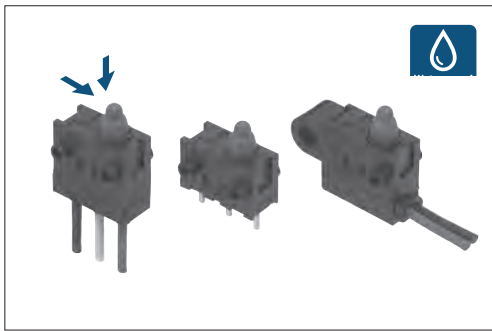


SPVQ3 Water-proof Type

Long travel type applicable to oblique pressing without an actuator



Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 12V DC/ 50 μ A 5V DC
Contact resistance (Initial / After operating life)		500m Ω max. / 1 Ω 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	SPVQ380400	SPVQ380300	SPVQ380201	SPVQ380100	—	1,300	5,200	A	1
		For Lead	—	SPVQ380700	SPVQ380600	SPVQ380500	—				2
		Right angle	—	SPVQ380900	—	—	—				3
		Left angle	—	—	SPVQ380800	—	—				4
1	Push	With wire (Downwards)	—	—	—	—	SPVQ361000*	400	1,600	B	5
			—	SPVQ361100*	SPVQ361200*	SPVQ361300*	—				6
		With wire (Right side)	—	—	—	—	SPVQ361400*				7
			—	SPVQ361500*	SPVQ361600*	SPVQ361700*	—				8
		With wire (Left side)	—	SPVQ361800*	SPVQ361900*	SPVQ362000*	—				9
2	Actuator A	For PC board	SPVQ370400	SPVQ370300	SPVQ370200	SPVQ370100	—	1,300	5,200	A	1
		For Lead	—	SPVQ370700	SPVQ370600	SPVQ370500	—				2
		Right angle	—	SPVQ370900	—	—	—				3
		Left angle	—	—	SPVQ370800	—	—				4
1	Actuator A	With wire (Downwards)	—	—	—	—	SPVQ350100*	180	720	D	5
			—	SPVQ350200*	SPVQ350300*	SPVQ350400*	—				6
		With wire (Right side)	—	SPVQ350600*	SPVQ350700*	SPVQ350800*	—				8
1	Actuator A	With wire (Left side)	—	SPVQ350900*	SPVQ351000*	SPVQ351100*	—	168	672	C	9
			—	SPVQ350900*	SPVQ351000*	SPVQ351100*	—				9
2	Actuator B	For PC board	SPVQ371300	SPVQ371200	SPVQ371100	SPVQ371000	—	1,300	5,200	A	1
		For Lead	—	SPVQ371600	SPVQ371500	SPVQ371400	—				2
		Right angle	—	SPVQ371800	—	—	—				3
		Left angle	—	—	SPVQ371700	—	—				4
1	Actuator B	With wire (Downwards)	—	—	—	—	SPVQ351200*	180	720	D	5
			—	SPVQ351300*	SPVQ351400*	SPVQ351500*	—				6
1	Actuator B	With wire (Right side)	—	SPVQ351700*	SPVQ351800*	SPVQ351900*	—	168	672	C	8
		With wire (Left side)	—	SPVQ352000*	SPVQ352100*	SPVQ352200*	—				9

Detector

Slide

Push

Rotary

Power

Dual-in-line
Package Type

General-
purpose Type

Water-proof
Type

Fast Switching
Type

SPVQ3 Water-proof Type

Detector

Slide

Push

Rotary

Power

Dual-in-line
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	
A	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	400	1,600	555×375×223
C	168	672	
D	180	720	540×360×270

Dimensions

Unit:mm

No.	Style
1	<p>Terminal No. 3-1 ON starting point</p> <p>Terminal No. 3-2 OFF starting point</p> <p>Free position</p> <p>Operating force measurement position</p> <p>Total travel position</p> <p>PC board mounting face</p> <p>Terminal No. 3 0.9</p> <p>Terminal No. 2 5</p> <p>Terminal No. 1 5</p> <p>13</p> <p>4.35</p> <p>4</p> <p>3.3</p> <p>2.3</p> <p>6.1</p> <p>6.4</p> <p>8.4</p> <p>8.7</p> <p>9.1</p> <p>2.5</p> <p>5.8</p> <p>0.5</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape. ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>
2	<p>Terminal No. 3-1 ON starting point</p> <p>Terminal No. 3-2 OFF starting point</p> <p>Free position</p> <p>Operating force measurement position</p> <p>Total travel position</p> <p>Terminal No. 3 7.45</p> <p>Terminal No. 2 4.35</p> <p>Terminal No. 1 1.2</p> <p>13</p> <p>4</p> <p>4.35</p> <p>1.5</p> <p>6.1</p> <p>6.4</p> <p>8.4</p> <p>8.7</p> <p>9.1</p> <p>2.5</p> <p>5.8</p> <p>0.5</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape. ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>
3	<p>Terminal No. 3-1 ON starting point</p> <p>Terminal No. 3-2 OFF starting point</p> <p>Free position</p> <p>Operating force measurement position</p> <p>Total travel position</p> <p>PC board mounting face</p> <p>Terminal No. 3 0.9</p> <p>Terminal No. 2 5</p> <p>Terminal No. 1 5</p> <p>13</p> <p>4.15</p> <p>4</p> <p>6.1</p> <p>6.4</p> <p>8.4</p> <p>8.7</p> <p>9.1</p> <p>2.5</p> <p>5.8</p> <p>0.5</p> <p>6</p> <p>(2.6)</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>
4	<p>Terminal No. 3-1 ON starting point</p> <p>Terminal No. 3-2 OFF starting point</p> <p>Free position</p> <p>Operating force measurement position</p> <p>Total travel position</p> <p>PC board mounting face</p> <p>Terminal No. 3 0.9</p> <p>Terminal No. 2 5</p> <p>Terminal No. 1 5</p> <p>13</p> <p>4.15</p> <p>4</p> <p>6.1</p> <p>6.4</p> <p>8.4</p> <p>8.7</p> <p>9.1</p> <p>2.5</p> <p>5.8</p> <p>0.5</p> <p>9</p> <p>(2.6)</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>

Detector

Slide

Push

Rotary

Power

Dual-in-line
Packager Type

General-
purpose Type

Water-proof
Type

Fast Switching
Type

SPVQ3 Water-proof Type

Detector

Slide

Push

Rotary

Power

Dual-in-line
Package Type

General-
purpose Type

Water-proof
Type

Fast Switching
Type

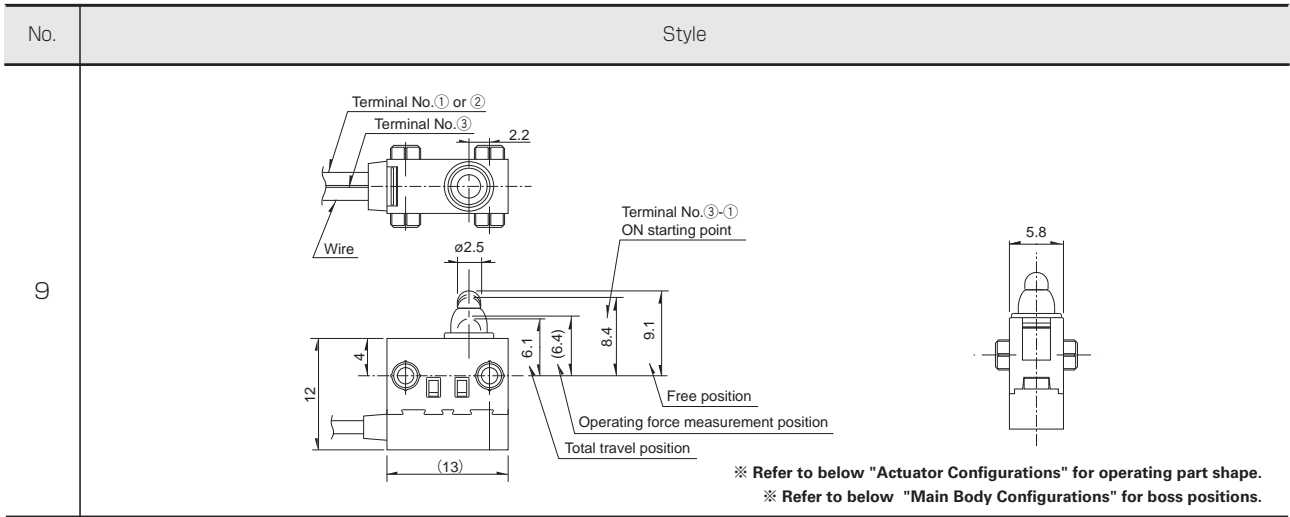
Dimensions

Unit:mm

No.	Style
5	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position</p> <p>Terminal No.③ Terminal No.② Terminal No.①</p> <p>Hole (for M3) Wire</p> <p>2.2 ø2.5 3.3 6.1 3.1 12 3.2 11 13.6 2 4 6.1 (6.4) 8.4 8.7 9.1</p> <p>5.8</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>
6	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position</p> <p>Terminal No.③ Terminal No.①</p> <p>ø2.5 12 4 6.1 (6.4) 8.4 8.7 9.1</p> <p>5.8</p> <p>Wire</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape. ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>
7	<p>Terminal No.③ Terminal No.① or ② Terminal No.③-① ON starting point Free position Operating force measurement position Total travel position</p> <p>Hole (for M3) Wire</p> <p>2.2 ø2.5 3.3 6.1 3.1 12 3.2 11 13.6 2 4 6.1 (6.4) 8.4 8.7 9.1</p> <p>5.8</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape.</p>
8	<p>Terminal No.③ Terminal No.① or ② Terminal No.③-① ON starting point Free position Operating force measurement position Total travel position</p> <p>ø2.5 12 4 6.1 (6.4) 8.4 8.7 9.1</p> <p>5.8</p> <p>Wire</p> <p>※ Refer to page 47 "Actuator Configurations" for operating part shape. ※ Refer to page 47 "Main Body Configurations" for boss positions.</p>

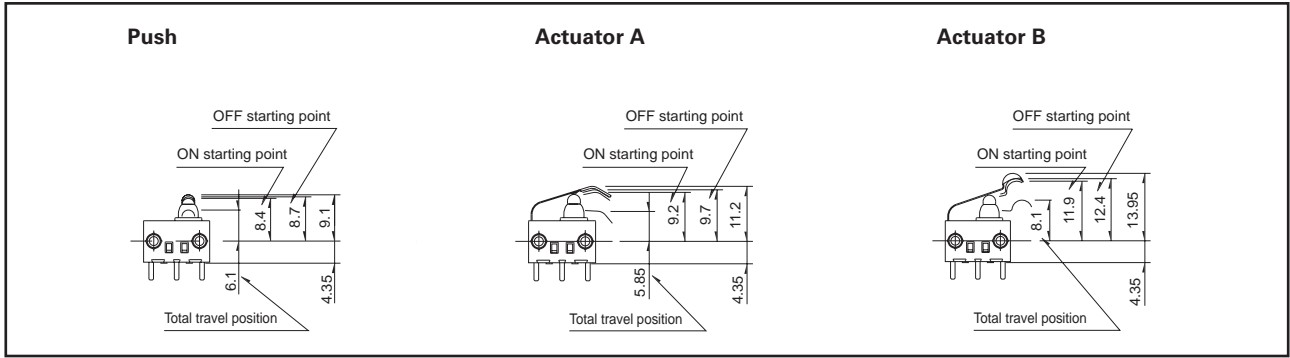
Dimensions

Unit:mm



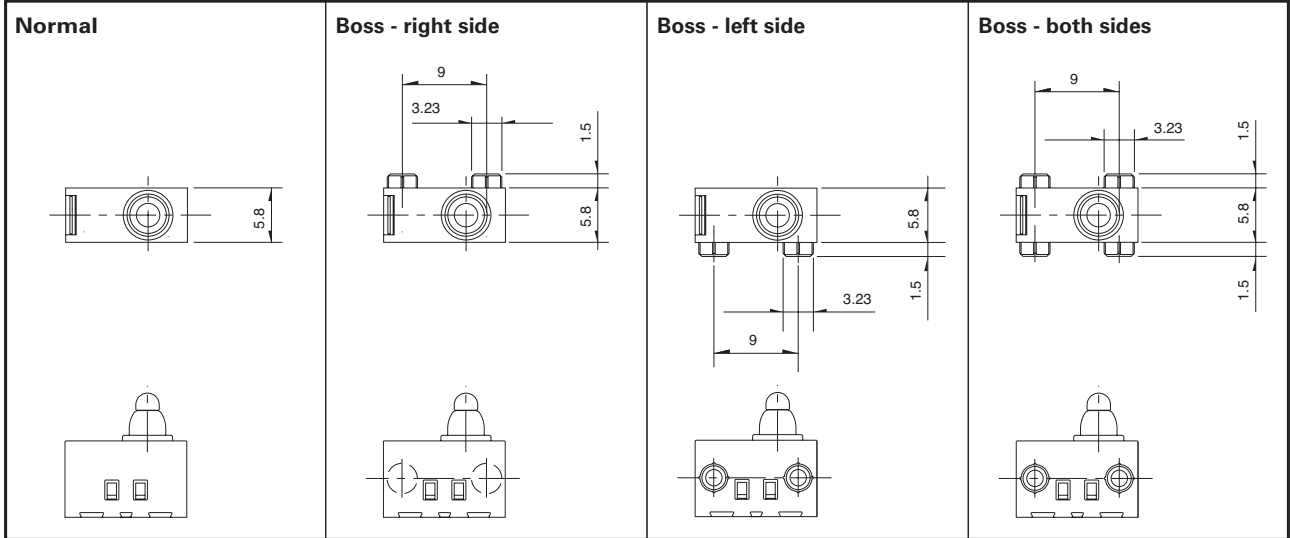
Actuator Configurations

Unit:mm

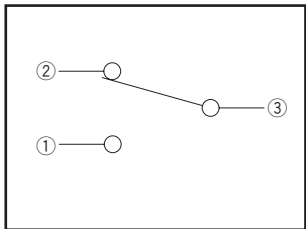


Main Body Configurations

Unit:mm



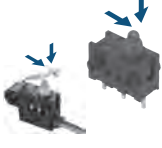
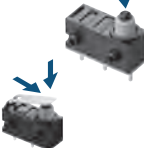








Circuit Diagram



Detector Switches

List of Varieties

Detector
Slide
Push
Rotary
Power
Push-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.
Page		43	48	51	53	61

Detector Switches Soldering Conditions	68
Detector Switches Cautions	69

Note

- Indicates applicability to all products in the series.

Detector Switches / Soldering Conditions

Detector

Slide

Push

Rotary

Power

Dual-in-line
Package Type

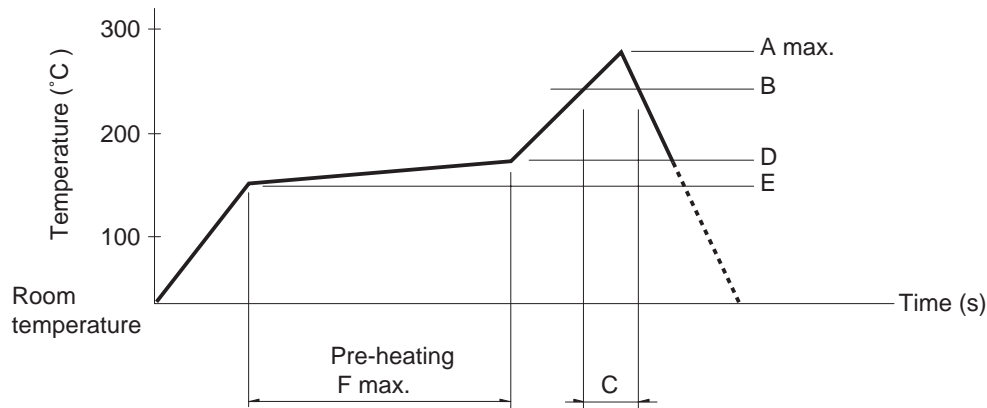
General
purpose Type

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)
SPPB	250	230	40	180	150	120
SPVE	260					
SPVL						
SPVM						
SPVN						
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, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVQC	350±5°C	3s max.
SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA	300±10°C	3 +1 / 0s
SPPB (Reflow)	300±5°C	5s max.
SSCF, SPPB (For Lead, Dip)	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, 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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Detector Switches](#) category:

Click to view products by [ALPS](#) manufacturer:

Other Similar products are found below :

[E3S-LS5C4S](#) [SPVQ850300](#) [21075-6](#) [SPVQ860100](#) [K2CU-F20A-F AC220](#) [D3DM0005H](#) [D3DM0001E](#) [D3DM0003A](#) [HARB0012](#) [PP2-7H1-2D2](#) [PP1-FB7-2D2](#) [PP2-7U1-2B2](#) [PP1-ET7-2B2](#) [MR1000AWA](#) [MR1000BWA](#) [ESE-24SH6](#) [ESE-31R11T](#) [ESE-23F101](#) [ESE-13V01D](#) [ESE-13V01C](#) [ESE-13V01A](#) [ESE-13H01B](#) [ESE-11MH1T](#) [ESE-11MH2T](#) [ESE-11MV1](#) [ESE-31L11T](#) [HDS001R](#) [SPVL110102](#) [ESE-13V01B](#) [ESE-23J101](#) [SPPW811200](#) [ESE-58R61B](#) [SPVQ361300](#) [ESE-58R11B](#) [SPVT210201](#) [SPVL120101](#) [ESE-24CMV9T](#) [DS080](#) [DS0900502RP](#) [T0-SCB22MP1NC1](#) [T0-SCB22MP1NSX](#) [ESE-13H01A](#) [ESE-13H01C](#) [ESE-13H01D](#) [SPVN210101](#) [SPPB110300](#) [SPPB120200](#) [SPPB1A0100](#) [SPPB1A0101](#) [SPPB2A0100](#)