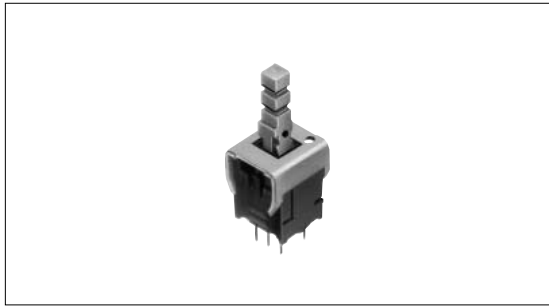


# Push Switch 2.5mm-travel Vertical Type

SPEC Series



Vertical type, widely applicable to home and industrial electronic equipment.



## Typical Specifications

| Items  |              | Specifications               |
|--|--------------|------------------------------|
| Rating(max. )(min. )<br>(Resistive load)               |              | 0.1A 30V DC/50 $\mu$ A 3V DC |
| Contact resistance<br>(Initial / After operating life) |              | 30m max./50m max.            |
| Operating force  |              | 2 $\pm$ 1N                   |
| Operating life   | Without load | 10,000cycles                 |
|  | With load    | 10,000cycles( 0.1A 30V DC )  |

## Product Line

| Changeover timing | Travel (mm) | Total travel (mm) | Rating | Mounting method | Poles | Operation | Terminal type | Minimum order unit(pcs.) | Product No. |
|-------------------|-------------|-------------------|--------|-----------------|-------|-----------|---------------|--------------------------|-------------|
| Non shorting      | 2.5         | 3.4               |        | PC board        | 2     | Latching  | Straight      | 2,000                    | SPEC121100  |
|                   |             |                   |        |                 |       |           | Snap-in       |                          | SPEC121300  |

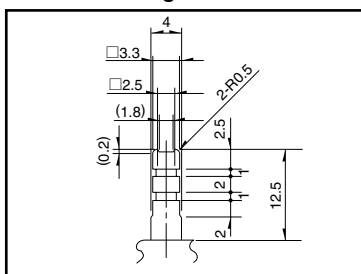
## Dimensions

Unit:mm

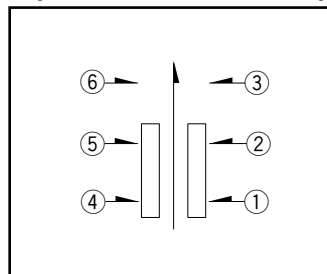
| Style  | PC board mounting hole dimensions<br>(Viewed from the direction A)                    |  |
|--|---|--|
| <p>Dimensions: 12, 12.5, 12.5, 3.5, 0.35, 5, 8.8, 10, 3.75, 2.5, 3.4, 4, Knob face, Terminal No. ①, 0.6, 2.5, 2.5, PC board mounting face.</p> | <b>Straight terminal</b><br><p>Dimensions: 5, 2.5, 2.5, <math>\phi 1</math> hole.</p> | <b>Snap-in terminal</b><br><p>Dimensions: (5), 4.1<math>\pm</math>0.05, 2.5, 2.5, <math>\phi 1</math> hole, Thickness of PC board t=1.6mm.</p> |

## Actuator Configuration at Front Edge

Unit:mm



## Circuit Diagram (Viewed from Direction A)



## Terminal Configuration

Unit:mm










| Straight terminal                       | Snap-in terminal  |
|---|---|
| <p>Dimensions: 0.35, 5, 8.8, (3.5).</p> | <p>Dimensions: R1, 0.35, 3.9, 5, 8.8, 0.8, 1.9, 2.8, (3.5).</p> |

## Notes

- Products other than those listed in the above chart are also available. Please contact us for details.
- Please place purchase orders per minimum order unit (integer).

Refer to P.107 for knobs.

## List of Varieties

| Series                          | SPPH4   | SPPH1   | SPEC  | SPED2   | SPED3   | SPED4  | SPED5   | SPEF  |   |  |
|---------------------------------|---|---|---|---|---|--|---|---|---|--|
| Photo                           |  |  |  |  |  |  |  |  |  |  |
| Travel (mm)                     | 2.2   | 1.5   | 2.5   |   |   |  |   | 1.5   |   |  |
| Total travel (mm)               | 3   | 2.5   | 3.4   | 4.5   | 3.8   |  | 2.7   |   |   |  |
| Number of poles                 | 2   |   |   |   | 1   |  |   |   |   |  |
| Dimensions (mm)                 | W   | 8.5   | 10  | 12  | 14  |  | 13.5  | 9.4   |   |  |
|                                 | D   | 6.5   | 10  |   | 16.8  | 18   |   | 18.2  | 9   |  |
|                                 | H   | 8.5   |   | 12.5  | 26.7  | 20.7   |   | 6.9   |   |  |
| Operating temperature range     | - 10°C to + 60°C  |   | - 40°C to + 85°C  |   |   |  |   |   |   |  |
| Rating (max. ) (Resistive load) | 0.1A 30V DC   |   |   | 1A 14.5V DC   |   |  |   |   |   |  |
| Rating (min. ) (Resistive load) | 50μA 3V DC  |   |   |   |   |  |   |   |   |  |
| Electrical performance          | Initial contact resistance  | 100m max.   | 20m max.  | 30m max.  | 100m max.   |  |   |   |   |  |
|                                 | Insulation resistance   | 100M min. 500V DC   |   |   | 3M min. 500V DC   |  |   | 3M min. 100VDC  |   |  |
|                                 | Voltage proof   | 500V AC for 1minute   |   |   | 100V AC for 1minute   |  |   |   |   |  |
| Mechanical performance          | Terminal strength   | 5N for 1minute  |   | 3N for 1minute  |   |  |   |   |   |  |
|                                 | Actuator strength   | Operating direction   | 30N   | 50N   |   |  |   | 90N   |   |  |
| Pulling direction               |   | 10N   |   | 50N   |   |  |   | 30N   |   |  |
| Durability                      | Operating life without load   | 10,000cycles<br>100m max.   | 10,000cycles<br>40m max.  | 10,000cycles<br>50m max.  | 30,000cycles 100m max.  |  |   |   |   |  |
|                                 | Operating life without load Load:as rating  |   |   |   |   |  |   |   |   |  |
| Environmental performance       | Cold  | -20 ± 2 for 96h   |   |   | -40 ± 2 for 96h   |  |   |   |   |  |
|                                 | Dry heat  | 85 ± 2 for 96h  |   |   |   |  |   |   |   |  |
|                                 | Damp heat   | 40 ± 2 , 90 to 95%RH for 96h  |   |   |   |  |   |   |   |  |
| Soldering                       | Manual soldering  | 350 ± 10<br>3 <sup>+1</sup> <sub>0</sub> s  |   |   | 350 ± 10<br>3 ± 0.5s  | 3  | 350 ± 10<br>3 ± 0.5s  | 350 ± 5<br>3s max.  |   |  |
|                                 | Dip soldering   | 260 ± 5<br>5 ± 1s   | 260 ± 5<br>10 ± 1s  | 260 max.<br>5s max.   | 260 ± 5<br>10 ± 1s  | 3  | 260 ± 5<br>10 ± 1s  | 260 ± 5 10 ± 1s 4   |   |  |
|                                 | Reflow soldering  |   |   |   |   |  |   |   | Please see P.108  |  |
| Page                            | 98  | 99  | 101   | 102   | 103   |  | 105   |   |   |  |

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

Horizontal  
Type

Vertical  
Type

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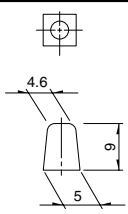
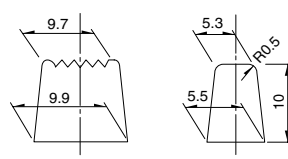
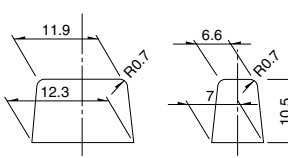
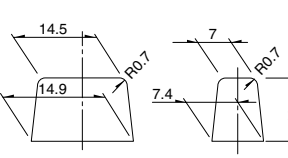
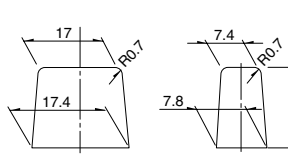
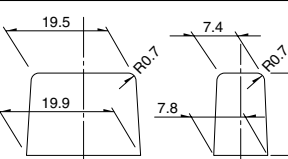
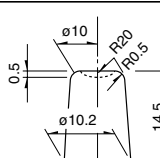
### Notes

3. Applicable to SPED220200( PC board type )only.
4. Applicable to SPEF110100 only.

## Attached Parts

Please specify required knob.

Unit:mm

| Knob outline drawing   | Variety   |   | Series                                  |
|--|---|---|---|
|  | Color   | Model                                     |   |
|   | <p><b>Black</b><br/><b>Red</b><br/><b>White</b></p> | <p>UJ206022<br/>UJ206020<br/>UJ206026</p> | <p>SPPJ3<br/>SPUJ</p>                   |
| <p><b>Key pitch 10mm</b></p> <p><b>Square knob</b></p>      |   | <p>4093-1<br/>4093-2<br/>4093-3</p>       |   |
| <p><b>Key pitch 12.5mm</b></p> <p><b>Square knob</b></p>    |   | <p>UE201011<br/>UE201012<br/>UE201013</p> |   |
| <p><b>Key pitch 15mm</b></p> <p><b>Square knob</b></p>     |   | <p>UE202011<br/>UE202012<br/>UE202013</p> | <p>SPPJ2<br/>SPUP<br/>SPUN<br/>SPEC</p> |
| <p><b>Key pitch 17.5mm</b></p> <p><b>Square knob</b></p>  |   | <p>UE203011<br/>UE203012<br/>UE203013</p> |   |
| <p><b>Key pitch 20mm</b></p> <p><b>Square knob</b></p>    |   | <p>UE204011<br/>UE204012<br/>UE204013</p> |   |
| <p><b>Round knob</b></p>                                  |   | <p>UE200011<br/>UE200012<br/>UE200013</p> |   |

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

Horizontal  
Type

Vertical  
Type

### Note

We recommend the use of adhesive to secure the knob when mounting onto switches.

