

A wide variety of detector switches available for various digital AV devices



Detector

Slide

Push

Rotary

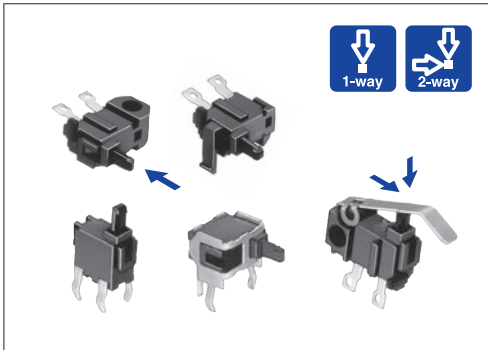
Power

Dual-in-line Package Type

General-purpose Type

Water-proof Type

Typical Specifications



| Items | | Specifications |
|---|--------------|----------------------------|
| Rating (max.)/(min.) (Resistive load) | | 0.1A 30V DC / 50μA 3V DC |
| Contact resistance (Initial / After operating life) | | 1Ω max. / 2Ω max. |
| Operating force | | 0.35N max. |
| Operating life | Without load | 50,000cycles |
| | With load | 50,000cycles (0.1A 30V DC) |

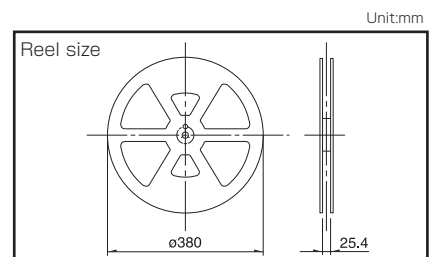
Product Line

| Poles | Positions | Operating part shape | Operating direction | Terminal type | Packaging style | Minimum order unit (pcs) | | Product No. | Drawing No. |
|-------|-----------|----------------------|---------------------|-----------------------|-----------------|--------------------------|-------------------|-----------------------|--------------------|
| | | | | | | Japan | Export | | |
| 1 | 1 | Push | Horizontal | For Lead | Bulk | 100 | 10,000 | SPPB110300 | 1 |
| | | | | | | | | SPPB120200 | 2 |
| | | | | | | | | SPPB310400 | 7 |
| | | | | | | | | SPPB320100 | 8 |
| | | Actuator A | Vertical | For PC board (Dip) | | 100 | 5,000 | SPPB1A0100 | 3 |
| | | | | | | | | SPPB1A0101 | 4 |
| | | Actuator C | Horizontal | For PC board (Dip) | | 100 | 5,000 | SPPB2A0100 | 5 |
| | | | | | | | | SPPB2A0101 | 6 |
| | | Push | Vertical | For PC board (Dip) | | 100 | 20,000 | SPPB512300 | 9 |
| | | | | | | | | Horizontal | For PC board (Dip) |
| | | Actuator A | Vertical | For PC board (Dip) | 100 | 5,000 | SPPB5A0100 | | |
| | | | | | | | Horizontal | For PC board (Dip) | 100 |
| | | Push | Vertical | For PC board (Reflow) | Taping | 1,500 | | | |
| | | | | | | | Horizontal | For PC board (Reflow) | Taping |
| | | Push | Vertical | For PC board (Reflow) | Taping | 600 | | | |
| | | | | | | | Horizontal | For PC board (Reflow) | Taping |

Packing Specifications

Taping

| Product No. | Number of packages (pcs.) | | | Tape width (mm) | Export package measurements (mm) |
|--|---------------------------|---------------|------------------------|-----------------|----------------------------------|
| | 1 reel | 1 case /Japan | 1 case /export packing | | |
| SPPB530701 | 1,500 | 3,000 | 6,000 | 24 | 406×406×160 |
| SPPB530601 | 600 | 1,200 | 2,400 | | |
| SPPB630101 SPPB640201 | 1,300 | 2,600 | 5,200 | | |

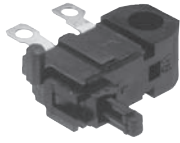
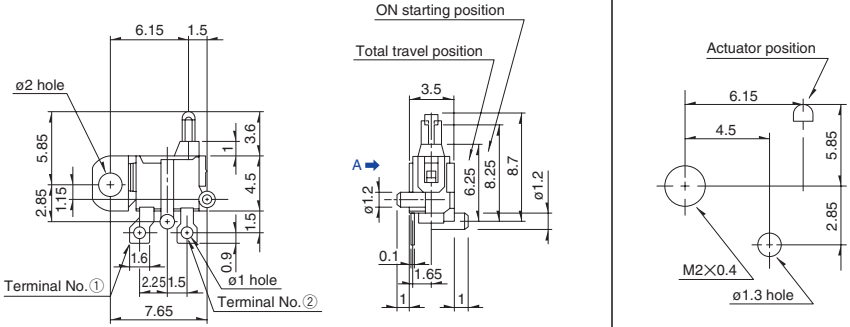
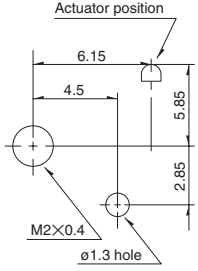
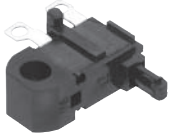
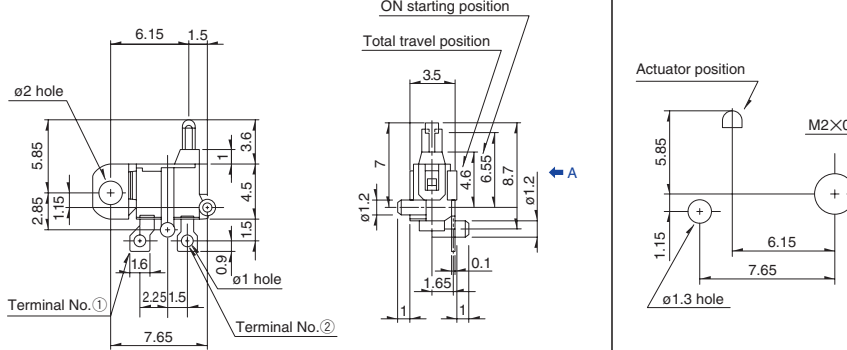
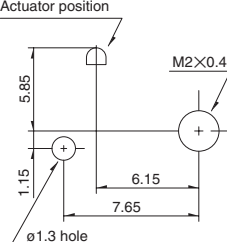
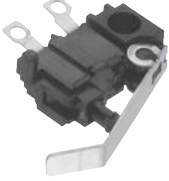
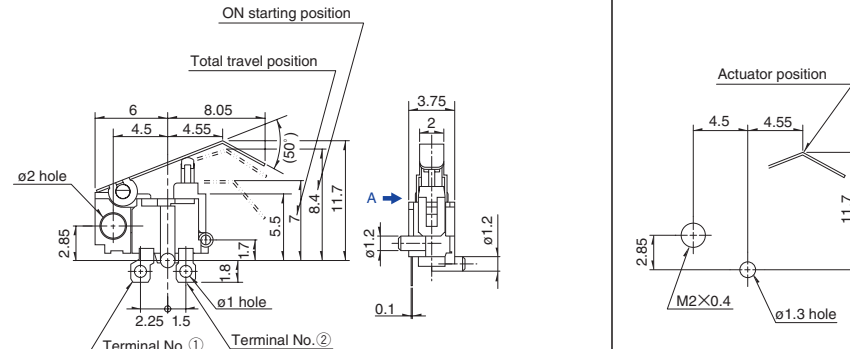
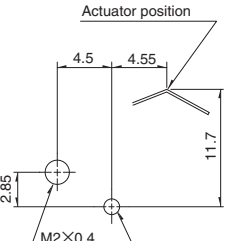
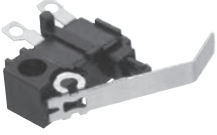
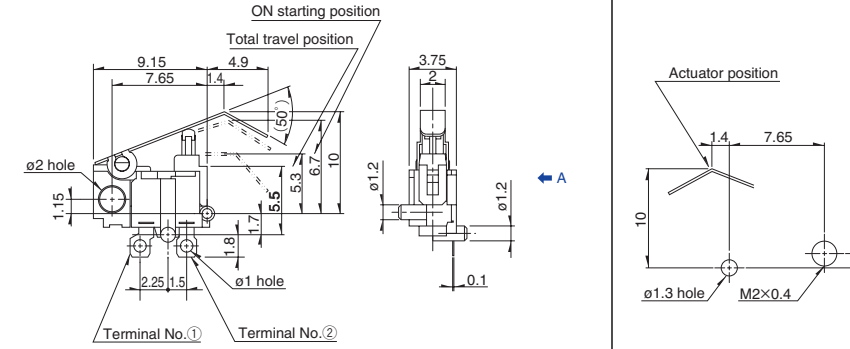
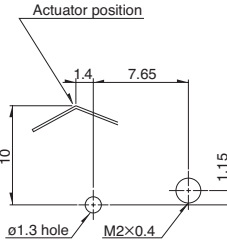


Bulk

| Product No. | Number of packages (pcs.) | | Export package measurements (mm) |
|---|---------------------------|------------------------|----------------------------------|
| | 1 case /Japan | 1 case /export packing | |
| SPPB512300 | 4,000 | 20,000 | 400×270×290 |
| SPPB1A0100, SPPB1A0101, SPPB2A0100, SPPB2A0101, SPPB5A0100, SPPB6A0100, SPPB6A0400 | 1,000 | 5,000 | |
| SPPB310400, SPPB320100, SPPB610400, SPPB620300, SPPB110300, SPPB120200 | 2,000 | 10,000 | |

Dimensions

Unit:mm

| No. | Photo | Style | PC board mounting hole dimensions (Viewed from direction A) |
|-----|---|--|---|
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |

Detector
Slide
Push
Rotary
Power
Dual-in-line
Package Type
General-purpose Type
Water-proof Type

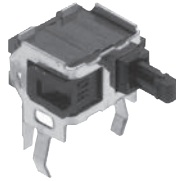
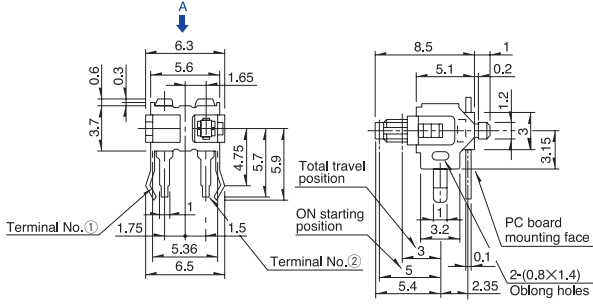
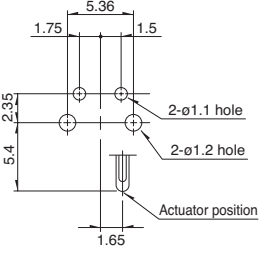
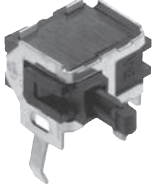
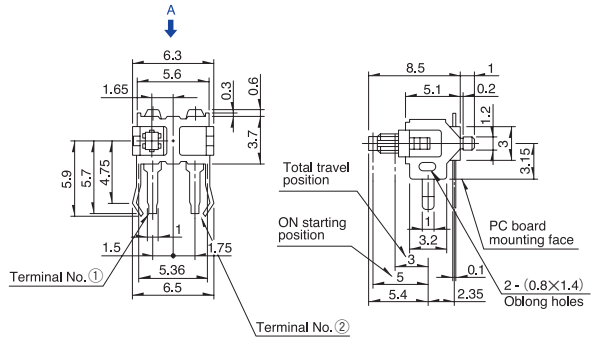
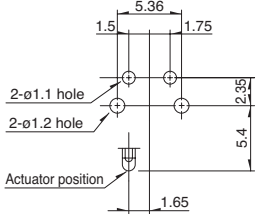
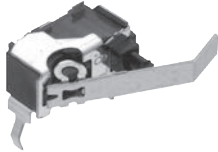
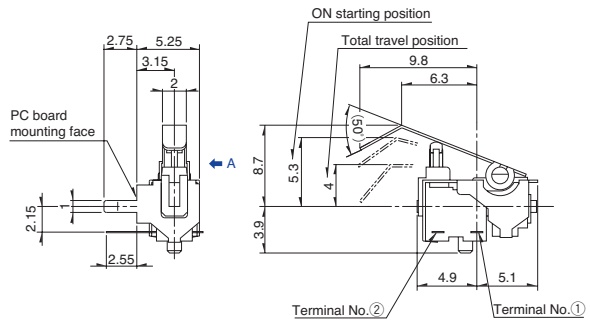
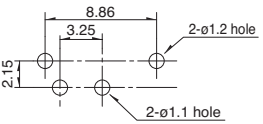
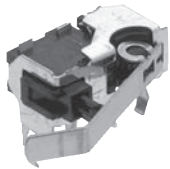
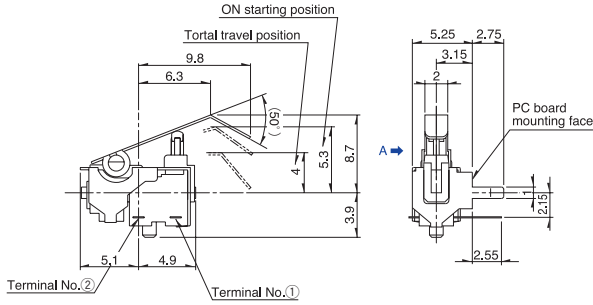
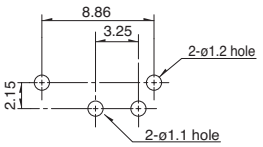
Dimensions

Unit:mm

| No. | Photo | Style | PC board mounting hole dimensions (Viewed from direction A) |
|-----|-------|-------|--|
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

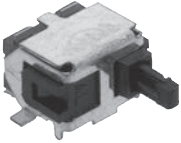
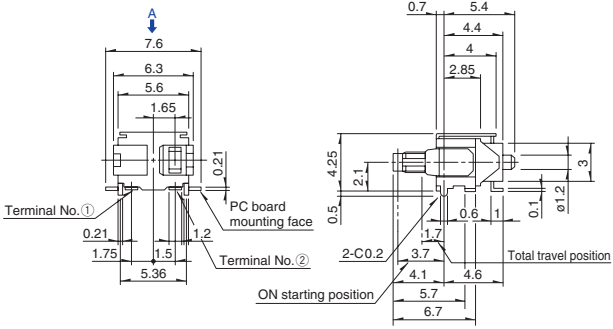
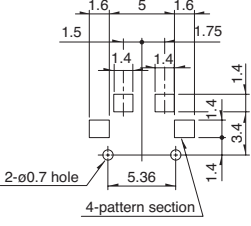
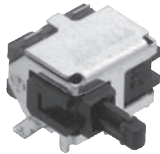
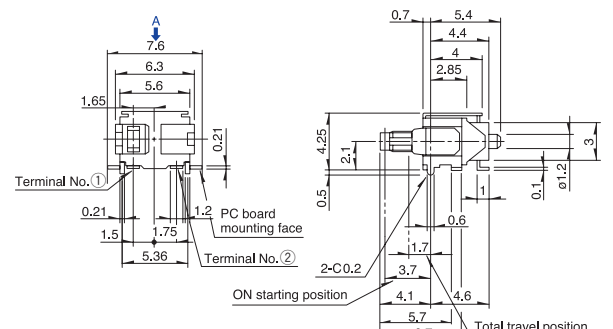
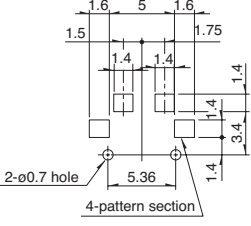
Dimensions

Unit:mm

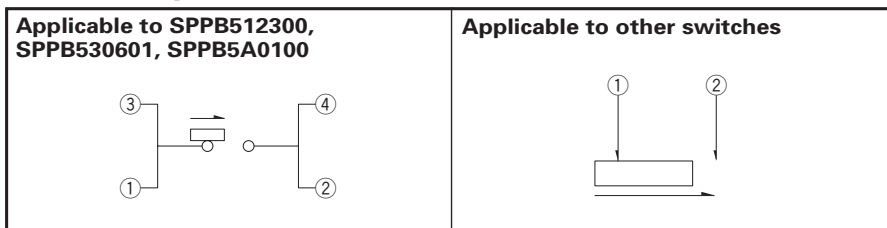
| No. | Photo | Style | PC board mounting hole and land dimensions (Viewed from direction A) |
|-----|---|--|---|
| 13 |  |  |  |
| 14 |  |  |  |
| 15 |  |  |  |
| 16 |  |  |  |

■ Dimensions

Unit:mm

| No. | Photo | Style | PC board mounting hole and land dimensions (Viewed from direction A) |
|-----|---|---|--|
| 17 | <p>Push</p>  |  |  |
| 18 | <p>Push</p>  |  |  |


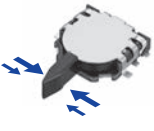
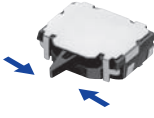
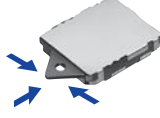
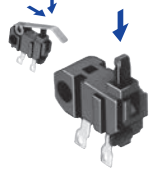





■ Circuit Diagram (Viewed from Direction A)



Detector
Slide
Push
Rotary
Power
Dual-In-line Package Type
General-purpose Type
Water-proof Type

Detector Switches

List of Varieties

| Series | | General-purpose Type | | | | |
|-----------------------------------|---|---|---|--|---|---|
| | | SPPW8 | SSCQ | SSCM | SPVL | SPPB |
| Photo | |  |  |  |  |  |
| Operation type | | One-way | Two-way Two-direction type | Two-way | Three-way | One-way Two-way |
| Dimensions (mm) | W | 5 | 3.8 | 5 | 5.55 | 6.3 |
| | D | 4 | 3.6 | 4 | 6.6 | 3 |
| | H | | 0.9 | 1.5 | 1 | 4.9 |
| Operating temperature range | | -10°C to +60°C | | | -40°C to +85°C | |
| Automotive use | | — | — | — | ● | ● |
| Life cycle (availability) | |  |  |  |  |  |
| Poles / Positions | | 1/1 | 1 / Two-direction type 2-position each side | 1/2 | 1/1 | |
| Rating (max.) (Resistive load) | | 0.1A 30V DC | 1mA 5V DC | | | 0.1A 30V DC |
| Rating (min.) (Resistive load) | | 100μA 3V DC | 50μA 3V DC | | | |
| Durability | Operating life without load | 100,000cycles 2Ω max. | 50,000cycles 5Ω max. | | | 50,000cycles 2Ω max. |
| | Operating life with load Rating (max.) (Resistive load) | 100,000cycles 2Ω max. | 50,000cycles 5Ω max. | | | 50,000cycles 2Ω max. |
| Electrical performance | | Initial contact resistance | 1Ω max. | 2Ω max. | | 1Ω max. |
| | | Insulation resistance | 100MΩ min. 100V DC | | | |
| | | Voltage proof | 100V AC for 1 minute | | | |
| Mechanical performance | Terminal strength | 3N for 1minute | 0.5N for 1minute | | 1N for 1minute | 3N for 1minute |
| | Actuator strength | 10N | 1N | 2N | 5N | 10N |
| Environmental performance | Cold | -20°C 96h | | | -40°C 500h | |
| | Dry heat | 85°C 96h | | | 85°C 500h | |
| | Damp heat | 40°C, 90 to 95%RH 96h | | | 60°C, 90 to 95%RH 500h | |
| Operation force | | 0.3N max. | 0.35N max. | | | |
| Page | | 29 | 31 | 32 | 33 | 34 |

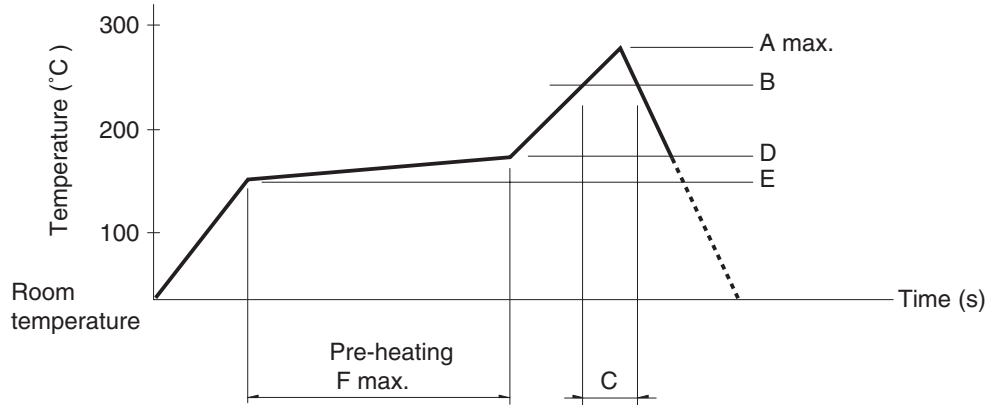
| | |
|--|----|
| Detector Switches Soldering Conditions | 71 |
| Detector Switches Cautions | 72 |

Note
● Indicates applicability to all products in the series.

Detector Switches Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple $\phi 0.1$ 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 (°C) 3s max. | B (°C) | C (s) | D (°C) | E (°C) | F (s) |
|----------------------|----------------|--------|-------|--------|--------|-------|
| SPPB | 250 | 230 | 40 | 180 | 150 | 120 |
| SPPW8 | | | 35 | | | |
| SPVE | 260 | | 40 | | | |
| SPVL | | | | | | |
| SPVM | | | | | | |
| SPVN | | | | | | |
| SPVR | | | | | | |
| SPVS | | | | | | |
| SPVT | | | | | | |
| SSCM | | | | | | |
| SSCQ | | | | | | |
| SPVQC | 250 | | | | | |

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, surface 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.

Reference for Hand Soldering

| Series | Soldering temperature | Soldering time |
|---|-----------------------|----------------|
| SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SPPW8, SSCQ, SSCM, SPVL, SSCT, SPVQC | 350±5°C | 3s max. |
| SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA | 300±10°C | 3 +1 / 0s |
| SPPB (Reflow) | 300±5°C | 5s max. |
| SSCF, SPPB (For Lead, Dip) | 350±10°C | 3 +1 / 0s |

Reference for Dip Soldering

(For PC board terminal types)

| Series | Items | | Dip soldering | |
|--|------------------------|-----------------|-----------------------|-----------------------|
| | Preheating temperature | Preheating time | Soldering temperature | Duration of immersion |
| SSCT, SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA | 100±10°C | 60s max. | 260±5°C | 5±1s |
| SPPW8, SPPB | 100 °C max. | 60s max. | 255±5°C | 5±1s |
| SSCF | — | | 260±5°C | 5±1s |