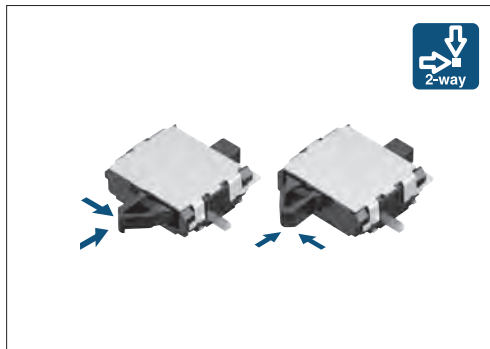


Surface mount type, two-way detection
with body thickness of 1.9mm



Typical Specifications



Items		Specifications
Rating (max.)/(min.) (Resistive load)		50mA 20V DC / 100μA 3V DC
Contact resistance (Initial / After operating life)		500mΩ max. / 1Ω max.
Operating force		0.4N max.
Operating life	Without load	100,000cycles
	With load	100,000cycles (50mA 20V DC)

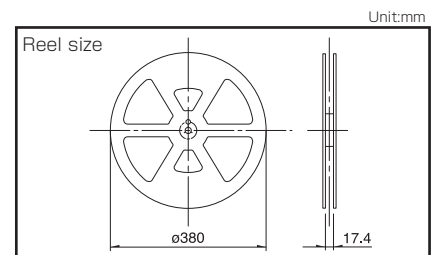
Product Line

Poles	Positions	Terminal type	Operating direction	Location lug	Side terminal	Minimum order unit (pcs)		Product No.	Drawing No.
						Japan	Export		
1	1	For PC board (Reflow)	Right	With	With both sides	2,500	10,000	SPVT110106	1
					With a right side			SPVT130102	2
					With a left side			SPVT120103	3
					Without			SPVT140104	4
				Without	With both sides			SPVT110202	1
					With a right side			SPVT130202	2
					With a left side			SPVT120202	3
					Without			SPVT210104	5
			Left	With	With both sides			SPVT230103	6
					With a right side			SPVT220103	7
					With a left side			SPVT240103	8
					Without			SPVT210202	5
				Without	With both sides			SPVT230202	6
					With a right side			SPVT220202	7
					With a left side				

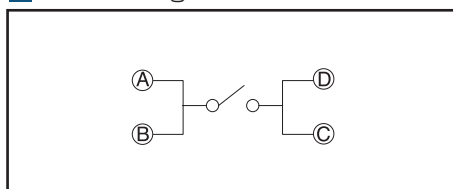
Packing Specifications

Taping

Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
1 reel	1 case /Japan	1 case /export packing		
2,500	5,000	10,000	16	417×409×139



Circuit Diagram



Unit:mm

4

Dimensions

Unit:mm

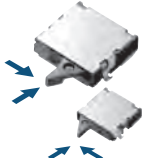
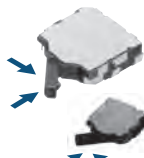
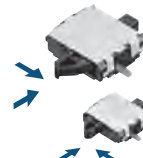
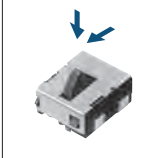
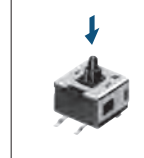
No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)
5	With boss On starting position (horizontal direction), operating force measurement position On starting position (vertical direction) On Starting position (horizontal direction) 0.26 0.1 2.06 2.8 1.51 1.2 4.7 6.5 1.3 3.5 5.6 7.45 Center of rotation Total travel 5.2 3.2 (2.94) 2.3 1.05 1 1.9 1.7 1.2 0.5 2.5 Ø1 A	Ø1.1hole Ø1.3hole 2.5 9 5.6 1.6 1.3 2.5 6.1 1.1
6	With boss On starting position (horizontal direction), operating force measurement position On starting position (vertical direction) On Starting position (horizontal direction) 0.26 0.1 0.6 2.8 1.51 1.2 4.7 6.5 1.3 3.5 5.6 3.73 Center of rotation Total travel 5.2 3.2 (2.94) 2.3 1.05 1 1.9 1.7 1.2 0.5 2.5 Ø1 A	Ø1.1hole Ø1.3hole 2.5 4.5 2.8 1.6 1.2 2.5 6 1.1 6.1
7	With boss On starting position (horizontal direction), operating force measurement position On starting position (vertical direction) On Starting position (horizontal direction) 0.26 0.1 0.6 2.8 1.51 1.2 4.7 6.5 1.3 3.5 5.6 3.73 Center of rotation Total travel 5.2 3.2 (2.94) 2.3 1.05 1 1.9 1.7 1.2 0.5 2.5 Ø1 A	Ø1.1hole Ø1.3hole 2.5 1.6 4.5 2.8 1.2 2.5 6 1.1 6.1
8	With boss On starting position (horizontal direction), operating force measurement position On starting position (vertical direction) On Starting position (horizontal direction) 0.26 0.1 2.8 1.51 1.2 4.7 6.5 1.3 3.5 5.6 Center of rotation Total travel 5.2 3.2 (2.94) 2.3 1.05 1 1.9 1.7 1.2 0.5 2.5 Ø1 A	Ø1.1hole Ø1.3hole 2.5 6 2.5 1.1 6.1

Note

Dimensions drawing is for type with location lugs.

Detector Switches

List of Varieties

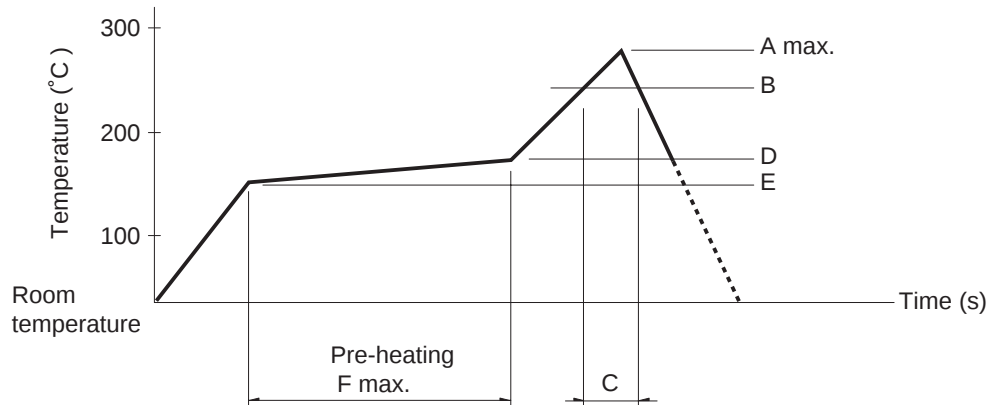
Series		General-purpose Type					
		SPVS	SPVN	SPVT	SPVM	SPVR	SPVE
Photo							
Operation type		Two-way					One-way
Dimensions (mm)	W	3.5	3.8	5.6	2.8	3.6	3.4
	D	3.3	3.6	4.7	3.5	4.2	3
	H	1		1.9	1.5	1.2	2.3
Operating temperature range		-40°C to +85°C					-10°C to +60°C
Automotive use		●	●	●	●	●	—
Life cycle (availability)							
Poles / Positions		1/1					
Rating (max.) (Resistive load)		1mA 5V DC		50mA 20V DC	1mA 5V DC		0.1A 30V DC
Rating (min.) (Resistive load)		50μA 3V DC		100μA 3V DC	50μA 3V DC	100μA 3V DC	50μA 3V DC
Durability	Operating life without load	50,000cycles 5Ω max.		100,000cycles 1Ω max.	50,000cycles 5Ω max.		50,000cycles 1Ω max.
	Operating life with load Rating (max.) (Resistive load)	50,000cycles 5Ω max.		100,000cycles 1Ω max.	50,000cycles 5Ω max.		50,000cycles 1Ω max.
Electrical performance	Initial contact resistance	2Ω max.		500mΩ max.	2Ω max.	3Ω max.	500mΩ max.
	Insulation resistance	100MΩ min. 100V DC					
	Voltage proof	100V AC for 1 minute					
Mechanical performance	Terminal strength	0.5N for 1minute			1N for 1minute	0.5N for 1minute	
	Actuator strength	5N		10N	5N	2N	5N
Environmental performance	Cold	-40°C 96h					-20°C 96h
	Dry heat	85°C 96h					
	Damp heat	40°C, 90 to 95%RH 96h					
Operation force		0.35N max.		0.4N max.		0.35N max.	0.3N max.
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Note
 ● Indicates applicability to all products in the series.

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple $\phi 0.1$ 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



Series (Reflow type)	A (°C) 3s max.	B (°C)	C (s)	D (°C)	E (°C)	F (s)
SPPB	250	230	40	180	150	120
SPVE	260					
SPVL						
SPVM						
SPVN						
SPVR						
SPVS						
SPVT						
SSCM						
SSCQ						
SPVQC	250					

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.

Reference for Hand Soldering

Series	Soldering temperature	Soldering time
SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVQC	350±5°C	3s max.
SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	300±10°C	3 + 1 / 0s
SPPB (Reflow)	300±5°C	5s max.
SSCF, SPPB (For Lead, Dip)	350±10°C	3 + 1 / 0s

Reference for Dip Soldering

(For PC board terminal types)

Series	Items		Dip soldering	
	Preheating temperature	Preheating time	Soldering temperature	Duration of immersion
SSCT, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA	100±10°C	60s max.	260±5°C	5±1s
SPPW8, SPPB	100 °C max.	60s max.	255±5°C	5±1s
SSCF	—	—	260±5°C	5±1s

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[SPVT230201](#) [SPVT220102](#) [SPVT140101](#) [SPVT130101](#) [SPVT210201](#) [SPVT130201](#)