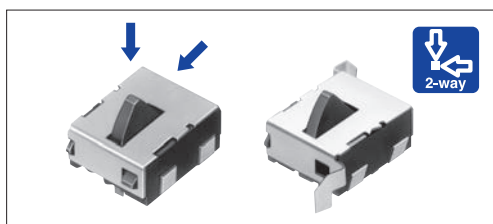




3.5×2.8×height 1.5mm compact detector switch detects from both vertical and horizontal directions.



Typical Specifications

Items		Specifications
Rating (max.) / (min.) (Resistive load)		1mA 5V DC / 50μA 3V DC
Contact resistance (Initial /After operating life)		2 Ω max. / 5 Ω max.
Operating force		0.4N max.
Operating life	Without load	50,000cycles
	With load	50,000cycles (1mA 5V DC)

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Product Line

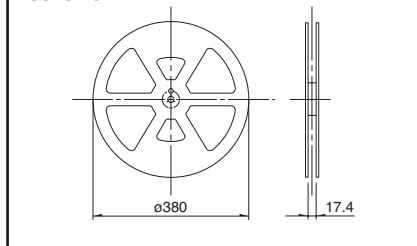
Poles	Positions	Terminal type	Frame	Location lug	Minimum order unit (pcs)		Product No.	Drawing No.
					Japan	Export		
1	1	For PC board (Reflow)	Without terminal	With	3,000	12,000	SPVM110100	1
				Without			SPVM110200	
			With terminal	With			SPVM210100	2
				Without			SPVM210200	

Packing Specifications

Taping

Unit:mm

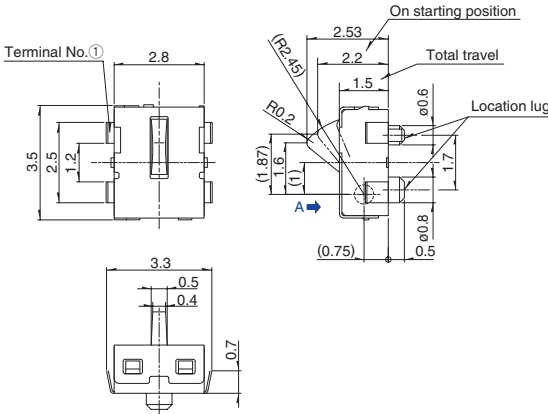
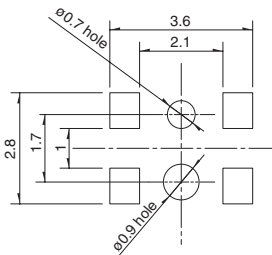
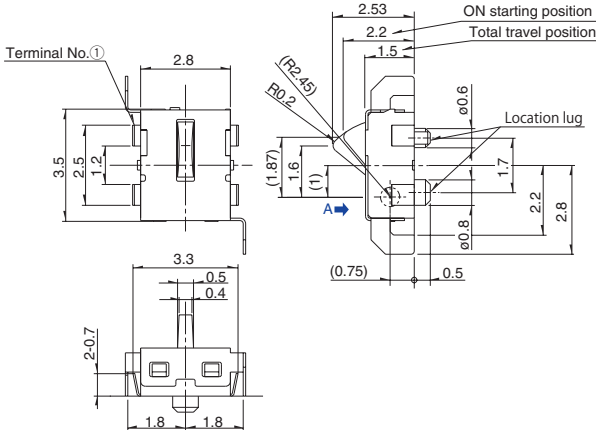
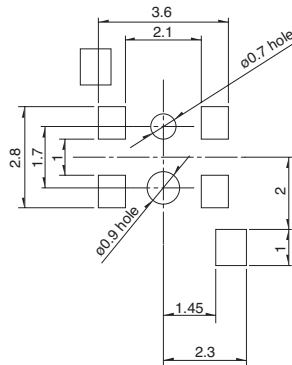
Reel size



Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
1 reel	1 case / Japan	1 case / export packing		
3,000	6,000	12,000	16	417 × 409 × 139

■ Dimensions

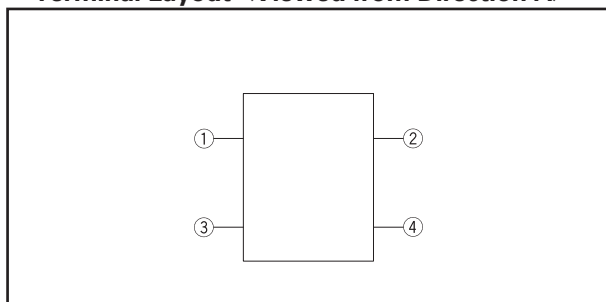
Unit:mm

Dimensions				
Detector	No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
Slide Push Rotary Encoders Power Dual-in-line Package Type TACT Switch™	1		With boss 	
	2		With boss 	

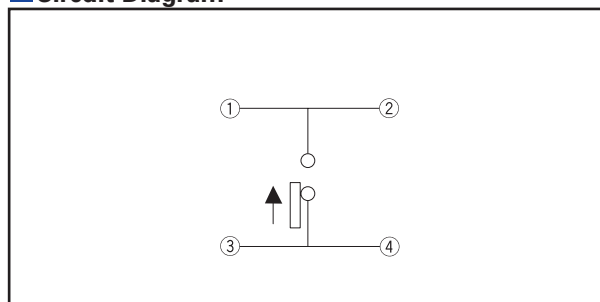
Note

Dimensions drawing is for type with location lugs.

■ Terminal Layout (Viewed from Direction A)



■ Circuit Diagram

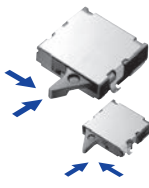
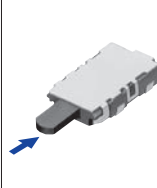
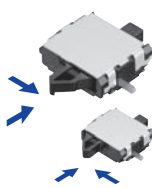
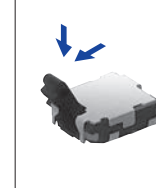


Note

When applying the soldered frame terminals as earth terminals, place No.3 and No.4 terminals on the same ground.

Detector Switches

■ List of Varieties (General-purpose Type)

Series		General-purpose Type					
		SPVS	SPVN	SPVP	SPVT	SPVM	SPVR
Photo							
Operation type		Two-way		One-way	Two-way		
Dimensions (mm)	W	3.5	3.8	3.5	5.6	2.8	3.6
	D	3.3	3.6	5.65	4.7	3.5	4.2
	H	1		1.2	1.9	1.5	1.2
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	
Rating (min.) (Resistive load)		50μA 3V DC		100μA 3V DC		50μA 3V DC	100μA 3V DC
Durability	Operating life without Load	50,000cycles 5 Ω max.		50,000cycles 10 Ω max.	100,000cycles 1 Ω max.	50,000cycles 5 Ω max.	
	Operating life with Load Rating (max.) (Resistive load)	50,000cycles 5 Ω max.		50,000cycles 10 Ω max.	100,000cycles 1 Ω max.	50,000cycles 5 Ω max.	
Electrical performance	Initial contact resistance	2 Ω max.		5 Ω max.	500mΩ max.	2 Ω max.	3 Ω 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
Environmental performance	Cold	-40±2°C for 96h					
	Dry heat	85±2°C for 96h					
	Damp heat	40 ± 2°C, 90 to 95% RH for 96h					
Operation force		0.35N max.		0.55N max.	0.4N max.		0.35N max.
Page		13	15	17	18	21	23

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

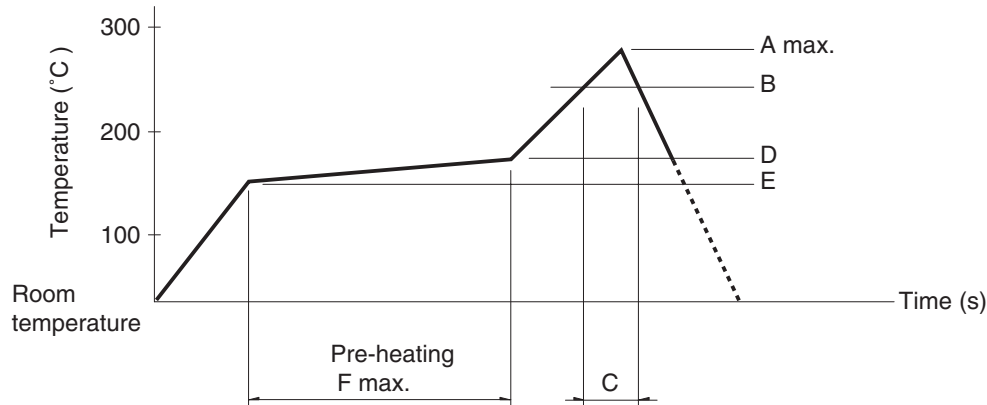
- Detector Switches Soldering Conditions 66
- Detector Switches Cautions 67

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