

Detector Switch 50mA 48V DC Qualified Surface Mounting Type Telephone-hook

SPPY5 Series



A surface mount type detector switch with 7.15mm height contribute to thinner set design.



Typical Specifications

Items		Specifications
Rating (max.) / (min.) (Resistive load)		50mA 48V DC/0.1mA 3V DC
Contact resistance (Initial /After operating life)		100mΩ max./1Ω max.
Operating force		0.8N max.
Operating life	Without load	300,000cycles
	Rating (min.)	300,000cycles
	Rating (max.)	100,000cycles

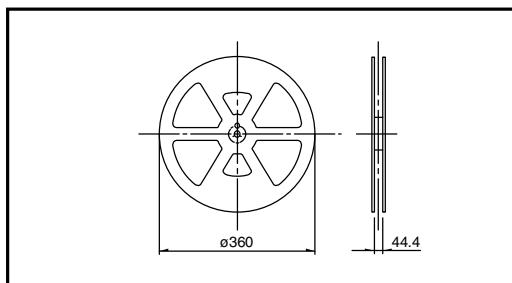
Product Line

Poles	Positions	Operation	Minimum order unit (pcs)	Product No.	Drawing No.
2	2	Normal-operation	3,300	SPPY520100	1
		Reverse-operation		SPPY520200	2

Taping Specifications (Taping Packaging)

Reel Size

Unit:mm



Number of packages (pcs.)			Tape width (mm)
1 reel	1 case /Japan	1 case /export packing	
550	1,650	3,300	44

Note

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

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line Package Type

TACT Switch™

Custom-Products

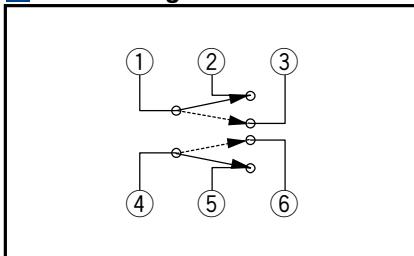
Dimensions

Unit:mm

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No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)												
1	Normal-operation	<p>Timing lag diagram</p> <table border="1"> <tr> <td>(1) (2)</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>(1) (3)</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>(4) (5)</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>(4) (6)</td> <td>OFF</td> <td>ON</td> </tr> </table> <p>5.95 max. 2.35 min.</p> <p>Travel position (X)</p>	(1) (2)	ON	OFF	(1) (3)	OFF	ON	(4) (5)	ON	OFF	(4) (6)	OFF	ON
(1) (2)	ON	OFF												
(1) (3)	OFF	ON												
(4) (5)	ON	OFF												
(4) (6)	OFF	ON												
2	Reverse-operation	<p>Timing lag diagram</p> <table border="1"> <tr> <td>(1) (2)</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>(1) (3)</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>(4) (5)</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>(4) (6)</td> <td>OFF</td> <td>ON</td> </tr> </table> <p>0.9 min. 7.7 max.</p> <p>Travel position (X)</p>	(1) (2)	ON	OFF	(1) (3)	OFF	ON	(4) (5)	ON	OFF	(4) (6)	OFF	ON
(1) (2)	ON	OFF												
(1) (3)	OFF	ON												
(4) (5)	ON	OFF												
(4) (6)	OFF	ON												

Circuit Diagram (Viewed from Direction A)



List of Varieties (General-purpose Type / Water-proof Type / Telephone-hook Type)

Series	General-purpose Type		Water-proof Type					Telephone-hook Type					
	SSCW	SPVQ5	SPVQ1	SPVQ3	SPVQ4	SPVQ6	SSCN	SPPY5					
Photo													
Operation type			 2-way	 2-way	 2-way								
Operating temperature range	-40°C to +85°C							-10°C to +60°C					
Rating (max.) (Resistive load)	0.1A 20V DC	0.1A 12V DC					0.1mA 3V DC min. 50mA 48V DC max.						
Rating (min.) (Resistive load)	100μA 3V DC	50μA 3V DC	50μA 3V DC or 1mA 5V DC	50μA 3V DC	50μA 5V DC	100μA 3V DC	0.1mA 3V DC						
Electrical performance	Initial contact resistance	500mΩ max.											
	Insulation resistance	100MΩ min. 250V DC	100MΩ min. 500V DC										
	Voltage proof	250V AC for 1 minute	500V AC for 1 minute										
Mechanical performance	Terminal strength	<hr/>		3N for 1 minute					5N for 1 minute				
	Actuator strength	20N					10N	5N					
Durability	Operating life without Load	100,000cycles 1Ω max.	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 1Ω max.	100,000cycles 1Ω max.	300,000cycles 1Ω max.						
	Operating life with Load	(0.1mA 12V DC) 100,000cycles 1Ω max.	(0.1A 12V DC) 300,000cycles 1Ω max.	(0.1A 12V DC) 300,000cycles or 1,200,000 1Ω max.	(0.1A 12V DC) 300,000cycles 1Ω max.	(0.1A 12V DC) 100,000cycles 1Ω max.	(1mA 3V DC) 300,000cycles 1Ω max. or (50mA 60V DC) 100,000cycles 1Ω max.						
Environmental performance	Cold	-40±2°C for 500h							-20±2°C for 96h				
	Dry heat	85±2°C for 500h							85±2°C for 96h				
	Damp heat	60±2°C, 90 to 95%RH for 500h							40±2°C, 90 to 95%RH for 96h				
Dimensions (mm)	W	13.1	13.8	13.3	13	14.7	13.3	13	14.4				
	D	11.35		5.8	5.4	5.3	25	28.6					
	H	5.3	5.8	8	8.35	7.6	7	5	7.15				
Soldering	Manual soldering	<hr/>		300±10°C, 3 ^{±1} s					350±5°C, 3s max.				
	Dip soldering	<hr/>		260±5°C, 5±1s					<hr/>				
	Reflow soldering	<hr/>							Please see P.79				
Number of poles		1							2				
Operation force		1N max.	2N max.	2N max. 5.9N max.	1±0.5N	1±0.3N	1±0.5N	2N max.	0.8N max.				
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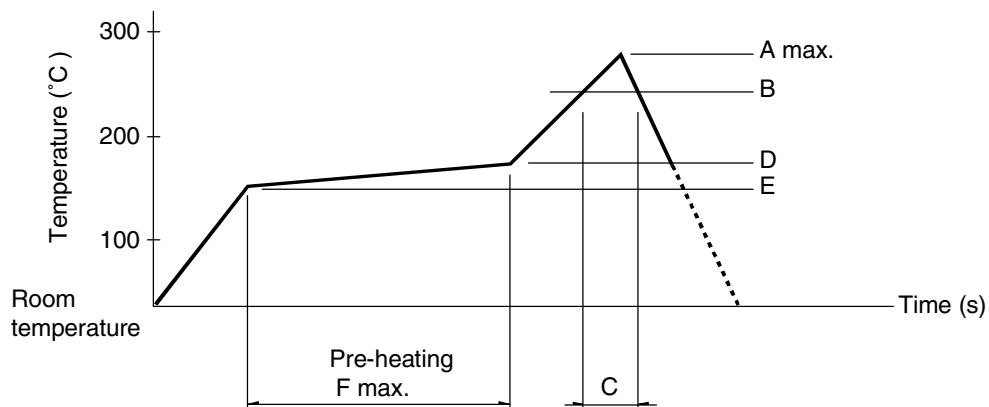
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Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2φ 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			
SPPW8		200	20			
SPVE						
SPVG						
SPVL						
SPVM				180	150	120
SPVN	260	230	40			
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.