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173

**847-882-2288**

**OMRON ON-LINE**

Global - <http://www.omron.com>

USA - <http://www.components.omron.com>

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

[B3D-5112](#) [B3D-4112](#)