

# Detector Switch General-purpose Type

SPPB Series



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

## Detector

Push

Slide

Rotary

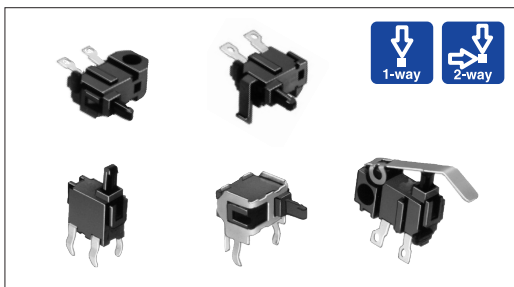
Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products



## Typical Specifications

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

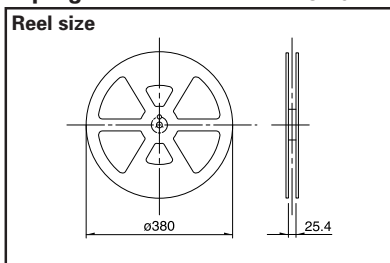
## Product Line

Poles	Positions	Operating part shape	Operating direction	Terminal type	Packaging style	Minimum order unit (pcs)	Product No.	Drawing No.	
1	1	Push	Horizontal	Lead	Bulk	10,000	SPPB110300	1	
							SPPB120200	2	
							SPPB310400	7	
		Actuator A				SPPB320100	8		
						SPPB1A0100	3		
						SPPB1A0101	4		
		Actuator C	SPPB2A0100	5					
			SPPB2A0101	6					
			Push	Vertical		For PC board (Dip)	20,000	SPPB512300	9
		Horizontal		10,000	SPPB610400		13		
		Actuator A			Vertical		SPPB620300	14	
			Horizontal		5,000		SPPB5A0100	10	
		Push	Vertical	For PC board (Reflow)			Taping	SPPB6A0100	15
								SPPB6A0400	16
					6000	SPPB530701		11	
		2400	SPPB530601	12					
			5200	SPPB630101		17			
		SPPB640201		18					

## Packing Specifications

### Taping

Unit:mm



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	

### Note

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

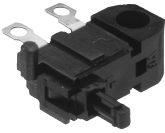
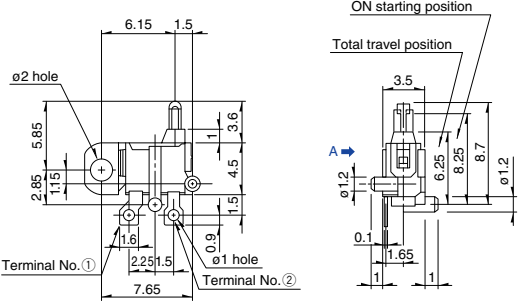
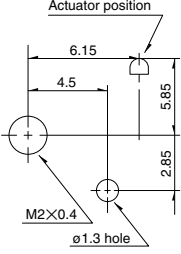

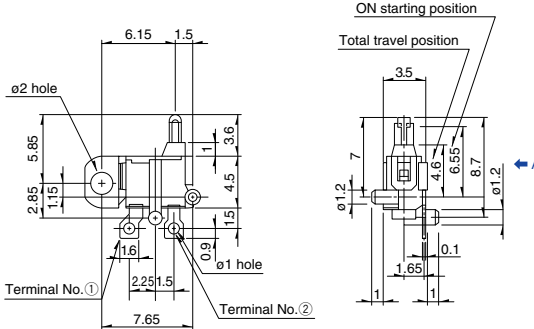
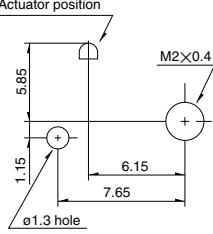

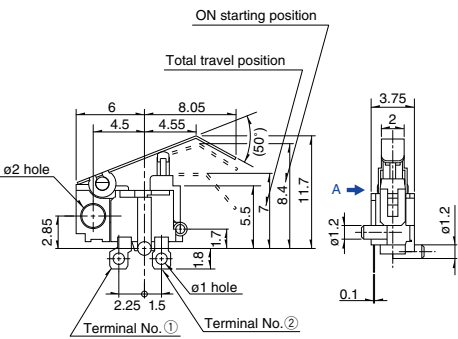
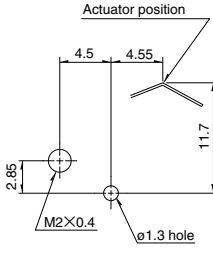
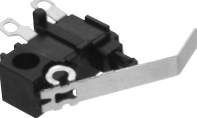
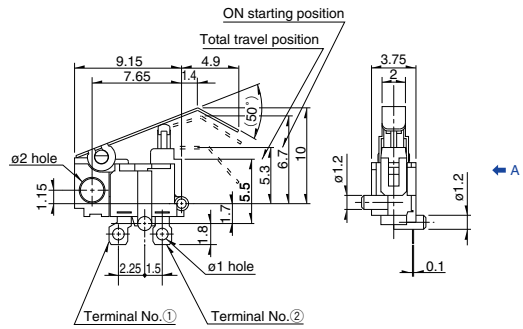
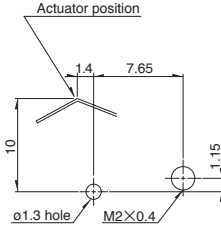
Refer to P.97 for soldering conditions.



Automotive  
Use

**Dimensions**

Unit:mm

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

**Detector**

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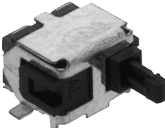
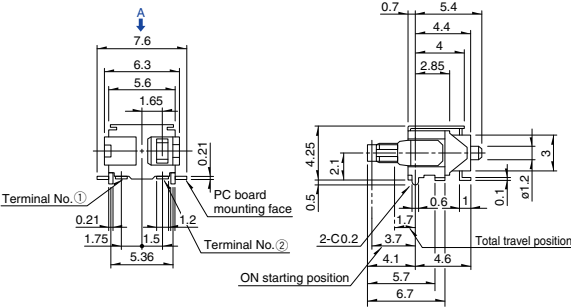
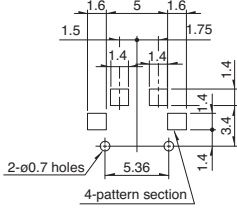
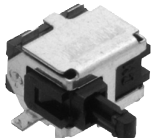
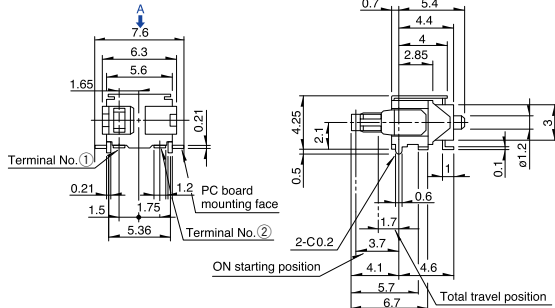
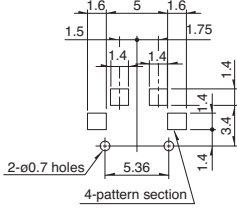
- Detector
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Dimensions			Unit:mm
No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
13	<p><b>Push</b></p>	<p>Terminal No.①, Terminal No.②, Total travel position, ON starting position, PC board mounting face, 2-(0.8×1.4) Oblong holes</p>	<p>2-φ1.1 holes, 2-φ1.2 holes, Actuator position</p>
14	<p><b>Push</b></p>	<p>Terminal No.①, Terminal No.②, Total travel position, ON starting position, PC board mounting face, 2-(0.8×1.4) Oblong holes</p>	<p>2-φ1.1 holes, 2-φ1.2 holes, Actuator position</p>
15	<p><b>Actuator A</b></p>	<p>ON starting position, Total travel position, PC board mounting face, Terminal No.②, Terminal No.①</p>	<p>2-φ1.2 holes, 2-φ1.1 holes</p>
16	<p><b>Actuator A</b></p>	<p>ON starting position, Total travel position, PC board mounting face, Terminal No.②, Terminal No.①</p>	<p>2-φ1.2 holes, 2-φ1.1 holes</p>

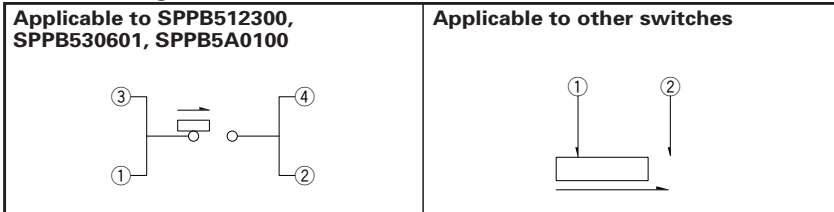
**Dimensions**

Unit:mm

No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
17			
18			













- Detector**
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**Circuit Diagram (Viewed from Direction A)**



## List of Varieties (General-purpose Type)

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

Series	General-purpose Type						
	SPPB	SPVE	SPPW8	SPVM	SPVR	SSCU	
Photo							
Operation type							
Operating temperature range	-40°C to +85°C	-10°C to +60°C		-40°C to +85°C			
Automotive use	●	—	—	●	●	●	
Rating (max.) (Resistive load)	0.1A 30V DC			1mA 5V DC		0.1A 12V DC	
Rating (min.) (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.	70mΩ 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 1 minute
	Actuator strength	10N	5N	10N	5N	2N	5N
Durability	Operating life without Load	50,000cycles 2Ω max.	50,000cycles 1Ω max.	100,000cycles 2Ω max.	50,000cycles 5Ω max.		10,000cycles 100mΩ max.
	Operating life with Load	(0.1A 30V DC) 50,000cycles 2Ω max.	(0.1A 30V DC) 50,000cycles 1Ω max.	(0.1A 30V DC) 100,000cycles 2Ω max.	(1mA 5V DC) 50,000cycles 5Ω max.		(0.1A 12V DC) 10,000cycles 100mΩ max.
Environmental performance	Cold	-40±2°C for 500h	-20±2°C for 96h		-40±2°C for 500h		
	Dry heat	85±2°C for 500h	85±2°C for 96h		85±2°C for 500h		
	Damp heat	60±2°C, 90 to 95%RH for 500h	40±2°C, 90 to 95%RH for 96h		60±2°C, 90 to 95%RH for 500h		
Dimensions (mm)	W	6.3	3.4	5	2.8	3.6	11
	D	3		4	3.5	4.2	5.8
	H	4.9	2.3		1.5	1.2	7
Soldering	Manual soldering	300±5°C, 5s max.	350±5°C, 3s max.				
	Dip soldering	255±5°C, 5±1s	—	255±5°C, 5±1s	—		
	Reflow soldering	Please see P.97					—
Number of poles	1						
Operation force	0.35N max.	0.3N max.		0.4N max.	0.35N max.	0.5N max.	
Page	45	51	53	55	57	58	

- Detector Switches Soldering Conditions .....97
- Detector Switches Cautions .....98

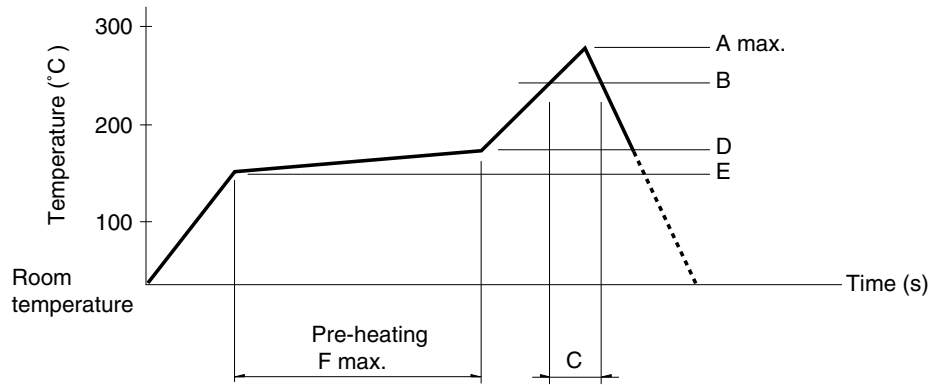
### Note

●marks in "Available for automotive use" indicate that all of the series products can work at the operating temperature range from -40°C to +85°C.

## 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  $\phi$  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			
SPPW8		200	20			
SPVE	260	230	40	180	150	120
SPVG						
SPVL						
SPVM						
SPVN						
SPVP						
SPVR						
SPVS						
SPVT						
SSCM						
SPPY5	240		20	150	Room temperature	180

### 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.

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