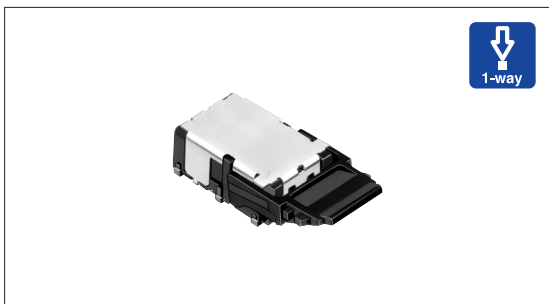


# Detector Switch 50mA 48V DC Qualified Surface Mounting Type Telephone-hook SPPY5 Series



Surface mount type detector switch with 7.15mm height contributes to thinner set design.

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products



## Typical Specifications

Items		Specifications
Rating (max.) / (min.) (Resistive load)		50mA 48V DC/100 $\mu$ A 3V DC
Contact resistance (Initial / After operating life)		100m $\Omega$ max./1 $\Omega$ max.
Operating force		0.8N max.
Operating life	Without load	300,000cycles
	Rating (min.)	300,000cycles
	Rating (max.)	100,000cycles

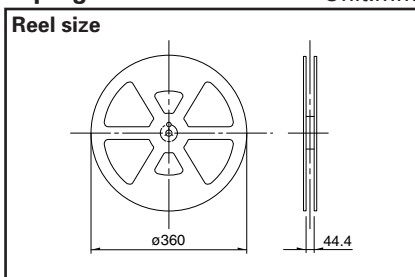
## Product Line

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

## 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		
550	1,650	3,300	44	395 × 395 × 352

### Note

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

Refer to P.97 for soldering conditions.

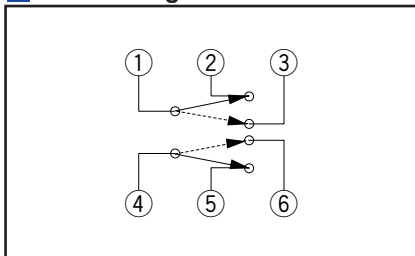
Detector  
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**Dimensions**




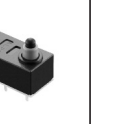
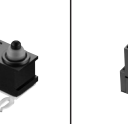
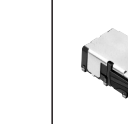








Unit:mm

No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)												
1	<p><b>Normal-operation</b></p>	<p><b>Timing lag diagram</b></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	<p><b>Reverse-operation</b></p>	<p><b>Timing lag diagram</b></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 ( Water-proof Type / Telephone-hook Type)

Series	Water-proof Type						Telephone-hook Type	
	SPVQ6	SPVQ7	SPVQ8	SPVQ9	SPVQA	SSCN	SPPY5	
Photo								
Operation type								
Operating temperature range	-40°C to +85°C						-10°C to +60°C	
Automotive use	●	●	●	●	●	●	—	
Rating (max.) (Resistive load)	0.1A 12V DC			50mA 26V DC	0.1A 12V DC		50mA 48V DC max.	
Rating (min.) (Resistive load)	50μA 5V DC					100μA 5V DC	100μA 3V DC	
Electrical performance	Initial contact resistance	500mΩ max.			75mΩ	500mΩ max.		100mΩ max.
	Insulation resistance	100MΩ min. 500V DC						
	Voltage proof	500V AC for 1 minute						
Mechanical performance	Terminal strength	3N for 1 minute					5N for 1 minute	
	Actuator strength	20N				10N	5N	
Durability	Operating life without Load	300,000cycles 1Ω max.			300,000cycles 200mΩ max.	300,000cycles 1Ω max.	100,000cycles 1Ω max.	300,000cycles 1Ω max.
	Operating life with Load	(0.1A 12V DC) 300,000cycles 1Ω max.			(50mA 26V DC) 300,000cycles 200mΩ max.	(0.1A 12V DC) 300,000cycles 1Ω max.	(0.1A 12V DC) 100,000cycles 1Ω max.	(50mA 48V DC) 100,000cycles (100BA 3V DC) 300,000cycles
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	13.3	14.7	8.3	15.4	15.2	13	14.4
	D	5.3	5.4	5.3	8.4	6.4	5	28.6
	H	7	6.7	6.5	7.5	7.95	25	7.15
Soldering	Manual soldering	300±10°C, 3 <sup>+1</sup> s				—	300±10°C, 3 <sup>+1</sup> s	350±5°C, 3s max.
	Dip soldering	260±5°C, 5±1s						
	Reflow soldering	—						Please see P.97
Number of poles	1			2	1		2	
Operation force	1±0.5N 3N max.	1±0.5N				2N max.	0.8N max.	
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Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

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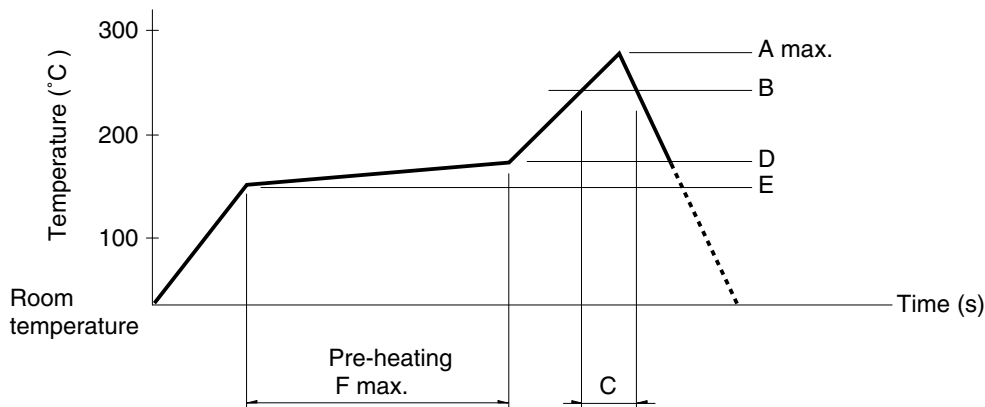
**Note**

●marks in "Available for automotive use" indicate that all of the series products can work at the operating temperature range from -40°C to +85°C.

## 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  $\phi$  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			
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, 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.

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