

Typical Specifications

Items		Specifications	
Rating (max.) / (min.) (Resistive load)		0.1A 12V DC / 50 $\mu$ A 3V DC	
Contact resistance (Initial / After operating life)		500m $\Omega$ max. / 1 $\Omega$ max.	
Operating force		Push type	Actuator type
		2N max.	5.9N max.
Operating life	Without load	300,000cycles	
	With load	300,000cycles (0.1A 12V DC)	

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Product Line

Poles	Positions	Changeover timing	Operating part shape	Terminal type	Main body form	Minimum order unit (pcs)		Product No.	Drawing No.			
						Japan	Export					
1	2	Non shorting	Push	For PC board	Normal	600	2,400	SPVQ140100	1			
					Boss - right side			SPVQ140200	5			
					Boss - left side			SPVQ140300	6			
					Boss - both sides			SPVQ140400	7			
			Actuator A		Normal			SPVQ130200	1			
					Boss - right side			SPVQ130400	5			
					Boss - left side			SPVQ130500	6			
					Boss - both sides			SPVQ130600	7			
			Actuator B		Normal			SPVQ130300	1			
					Boss - right side			SPVQ130700	5			
					Boss - left side			SPVQ130800	6			
					Boss - both sides			SPVQ130900	7			
			Push		With wire			With a screw hole	180	720	SPVQ120500※	2
								Boss - right side	100	400	SPVQ120600※	8
								Boss - left side			SPVQ120700※	9
								Boss - both sides			SPVQ120800※	10
Actuator A	With wire	With a screw hole	180	720	SPVQ111200※	3						
		With a screw hole			SPVQ111700※	4						

Packing Specifications

Bulk

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SPVQ130200, SPVQ130300, SPVQ130400, SPVQ130500, SPVQ130600, SPVQ130700, SPVQ130800, SPVQ130900, SPVQ140100, SPVQ140200, SPVQ140300, SPVQ140400	600	2,400	540 × 360 × 230
SPVQ111200, SPVQ111700, SPVQ120500	180	720	555 × 375 × 223
SPVQ120600, SPVQ120700, SPVQ120800	100	400	540 × 360 × 230

Notes

- ※ Products with a wire will be supplied as follows.
  - The length of lead wire is 250mm. For length modification, please contact us.
  - Product with wire will be build-to-order.
- This unit cannot be used in water(IP67 rating, except for terminal).

Dimensions

Unit:mm

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

No.	Style	Actuator configuration
1		<p><b>Push</b></p> <p><b>Actuator A</b></p> <p><b>Actuator B</b></p>
2		
3		

Dimensions

Unit:mm

No.	Style	
4		
5		<p><b>Actuator configuration</b></p> <p><b>Push</b></p>
6		<p><b>Actuator A</b></p>
7		<p><b>Actuator B</b></p>

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Dimensions

Unit:mm

Detector

Slide

Push

Rotary

Encoders

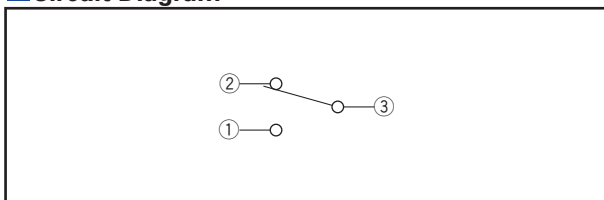
Power

Dual-in-line  
Package Type

TACT Switch™

No.	Style	Actuator configuration
8		
9		
10		

Circuit Diagram



# Detector Switches

## List of Varieties (Water-proof Type)

Series	Water-proof Type											
	SPVQ1	SPVQ3	SPVQ4H	SPVQ6	SPVQ7	SPVQ8	SPVQ9	SPVQA	SPVQC	SSCN		
<b>Detector</b>												
<b>Slide</b>												
<b>Push</b>												
<b>Rotary</b>												
<b>Encoders</b>												
<b>Power</b>												
<b>Dual-in-line Package Type</b>												
<b>TACT Switch™</b>												
<b>Operation type</b>	One-way Two-way	Two-way		One-way Two-way	Two-way							
<b>Dimensions (mm)</b>	<b>W</b>	13.3	13	19	13.3	14.7	8.3	15.4	15.2	15.4	13	
	<b>D</b>	5.8		6	5.3	5.4	5.3	8.4	6.4	7.4	5	
	<b>H</b>	8	8.35	11.9	7	6.7	6.5	7.5	7.95	7.5	15	
<b>Operating temperature range</b>	- 40°C to + 85°C											
<b>Automotive use</b>	●	●	●	●	●	●	●	●	●	●	●	
<b>Life cycle (availability)</b>												
<b>Poles / Positions</b>	1 / 2	1 / 1 1 / 2		1 / 2	1 / 1 1 / 2	1 / 1	2 / 2	1 / 1 1 / 2	2 / 2	1 / 2		
<b>Rating (max.) (Resistive load)</b>	0.1A 12V DC	0.1A 12V DC or 0.3A 16V DC	0.1A 12V DC				50mA 26V DC	0.1A 12V DC	50mA 18V DC	0.1A 12V DC		
<b>Rating (min.) (Resistive load)</b>	50μA 3V DC	50μA 5V DC or 1mA 5V DC	1mA 5V DC	50μA 5V DC						100μA 5V DC		
<b>Durability</b>	<b>Operating life without Load</b>	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 1Ω max.			300,000cycles or 1,000,000cycles 1Ω max.	300,000cycles 200mΩ max.	300,000cycles 1Ω max.	300,000cycles 200mΩ max.	100,000cycles 1Ω max.	
	<b>Operating life with Load Rating (max.) (Resistive load)</b>	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 1Ω max.			300,000cycles or 1,000,000cycles 1Ω max.	300,000cycles 200mΩ max.	300,000cycles 1Ω max.	300,000cycles 200mΩ max.	100,000cycles 1Ω max.	
<b>Electrical performance</b>	<b>Initial contact resistance</b>	500mΩ max.						75mΩ	500mΩ max.	75mΩ max.	500mΩ max.	
	<b>Insulation resistance</b>	100MΩ min. 500V DC										
	<b>Voltage proof</b>	500V AC for 1minute								250V AC for 1minute	500V AC for 1minute	
<b>Mechanical performance</b>	<b>Terminal strength</b>	3N for 1minute(products with terminal) Wire strength 30N for 1minute (Applicable to product with wire)	Wire strengt 30N for 1 minute	3N for 1minute								
	<b>Actuator strength</b>	20N									10N	
<b>Environmental performance</b>	<b>Cold</b>	-40±2°C for 500h										
	<b>Dry heat</b>	85 ± 2°C for 500h										
	<b>Damp heat</b>	60 ± 2°C , 90 ~ 95% RH for 500h										
<b>Operation force</b>	2N max. 5.9N max.	1 ± 0.5N 3N max.	3N max.	1 ± 0.5N 3N max.	1 ± 0.5N					2N max.		
<b>Page</b>	43	47	52	53	55	57	61	62	64	65		

- Detector Switches Soldering Conditions . . . . . 66
- Detector Switches Cautions . . . . . 67

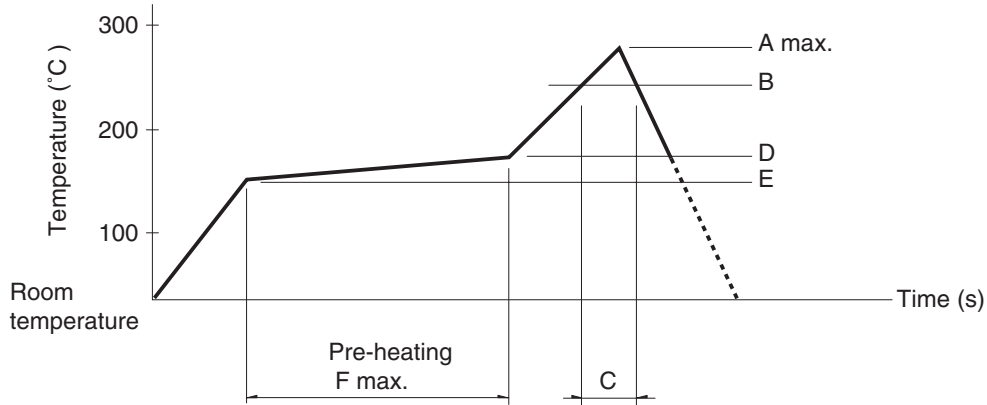
### Note

● indicates applicability to all products in the series.

# Detector Switches 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



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			35						
SPVE	260		40				180	150	120
SPVL									
SPVM									
SPVN									
SPVP									
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, SPVP, SPVT, SPVM, SPVR, SPVE, SPPW8, SSCQ, SSCM, SPVL, SSCT, SPVQC	350 ± 5°C	3s max.
SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	300 ± 10°C	3 + 1 / 0s
SPPB	350 ± 5°C	5s max.
SSCF	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, SPVQ1, 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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[SPVQ130700](#) [SPVQ130800](#) [SPVQ130900](#) [SPVQ120500](#) [SPVQ120600](#) [SPVQ120700](#) [SPVQ120800](#) [SPVQ111200](#)  
[SPVQ111700](#)