

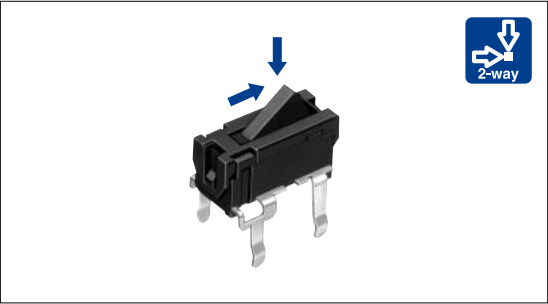
Detector Switch

Two-way Operation Type

SPVF Series



Compact and user friendly, detectable from both horizontal and vertical direction.



Typical Specifications

| Items                                                   |              | Specifications             |
|---------------------------------------------------------|--------------|----------------------------|
| Rating( max. )( min. )<br>( Resistive load )            |              | 1mA 5V DC/50μA 3V DC       |
| Contact resistance<br>( Initial /After operating life ) |              | 500mΩ max./1Ω max.         |
| Operating force                                         |              | 0.3N max.                  |
| Operating life                                          | Without load | 100,000cycles              |
|                                                         | With load    | 100,000cycles( 1mA 5V DC ) |

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

Product Line

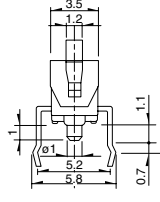
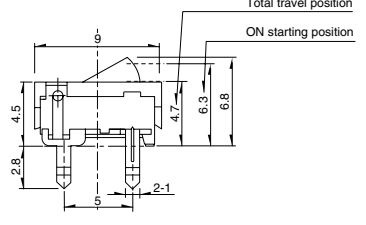
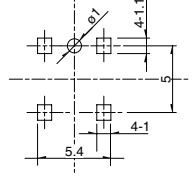
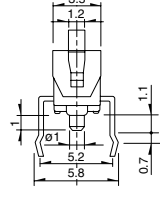
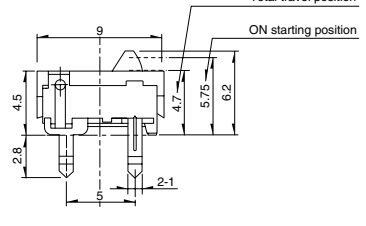
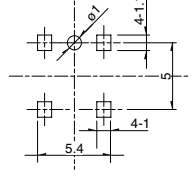
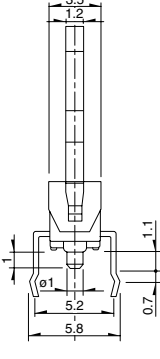
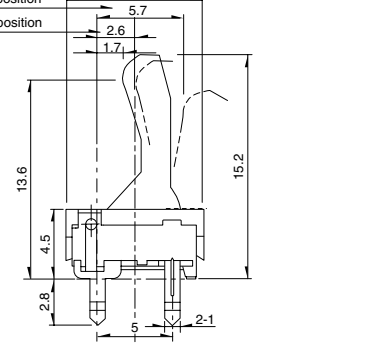
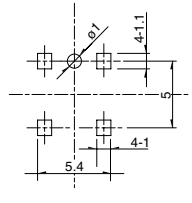
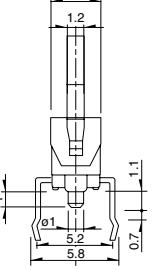
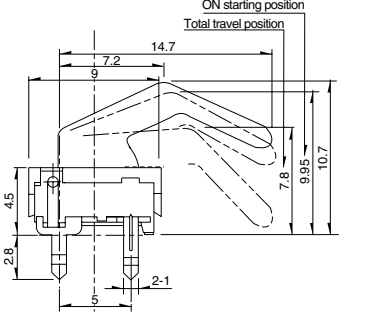
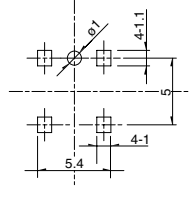
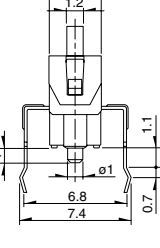
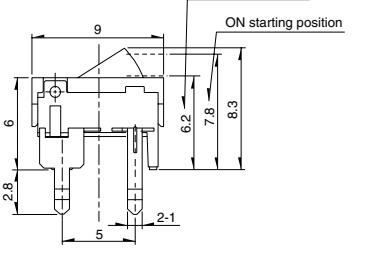
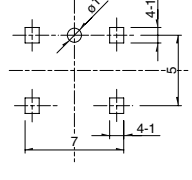
| Poles | Positions | Terminal type | Terminal pitch<br>( mm ) | Minimum<br>order unit( pcs ) | Product No. | Drawing No. |  |
|-------|-----------|---------------|--------------------------|------------------------------|-------------|-------------|--|
| 1     | 1         | Snap-in       | 5.2                      | 10,000                       | SPVF110100  | 1           |  |
|       |           |               |                          |                              | SPVF120100  | 2           |  |
|       |           |               |                          |                              | SPVF130100  | 3           |  |
|       |           |               |                          |                              | SPVF140100  | 4           |  |
|       |           |               | 6.8                      |                              | SPVF210200  | 5           |  |
|       |           |               |                          |                              | SPVF220200  | 6           |  |
|       |           |               |                          |                              | SPVF230200  | 7           |  |
|       |           |               |                          |                              | SPVF240200  | 8           |  |
| 2     |           |               | ———                      | 5,000                        | SPVF350100  | 9           |  |

Note

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

Dimensions

Unit:mm

| No. | Photo                                                                               | Style                                                                                                                                                                                                                          | PC board mounting hole dimensions                                                     |
|-----|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1   |    |   <p>Total travel position<br/>ON starting position</p>     |    |
| 2   |    |   <p>Total travel position<br/>ON starting position</p>     |    |
| 3   |  |   <p>Total travel position<br/>ON starting position</p>   |  |
| 4   |  |   <p>ON starting position<br/>Total travel position</p> |  |
| 5   |  |   <p>Total travel position<br/>ON starting position</p> |  |

| Dimensions |       |       | Unit:mm                           |
|------------|-------|-------|-----------------------------------|
| No.        | Photo | Style | PC board mounting hole dimensions |
| 6          |       |       |                                   |
| 7          |       |       |                                   |
| 8          |       |       |                                   |
| 9          |       |       |                                   |

| Circuit Diagram |  |
|-----------------|--|
|                 |  |
|                 |  |

Detector

Push

Slide

Rotary

Encoders

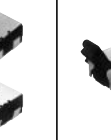
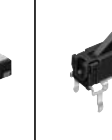
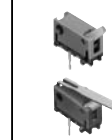
Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

# List of Varieties ( General-purpose Type )

| Series                                |                             | General-purpose Type                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |
|---------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
|                                       |                             | SPPB                                                                              | SPVE                                                                              | SPPW8                                                                             | SPVM                                                                              | SPVR                                                                                | SPVF                                                                                | SSCU                                                                                | SSCT                                                                                |      |
| Photo                                 |                             |  |  |  |  |  |  |  |  |      |
| Operation type                        |                             |  |  |  |  |   |  |  |  |      |
| Operating temperature range           |                             | -40 to +85                                                                        | -10 to +60                                                                        |                                                                                   | -40 to +85                                                                        |                                                                                     | -10 to +60                                                                          | -40 to +85                                                                          |                                                                                     |      |
| Rating ( max. )<br>( Resistive load ) |                             | 0.1A 30V DC                                                                       |                                                                                   |                                                                                   | 1mA 5V DC                                                                         |                                                                                     |                                                                                     | 0.1A 12V DC                                                                         |                                                                                     |      |
| Rating ( min. )<br>( Resistive load ) |                             | 50μA 3V DC                                                                        |                                                                                   | 100μA 3V DC                                                                       | 50μA 3V DC                                                                        | 100μA 3V DC                                                                         | 50μA 3V DC                                                                          |                                                                                     |                                                                                     |      |
| Electrical performance                | Initial contact resistance  | 1Ω max.                                                                           | 500mΩ max.                                                                        | 1Ω max.                                                                           | 2Ω max.                                                                           | 3Ω max.                                                                             | 500mΩ max.                                                                          | 70mΩ max.                                                                           | 20mΩ max.                                                                           |      |
|                                       | Insulation resistance       | 100MΩ min. 100V DC                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 100MΩ min. 250V DC                                                                  |                                                                                     |      |
|                                       | Voltage proof               | 100V AC for 1 minute                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 250V AC for 1 minute                                                                |                                                                                     |      |
| Mechanical performance                | Terminal strength           | 3N for 1 minute                                                                   | 0.5N for 1 minute                                                                 | 3N for 1 minute                                                                   | 1N for 1 minute                                                                   | 0.5N for 1 minute                                                                   | 3N for 30s                                                                          | 3N for 1 minute                                                                     |                                                                                     |      |
|                                       | Actuator strength           | 10N                                                                               | 5N                                                                                | 10N                                                                               | 5N                                                                                | 2N                                                                                  | 1N                                                                                  | 5N                                                                                  | 10N                                                                                 |      |
| Durability                            | Operating life without Load | 50,000cycles<br>2Ω max.                                                           | 50,000cycles<br>1Ω max.                                                           | 100,000cycles<br>2Ω max.                                                          | 50,000cycles 5Ω max.                                                              |                                                                                     | 100,000cycles<br>1Ω max.                                                            | 10,000cycles<br>100mΩ max.                                                          | 10,000cycles<br>40mΩ max.                                                           |      |
|                                       | Operating life with Load    | ( 0.1A 30V DC )<br>50,000cycles 2Ω max.                                           | ( 0.1A 30V DC )<br>50,000cycles 1Ω max.                                           | ( 0.1A 30V DC )<br>100,000cycles 2Ω max.                                          | ( 1mA 5V DC )<br>50,000cycles 5Ω max.                                             |                                                                                     | ( 1mA 5V DC )<br>100,000cycles 1Ω max.                                              | ( 0.1A 12V DC )<br>10,000cycles 150mΩ max.                                          | ( 0.1A 12V DC )<br>10,000cycles 60mΩ max.                                           |      |
| Environmental performance             | Cold                        | -20 ± 2 for 96h                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | -40 ± 2 for 96h                                                                     | -20 ± 2 for 96h                                                                     |                                                                                     |      |
|                                       | Dry heat                    | 85 ± 2 for 96h                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |
|                                       | Damp heat                   | 40 ± 2 , 90 to 95%RH for 96h                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |
| Dimensions ( mm )                     |                             | W                                                                                 | 6.3                                                                               | 3.4                                                                               | 5                                                                                 | 2.8                                                                                 | 3.6                                                                                 | 9                                                                                   | 11                                                                                  | 12.5 |
|                                       |                             | D                                                                                 | 3                                                                                 |                                                                                   | 4                                                                                 | 3.5                                                                                 | 4.2                                                                                 | 3.5                                                                                 | 5.8                                                                                 | 5    |
|                                       |                             | H                                                                                 | 4.9                                                                               | 2.3                                                                               |                                                                                   | 1.5                                                                                 | 1.2                                                                                 | 4.5                                                                                 | 7                                                                                   | 11.5 |
| Soldering                             | Manual soldering            | 300 ± 5 ,<br>5s max.                                                              | 350 ± 5 , 3s max.                                                                 |                                                                                   |                                                                                   |                                                                                     | 300 ± 10 ,<br>3 <sup>+1</sup> <sub>-0</sub> s                                       | 350 ± 5 , 3s max.                                                                   |                                                                                     |      |
|                                       | Dip soldering               | 260 ± 5 ,<br>5 ± 1s                                                               | —                                                                                 | 255 ± 5 ,<br>5 ± 1s                                                               | —                                                                                 |                                                                                     | 245 ± 5 ,<br>5 ± 1s                                                                 | —                                                                                   | 260 ± 5 ,<br>5 ± 1s                                                                 |      |
|                                       | Reflow soldering            | Please see P.79                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | —                                                                                   |                                                                                     |                                                                                     |      |
| Number of poles                       |                             | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.2                                                                                 | 1                                                                                   |                                                                                     |      |
| Operation force                       |                             | 0.35N max.                                                                        | 0.3N max.                                                                         |                                                                                   | 0.4N max.                                                                         | 0.35N max.                                                                          | 0.3N max.                                                                           | 0.5N max.                                                                           | 0.7 ± 0.3N                                                                          |      |
| Page                                  |                             | 28                                                                                | 34                                                                                | 36                                                                                | 38                                                                                | 40                                                                                  | 41                                                                                  | 44                                                                                  | 45                                                                                  |      |

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

- Detector Switches Soldering Conditions .....79
- Detector Switches Cautions .....80