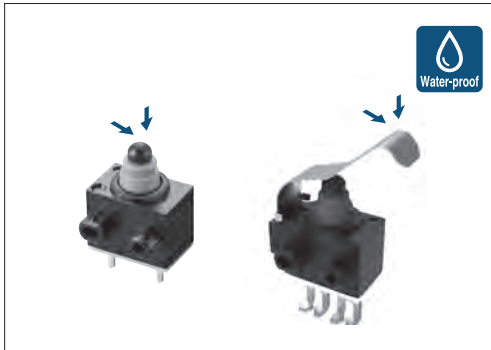


SPVQ8 Water-proof Type

Industry's smallest size, with main unit dimensions of 8.3×5.3×7mm



Typical Specifications

Items		Specifications	
		Standard type	With internal resistor type
Rating (max.)/(min.) (Resistive load)		0.1A 12V DC/50μA 5V DC	
Contact resistance (Initial / After operating life)		500mΩ max./1Ω max. (Standard type)	Respond individually
		500mΩ max./3Ω max. (Long-life type)	
Electrical output		—	
Operating force		Push 1 ±0.5N Actuator type 3N max.	1 ±0.5N
Operating life	Without load	300,000cycles (Standard type) 1,000,000cycles (Long-life type)	300,000cycles
	With load	300,000cycles (Standard type) 1,000,000cycles (Long-life type)	Respond individually

Product Line

Poles	Positions	Operating part shape	Circuit	Terminal type	Main body form	Minimum order unit (pcs)		Packing specifications type	Product No.		Drawing No.
						Japan	Export		Standard type	Long-life type	
1	1	Push	N.O.	For PC board	Boss-both sides	1,755	7,020	A	SPVQ810102	SPVQ830102	1
				Angle	Boss-single side				SPVQ810302	SPVQ830302	2
				For PC board	Without boss				SPVQ810402	SPVQ830402	3
					Boss-single side				SPVQ810502	SPVQ830502	4
				For Lead	Boss-both sides				SPVQ810602	SPVQ830602	5
				Boss-single side	SPVQ810704				SPVQ830702	6	
				Boss-both sides	SPVQ810802				SPVQ830802	7	
				Boss-single side	SPVQ811006				SPVQ831002	8	
				Press-fit (normal type)	Boss-single side				SPVQ811502	—	19
			Press-fit (short type)	Boss-single side	SPVQ820102				—	1	
			N.C.	For PC board	Boss-both sides				SPVQ820302	—	9
				Angle	Boss-single side				SPVQ820402	—	3
				For PC board	Without boss				SPVQ820502	—	4
					Boss-single side				SPVQ820602	—	10
				For Lead	Boss-both sides				SPVQ820705	—	11
				Boss-single side	SPVQ820802				—	7	
				Boss-both sides	SPVQ821006				—	12	
				Press-fit (normal type)	Boss-single side				SPVQ821500	—	20
		Press-fit (short type)		Boss-single side	SPVQ850101 *	—	13				
		N.O.	With wire (Downwards)	Boss-single side	SPVQ850201 *	—	14				
			With wire (Downwards)	Boss-both sides	SPVQ850301 *	—	15				
			With wire (Left side)	Boss-single side	SPVQ850501 *	—	16				
			With wire (from side)	Boss-both sides	SPVQ860101 *	—	17				
			With wire (Downwards)	Boss-single side	SPVQ860200 *	—	14				
			With wire (Downwards)	Boss-both sides	SPVQ860301 *	—	18				
		N.C.	With wire (Left side)	Boss-single side	SPVQ860500 *	—	16				
			With wire (from side)	Boss-both sides	SPVQ812600	—	21				
			For Lead	Boss - single side (right)	SPVQ812400	—	22				
				Boss - single side (left)	SPVQ812200	—	23				
				Boss - single side (right)	SPVQ812700	—	24				
			N.O.	Press-fit (normal type)	Boss - single side (left)	SPVQ812500	—	25			
		Press-fit (short type)		Boss - single side (right)	SPVQ812300	—	26				
		Press-fit (short type)		Boss - single side (left)	SPVQ822500	—	27				
		N.C.	For Lead	Boss - single side (right)	SPVQ822300	—	28				
			Press-fit (normal type)	Boss - single side (right)	SPVQ822100	—	29				
			Press-fit (short type)	Boss - single side (left)	SPVQ822600	—	30				
For Lead	Boss - single side (left)		SPVQ822400	—	31						
Press-fit (normal type)	Boss - single side (left)		SPVQ822200	—	32						
Press-fit (short type)	Boss - single side (left)		SPVQ8R02 *	—	33						
Push	For PC board	Boss-single side	SPVQ8R06 *	—	34						
	Press-fit (normal type)	Boss-single side	SPVQ8R01 *	—	35						
	Press-fit (short type)	Boss-single side									

SPVQ8 Water-proof Type

Detector

Slide

Push

Rotary

Power

Dual-in-line
Packager Type

General-
purpose Type

Water-proof
Type

Fast Switching
Type

Notes

- ※ Products with a wire will be supplied as follows.
 - Unless specified, the length of the lead wire is 250mm. Color is either red or black. Please consult us for modification.
 - 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.
- ※ Resistance specifications for SPVQ8R (internal resistor type) will be accommodated individually. Please inquire.
- This unit cannot be used in water (IP67 rating, except for terminal).

Packing Specifications

Tray

Packing specifications type	Number of packages (pcs.)		Export package measurements (mm)
	1 case /Japan	1 case /export packing	
A	1,755	7,020	540×360×270
C	1,080	4,320	540×360×270

Bulk

Packing specifications type	Number of packages (pcs.)		Export package measurements (mm)
	1 case /Japan	1 case /export packing	
B	400	1,600	555×375×223

Dimensions

Unit:mm

No.	Style	No.	Style
1		4	
2		5	
3		6	

SPVQ8 Water-proof Type

Dimensions

Unit:mm

No.	Style	No.	Style
15		19	
16		20	
17		21	
18		22	

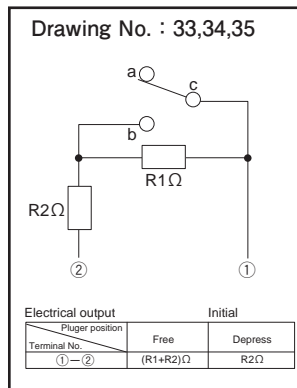
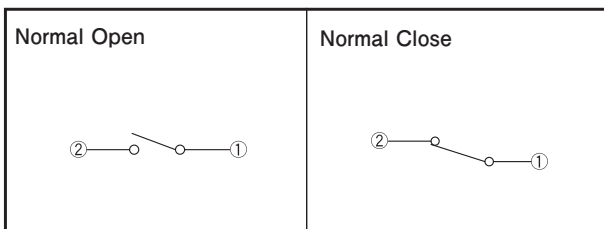
SPVQ8 Water-proof Type

Dimensions

Unit:mm

No.	Style	No.	Style
31	<p>Limit total travel position Terminal No.①-② ON-OFF operating position Free position</p> <p>Color: BROWN</p> <p>Terminal No.②</p> <p>Terminal No.①</p>	34	<p>Limit total travel position Terminal No.①-② ON-OFF operating position Free position</p> <p>THE TOP OF PLUNGER (MEASUREMENT POSITION)</p> <p>TERMINAL No.②</p> <p>TERMINAL No.①</p>
32	<p>Limit total travel position Terminal No.①-② ON-OFF operating position Free position</p> <p>COLOR: BROWN</p> <p>Terminal No.②</p> <p>Terminal No.①</p>	35	<p>Limit total travel position Terminal No.①-② ON-OFF operating position Free position</p> <p>THE TOP OF PLUNGER (MEASUREMENT POSITION)</p> <p>TERMINAL No.②</p> <p>TERMINAL No.①</p>
33	<p>Limit total travel position Terminal No.①-② ON-OFF operating position Free position</p> <p>THE TOP OF PLUNGER (MEASUREMENT POSITION)</p> <p>TERMINAL No.②</p> <p>TERMINAL No.①</p>		

Circuit Diagram



Recommended Unit Terminal Shape for Press-Fit Terminals (Normally Open)

Unit:mm

Style	
<p>SPVQ811006, SPVQ831002, SPVQ8R06</p>	<p>SPVQ812200, SPVQ812300</p>
<p>SPVQ811502, SPVQ8R01</p>	<p>SPVQ812400, SPVQ812500</p>

Detector

Slide

Push

Rotary

Power

Dual-in-line Package Type

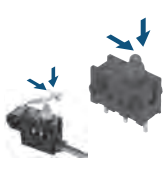
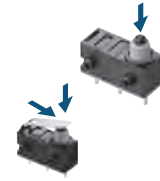
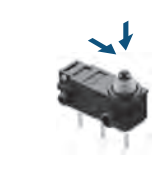
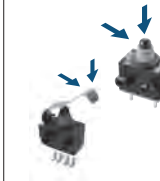






General-purpose Type

Water-proof Type

Fast Switching Type

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.
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Detector Switches Soldering Conditions	68
Detector Switches Cautions	69

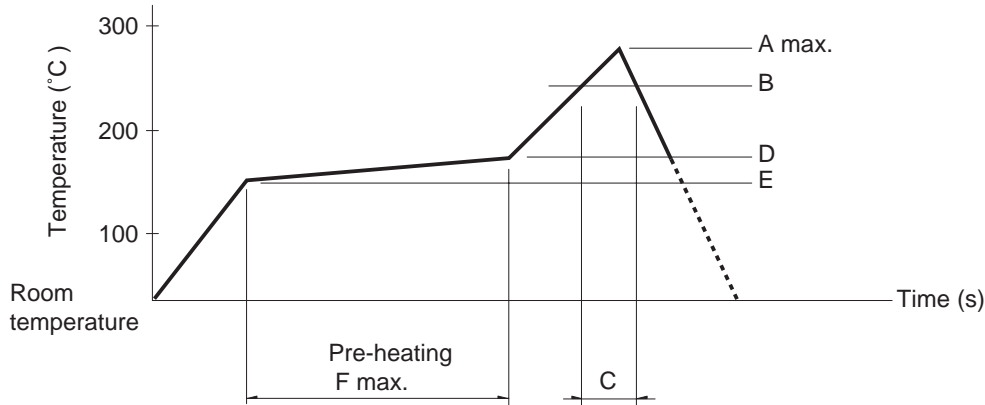
Note

● 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 $\phi 0.1$ 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						
SPVL						
SPVM						
SPVN						
SPVR	260	230	40	180	150	120
SPVS						
SPVT						
SSCM	250	230	40	180	150	120
SSCQ						
SPVQC	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
SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVQC	350±5°C	3s max.
SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, 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