

■ 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	Actuator type
		1 $\pm$ 0.5N	3N max.
Operating life	Without load	300,000cycles	
	With load	300,000cycles (0.1A 12V DC)	

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

■ 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 - right side	1,500	6,000	SPVQ640100	1
					Boss - left side			SPVQ640200	2
			Actuator		Boss - right side			SPVQ630100	3
					Boss - left side			SPVQ630200	4

■ Note

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

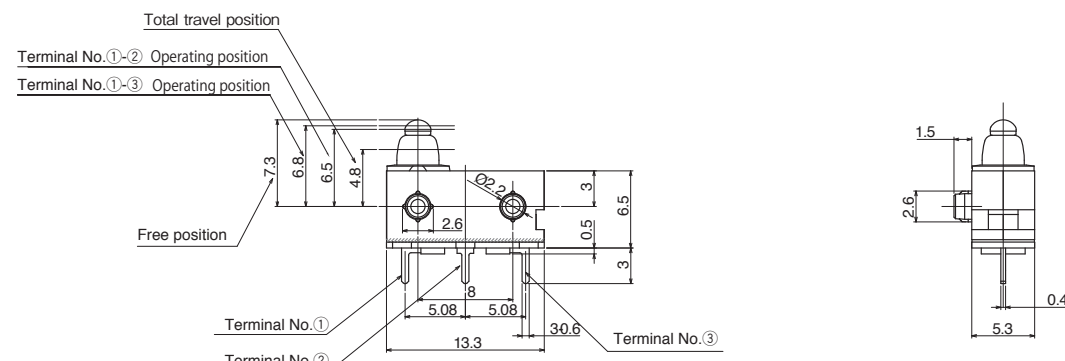
■ Packing Specifications

Bulk

Number of packages (pcs.)		Export package measurements (mm)
1 case / Japan	1 case / export packing	
1,500	6,000	540 × 360 × 270

■ Dimensions

Unit:mm

No.	Style
1	

Dimensions

Unit:mm

Detector

Slide

Push

Rotary

Encoders

Power

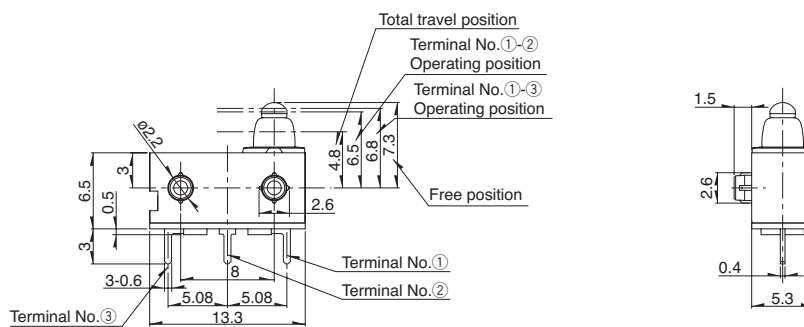
Dual-in-line
Package Type

TACT Switch™

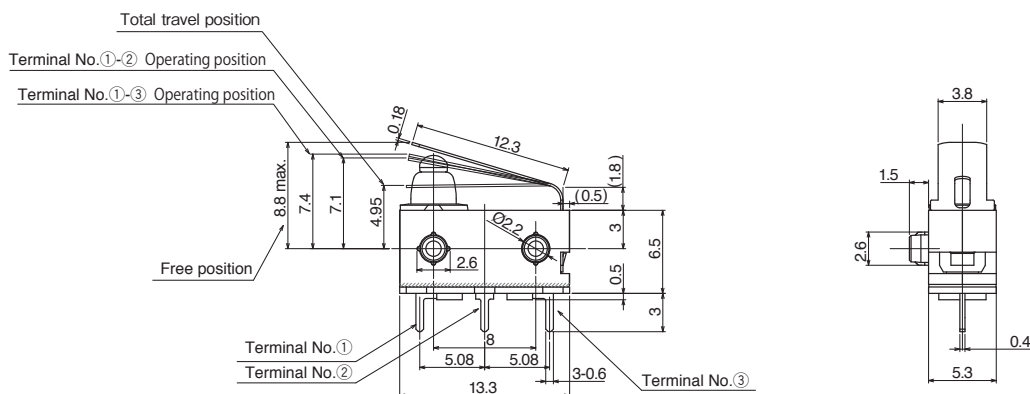
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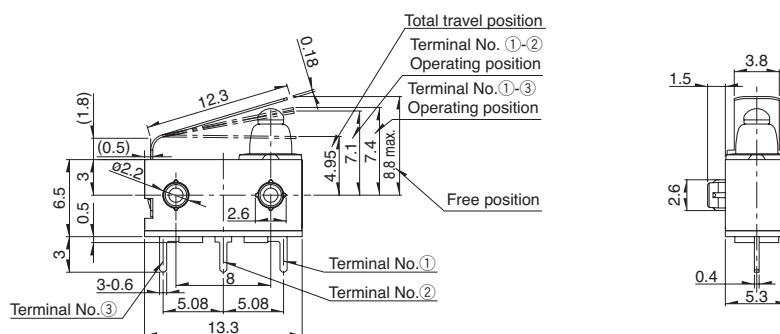
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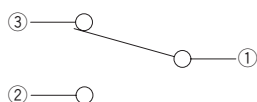
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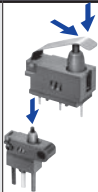
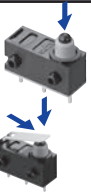
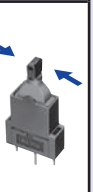


Circuit Diagram



Detector Switches

List of Varieties (Water-proof Type)

Series		Water-proof Type									
		SPVQ1	SPVQ3	SPVQ4H	SPVQ6	SPVQ7	SPVQ8	SPVQ9	SPVQA	SPVQC	SSCN
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	8.3	15.4	15.2	15.4	13
	D	5.8		6	5.3	5.4	5.3	8.4	6.4	7.4	5
	H	8	8.35	11.9	7	6.7	6.5	7.5	7.95	7.5	15
Operating temperature range		- 40℃ to + 85℃									
Automotive use											
Life cycle (availability)											
Poles / Positions		1 / 2	1 / 1 1 / 2		1 / 2	1 / 1 1 / 2	1 / 1	2 / 2	1 / 1 1 / 2	2 / 2	1 / 2
Rating (max.) (Resistive load)		0.1A 12V DC	0.1A 12V DC or 0.3A 16V DC	0.1A 12V DC				50mA 26V DC	0.1A 12V DC	50mA 18V 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						100μA 5V DC
Durability	Operating life without Load	300,000cycles 1Ω max.	300,000cycles or 1,200,000cycles 1Ω max.	300,000cycles 1Ω max.			300,000cycles or 1,000,000cycles 1Ω max.	300,000cycles 200mΩ max.	300,000cycles 1Ω max.	300,000cycles 200mΩ max.	100,000cycles 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.			300,000cycles or 1,000,000cycles 1Ω max.	300,000cycles 200mΩ max.	300,000cycles 1Ω max.	300,000cycles 200mΩ max.	100,000cycles 1Ω max.
Electrical performance	Initial contact resistance	500mΩ max.						75mΩ	500mΩ max.	75mΩ max.	500mΩ max.
	Insulation resistance	100MΩ min. 500V DC									
	Voltage proof	500V AC for 1minute								250V AC for 1minute	500V AC for 1minute
Mechanical performance	Terminal strength	3N for 1minute(products with terminal) Wire strength 30N for 1minute (Applicable to product with wire)		Wire strengt 30N for 1 minute	3N for 1minute						
	Actuator strength	20N									10N
Environmental performance	Cold	-40±2℃ for 500h									
	Dry heat	85 ± 2℃ for 500h									
	Damp heat	60 ± 2℃ , 90 ~ 95% RH for 500h									
Operation force		2N max. 5.9N max.	1 ± 0.5N 3N max.	3N max.	1 ± 0.5N 3N max.	1 ± 0.5N					2N max.
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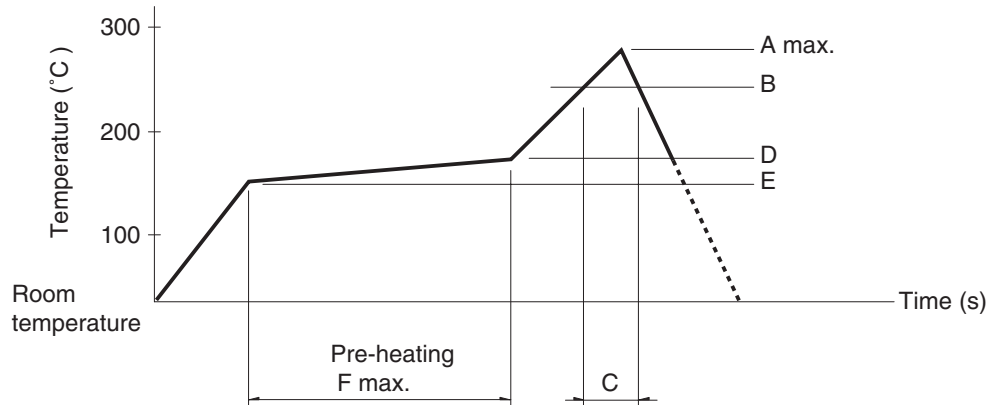
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Note

- 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 0.1 to 0.2 ϕ 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
SPPW8			35			
SPVE	260		40			
SPVL						
SPVM						
SPVN						
SPVP						
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, SPVP, SPVT, SPVM, SPVR, SPVE, SPPW8, SSCQ, SSCM, SPVL, SSCT, SPVQC	350 $\pm$ 5°C	3s max.
SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	300 $\pm$ 10°C	3 + 1 / 0s
SPPB	350 $\pm$ 5°C	5s max.
SSCF	350 $\pm$ 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, SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA	100 $\pm$ 10°C	60s max.	260 $\pm$ 5°C	5 $\pm$ 1s
SPPW8, SPPB	100°C max.	60s max.	255 $\pm$ 5°C	5 $\pm$ 1s
SSCF	—	—	260 $\pm$ 5°C	5 $\pm$ 1s