

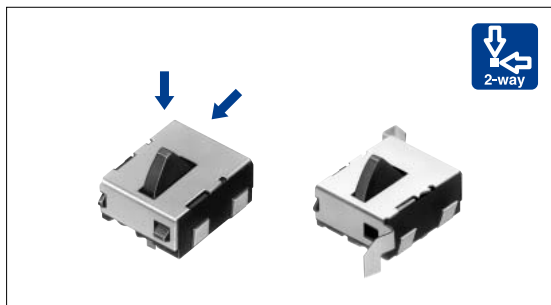
# Detector Switch Compact Two-way Operation Type

SPVM Series



3.5×2.8×height1.5mm compact detector switch detects from both vertical and horizontal direction.

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power



## Typical Specifications

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

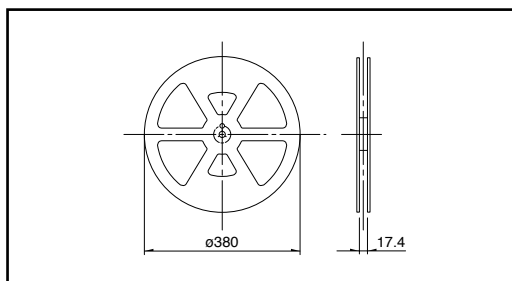
- Dual-in-line  
Package Type
- TACT Switch™
- Custom-  
Products

## Product Line

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

## Taping Specifications (Taping Packaging)

Reel Size Unit:mm



Number of packages( pcs. )			Tape width ( mm )
1 reel	1 case /Japan	1 case /export packing	
3,000	6,000	12,000	16

## Notes

1. When applying the soldered frame terminals as earth terminals, place No.3 and No.4 terminals on the same ground.
2. Please place purchase orders per minimum order unit(integer).

Detector

Push

Slide

Rotary


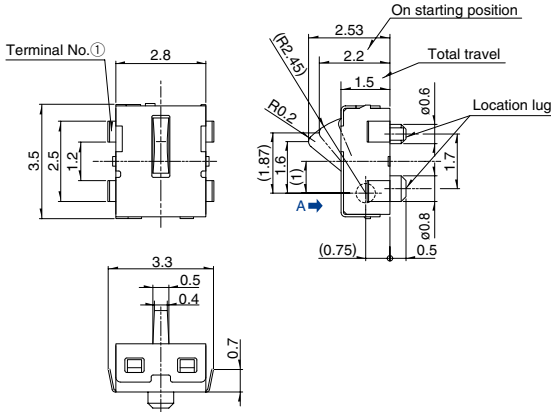
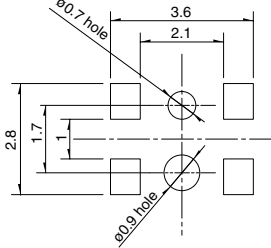

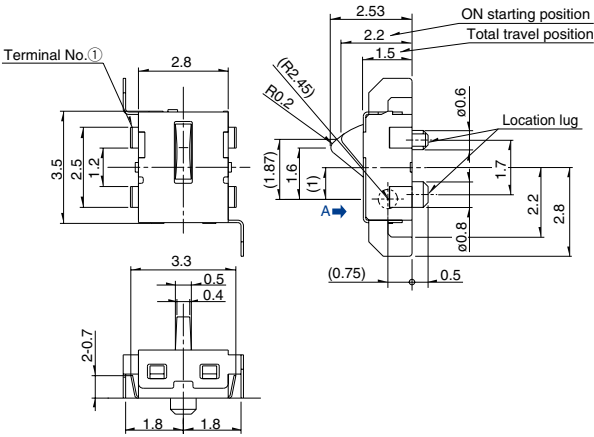
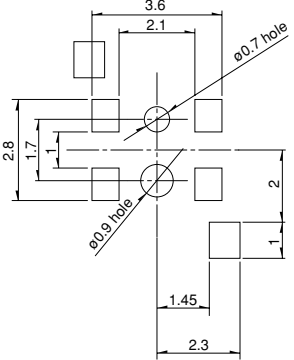
Encoders

Power

Dual-in-line  
Package Type

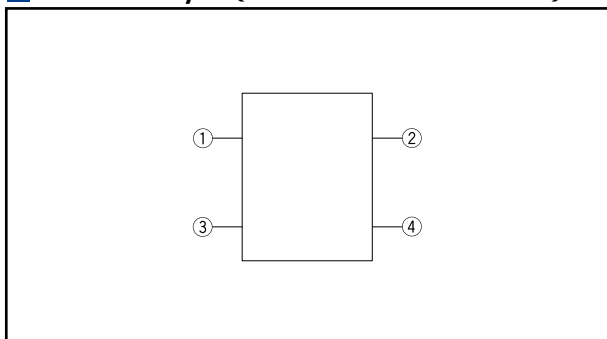
TACT Switch™

Custom-  
Products

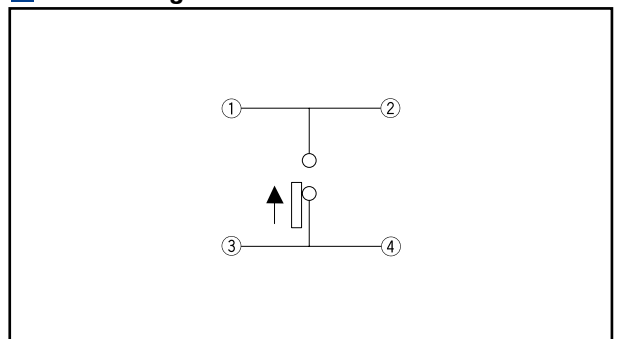
No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
1			
2			

**Note**  
Above dimensions indicate "with location lug" versions.


















**Terminal Layout (Viewed from Direction A)**



**Circuit Diagram**



## List of Varieties ( General-purpose Type )

Series	General-purpose Type								
	SPPB	SPVE	SPPW8	SPVM	SPVR	SPVF	SSCU	SSCT	
Photo									
Operation type	 								
Operating temperature range	-40 to +85	-10 to +60		-40 to +85		-10 to +60	-40 to +85		
Rating (max.) (Resistive load)	0.1A 30V DC			1mA 5V DC			0.1A 12V DC		
Rating (min.) (Resistive load)	50μA 3V DC		100μA 3V DC	50μA 3V DC	100μA 3V DC	50μA 3V DC			
Electrical performance	Initial contact resistance	1 max.	500m max.	1 max.	2 max.	3 max.	500m max.	70m max. 20m max.	
	Insulation resistance	100M min. 100V DC						100M min. 250V DC	
	Voltage proof	100V AC for 1 minute						250V AC for 1 minute	
Mechanical performance	Terminal strength	3N for 1 minute	0.5N for 1 minute	3N for 1 minute	1N for 1 minute	0.5N for 1 minute	3N for 30s	3N for 1 minute	
	Actuator strength	10N	5N	10N	5N	2N	1N	5N 10N	
Durability	Operating life without Load	50,000cycles 2 max.	50,000cycles 1 max.	100,000cycles 2 max.	50,000cycles 5 max.		100,000cycles 1 max.	10,000cycles 100m max. 40m max.	
	Operating life with Load	(0.1A 30V DC) 50,000cycles 2 max.	(0.1A 30V DC) 50,000cycles 1 max.	(0.1A 30V DC) 100,000cycles 2 max.	(1mA 5V DC) 50,000cycles 5 max.		(1mA 5V DC) 100,000cycles 1 max.	(0.1A 12V DC) 10,000cycles 150m max. 60m max.	
Environmental performance	Cold	-20 ± 2 for 96h					-40 ± 2 for 96h	-20 ± 2 for 96h	
	Dry heat	85 ± 2 for 96h							
	Damp heat	40 ± 2 , 90 to 95%RH for 96h							
Dimensions (mm)	W	6.3	3.4	5	2.8	3.6	9	11 12.5	
	D	3		4	3.5	4.2	3.5	5.8 5	
	H	4.9	2.3		1.5	1.2	4.5	7 11.5	
Soldering	Manual soldering	300 ± 5 , 5s max.		350 ± 5 , 3s max.			300 ± 10 , 3 ± 1s 350 ± 5 , 3s max.		
	Dip soldering	260 ± 5 , 5 ± 1s		255 ± 5 , 5 ± 1s		245 ± 5 , 5 ± 1s		260 ± 5 , 5 ± 1s	
	Reflow soldering	Please see P.79							
Number of poles	1					1.2	1		
Operation force	0.35N max.	0.3N max.		0.4N max.	0.35N max.	0.3N max.	0.5N max.	0.7 ± 0.3N	
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Detector

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Dual-in-line Package Type

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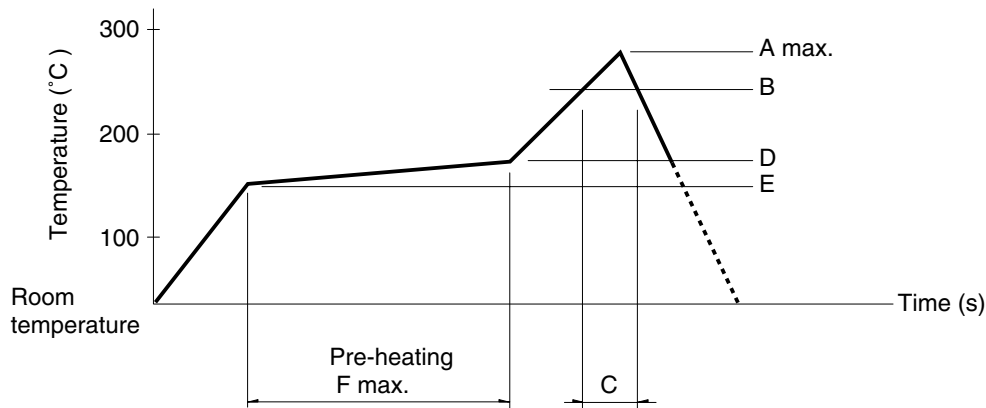
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Detector Switches Cautions .....80

## Soldering Conditions

### Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 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



**Detector**

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Series( Reflow type )	A( ) 3s max.	B( )	C(s)	D( )	E( )	F(s)
SPPB	250	230	40			
SPPW8		200	20			
SPVE	260	230	40	180	150	120
SPVG						
SPVL						
SPVM						
SPVN						
SPVP						
SPVR						
SPVS						
SSCM						
SPPY5						

**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, 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.