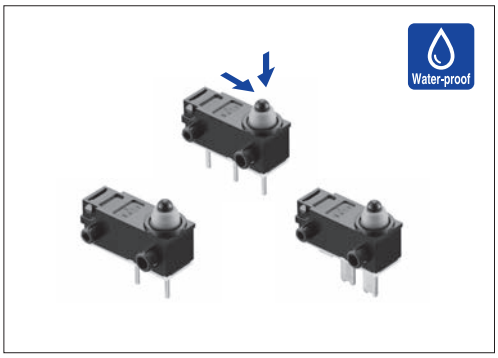
SPVQ7 Water-proof Type

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) Japan	Minimum order unit (pcs) Export	Product No.	Drawing No.
1	2	Non shorting	Push	For PC board	Boss - left side	1,350	5,400	**SPVQ710100**	1
					Boss - right side			**SPVQ710200**	2
	1				Boss - left side			**SPVQ710300**	3
					Boss - right side			**SPVQ710400**	4
				For Lead	Boss - left side			**SPVQ740300**	5
					Boss - right side			**SPVQ740400**	6
	2				Boss - left side			**SPVQ740100**	7
					Boss - right side			**SPVQ740200**	8
				For Lead (hole type)	Boss - left side			**SPVQ740500**	9
					Boss - right side			**SPVQ740600**	10

Note

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

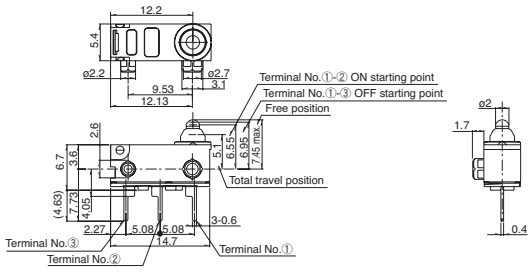
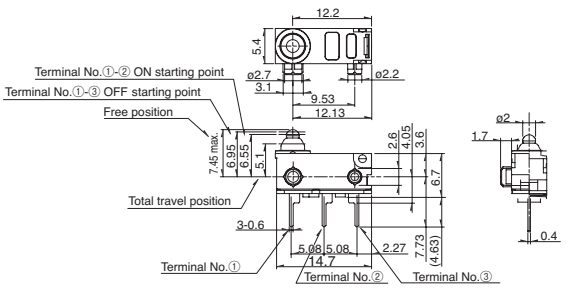
Packing Specifications

Tray

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

Dimensions

Unit:mm

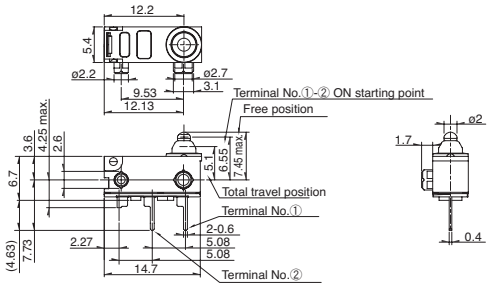
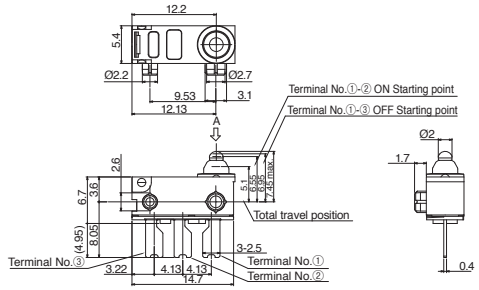
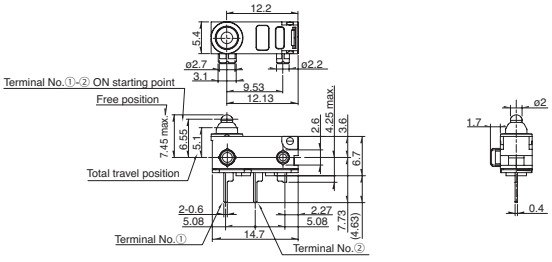
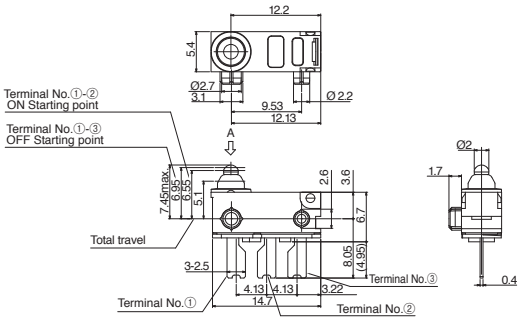
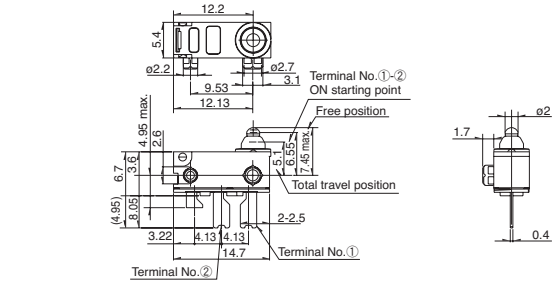
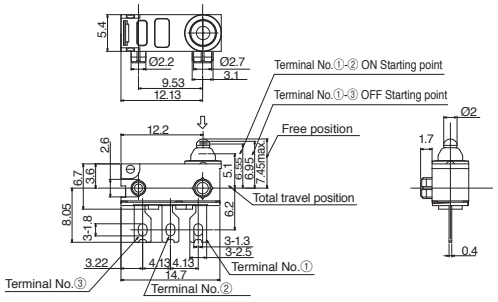
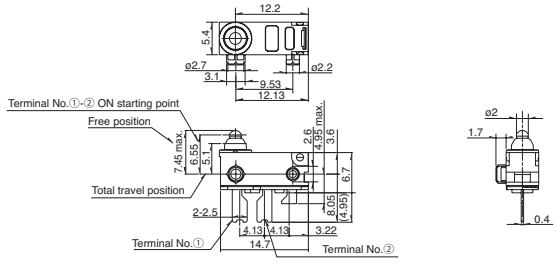
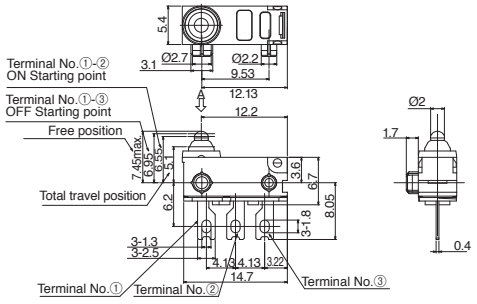
No.	Style	No.	Style
1		2	

Refer to P.71 for soldering conditions.

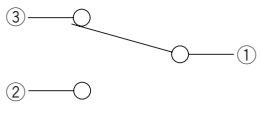
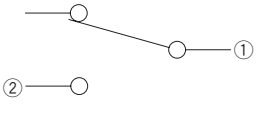
ALPS

Dimensions

Unit:mm

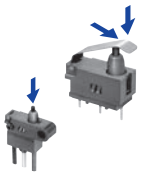
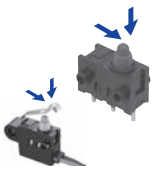
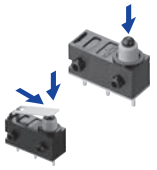
No.	Style	No.	Style
3		7	
4		8	
5		9	
6		10	

Circuit Diagram

Drawing No.1, 2, 7, 8, 9, 10	Drawing No.3, 4, 5, 6
	

Detector Switches

List of Varieties

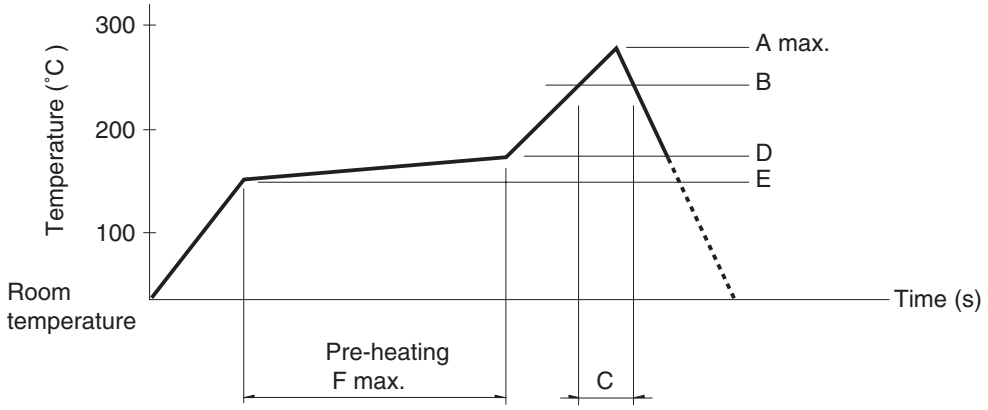
Series		Water-proof Type				
		SPVQ1	**SPVQ3**	**SPVQ4H**	**SPVQ6**	**SPVQ7**
Photo						
Operation type		One-way Two-way	Two-way		One-way Two-way	Two-way
Dimensions (mm)	W	13.3	13	19	13.3	14.7
	D	5.8		6	5.3	5.4
	H	8	8.35	11.9	7	6.7
Operating temperature range		−40℃ to +85℃				
Automotive use		●	●	●	●	●
Life cycle (availability)		★3	★3	★3	★3	★3
Poles / Positions		1/2	1/1 1/2		1/2	1/1 1/2
Rating (max.) (Resistive load)		0.1A 12V DC	0.1A 12V DC or 0.3A 16V DC	0.1A 12V DC		
Rating (min.) (Resistive load)		50μA 3V DC	50μA 5V DC or 1mA 5V DC	1mA 5V DC	50μA 5V DC	
Durability	Operating life without load	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 1Ω max.		
	Operating life with load Rating (max.) (Resistive load)	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 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)		Wire strengh 30N for1 minute	3N for 1minute	
	Actuator strength	20N				
Environmental performance	Cold	−40℃ 500h				
	Dry heat	85℃ 500h				
	Damp heat	60℃, 90 to 95% RH 500h				
Operation force		2N max. 5.9N max.	1±0.5N 3N max.	3N max.	1±0.5N 3N max.	1±0.5N
Page		46	50	55	56	58

Detector Switches Soldering Conditions 71
Detector Switches Cautions 72

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 ϕ0.1 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 (℃) 3s max.	B (℃)	C (s)	D (℃)	E (℃)	F (s)
SPPB	250	230	40	180	150	120
SPPW8			35			
SPVE	260		40			
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, SPPW8,SSCQ, SSCM, SPVL, SSCT, SPVQC	350±5℃	3s max.
SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	300±10℃	3 +1 / 0s
SPPB (Reflow)	300±5℃	5s max.
SSCF, SPPB (For Lead, Dip)	350±10℃	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℃	60s max.	260±5℃	5±1s
SPPW8, SPPB	100 ℃ max.	60s max.	255±5℃	5±1s
SSCF	—		260±5℃	5±1s