

# Push Switch Hollow Slider Momentary Type Push Switch

SPEG Series

www.DataSheet4U.com



Hollow type supporting designs such as LED illumination.

Detector

Push

Slide

Rotary

Encoders

Power

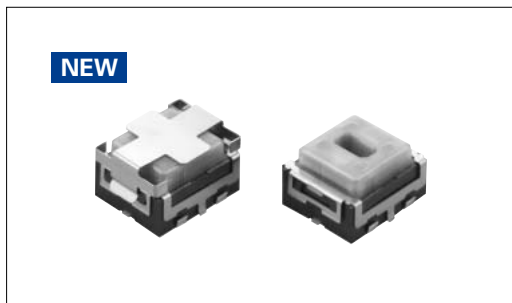
Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

Horizontal  
Type

Vertical  
Type



## Typical Specifications

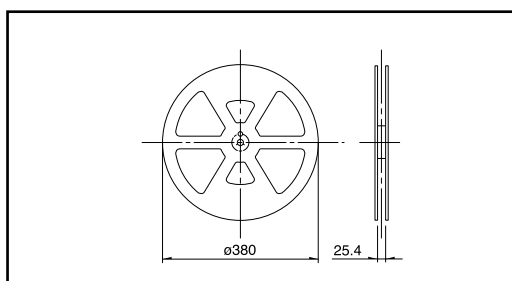
| Items   | Specifications         |
|---|------------------------|
| Rating( max. )( min. )<br>( Resistive load )            | 50mA 16V DC/50μA 3V DC |
| Contact resistance<br>( Initial /After operating life ) | 200m max./500m max.    |
| Operating forces  | 2.16N                  |
| Operating life  | 30,000cycles           |

## Product Line

| Travel<br>( mm ) | Poles | Ground terminal | Minimum order unit( pcs. ) | Product No. |
|------------------|-------|-----------------|----------------------------|-------------|
| 1.1              | 1     | Without         | 4,800                      | SPEG110100  |
|                  |       | With            |                            | SPEG120100  |

## Taping Specification (Taping Packaging)

Reel Size Unit:mm



| Number of packages( pcs. ) |                  |                           | Tape width<br>( mm ) |
|----------------------------|------------------|---------------------------|----------------------|
| 1 reel                     | 1 case<br>/Japan | 1 case<br>/export packing |                      |
| 1,200                      | 2,400            | 4,800                     | 24                   |

## Note

Please place purchase orders per minimum order unit (integer).

**Dimensions**

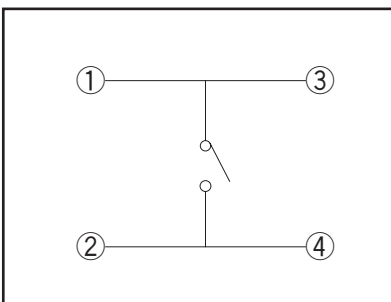
Unit:mm

| Style | PC board mounting hole dimensions  |
|-------|--|
|       | <p><b>In case of using ground terminal</b></p> <p>Please connect to GND.</p> |
|       | <p><b>In case of not using ground terminal</b></p>                           |

**Note**

Above dimensions indicate "with ground terminal" version.

**Circuit Diagram**



Detector

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# List of Varieties

- Detector
- Push**
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products
- Horizontal Type
- Vertical Type

| Series  | SPEE  | SPPJ6  | SPPJ3  | SPPJ2                      | SPUJ<br>1                                      | SPUP<br>1                                      | SPUN                     | SPUN<br>medium current 1 | SPEG                             | SPPH2                    |                   |
|---|---|--|--|----------------------------|--|--|--------------------------|--------------------------|----------------------------------|--------------------------|-------------------|
| <b>Photo</b>  |   |  |  |                            |  |  |                          |                          |                                  |                          |                   |
| <b>Travel (mm)</b>                                    | 0.3<br>0.71                                       | 1.5  | 2.5  |                            | 2  | 1.5<br>2                                       | 2.5                      |                          |                                  | 1                        |                   |
| <b>Total travel (mm)</b>                              | 0.9   | 2.5  | 3.5  |                            | 3  | 2.5<br>3                                       | 3.5                      |                          | 1.2                              | 1.5                      |                   |
| <b>Number of poles</b>                                | 1   | 2  | 1<br>2   | 2                          | 2<br>4   |  |                          |                          | 1                                | 2                        |                   |
| <b>Dimensions (mm)</b>                                | <b>W</b>  | 4  | 9  |                            | 6.6  |  | 7.2                      | 7.5                      | 10                               | 7.15                     | 6.5               |
|   | <b>D</b>  | 5  | 12   |                            | 15.2<br>22.7                                   |  |                          | 24<br>36                 | 8.35                             | 6                        |                   |
|   | <b>H</b>  | 1.22   | 4.5  | 8.3                        | 9.6  | 8.8  | 10.3                     | 13                       | 3.5                              | 6.5                      |                   |
| <b>Operating temperature range</b>                    | - 10°C to + 60°C                                  |  | - 40°C to + 85°C                               |                            | - 10°C to + 60°C                               |  |                          |                          |                                  |                          |                   |
| <b>Rating (max. <math>\chi</math> Resistive load)</b> | 20mA 5V DC  | 0.2mA 5V DC                                    | 0.2mA 30V DC                                   |                            | 0.1mA 30V DC                                   |  |                          | 1A 25V DC                | 50mA 16V DC                      | 0.1A 12V DC              |                   |
| <b>Rating (min. <math>\chi</math> Resistive load)</b> | 100 $\mu$ A 3V DC                                 | 50 $\mu$ A 3V DC                               |  |                            |  |  |                          | 1A 25V DC                | 50 $\mu$ A 3V DC                 |                          |                   |
| <b>Electrical performance</b>                         | <b>Initial contact resistance</b>                 | 2  | 20m max.                                       |                            |  |  |                          |                          | 200m max.                        | 30m max.                 |                   |
|   | <b>Insulation resistance</b>                      | 10M min.<br>100V DC                            | 100M min. 500V DC                              |                            |  |  |                          |                          | 3M min.<br>100V DC               | 100M min.<br>500V DC     |                   |
|   | <b>Voltage proof</b>                              | 100V AC<br>for 1minute                         | 500V AC for 1minute                            |                            |  |  |                          |                          | 100V AC for<br>1minute           | 500V AC for<br>1minute   |                   |
| <b>Mechanical performance</b>                         | <b>Terminal strength</b>                          | 5N for 1minute                                 |  |                            |  |  |                          |                          |                                  | 0.5N for<br>1minute      | 5N for<br>1minute |
|   | <b>Actuator strength</b>                          | Operating direction<br>50N                     |  | 30N                        |  | 50N  |                          |                          |                                  | 50N                      | 30N               |
| <b>Durability</b>                                     | <b>Operating life without load</b>                | 100,000 cycles                                 | 10,000cycles 40m max.                          |                            |  |  | 30,000cycles<br>40m max. | 10,000cycles<br>40m max. | 35,000cycles<br>500m max.        | 10,000cycles<br>50m max. |                   |
|   | <b>Operating life without load Load:as rating</b> | 100,000 cycles                                 | 10,000cycles 40m max.                          |                            |  |  | 5,000cycles<br>40m max.  |                          |                                  |                          |                   |
| <b>Environmental performance</b>                      | <b>Cold</b>                                       | -40 $\pm$ 2<br>for 96h                         | -20 $\pm$ 2 for 96h                            |                            |  |  |                          |                          | -20 $\pm$ 2 for 96h              |                          |                   |
|   | <b>Dry heat</b>                                   | 85 $\pm$ 2 for 96h                             |  |                            |  |  |                          |                          | 85 $\pm$ 2 for 96h               |                          |                   |
|   | <b>Damp heat</b>                                  | 40 $\pm$ 2 , 90 to 95%RH for 96h               |  |                            |  |  |                          |                          | 40 $\pm$ 2 , 90 to 95%RH for 96h |                          |                   |
| <b>Soldering</b>                                      | <b>Manual soldering</b>                           | 350 $\pm$ 10<br>4 <sup>+1</sup> <sub>0</sub> s | 350 $\pm$ 10<br>3 <sup>+1</sup> <sub>0</sub> s |                            | 300 $\pm$ 10<br>3 <sup>+1</sup> <sub>0</sub> s | 350 $\pm$ 10<br>3 <sup>+1</sup> <sub>0</sub> s |                          | 350 $\pm$ 5<br>3s max.   | 350 max.<br>3s max.              |                          |                   |
|   | <b>Dip soldering</b>                              |  | 260 $\pm$ 5<br>5 $\pm$ 1s                      | 260 $\pm$ 5<br>10 $\pm$ 1s | 260 $\pm$ 5<br>5 $\pm$ 1s                      | 260 $\pm$ 5<br>10 $\pm$ 1s                     |                          |                          | 260 $\pm$ 5<br>5 $\pm$ 1s        |                          |                   |
|   | <b>Reflow soldering</b>                           | Please see<br>P.108                            |  |                            |  |  |                          |                          | Please see<br>P.108              |                          |                   |
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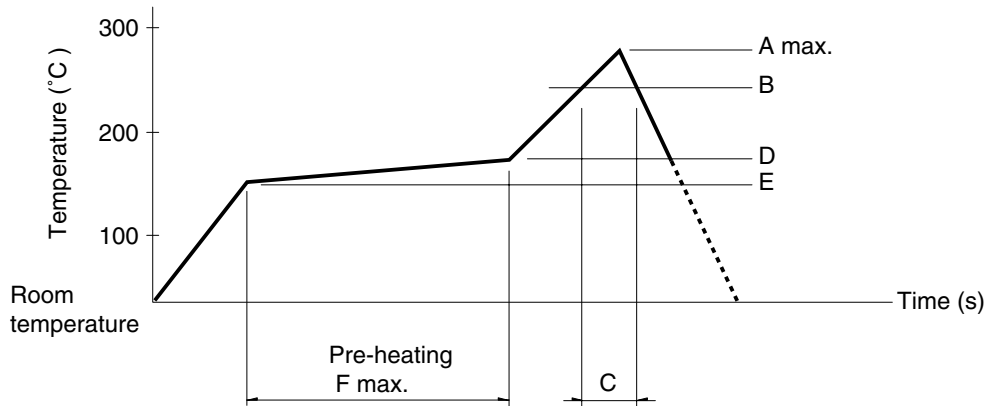
**Notes**

1. ※1. The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.
2. ※2. 1V or less, at the present rating of 1mA, 5V DC for output voltage.

## Soldering Conditions

### Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 CA (K) or CC (T) at soldering portion (copper foil surface). A heat resisting tape should be used for fixed measurement.
3. Temperature profile



| Series( Reflow type ) | A( )<br>3s max. | B( ) | C(s) | D( ) | E( ) | F(s) |
|-----------------------|-----------------|------|------|------|------|------|
| SPEE                  | 260             | 230  | 40   | 180  | 150  | 120  |
| SPEF, SPEG            |                 |      |      |      |      |      |

### Notes

1. The condition mentioned above is the temperature on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the PC board's material, size, thickness, etc. The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines. Prior verification of soldering condition is highly recommended.

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