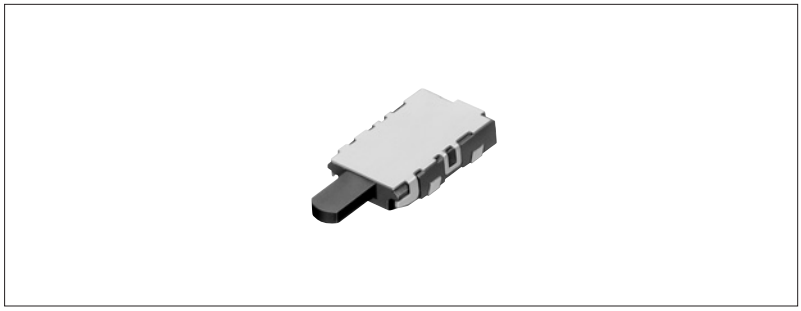
Low-profile One-way Detector Switch

SPVP Series

The 2.0mm long stroke made the thin 1.2mm profile possible.



Car Use

Features

- Low-profile:only 1.2mm from the print substrate's installation surface.
- Available for reflow soldering.
- The double-sided sliding contact provides high reliability.

Applications

- For detection mechanisms in electronic devices, including DSCs, audio players, and camcorders

Typical Specifications

Items		Specifications
Rating (max.) (Resistive load)		1mA 5V DC
Contact resistance (Initial performance / After lifetime)		5Ω max. / 10Ω max.
Operating force		0.55N max.
Operating life	Without load	50,000 cycles
	With load	50,000 cycles (1mA 5V DC)

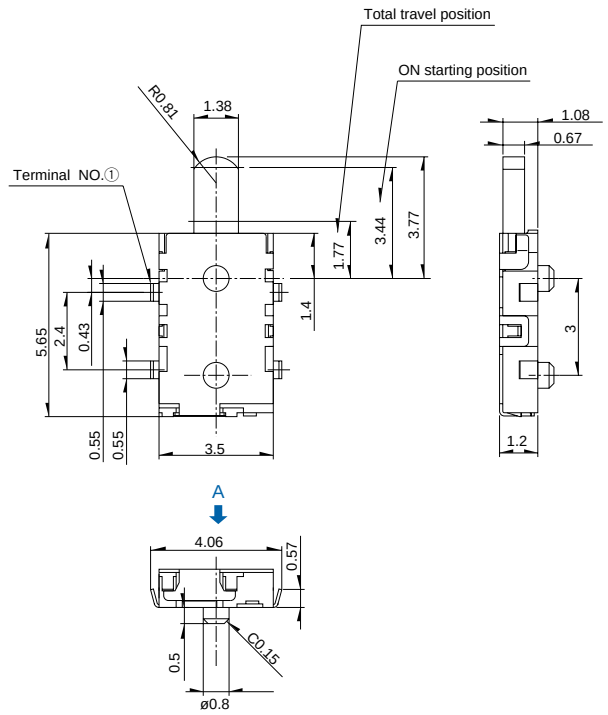
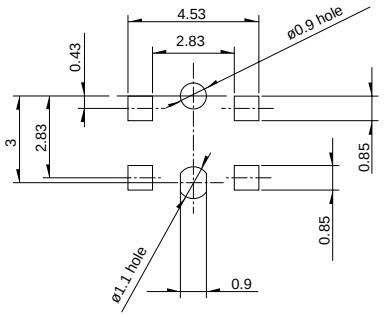
Products Line

Poles	Positions	Terminal style	Location lug	Minimum packing unit (pcs.)	Products No.
1	1	For PC board (Reflow)	With	4,500	SPVP110100
			Without		SPVP120100

For other detailed specifications, see **P.300**

Dimensions

Unit : mm

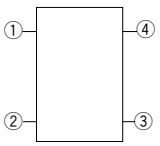
Style	PC board mounting hole dimensions (Viewed from direction A)
	

Note

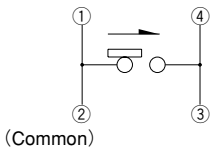
Dimensions show only the shape of the print terminal.

Terminal Layout (Viewed from direction A)

Unit : mm



Circuit Diagram



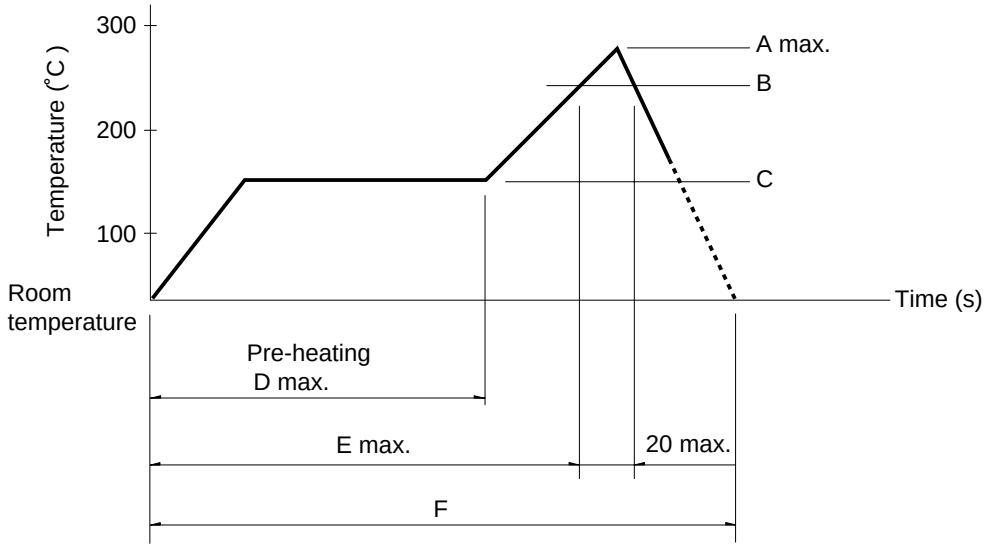
Products Specifications

Items \ Series			SPPB	SPVE	SPPW8	SPVM	SPVF	SSCU	SSCT	SPVP
Operating temperature range			−10℃ to +60℃							
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				—			Please see P.302
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 (℃) 3s max.	B (℃)	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						

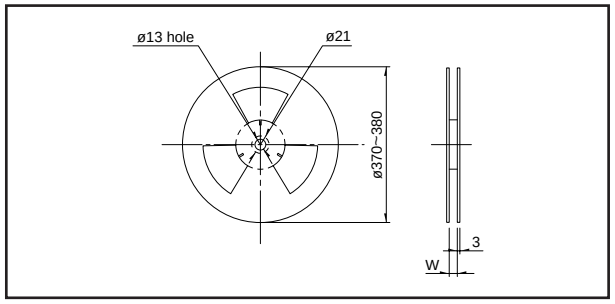
Notes

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	16,000		
		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).