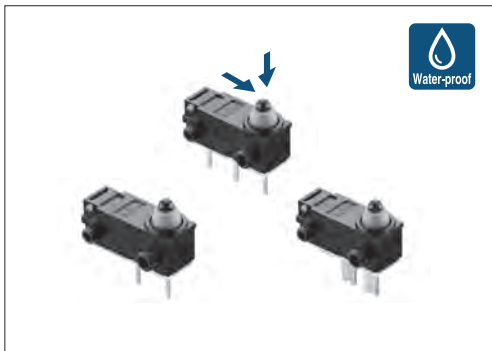


# SPVQ7 Water-proof Type

Slim type with body height of 6.7mm



## Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 12V DC / 50μA 5V DC
Contact resistance (Initial/After operating life)		500mΩ max. / 1Ω max.
Operating force		1±0.5N
Operating life	Without load	300,000cycles
	With load	300,000cycles (0.1A 12V DC)

## Product Line

Poles	Positions	Change over 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	Boss - left side	1,350	5,400	<b>SPVQ710103</b>	1		
					Boss - right side			<b>SPVQ710203</b>	2		
					Boss - left side			<b>SPVQ710304</b>	3		
					Boss - right side			<b>SPVQ710404</b>	4		
	1				2			For Lead	Boss - left side	<b>SPVQ740303</b>	5
									Boss - right side	<b>SPVQ740403</b>	6
									Boss - left side	<b>SPVQ740103</b>	7
									Boss - right side	<b>SPVQ740203</b>	8

### Note

This unit cannot be used in water (IP67 rating, except for terminal).

## Packing Specifications

Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
1,350	5,400	540×360×270

## Dimensions

No.	Style	No.	Style
1	<p>Terminal No.①-② ON starting position Terminal No.①-③ OFF starting position Free position</p> <p>The top of the plunger (Measurement position)</p> <p>Limit total travel position</p> <p>Terminal No.③ 2.27 5.08 5.08 14.7 Terminal No.② 12.13 9.53 3.1 Terminal No.① 14.7</p>	2	<p>Terminal No.①-② ON starting position Terminal No.①-③ OFF starting position Free position</p> <p>The top of the plunger (Measurement position)</p> <p>Limit total travel position</p> <p>Terminal No.① 14.7 5.08 5.08 2.27 Terminal No.② 12.13 9.53 3.1 Terminal No.③ 14.7</p>

# SPVQ7 Water-proof Type

Detector

Slide

Push

Rotary

Power

Dual-in-line  
Package Type

General-  
purpose Type

Water-proof  
Type

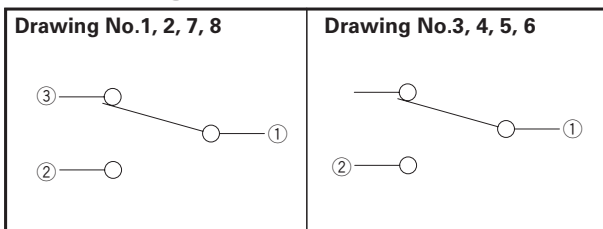
Fast Switching  
Type

## Dimensions

Unit:mm

No.	Style	No.	Style
3		6	
4		7	
5		8	

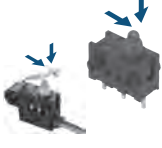
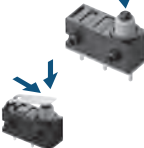








## Circuit Diagram



# Detector Switches

## List of Varieties

Detector
Slide
Push
Rotary
Power
Dual-in-line Package Type
General-purpose Type
Water-proof Type
Fast Switching Type

Series		Water-proof Type				
		SPVQ3	SPVQ6	SPVQ7	SPVQ8	SPVQ8H
Photo						
Operation type		Two-way	One-way Two-way	Two-way		
Dimensions (mm)	W	13	13.3	14.7	8.3	14.8 17.95
	D	5.8	5.3	5.4	5.3	6.45
	H	8.35	7	6.7	6.5	14.5
Operating temperature range		-40°C to +85°C				
Automotive use		●	●	●	●	●
Life cycle (availability)						
Poles / Positions		1/1 1/2	1/2	1/1 1/2	1/1	
Rating (max.) (Resistive load)		0.1A 12V DC				
Rating (min.) (Resistive load)		50μA 5V DC				
Durability	Operating life without load	300,000cycles 1Ω max.			300,000cycles 1Ω max. or 1,000,000cycles 3Ω max.	100,000cycles 1Ω max.
	Operating life with load Rating (max.) (Resistive load)	300,000cycles 1Ω max.			300,000cycles 1Ω max. or 1,000,000cycles 3Ω max.	100,000cycles 1Ω max.
Electrical performance	Initial contact resistance	500mΩ max.				
	Insulation resistance	100MΩ min. 500V DC				
	Voltage proof	500V AC for 1minute				
Mechanical performance	Terminal strength	3N for 1minute (with terminal) Wire strength 30N for 1minute (with wire)	3N for 1minute		3N for 1minute (with terminal) Wire strength 30N for 1minute (with wire)	Wire strength 110N for 1minute
	Actuator strength	20N				
Environmental performance	Cold	-40°C 500h				
	Dry heat	85°C 500h				
	Damp heat	60°C, 90 to 95% RH 500h				
Operation force		1±0.5N 3N max.		1±0.5N	1±0.5N 3N max.	4.7N max.
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### Note

- Indicates applicability to all products in the series.

# Detector Switches / Soldering Conditions

Detector

Slide

Push

Rotary

Power

Dual-in-line  
Package Type

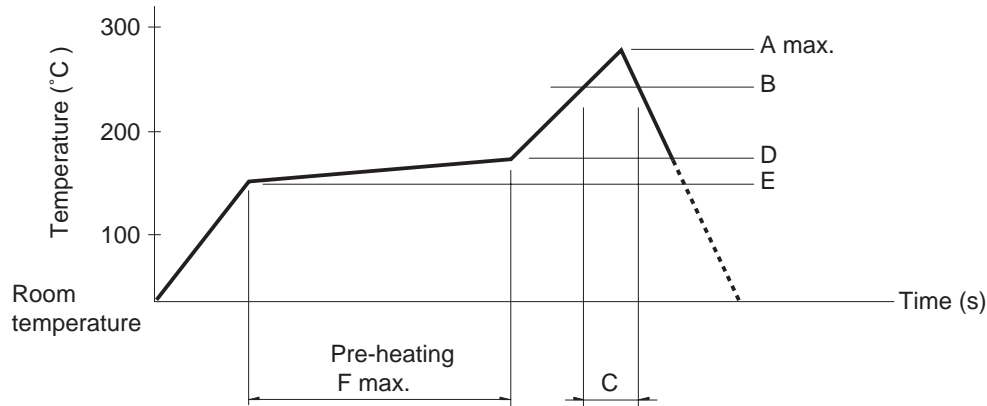
General  
purpose Type

Water-proof  
Type

Fast Switching  
Type

## Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple  $\phi 0.1$  to  $0.2$  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)
<b>SPPB</b>	250	230	40	180	150	120
<b>SPVE</b>	260					
<b>SPVL</b>						
<b>SPVM</b>						
<b>SPVN</b>						
<b>SPVR</b>						
<b>SPVS</b>						
<b>SPVT</b>						
<b>SSCM</b>						
<b>SSCQ</b>						
<b>SPVQC</b>	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
<b>SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVQC</b>	350±5°C	3s max.
<b>SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA</b>	300±10°C	3 +1 / 0s
<b>SPPB (Reflow)</b>	300±5°C	5s max.
<b>SSCF, SPPB (For Lead, Dip)</b>	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
<b>SSCT, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA</b>	100±10°C	60s max.	260±5°C	5±1s
<b>SPPW8, SPPB</b>	100°C max.	60s max.	255±5°C	5±1s
<b>SSCF</b>	—		260±5°C	5±1s

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