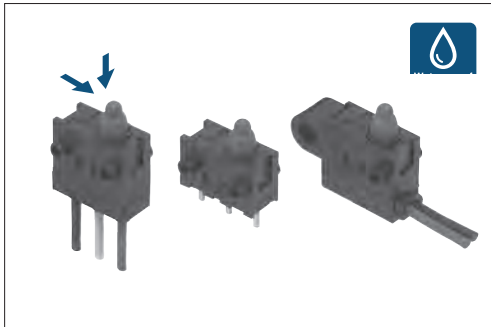


Long travel type applicable to oblique pressing without an actuator



### Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 12V DC/ 50 $\mu$ A 5V DC
Contact resistance (Initial / After operating life)		500m $\Omega$ max. / 1 $\Omega$ max.
Operating force		Push type 1 $\pm$ 0.5N Actuator type 3N max.
Operating life	Without load	300,000cycles
	With load	300,000cycles(0.1A 12V DC)
Poles		1
Changeover timing		Non shorting

### Product Line

Positions	Operating part shape	Terminal type	Product No. (Main body form)					Minimum order unit (pcs)		Packing specification type	Drawing No.
			Normal	Boss - right side	Boss - left side	Boss - both sides	With a screw hole	Japan	Export		
2	Push	For PC board	<b>SPVQ380400</b>	<b>SPVQ380300</b>	<b>SPVQ380201</b>	<b>SPVQ380100</b>	—	1,300	5,200	A	1
		For Lead	—	<b>SPVQ380700</b>	<b>SPVQ380600</b>	<b>SPVQ380500</b>	—				2
		Right angle	—	<b>SPVQ380900</b>	—	—	—				3
		Left angle	—	—	<b>SPVQ380800</b>	—	—				4
1	Push	With wire (Downwards)	—	—	—	—	<b>SPVQ361000*</b>	400	1,600	B	5
			<b>SPVQ361100*</b>	<b>SPVQ361200*</b>	<b>SPVQ361300*</b>	—	6				
		With wire (Right side)	—	—	—	—	<b>SPVQ361400*</b>				7
			<b>SPVQ361500*</b>	<b>SPVQ361600*</b>	<b>SPVQ361700*</b>	—	8				
		With wire (Left side)	—	<b>SPVQ361800*</b>	<b>SPVQ361900*</b>	<b>SPVQ362000*</b>	—				9
2	Actuator A	For PC board	<b>SPVQ370400</b>	<b>SPVQ370300</b>	<b>SPVQ370200</b>	<b>SPVQ370100</b>	—	1,300	5,200	A	1
		For Lead	—	<b>SPVQ370700</b>	<b>SPVQ370600</b>	<b>SPVQ370500</b>	—				2
		Right angle	—	<b>SPVQ370900</b>	—	—	—				3
		Left angle	—	—	<b>SPVQ370800</b>	—	—				4
1	Actuator A	With wire (Downwards)	—	—	—	—	<b>SPVQ350100*</b>	180	720	D	5
			<b>SPVQ350200*</b>	<b>SPVQ350300*</b>	<b>SPVQ350400*</b>	—	6				
		With wire (Right side)	—	<b>SPVQ350600*</b>	<b>SPVQ350700*</b>	<b>SPVQ350800*</b>	—				8
1	Actuator A	With wire (Left side)	—	<b>SPVQ350900*</b>	<b>SPVQ351000*</b>	<b>SPVQ351100*</b>	—	168	672	C	9
		With wire (Right side)	—	<b>SPVQ351700*</b>	<b>SPVQ351800*</b>	<b>SPVQ351900*</b>	—	8			
2	Actuator B	For PC board	<b>SPVQ371300</b>	<b>SPVQ371200</b>	<b>SPVQ371100</b>	<b>SPVQ371000</b>	—	1,300	5,200	A	1
		For Lead	—	<b>SPVQ371600</b>	<b>SPVQ371500</b>	<b>SPVQ371400</b>	—				2
		Right angle	—	<b>SPVQ371800</b>	—	—	—				3
		Left angle	—	—	<b>SPVQ371700</b>	—	—				4
		With wire (Downwards)	—	—	—	—	<b>SPVQ351200*</b>	180	720	D	5
			<b>SPVQ351300*</b>	<b>SPVQ351400*</b>	<b>SPVQ351500*</b>	—	6				
1	Actuator B	With wire (Right side)	—	<b>SPVQ351700*</b>	<b>SPVQ351800*</b>	<b>SPVQ351900*</b>	—	168	672	C	8
		With wire (Left side)	—	<b>SPVQ352000*</b>	<b>SPVQ352100*</b>	<b>SPVQ352200*</b>	—	9			

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

Detector

Slide

Push

Rotary

Power

Dual-inline  
Package Type

General-  
purpose Type

Water-proof  
Type

Fast Switching  
Type

### Notes

1. ※ Products with a wire will be supplied as follows.
  - Unless specified, the length of the lead wire is 250mm. Color is either red, black or yellow. Please consult us for modification.
  - Unless circuit is specified, wired (downward) types will apply three wires.
  - Please specify circuits (N.O. or N.C.) for wired (side) types. Unless specified, the circuit will apply N.O.
  - Product with wire will be build-to-order.
2. This unit cannot be used in water (IP67 rating, except for terminal).

### Packing Specifications

#### Tray

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
<b>A</b>	1,300	5,200	540×360×290

#### Bulk

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
<b>B</b>	400	1,600	555×375×223
<b>C</b>	168	672	
<b>D</b>	180	720	540×360×270

Dimensions

Unit:mm

No.	Style
1	<p>                     ※ Refer to page 47 "Actuator Configurations" for operating part shape.                      ※ Refer to page 47 "Main Body Configurations" for boss positions.                 </p>
2	<p>                     ※ Refer to page 47 "Actuator Configurations" for operating part shape.                      ※ Refer to page 47 "Main Body Configurations" for boss positions.                 </p>
3	<p>                     ※ Refer to page 47 "Actuator Configurations" for operating part shape.                 </p>
4	<p>                     ※ Refer to page 47 "Actuator Configurations" for operating part shape.                 </p>

Detector

Slide

Push

Rotary

Power

Dual-line Package Type

General-purpose Type

Water-proof Type

Fast Switching Type

# SPVQ3 Water-proof Type

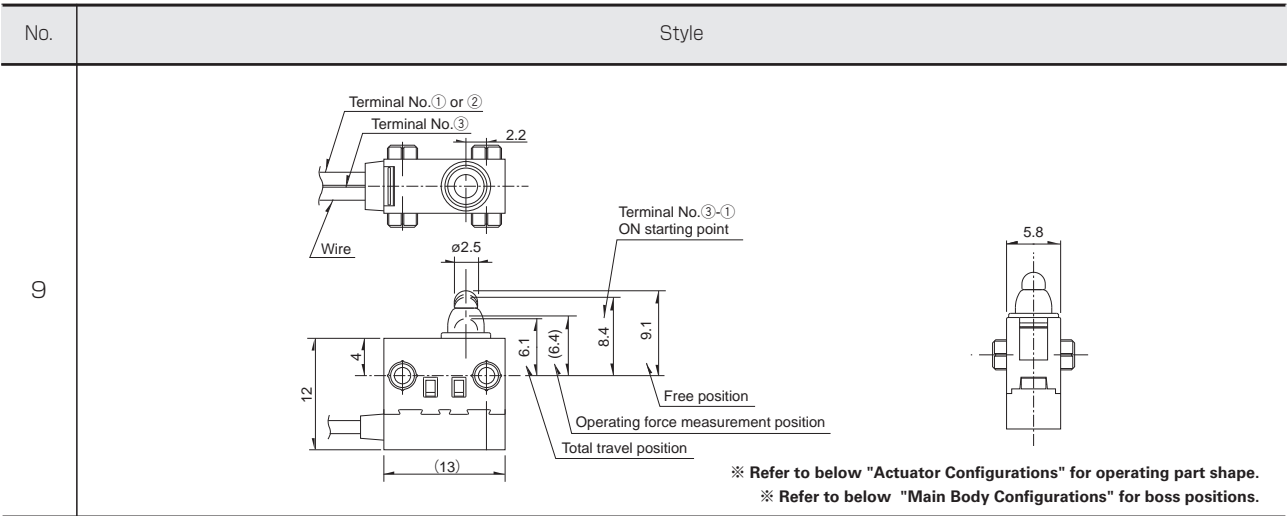
## Dimensions

Unit:mm

No.	Style
5	<p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>
6	<p>※ Refer to page 47 "Actuator Configurations" for operating part shape.          ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>
7	<p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>
8	<p>※ Refer to page 47 "Actuator Configurations" for operating part shape.          ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>

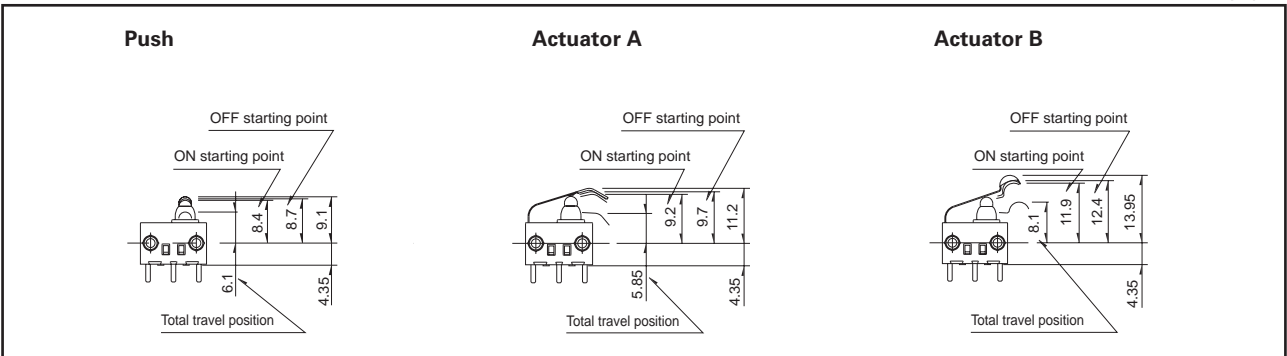
Dimensions

Unit:mm



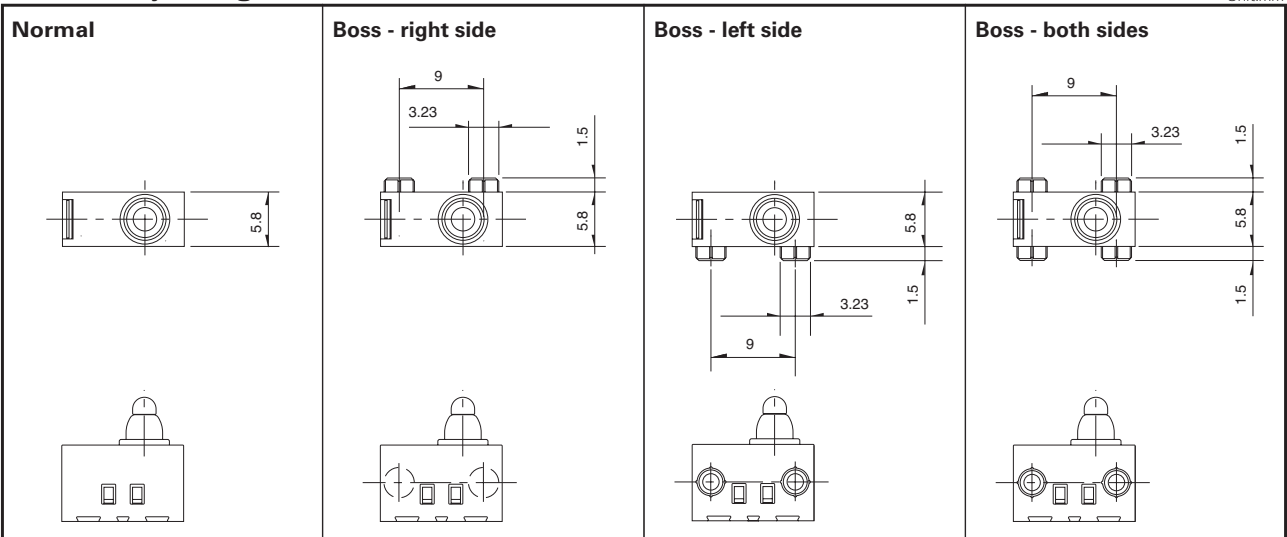
Actuator Configurations

Unit:mm

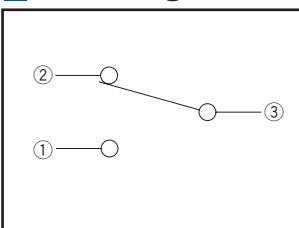


Main Body Configurations

Unit:mm

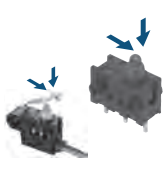
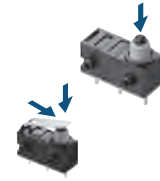
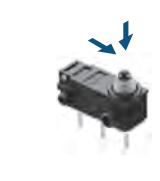
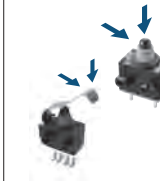








Circuit Diagram



# Detector Switches

## List of Varieties

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.
Page		43	48	51	53	61

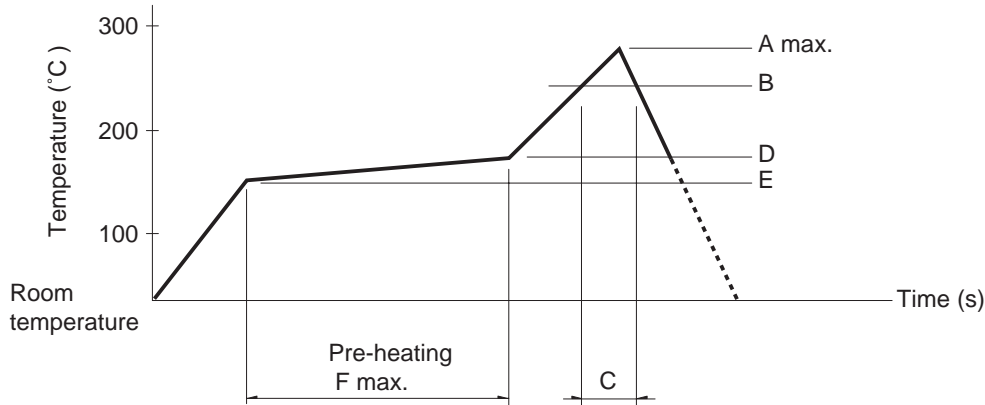
Detector Switches Soldering Conditions	68
Detector Switches Cautions	69

### Note

● Indicates applicability to all products in the series.

## 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>						
<b>SPVL</b>						
<b>SPVM</b>						
<b>SPVN</b>						
<b>SPVR</b>	260	230	40	180	150	120
<b>SPVS</b>						
<b>SPVT</b>						
<b>SSCM</b>	250	230	40	180	150	120
<b>SSCQ</b>						
<b>SPVQC</b>	250	230	40	180	150	120

### 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

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Alps Alpine:

[SPVQ380400](#) [SPVQ380300](#) [SPVQ380100](#) [SPVQ380700](#) [SPVQ380600](#) [SPVQ380500](#) [SPVQ380900](#)  
[SPVQ380800](#) [SPVQ340400](#) [SPVQ340300](#) [SPVQ340200](#) [SPVQ340100](#) [SPVQ340700](#) [SPVQ340600](#) [SPVQ340500](#)  
[SPVQ340900](#) [SPVQ311400](#) [SPVQ311500](#) [SPVQ311700](#) [SPVQ311800](#) [SPVQ311900](#) [SPVQ312000](#)  
[SPVQ312100](#) [SPVQ312200](#) [SPVQ320100](#) [SPVQ320200](#) [SPVQ320300](#) [SPVQ320400](#) [SPVQ320500](#) [SPVQ330400](#)  
[SPVQ331500](#) [SPVQ331600](#) [SPVQ331700](#) [SPVQ331800](#) [SPVQ350400](#) [SPVQ352100](#) [SPVQ361000](#)  
[SPVQ361300](#) [SPVQ361400](#) [SPVQ361600](#) [SPVQ361700](#) [SPVQ370200](#) [SPVQ370600](#) [SPVQ370700](#) [SPVQ371000](#)  
[SPVQ371100](#) [SPVQ371200](#) [SPVQ371300](#) [SPVQ371400](#) [SPVQ371500](#) [SPVQ371600](#) [SPVQ371800](#)  
[SPVQ380201](#) [SPVQ371700](#)