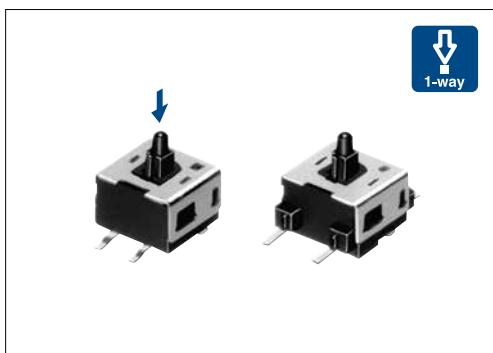


Applicable for use in compact digital devices. One of the smallest detector switches in the industry with a size of 3.4×3.0mm



### ■ Typical Specifications



Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 30V DC / 50μA 3V DC
Contact resistance (Initial / After operating life)		500mΩ max. / 1Ω max.
Operating force		0.3N max.
Operating life	Without load	50,000cycles
	With load	50,000cycles (0.1A 30V DC)

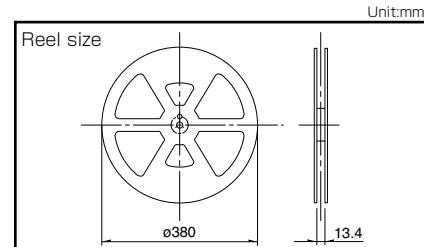
### ■ Product Line

Poles	Positions	Terminal type	Slider height (mm)	ON start position (mm)	Total travel position (mm)	Style	Location lug	Minimum order unit (pcs)		Product No.	Drawing No.
								Japan	Export		
1	1	For PC board (Reflow)	h=3.8	h <sub>1</sub> =3.5	h <sub>2</sub> =2.5	Standard	Without	2,800	22,400	SPVE110100	1
			h=4.1	h <sub>1</sub> =3.8	h <sub>2</sub> =2.9		With			SPVE110600	
			h=4.8	h <sub>1</sub> =4.5	h <sub>2</sub> =3.6		Without			SPVE110401	
			h=5.2	h <sub>1</sub> =4.9	h <sub>2</sub> =4.0		With			SPVE110801	
			h=5.5	h <sub>1</sub> =5.2	h <sub>2</sub> =4.3		Without	2,200	17,600	SPVE110200	
			3.3	3.0	2.0		With	2,000	16,000	SPVE110900	
							—	2,800	22,400	SPVE111300	2
										SPVE111200	
										SPVE210100	

### ■ Packing Specifications

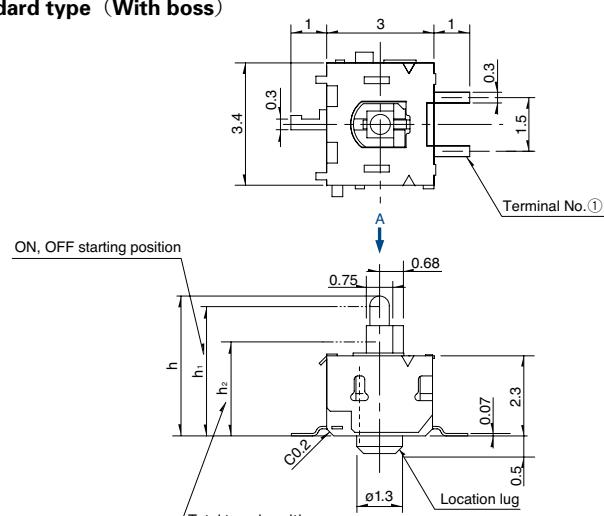
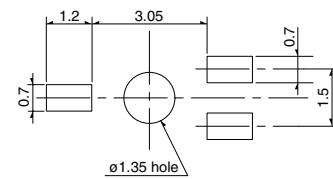
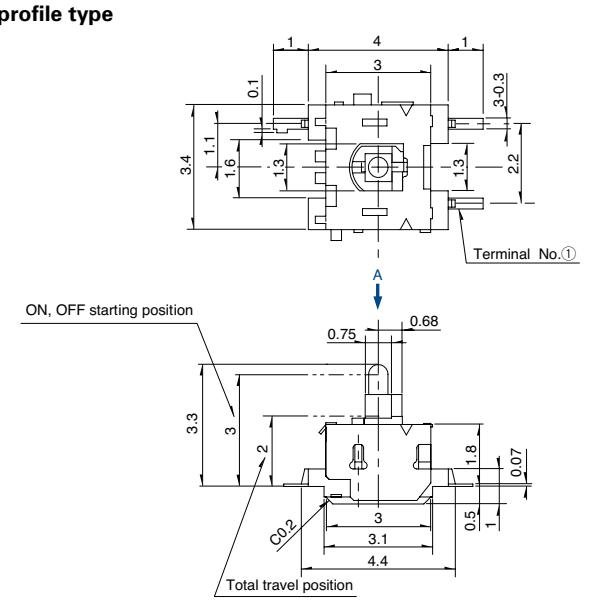
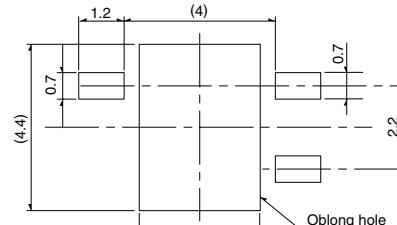
#### Taping

Product No.	Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
	1 reel	1 case /Japan	1 case /export packing		
SPVE110100	2,800	5,600	22,400		
SPVE110600					
SPVE110401					
SPVE110801					
SPVE110200	2,200	4,400	17,600		
SPVE110900					
SPVE111300	2,000	4,000	16,000		
SPVE111200					
SPVE210100	2,800	5,600	22,400		



## Dimensions

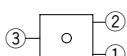
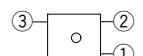
Unit:mm

No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)
1	<b>Standard type (With boss)</b>  <b>Reflow pattern</b> 	PC board mounting hole and land dimensions (Viewed from direction A)
2	<b>Low-profile type</b>  <b>Reflow pattern</b> 	PC board mounting hole and land dimensions (Viewed from direction A)

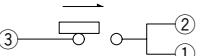
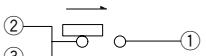
## Note

Dimensions drawing is for type with location lugs.

## Terminal Layout (Viewed from Direction A)

Standard type	Low-profile type
	

## Circuit Diagram

Standard type	Low-profile type
	

# Detector Switches

## List of Varieties

Series		General-purpose Type					
		SPVS	SPVN	SPVT	SPVM	SPVR	SPVE
Photo							
Operation type		Two-way					
Dimensions (mm)	W	3.5	3.8	5.6	2.8	3.6	3.4
	D	3.3	3.6	4.7	3.5	4.2	3
	H	1		1.9	1.5	1.2	2.3
Operating temperature range		-40°C to +85°C					
Automotive use							—
Life cycle (availability)							
Poles / Positions		1/1					
Rating (max.) (Resistive load)		1mA 5V DC		50mA 20V DC	1mA 5V DC		0.1A 30V DC
Rating (min.) (Resistive load)		50µA 3V DC		100µA 3V DC	50µA 3V DC	100µA 3V DC	
Durability	Operating life without load	50,000cycles 5Ω max.		100,000cycles 1Ω max.	50,000cycles 5Ω max.		50,000cycles 1Ω max.
	Operating life with load Rating (max.) (Resistive load)	50,000cycles 5Ω max.		100,000cycles 1Ω max.	50,000cycles 5Ω max.		50,000cycles 1Ω max.
Electrical performance	Initial contact resistance	2Ω max.		500mΩ max.	2Ω max.	3Ω max.	500mΩ max.
	Insulation resistance	100MΩ min. 100V DC					
	Voltage proof	100V AC for 1 minute					
Mechanical performance	Terminal strength	0.5N for 1minute			1N for 1minute	0.5N for 1minute	
	Actuator strength	5N		10N	5N	2N	5N
Environmental performance	Cold	-40°C 96h					
	Dry heat	85°C 96h					
	Damp heat	40°C, 90 to 95%RH 96h					
Operation force		0.35N max.		0.4N max.		0.35N max.	0.3N max.
Page		16	19	21	24	26	27

Detector Switches Soldering Conditions	66
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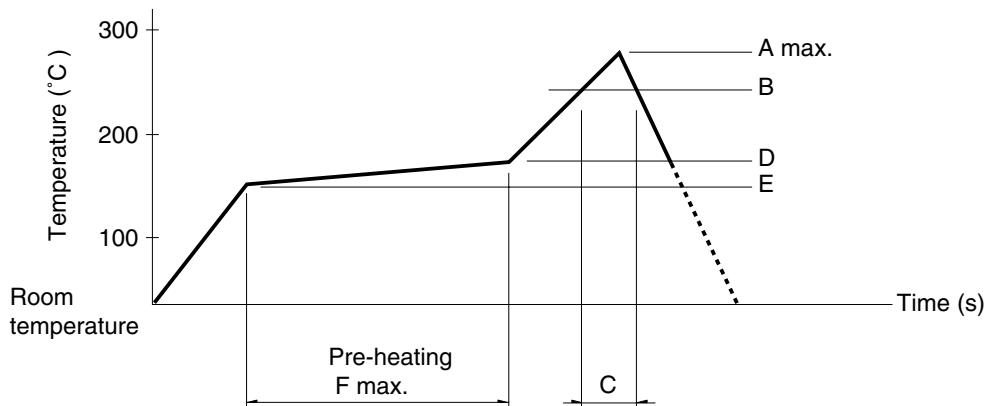
### Note

- 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)
<b>SPPB</b>	250		40			
<b>SPVE</b>						
<b>SPVL</b>						
<b>SPVM</b>						
<b>SPVN</b>						
<b>SPVR</b>	260	230	40	180	150	120
<b>SPVS</b>						
<b>SPVT</b>						
<b>SSCM</b>						
<b>SSCQ</b>						
<b>SPVQC</b>	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
<b>SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVQC</b>	$350 \pm 5^\circ\text{C}$	3s max.
<b>SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA</b>	$300 \pm 10^\circ\text{C}$	3 + 1 / 0s
<b>SPPB (Reflow)</b>	$300 \pm 5^\circ\text{C}$	5s max.
<b>SSCF, SPPB (For Lead, Dip)</b>	$350 \pm 10^\circ\text{C}$	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
<b>SSCT, SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA</b>	$100 \pm 10^\circ\text{C}$	60s max.	$260 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$
<b>SPPW8, SPPB</b>	$100^\circ\text{C}$ max.	60s max.	$255 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$
<b>SSCF</b>	—	—	$260 \pm 5^\circ\text{C}$	$5 \pm 1\text{s}$

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[SPVE110801](#) [SPVE110602](#)