

Flexible and thin 1mm height detector switch
with a large operational range of 180 degrees



■ Typical Specifications



Items		Specifications
Rating (max.)/(min.) (Resistive load)		1mA 5V DC / 50µA 3V DC
Contact resistance (Initial / After operating life)		2Ωmax. / 5Ωmax.
Operating force		0.35N max.
Operating life	Without load	50,000cycles
	With load	50,000cycles (1mA 5V DC)

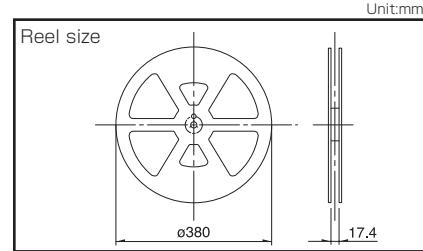
■ Product Line

Poles	Positions	Terminal type	Location lug	Minimum order unit (pcs.)		Product No.
				Japan	Export	
1	1	For PC board (Reflow)	With	5,000	20,000	SPVL110102
			Without			SPVL120101

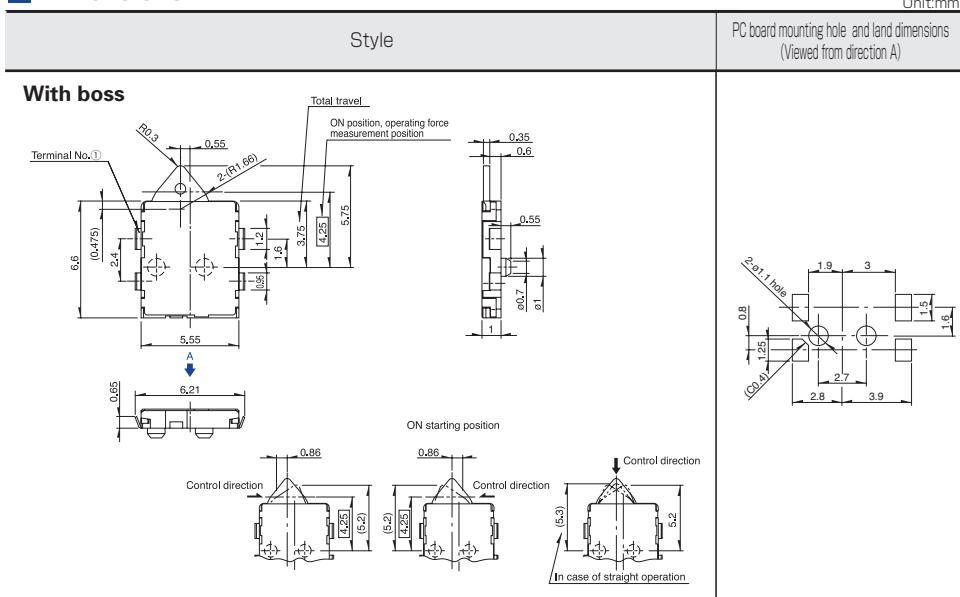
■ Packing Specifications

Taping

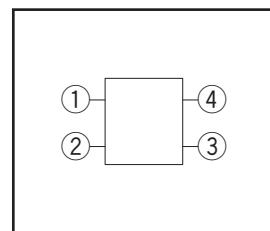
Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
1 reel	1 case /Japan	1 case /export packing		
5,000	10,000	20,000	16	417×409×139



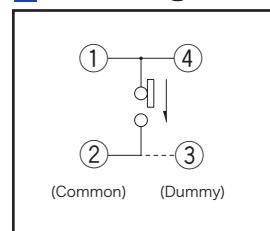
■ Dimensions



■ Terminal Layout (Viewed from Direction A)



■ Circuit Diagram



Notes

Dimensions drawing is for type with location lugs.

Detector Switches

List of Varieties

Series		General-purpose Type							
		SPPW8	SSCQ	SSCM	SPVL	SPPB			
Photo									
Operation type		One-way	Two-way Two-direction type	Two-way	Three-way	One-way Two-way			
Dimensions (mm)	W	5	3.8	5	5.55	6.3			
	D	4	3.6	4	6.6	3			
	H		0.9	1.5	1	4.9			
Operating temperature range		-10°C to +60°C			-40°C to +85°C				
Automotive use		—	—	—	●	●			
Life cycle (availability)									
Poles / Positions		1/1	1 / Two-direction type: 2-position each side	1/2	1/1				
Rating (max.) (Resistive load)		0.1A 30V DC	1mA 5V DC			0.1A 30V DC			
Rating (min.) (Resistive load)		100μA 3V DC	50μA 3V DC						
Durability	Operating life without load	100,000cycles 2Ω max.	50,000cycles 5Ω max.			50,000cycles 2Ω max.			
	Operating life with load Rating (max.) (Resistive load)	100,000cycles 2Ω max.	50,000cycles 5Ω max.			50,000cycles 2Ω max.			
Electrical performance	Initial contact resistance	1Ω max.	2Ω max.			1Ω max.			
	Insulation resistance	100MΩ min. 100V DC							
	Voltage proof	100V AC for 1 minute							
Mechanical performance	Terminal strength	3N for 1minute	0.5N for 1minute		1N for 1minute	3N for 1minute			
	Actuator strength	10N	1N	2N	5N	10N			
Environmental performance	Cold	-20°C 96h			-40°C 500h				
	Dry heat	85°C 96h			85°C 500h				
	Damp heat	40°C, 90 to 95%RH 96h			60°C, 90 to 95%RH 500h				
Operation force		0.3N max.	0.35N max.						
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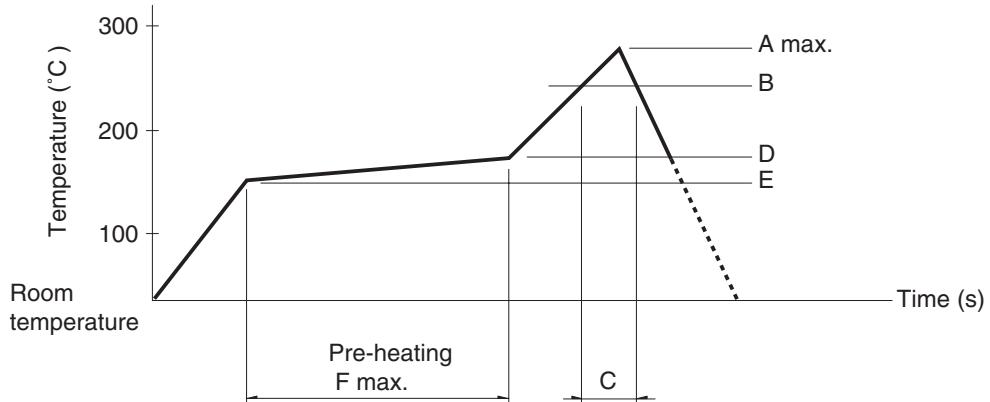
Note

- 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		40																																													
SPPW8			35																																													
SPVE																																																
SPVL																																																
SPVM																																																
SPVN																																																
SPVR																																																
SPVS																																																
SPVT																																																
SSCM																																																
SSCQ																																																
SPVQC, SPVQE	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, SPVQE	$350 \pm 5^\circ\text{C}$	3s max.
SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	$300 \pm 10^\circ\text{C}$	$3 + 1 / 0\text{s}$
SPPB (Reflow)	$300 \pm 5^\circ\text{C}$	5s max.
SSCF, SPPB (For Lead, Dip)	$350 \pm 10^\circ\text{C}$	$3 + 1 / 0\text{s}$

■ 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	$100 \pm 10^\circ\text{C}$	60s max.	$260 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$
SPPW8, SPPB	100°C max.	60s max.	$255 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$
SSCF		—	$260 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$