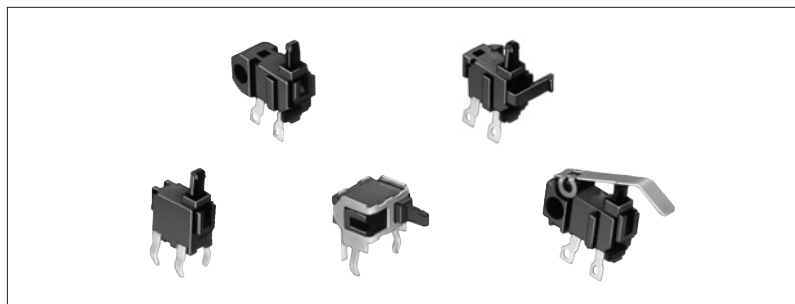


Compact Type Detector Switch

SPPB Series

Compact long-life detector switch with smooth switching action and available in a wide variety.



Car Use

Features

- Compact detector switch with smooth switching action (0.35N max.) and long life.
- Available in a wide variety of mounting methods, operating methods, etc.
- Reflow solderable type also available. (SPPB53, SPPB63, SPPB64)
- Reflow solderable type can be packaged and delivered in carrier taping.

Applications

- For detecting the insertion of media, including DVDplayers, CD-ROMs and FDDs
- For detection mechanisms in mobile phone rechargers, mini component stereos, CD players, headphone stereos, car audio systems, and LBPs
- For main body detection of the charger of cellular phone and digital camera
- For detecting in-vehicle front lights

Typical Specifications

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

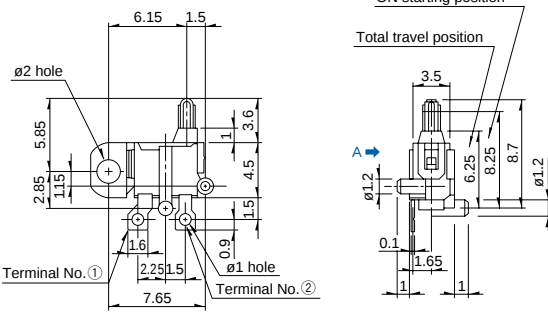
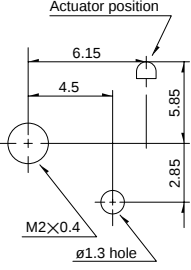
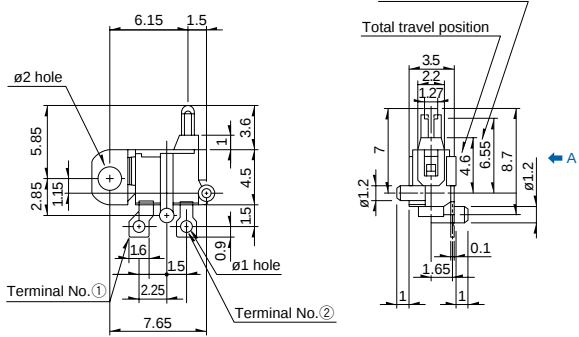
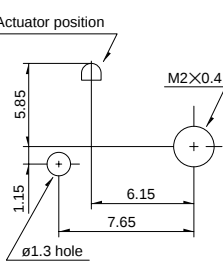
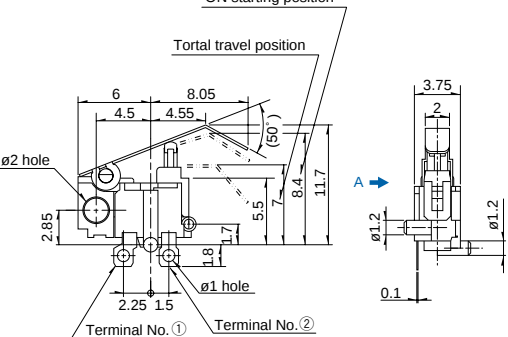
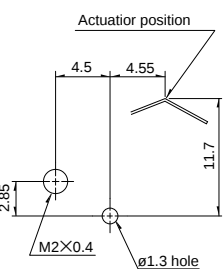
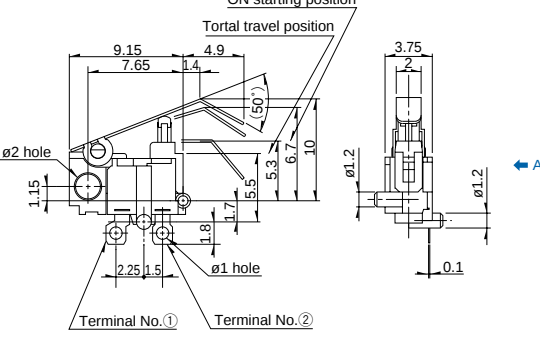
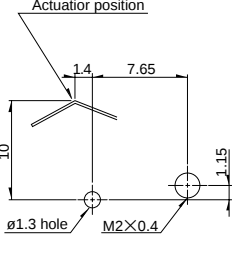
Products Line

Poles	Positions	Operation mode	Operating direction	Terminal style	Packaging style	Minimum packing unit (pcs.)	Products No.	Drawing No.		
1	1	Push	Horizontal	Lead	Bulk	100	SPPB110300	1		
							SPPB120200	2		
		Actuator A					Horizontal	Lead	SPPB310400	7
									SPPB320100	8
		Actuator C							SPPB1A0100	3
									SPPB1A0101	4
		Push	Vertical	For PC board (Dip)					SPPB2A0100	5
									SPPB2A0101	6
			Horizontal				SPPB512300	9		
							SPPB610400	13		
		Actuator A	Vertical				SPPB620300	14		
			Horizontal				SPPB5A0100	10		
		Push	Vertical	For PC board (Reflow)	Taping	1,500	SPPB6A0100	15		
							SPPB6A0400	16		
			Horizontal			600	SPPB530701	11		
							SPPB530601	12		
		Push	Vertical			1,300	SPPB630101	17		
							SPPB640201	18		

For other detailed specifications, see **P.300, 301**
For specifications for the taping package, see **P.303**

Dimensions

Unit : mm

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

Dimensions

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from direction A)
5	Actuator C	
6	Actuator C	
7	Push	
8	Push	

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Dimensions

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from direction A)
9	Push	
10	Actuator A	
11	Push	
12	Push	

Dimensions

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from direction A)
13	Push	
14	Push	
15	Actuator A	
16	Actuator A	

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

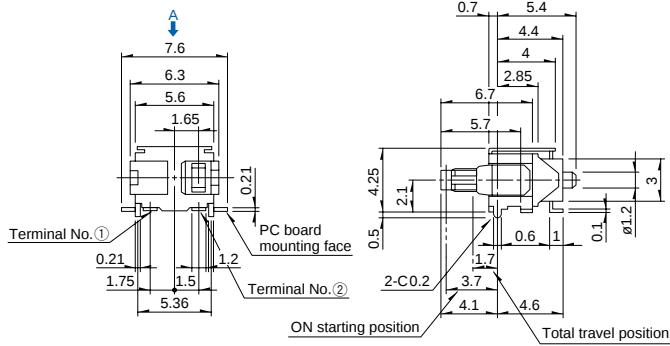
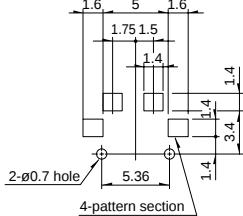
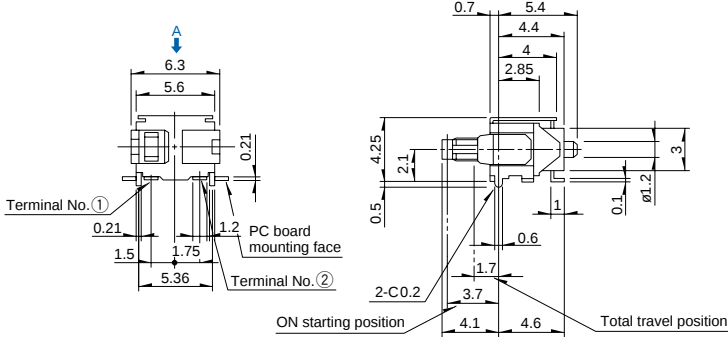
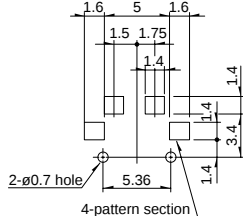
Dual-in-line Package Type

Multi Control Devices

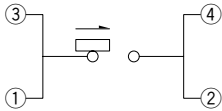
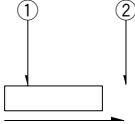
TACT

Dimensions

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from direction A)
17	Push  Terminal No.① Terminal No.② PC board mounting face ON starting position Total travel position	 2-ϕ0.7 hole 4-pattern section
18	Push  Terminal No.① Terminal No.② PC board mounting face ON starting position Total travel position	 2-ϕ0.7 hole 4-pattern section

Circuit Diagram (Viewed from Direction A)

Applicable to SPPB5 types	Applicable to switches excluding SPPB5 types
	

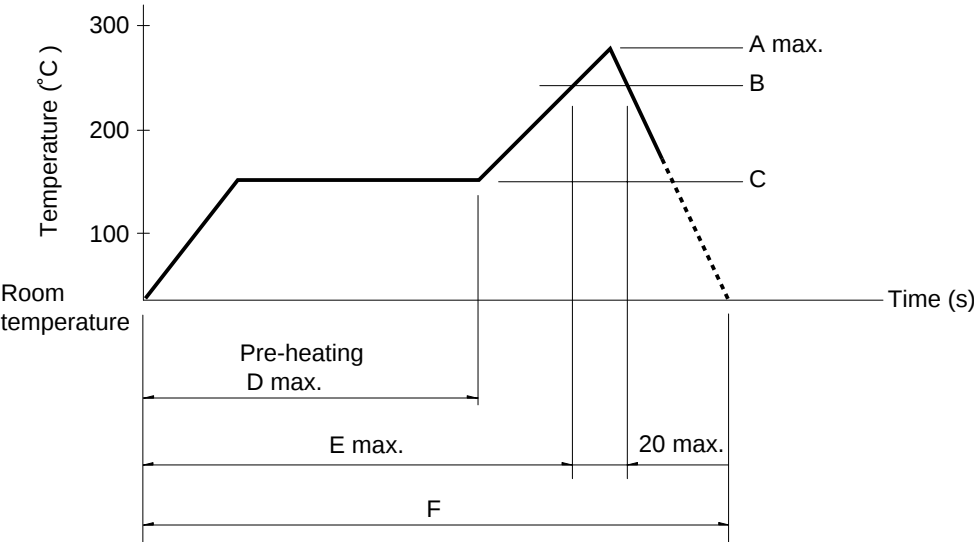
Products Specifications

Series Items			SPPB	SPVE	SPPW8	SPVM	SPVF	SSCU	SSCT	SPVP
			-10℃ to +60℃							
Operating temperature range										
Rating (max.) (Resistive load)			0.1A 30V DC	0.1A 12V DC	0.1A 30V DC	1mA 5V DC		0.1A 12V DC		1mA 5V DC
Electrical performance	Initial contact resistance		1Ω max.	500mΩ max.	1Ω max.	2Ω max.	500mΩ max.	70mΩ max.	20mΩ max.	5Ω max.
	Insulation resistance		100MΩ min. 100V DC					100MΩ min. 250V DC		100MΩ min. 100V DC
	Voltage proof		100V AC for 1 min.					250V AC for 1 min.		100V AC for 1 min.
Mechanical performance	Robustness of terminal		3N for 1 min.	0.5N for 1 min.	3N for 1 min.	1N for 1 min.	3N for 30 s	3N for 1 min.		0.5N for 1 min.
	Robustness of actuator		10N	5N	10N	5N	1N	5N	10N	5N
	Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively							
	Solderability		230±5℃, 3±0.5s							
	Resistance to soldering heat	Manual soldering	300±5℃, 5s max.	350±5℃, 3s max.	350±10℃, 3 ⁺¹ ₋₀ s	350±5℃, 3s max.	300±10℃, 3 ⁺¹ ₋₀ s	350±10℃, 3 ⁺¹ ₋₀ s		350±5℃, 3s max.
		Dip soldering	260±5℃, 5±1s	—	255±5℃, 5±1s	—	260±5℃, 5±1s	—	260±5℃, 5±1s	—
		Reflow soldering	Please see P.300					—		
Durability	Operating life without load		50,000 cycles 2Ω max.	50,000 cycles 1Ω max.	100,000 cycles 2Ω max.	50,000 cycles 5Ω max.	100,000 cycles 1Ω max.	10,000 cycles 100mΩ max.	10,000 cycles 40mΩ max.	50,000 cycles 10Ω max.
	Operating life with load		(0.1A 30V DC) 50,000 cycles 2Ω max.	(0.1A 12V DC) 50,000 cycles 1Ω max.	(0.1A 30V DC) 100,000 cycles 2Ω max.	(1mA 5V DC) 50,000 cycles 5Ω max.	(1mA 5V DC) 100,000 cycles 1Ω max.	(0.1A 12V DC) 10,000 cycles 150mΩ max.	(0.1A 12V DC) 10,000 cycles 60mΩ max.	(1mA 5V DC) 50,000 cycles 10Ω max.
Environmental performance	Cold		-20±2℃ for 96h	-25±2℃ for 96h	-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							

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 (°C)	D (s)	E (s)	F (s)
SPPB	250	200	150	120	—————	—————
SPVE	240	230				
SPPW8	250	200				
SPVM		230				
SPVP						
SPVN						
SPVG	240					
SPVL	250					
SSCM						

Notes

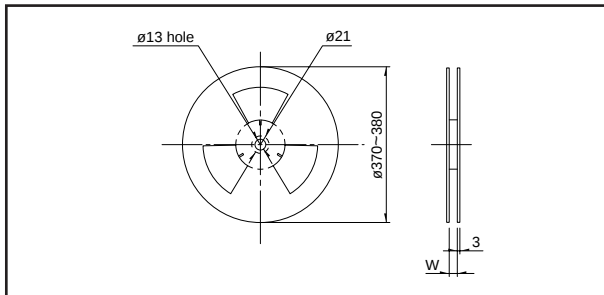
1. The condition mentioned above is the temperature on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the PC board's material, size, thickness, etc. The above-stated conditions shall also apply to switch surface temperatures.
2. As the conditions vary some how depending on the kind of reflow soldering equipment, please make sure you have the right one before use.

Taping Specifications

Taping Packaging

Reel Size

Unit : mm



Series			Number of packages (pcs.)			Reel width W (mm)	Tape width (mm)
			1 reel	1 case／domestic	1 case／export packing		
SPPB	53 (Horizontal)		1,500	3,000	6,000	24.4	24
	53 (Vertical)		600	1,200	2,400		
	63, 64		1,300	2,600	5,200		
SPVE	Standard	h=3.8	2,800	5,600	22,400	12.4	12
		h=4.1					
		h=4.8	2,200	4,400	17,600		
		h=5.2	2,000	4,000			
		h=5.5					
	Low-profile	h=3.3	2,800	5,600	22,400		
		h=4.75	2,000	4,000	16,000		
SPPW81	h = 6.1 (Reflow)		1,000	2,000	4,000	24.4	24
	h = 6.55 (Reflow)						
	h = 7.6 (Reflow)		850	1,700	3,400		
SPVM			3,000	6,000	12,000	16.4	16
SPVP			4,500	9,000	18,000		
SPVN			5,000	10,000	20,000		
SPVG			2,500	5,000	10,000		
SPVL			5,000	10,000	20,000		
SSCM			3,000	6,000	12,000		

Note

Order products in N minimum packing units (1 reel or 1 case).

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT