

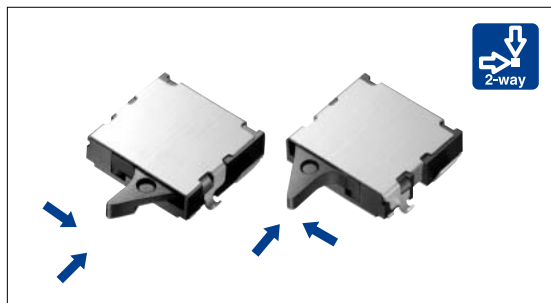
Detector Switch

Compact Two-way Operation Type

SPVS Series



A circuit variation of Normal Open and Normal Close.



Typical Specifications

Items	Specifications
Rating(max.)(min.) (Resistive load)	1mA 5V DC/50 μ A 3V DC
Operating force	0.35N max.
Total travel	1.55mm
Operating life	50,000cycles

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

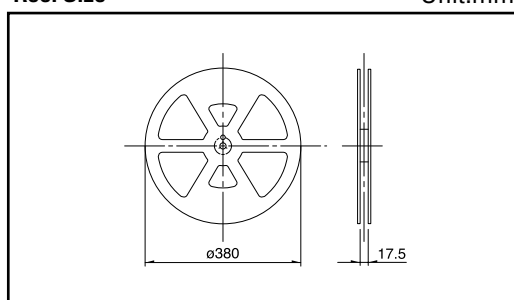
Product Line

Poles	Positions	Terminal type	Lever shape	Operating direction	Circuit	Location lug	Minimum order unit(pcs)	Product No.	Drawing No.
1	1	For PC board (Reflow)	Standard	Right	N/O	With	20,000	SPVS310100	1
						Without		SPVS310200	
				Left	N/C	With		SPVS320100	2
						Without		SPVS320200	
			Long	Right	N/O	With		SPVS410100	3
						Without		SPVS410200	
				Left	N/C	With		SPVS420100	4
						Without		SPVS420200	
				Right	N/C	With		SPVS360100	5
						Without		SPVS360200	

Taping Packaging

Reel Size

Unit:mm



Number of packages(pcs.)			Tape width (mm)
1 reel	1 case / Japan	1 case / export packing	
5,000	10,000	20,000	16

Note

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

Dimensions

Unit:mm

No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)
1	Right operation type 	

Dimensions

Unit:mm

No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)
2	Right operation type 	
3	Left operation type 	
4	Left operation type 	
5	Right operation type 	

Note

Above dimensions indicate "with location lug" versions.

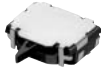
Circuit Diagram

Control direction	Push ON (N/O)	Push OFF (N/C)
Right	Drawing No.1 	Drawing No.2,5
Left	Drawing No.3 	Drawing No.4

Terminal Layout (Viewed from Direction A)

Control direction	Push ON (N/O) Push OFF (N/C)
Right	Drawing No.1,2,5 (COMMON)
Left	Drawing No.3,4 (COMMON)

List of Varieties (General-purpose Type)

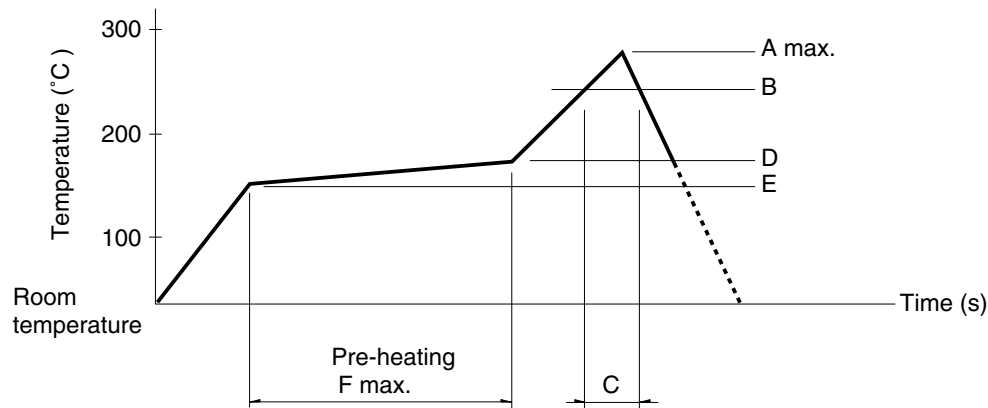
Series		General-purpose Type							
		SSCF	SSCM	SPVP	SPVC1	SPVN	SPVS	SPVG	SPVL
Photo									
Operation type		 2-way	 2-way	 1-way	 1-way	 2-way	 2-way	 2-way	 3-way
Operating temperature range		-40 to +85	-10 to +60	-40 to +85					
Rating (max.) (Resistive load)		0.1A 12V DC	1mA 5V DC		10mA 16V DC	1mA 5V DC		50mA 20V DC	1mA 5V 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	100mΩ max.	2Ω max.	5Ω max.	1Ω max.	2Ω max.		500mΩ max.	2Ω max.
	Insulation resistance	100MΩ min. 100V DC							
	Voltage proof	100V AC for 1 minute							
Mechanical performance	Terminal strength	5N for 1 minute	0.5N for 1 minute		3N for 1 minute	0.5N for 1 minute		1N for 1 minute	
	Actuator strength	10N	0.5N	5N	10N	5N		10N	5N
Durability	Operating life without Load	50,000cycles 200mΩ max.	50,000cycles 5Ω max.	50,000cycles 10Ω max.	25,000cycles 2Ω max.	50,000cycles 5Ω max.		100,000cycles 1Ω max.	50,000cycles 5Ω max.
	Operating life with Load	(0.1A 12V DC) 50,000cycles 300mΩ max.	(1mA 5V DC) 50,000cycles 5Ω max.	(1mA 5V DC) 50,000cycles 10Ω max.	(10mA 16V DC) 25,000cycles 2Ω max.	(1mA 5V DC) 50,000cycles 5Ω max.		(50mA 20V DC) 100,000cycles 1Ω max.	(1mA 5V DC) 50,000cycles 5Ω 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	11	5	3.5	6.3	3.8	3.5	5.5
		D	5.8	4	5.65	7.4	3.6	3.3	6.5
		H	12.4	1.5	1.2	2.8	1		2
Soldering	Manual soldering	350 ± 10 , 3 ⁺¹ ₋₀ s	350 ± 5 , 3s max.		350 ± 10 , 3 ⁺¹ ₋₀ s	350 ± 5 , 3s max.			
	Dip soldering	260 ± 5 , 5 ± 1s	—		260 ± 5 , 3s max.	—			
	Reflow soldering	—	Please see P.79		—	Please see P.79			
Number of poles		1							
Operation force		0.7N max.	0.35N max.	0.55N max.	0.85N max.	0.35N max.		0.4N max.	0.35N max.
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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 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



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	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, 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.