

Detector Switch General-purpose Type

SPPB Series



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

Detector

Push

Slide

Rotary

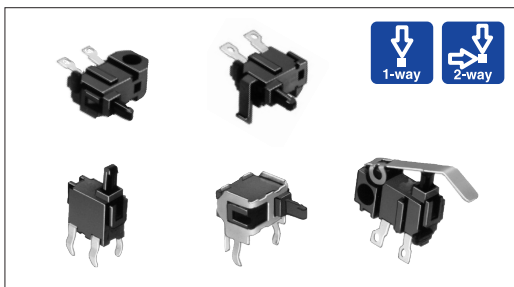
Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products



Typical Specifications

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

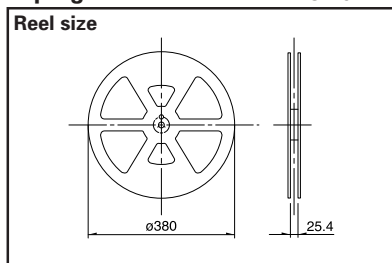
Product Line

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				Vertical	For PC board (Dip)	5,000	SPPB320100	8
									SPPB1A0100	3
									SPPB1A0101	4
		Actuator C	Horizontal	For PC board (Dip)		10,000	SPPB2A0100	5		
							SPPB2A0101	6		
							SPPB512300	9		
		Push	Vertical	For PC board (Reflow)	5,000	SPPB610400	13			
						SPPB620300	14			
						SPPB5A0100	10			
		Actuator A			Horizontal	For PC board (Reflow)	6000	SPPB6A0100	15	
								SPPB6A0400	16	
								SPPB530701	11	
		Push	Horizontal	For PC board (Reflow)	Taping	5200	SPPB530601	12		
							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		<p>ON starting position Total travel position</p>	<p>Actuator position</p>
2		<p>ON starting position Total travel position</p>	<p>Actuator position</p>
3		<p>ON starting position Total travel position</p>	<p>Actuator position</p>
4		<p>ON starting position Total travel position</p>	<p>Actuator position</p>

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Dimensions			Unit:mm
No.	Photo	Style	PC board mounting hole dimensions (Viewed from direction A)
5	<p>Actuator C</p>	<p>ON starting position Total travel position ø2 hole 2.85 6 4.5 5.8 4.8 9.3 9.7 1.8 1.7 5.5 Terminal No. ① 2.25 1.5 ø1 hole Terminal No. ② 3.75 2 ø1.2 0.1</p>	<p>Actuator position 4.5 5.8 2 9.7 2.85 ø1.3 hole M2×0.4</p>
6	<p>Actuator C</p>	<p>ON starting position Total travel position ø2 hole 1.15 9.15 7.65 2.65 1.65 3.8 5.3 7.8 8 Terminal No. ① 2.25 1.5 ø1 hole Terminal No. ② 3.75 2 ø1.2 0.1</p>	<p>Actuator position 2.65 7.65 8 1.15 ø1.3 hole M2×0.4</p>
7	<p>Push</p>	<p>Total travel position ON starting position 1.65 1.5 3.35 5.35 1.5 1.1 3.6 4.5 Terminal No. ① 1.6 0.9 1.5 ø1 hole Terminal No. ② 2.25 1.5 0.5 8 0.5 3.5 6.25 8.25 8.7 ø1.2 0.1 1.65 1</p>	<p>Actuator position 1.65 1.3 1.8 3.35 8.7 ø1.3 hole 8</p>
8	<p>Push</p>	<p>Total travel position ON starting position 1.65 1.5 3.35 5.35 1.5 1.1 3.6 4.5 Terminal No. ① 1.6 0.9 1.5 ø1 hole Terminal No. ② 2.25 1.5 0.5 8 0.5 3.5 6.25 8.25 8.7 ø1.2 0.1 1.65 1</p>	<p>Actuator position 1.65 1.3 1.8 3.35 8.7 ø1.3 hole 8</p>

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
9		<p>Terminal No.①, Terminal No.②, PC board mounting face, Total travel position, ON starting position</p>	<p>4-φ1.1 holes, φ1.25 hole, Actuator position</p>
10		<p>ON starting position, Total travel position, PC board mounting face, Terminal No.①, Terminal No.②</p>	<p>4-φ1.1 holes, φ1.25 hole</p>
11		<p>Terminal No.①, Terminal No.②, PC board mounting face, Total travel position, ON starting position</p>	<p>Actuator position, 2-φ1.1 holes, 2-pattern section</p>
12		<p>Terminal No.①, Terminal No.②, PC board mounting face, Total travel position, ON starting position, Detail of ①</p>	<p>4-pattern section, 2-φ1.3 holes</p>

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



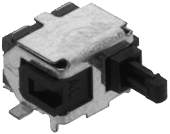
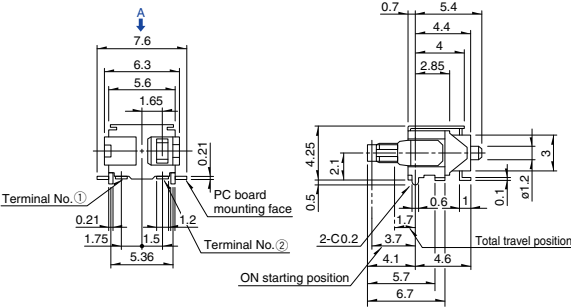
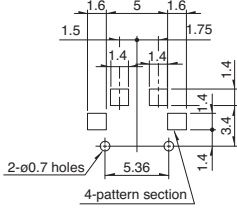
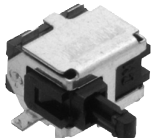
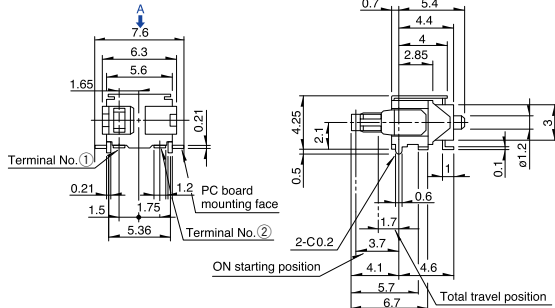
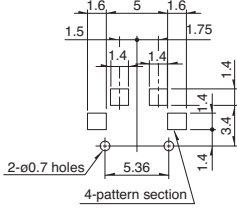
- Detector
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- Slide
- Rotary
- Encoders
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Dimensions			Unit:mm
No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
13	<p>Push</p>	<p>Terminal No.①, Terminal No.②, Total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

Push

Slide

Rotary

Encoders

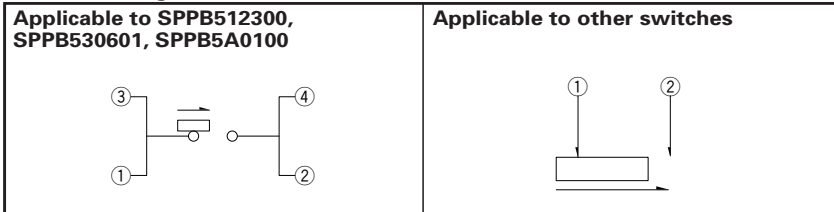
Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

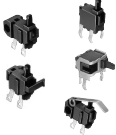











Circuit Diagram (Viewed from Direction A)



Automotive
Use

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 Conditions97
- Detector Switches Cautions98

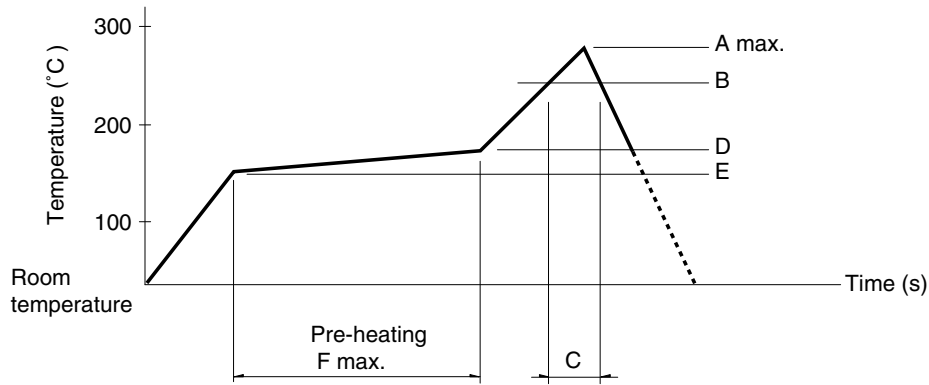
Note

●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 ϕ 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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