

Detector Switch Compact Two-way Operation Type

SPVS Series



A circuit variation of Normal Open and Normal Close.

Detector

Push

Slide

Rotary

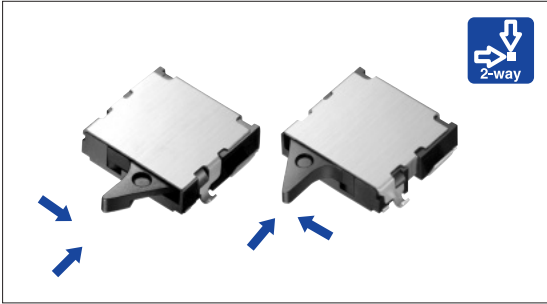
Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products



Typical Specifications

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

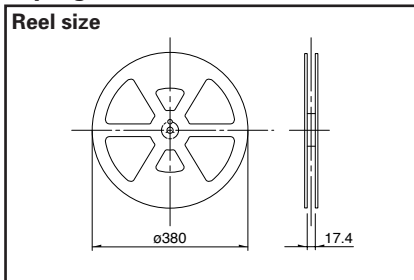
Product Line

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		
					N/C	With		SPVS320100	2	
						Without		SPVS320200		
				Left	N/O	With		20,000	SPVS410100	3
						Without			SPVS410200	
					N/C	With			SPVS420100	4
						Without			SPVS420200	
Right	N/C	With	20,000	SPVS360100	5					
		Without		SPVS360200						

Packing Specifications

Taping

Unit:mm



Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
1 reel	1 case/Japan	1 case/export packing		
5,000	10,000	20,000	16	417 × 409 × 139

Note

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

Dimensions

Unit:mm

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



Automotive
Use

Dimensions

Unit:mm

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

Note

Above dimensions indicate "with location lug" versions.

Circuit Diagram

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















Terminal Layout (Viewed from Direction A)

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

- Detector
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List of Varieties (General-purpose Type)

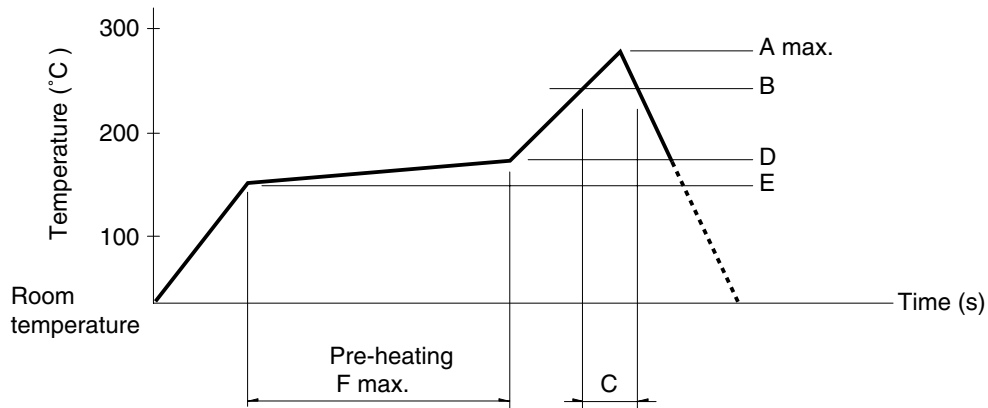
Series	General-purpose Type							
	SSCT	SSCF	SSCM	SPVP	SPVC1	SPVN	SPVS	
Detector Photo								
Push								
Slide								
Rotary								
Encoders								
Power								
Dual-in-line Package Type								
TACT Switch™								
Custom-Products								
Operation type								
Operating temperature range	-40°C to +85°C		-10°C to +60°C		-40°C to +85°C			
Automotive use	●	●	—	●	●	●	●	
Rating (max.) (Resistive load)	0.1A 12V DC		1mA 5V DC		10mA 16V DC	1mA 5V DC		
Rating (min.) (Resistive load)	50μA 3V DC			100μA 3V DC	50μA 3V DC			
Electrical performance	Initial contact resistance	200mΩ max.	100mΩ max.	2Ω max.	5Ω max.	1Ω max.	2Ω max.	
	Insulation resistance	100MΩ min. 250V DC	100MΩ min. 100V DC					
	Voltage proof	250V AC for 1 minute	100V AC for 1 minute					
Mechanical performance	Terminal strength	3N for 1 minute	5N for 1 minute	0.5N for 1 minute		3N for 1 minute	0.5N for 1 minute	
	Actuator strength	20N	10N	2N	5N	10N	5N	
Durability	Operating life without Load	10,000cycles 500mΩ max.	50,000cycles 200mΩ max.	50,000cycles 5Ω max.	50,000cycles 10Ω max.	25,000cycles 2Ω max.	50,000cycles 5Ω max.	
	Operating life with Load	(0.1A 12V DC) 10,000cycles 500mΩ max.	(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.	
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	60±2°C, 90 to 95%RH for 96h	40±2°C, 90 to 95%RH for 96h	60±2°C, 90 to 95%RH for 500h			
Dimensions (mm)	W	12.5	11	5	3.5	6.3	3.8	3.5
	D	5	5.8	4	5.65	7.4	3.6	3.3
	H	11.5	12.4	1.5	1.2	2.8	1	
Soldering	Manual soldering	350±5°C, 3s max.	350±10°C, 3 ⁺¹ ₀ s	350±5°C, 3s max.		350 ⁺¹⁰ ₋₅ °C, 3 ⁺¹ ₀ s	350±5°C, 3s max.	
	Dip soldering	260±5°C, 5±1s		—		260±5°C, 3s max.	—	
	Reflow soldering	—		Please see P.102		—	Please see P.102	
Number of poles	1							
Operation force	0.7±0.3N	0.7N max.	0.35N max.	0.55N max.	0.85N max.	0.35N max.		
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- Detector Switches Cautions103

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



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Series (Reflow type)	A (°C) 3s max.	B (°C)	C (s)	D (°C)	E (°C)	F (s)
SPPB	250	230	40	180	150	120
SPPW8		200	20			
SPVE	260	230	40			
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, 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.