

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



Typical Specifications

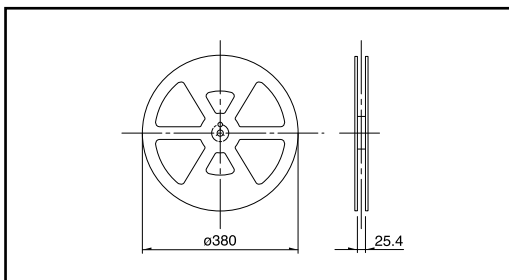
Items		Specifications
Rating (max.) (min.) (Resistive load)		0.1A 30V DC/50μA 3V DC
Contact resistance (Initial /After operating life)		1 max./2 max.
Operating force		0.35N max.
Operating life	Without load	50,000cycles
	With load	50,000cycles(0.1A 30V DC)

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	Horizontal	Lead		Bulk	5,000	SPPB320100	8
								SPPB1A0100	3
								SPPB1A0101	4
		Actuator C	Horizontal	Lead		Bulk	5,000	SPPB2A0100	5
								SPPB2A0101	6
								SPPB512300	9
		Push	Vertical	For PC board (Dip)	Bulk	20,000	SPPB610400	13	
							SPPB620300	14	
							SPPB5A0100	10	
		Actuator A	Horizontal	For PC board (Dip)		Bulk	5,000	SPPB6A0100	15
								SPPB6A0400	16
								SPPB530701	11
		Push	Vertical	For PC board (Reflow)		Taping	6000	SPPB530601	12
								SPPB630101	17
								SPPB640201	18
Push	Horizontal	For PC board (Reflow)	Taping	5200	SPPB630101		17		
					SPPB640201		18		
					SPPB640201		18		

Taping Specifications (Taping Packaging)

Reel Size Unit:mm



Product No.	Number of packages(pcs.)			Tape width (mm)
	1 reel	1 case /Japan	1 case /export packing	
SPPB530701	1,500	3,000	6,000	24
SPPB530601	600	1,200	2,400	
SPPB630601 SPPB640201	1,300	2,600	5,200	

Note

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

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
 Package Type

TACT Switch™

Custom-
 Products

Dimensions		Unit:mm	
No.	Photo	Style	PC board mounting hole dimensions (Viewed from direction A)
1		<p>ON starting position Total travel position Actuator position</p>	<p>M2×0.4 ø1.3 hole</p>
2		<p>ON starting position Total travel position Actuator position</p>	<p>M2×0.4 ø1.3 hole</p>
3		<p>ON starting position Total travel position Actuator position</p>	<p>M2×0.4 ø1.3 hole</p>
4		<p>ON starting position Total travel position Actuator position</p>	<p>M2×0.4 ø1.3 hole</p>

Dimensions

Unit:mm

Detector

Push

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 Products

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)
9	Push	<p>Technical drawing of detector switch 9. Side view shows dimensions: 2.45 (actuator height), 0.8 (actuator width), 8.5 (total height), 4.9 (mounting face height), 1 (terminal height), 6.3 (total width), 5 (terminal spacing), 0.95 (terminal width), 2.3 (terminal pitch), 1 (terminal offset), 0.1 (PC board thickness). Front view shows dimensions: 3 (actuator width), 6.1 (mounting face width), 8.05 (total height), 0.1 (PC board thickness), 3.3 (terminal width), 0.1 (terminal offset), 1.2 (PC board hole diameter).</p>	<p>PC board mounting hole and land dimensions for detector switch 9. Viewed from direction A, it shows 4-ϕ1.1 holes in a 2x2 grid. The center-to-center distance between holes is 2.3 mm. The distance from the center of a hole to the edge of the land is 0.95 mm. The hole diameter is ϕ1.25 mm. The actuator position is indicated.</p>
10	Actuator A	<p>Technical drawing of detector switch 10. Side view shows dimensions: 8.85 (total height), 5.35 (mounting face height), 11.5 (total height), 6.8 (mounting face height), 8.3 (mounting face height), 2.6 (terminal height), 5.3 (terminal height), 5.2 (terminal width), 3.95 (terminal width), 1 (terminal offset), 1.2 (PC board hole diameter). Front view shows dimensions: 3.75 (actuator width), 2 (actuator width), 1.2 (PC board hole diameter).</p>	<p>PC board mounting hole and land dimensions for detector switch 10. Viewed from direction A, it shows 4-ϕ1.1 holes in a 2x2 grid. The center-to-center distance between holes is 2.3 mm. The distance from the center of a hole to the edge of the land is 0.95 mm. The hole diameter is ϕ1.25 mm. The actuator position is indicated.</p>
11	Push	<p>Technical drawing of detector switch 11. Side view shows dimensions: 2.45 (actuator height), 1.5 (actuator width), 1.65 (actuator width), 0.3 (actuator offset), 8.5 (total height), 4.9 (mounting face height), 1 (terminal height), 6.5 (total width), 5.1 (terminal spacing), 0.95 (terminal width), 2.3 (terminal pitch), 0.8 (terminal offset), 0.1 (PC board thickness). Front view shows dimensions: 1.6.1.5 (actuator width), 6.1 (mounting face width), 8.05 (total height), 0.1 (PC board thickness), 3.3 (terminal width), 0.1 (terminal offset), 1.2 (PC board hole diameter).</p>	<p>PC board mounting hole and land dimensions for detector switch 11. Viewed from direction A, it shows 2-ϕ1.1 holes in a 1x2 grid. The center-to-center distance between holes is 1.5 mm. The distance from the center of a hole to the edge of the land is 0.3 mm. The hole diameter is ϕ1.25 mm. The actuator position is indicated. A 2-pattern section is shown with dimensions 1.4, 1.5, and 1.75.</p>
12	Push	<p>Technical drawing of detector switch 12. Side view shows dimensions: 1.65 (actuator height), 1.5 (actuator width), 1.65 (actuator width), 8.5 (total height), 4.9 (mounting face height), 1 (terminal height), 6.4 (total width), 5 (terminal spacing), 1.75 (terminal width), 1.65 (terminal pitch), 0.8 (terminal offset), 0.1 (PC board thickness). Front view shows dimensions: 3 (actuator width), 6.1 (mounting face width), 8.05 (total height), 0.8 (actuator offset), 3.3 (terminal width), 0.1 (terminal offset), 1.2 (PC board hole diameter). Detail of (a) shows dimensions: 0.15 max. and 0.3 max.</p>	<p>PC board mounting hole and land dimensions for detector switch 12. Viewed from direction A, it shows 2-ϕ1.3 holes in a 1x2 grid. The center-to-center distance between holes is 1.75 mm. The distance from the center of a hole to the edge of the land is 1.4 mm. The hole diameter is ϕ1.3 mm. The actuator position is indicated. A 4-pattern section is shown with dimensions 1.4, 1.4, 1.4, and 1.4.</p>


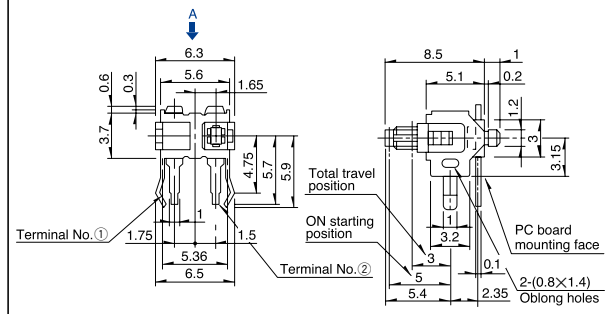
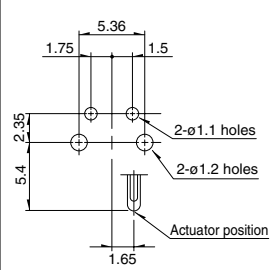

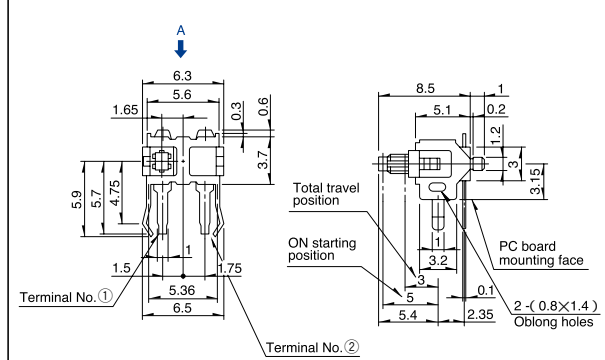
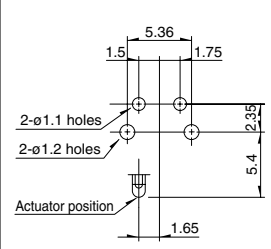
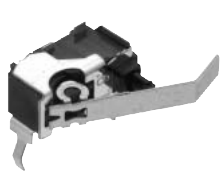
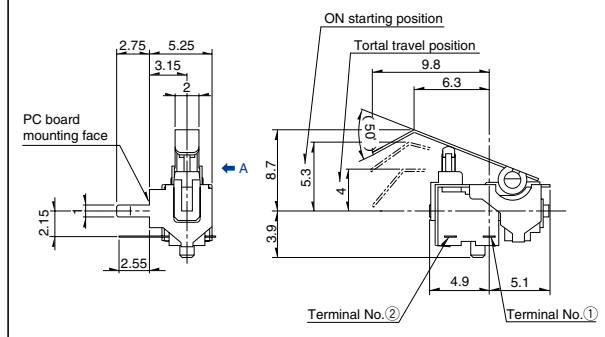
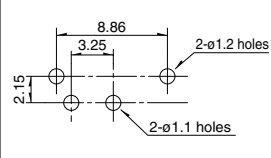
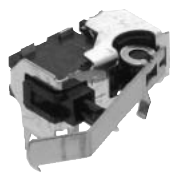
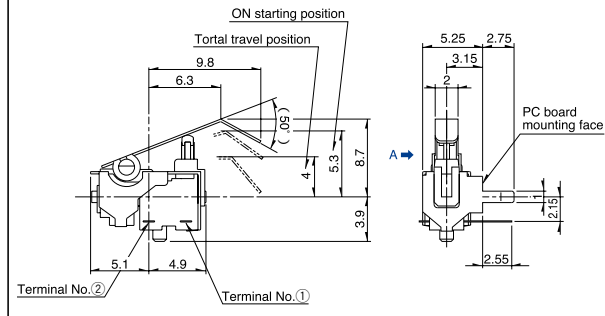
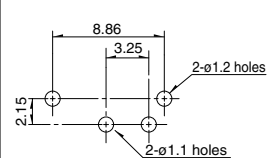
- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products

Detector Switch

General-purpose Type | SPPB Series

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
Detector Push Slide Rotary Encoders Power Dual-in-line Package Type TACT Switch™ Custom-Products	13 Push 		
	14 Push 		
15 Actuator A 			
16 Actuator A 			

Dimensions

Unit:mm

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

Detector

Push

Slide

Rotary

Encoders

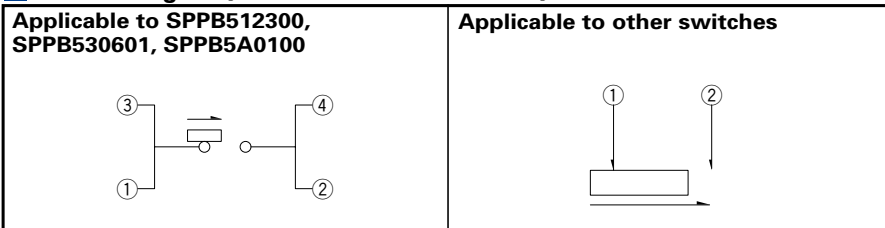
Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

Circuit Diagram (Viewed from Direction A)



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.) (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	1 max.	500m max.	1 max.	2 max.	3 max.	500m max.	70m max. 20m max.	
	Insulation resistance	100M min. 100V DC						100M 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 2 max.	50,000cycles 1 max.	100,000cycles 2 max.	50,000cycles 5 max.		100,000cycles 1 max.	10,000cycles 100m max. 40m max.	
	Operating life with Load	(0.1A 30V DC) 50,000cycles 2 max.	(0.1A 30V DC) 50,000cycles 1 max.	(0.1A 30V DC) 100,000cycles 2 max.	(1mA 5V DC) 50,000cycles 5 max.		(1mA 5V DC) 100,000cycles 1 max.	(0.1A 12V DC) 10,000cycles 150m max. 60m 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 , 5s max.	350 ± 5 , 3s max.				300 ± 10 , 3 ± 1s	350 ± 5 , 3s max.	
	Dip soldering	260 ± 5 , 5 ± 1s		255 ± 5 , 5 ± 1s			245 ± 5 , 5 ± 1s	260 ± 5 , 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

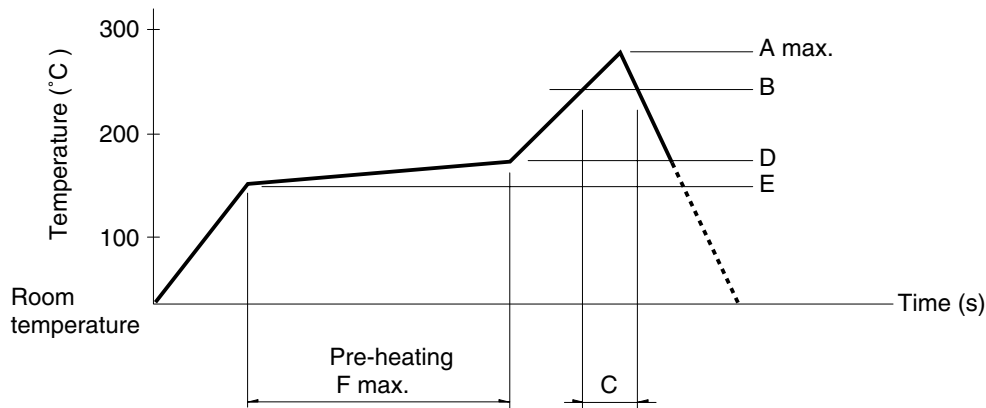
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Soldering Conditions

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



Detector

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Series(Reflow type)	A() 3s max.	B()	C(s)	D()	E()	F(s)
SPPB	250	230	40			
SPPW8		200	20			
SPVE	260	230	40	180	150	120
SPVG						
SPVL						
SPVM						
SPVN						
SPVP						
SPVR						
SPVS						
SSCM						
SPPY5						

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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