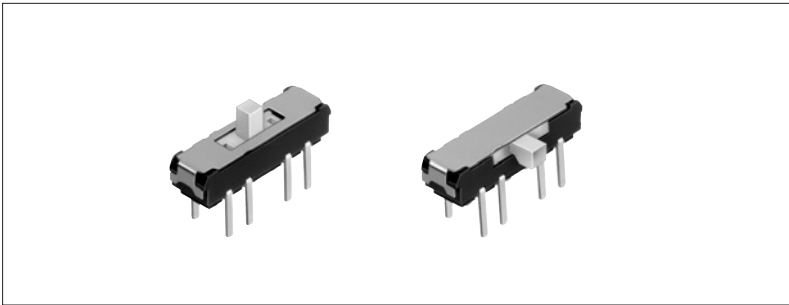


# 3.5(H)mm, 2mm-travel Type Slide Switch

SSSS2 Series

Excellent for compact, high density mobile devices.

- Power
- Push
- Slide**
- Rotary
- Encoders
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT
- Small size General Use type
- Big size General Use type
- Other Use type



## Features

- 2mm-travel.
- Reflow solderable type is also available.
- All varieties are non-shorting types.

## Applications

- Mode changeover for DVD players, liquid crystal TVs, portable CD/MDs, remote controls, etc.
- Switches for vending machines, interphones, and insect repellants

## Typical Specifications

Items		Specifications
Rating (max.) (Resistive load)		0.3A 6V DC
Contact resistance (Initial performance / After lifetime)		70mΩ max. / 130mΩ max.
Operating force		Refer to the dimensions.
Operating life	Without load	※ 10,000 cycles
	With load	※ 10,000 cycles (0.3A 6V DC)

※SSSS213201 only 100 cycles

## Products Line

Travel (mm)	Operating section directions	Length of operating section (mm)	Poles	Positions	Changeover timing	Soldering	Minimum packing unit (pcs.)	Products No.	Drawing No.
2	Vertical	2	1	2	Non shorting	Manual, Dip	100	SSSS213000	1
				3				SSSS211900	2
			2	2				SSSS222700	3
				3				SSSS223600	4
			1	2				SSSS213202	5
				3				SSSS212901	6
	4	SSSS213100		7					
	Horizontal	2	2	1	2	Manual, Dip	100	SSSS212200	8
					3			SSSS212400	9
					4			SSSS223200	10
				2	2			SSSS223900	11
					3			SSSS224100	12
				1	2			2	1
	3	SSSS212301	14						
	2	3	SSSS224001	15					

## Note

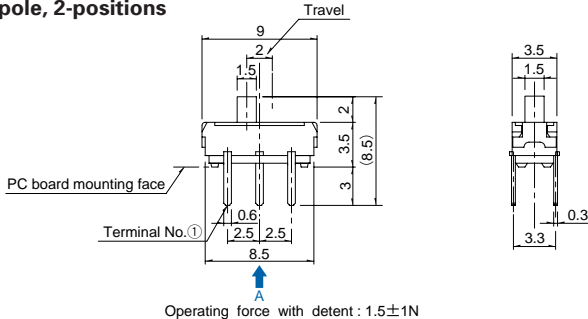
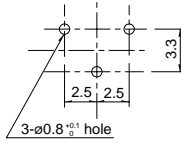
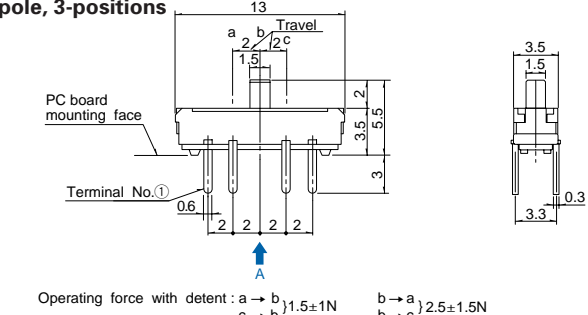
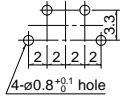
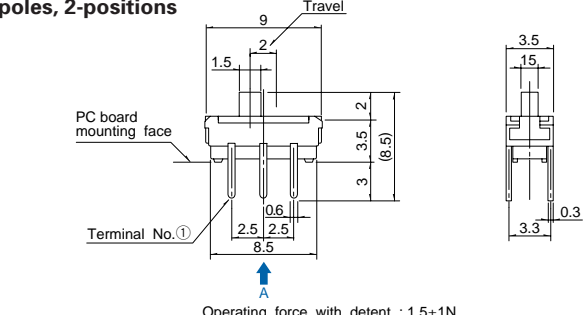
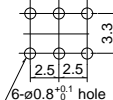
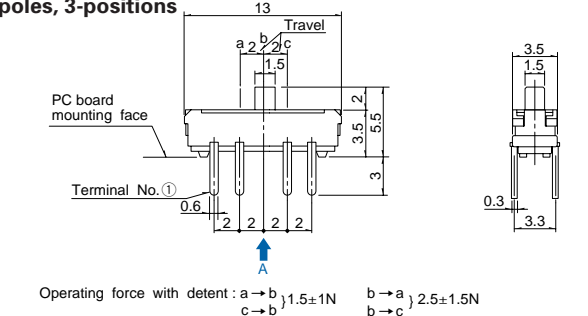
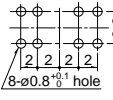
Additional switches not included in the above list are also available. Contact us for details.

For other detailed specifications, see P.150  
For specifications for the taping package, see P.153

**Dimensions**

Vertical Operating Section Type

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
1	<p><b>1-pole, 2-positions</b></p>  <p>Operating force with detent : 1.5±1N</p>	 <p>3-ø0.8<sup>+0.1</sup> hole</p>
2	<p><b>1-pole, 3-positions</b></p>  <p>Operating force with detent : a → b } 1.5±1N b → a } 2.5±1.5N c → b } 2.5±1.5N</p>	 <p>4-ø0.8<sup>+0.1</sup> hole</p>
3	<p><b>2-poles, 2-positions</b></p>  <p>Operating force with detent : 1.5±1N</p>	 <p>6-ø0.8<sup>+0.1</sup> hole</p>
4	<p><b>2-poles, 3-positions</b></p>  <p>Operating force with detent : a → b } 1.5±1N b → a } 2.5±1.5N c → b } 2.5±1.5N</p>	 <p>8-ø0.8<sup>+0.1</sup> hole</p>

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Small size General Use type

Big size General Use type

Other Use type

**Dimensions**

Reflow, Horizontal Operating Section Type

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
5	<p><b>1-pole, 2-positions Reflow</b></p> <p>Operating force with detent: 3±2N</p>	
6	<p><b>1-pole, 3-positions Reflow</b></p> <p>Operating force with detent : a → b } 1.5±1N    b → a } 2.5±1.5N c → b } 1.5±1N    b → c } 2.5±1.5N</p>	

**Circuit Diagram (Viewed from the Direction A)**

1-pole, 2-positions	1-pole, 3-positions	2-poles, 2-positions	2-poles, 3-positions

**Dimensions**

Horizontal Operating Section Type

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
7	<p><b>1-pole, 2-positions</b></p> <p>Operating force with detent : 1.5±1N</p>	
8	<p><b>1-pole, 3-positions</b></p> <p>Operating force with detent : a → b } 1.5±1N    b → a } 2.5±1.5N c → b } 1.5±1N    b → c } 2.5±1.5N</p>	

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Small size  
General Use type

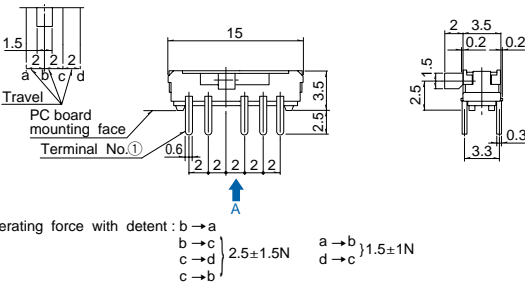
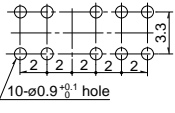
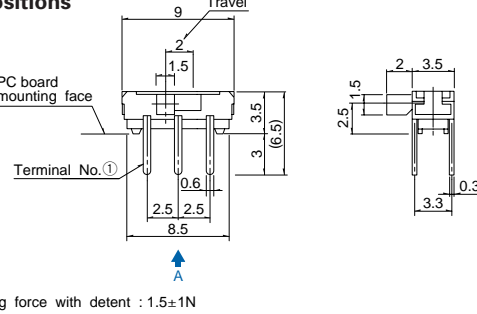
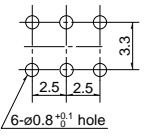
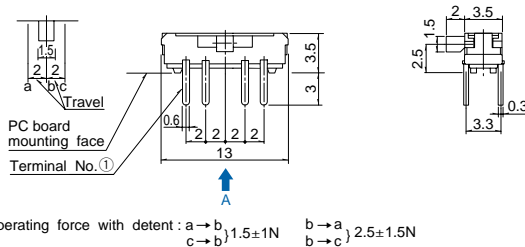
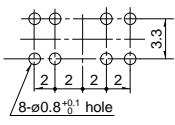
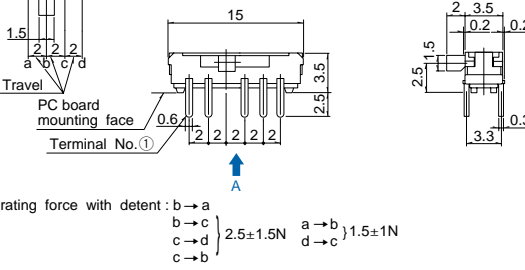
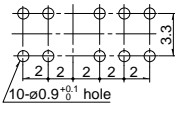
Big size  
General Use type

Other Use type

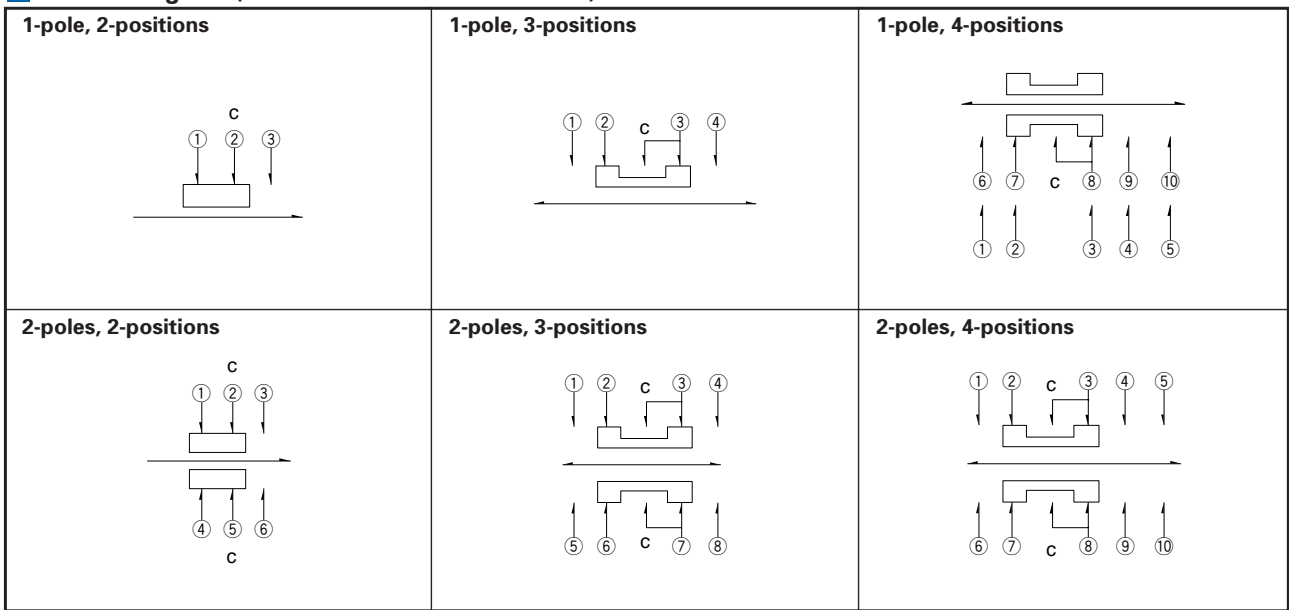
**Dimensions**

Horizontal Operating Section Type

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
9	<p><b>1-pole, 4-positions</b></p>  <p>Operating force with detent : <math>b \rightarrow a</math>  <math>b \rightarrow c</math>  <math>c \rightarrow d</math>  <math>c \rightarrow b</math> } <math>2.5 \pm 1.5N</math>    <math>a \rightarrow b</math>  <math>d \rightarrow c</math> } <math>1.5 \pm 1N</math></p>	 <p>10-ø0.9<sup>+0.1</sup> hole</p>
10	<p><b>2-poles, 2-positions</b></p>  <p>Operating force with detent : <math>1.5 \pm 1N</math></p>	 <p>6-ø0.8<sup>+0.1</sup> hole</p>
11	<p><b>2-poles, 3-positions</b></p>  <p>Operating force with detent : <math>a \rightarrow b</math>  <math>c \rightarrow b</math> } <math>1.5 \pm 1N</math>    <math>b \rightarrow a</math>  <math>b \rightarrow c</math> } <math>2.5 \pm 1.5N</math></p>	 <p>8-ø0.8<sup>+0.1</sup> hole</p>
12	<p><b>2-poles, 4-positions</b></p>  <p>Operating force with detent : <math>b \rightarrow c</math>  <math>b \rightarrow d</math>  <math>c \rightarrow d</math>  <math>c \rightarrow b</math> } <math>2.5 \pm 1.5N</math>    <math>a \rightarrow b</math>  <math>d \rightarrow c</math> } <math>1.5 \pm 1N</math></p>	 <p>10-ø0.9<sup>+0.1</sup> hole</p>

**Circuit Diagram (Viewed from the Direction A)**



- Power
- Push
- Slide**
- Rotary
- Encoders
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT

- Small size General Use type
- Big size General Use type
- Other Use type

**Dimensions**

Horizontal Operating Section Type, Reflow

Unit : mm

No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
13	<p><b>1-pole, 2-positions</b></p> <p>Operating force with detent : 1.5±1N</p>	
14	<p><b>1-pole, 3-positions</b></p> <p>Operating force with detent : a → b } 1.5±1N c → b } b → a } 2.5±1.5N b → c }</p>	
15	<p><b>2-poles, 3-positions</b></p> <p>Operating force with detent : a → b } 1.5±1N c → b } b → a } 2.5±1.5N b → c }</p>	

**Circuit Diagram (Viewed from the Direction A)**

<p><b>1-pole, 2-positions</b></p>	<p><b>1-pole, 3-positions</b></p>	<p><b>2-poles, 3-positions</b></p>
-----------------------------------	-----------------------------------	------------------------------------

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Small size  
General Use type

Big size  
General Use type

Other Use type

## Products Specifications

Items	Series		SSAD	SSSS8	SSSS7	SSSS2	SSSS9	SSSF	SSSU	
	Power	Operating temperature range		-10°C to +60°C						
Push	Rating (max.) (Resistive load)		1mA 5V DC	0.3A 4V DC		0.3A 6V DC	0.1A 12V DC	0.1A 30V DC		
Slide	Electrical performance	Initial contact resistance	100mΩ max.	70mΩ max.			30mΩ max.	25mΩ max.		
		Insulation resistance	100MΩ min. 100V DC		100MΩ min. 500V DC					
		Voltage proof	100V AC for 1 min.		500V AC for 1 min.					
Rotary	Mechanical performance	Robustness of terminal	3N for 1 min.				5N for 1 min.			
Jog Shuttle		Robustness of actuator	Operating direction	5N	10N	20N	30N			
Telephone-hook			Pulling direction	5N	10N static force		10N	30N static force		
Detector	Mechanical performance	Vibration	10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively							
Vibration Sensors		Solderability	230±5°C, 3±0.5s							
Dual-in-line Package Type		Resistance to soldering heat	Manual soldering	300±5°C 5s max.	260±5°C 3s max.	350±10°C 4s max.	300±10°C 5s max.	350±10°C 5s max.	350±10°C 3 <sup>+1</sup> <sub>0</sub> s	
Multi Control Devices			Dip soldering	—			※1 260±5°C 5 <sub>-1</sub> s			260±5°C 10±1s
TACT	Durability	Reflow soldering	Please see P.152				—			
Small size General Use type		Operating life without load	※2 10,000 cycles 100mΩ max.				10,000 cycles 60mΩ max.	10,000 cycles 45mΩ max.		
	Operating life with load Load : As rating	10,000 cycles 200mΩ max.	※2 10,000 cycles 130mΩ max.			10,000 cycles 80mΩ max.	10,000 cycles 65mΩ max.			
	Big size General Use type	Environmental performance	Cold	-20±2°C for 96h						
Dry heat			85±2°C for 96h							
Damp heat			40±2°C, 90 to 95%RH for 96h							
Other Use type										

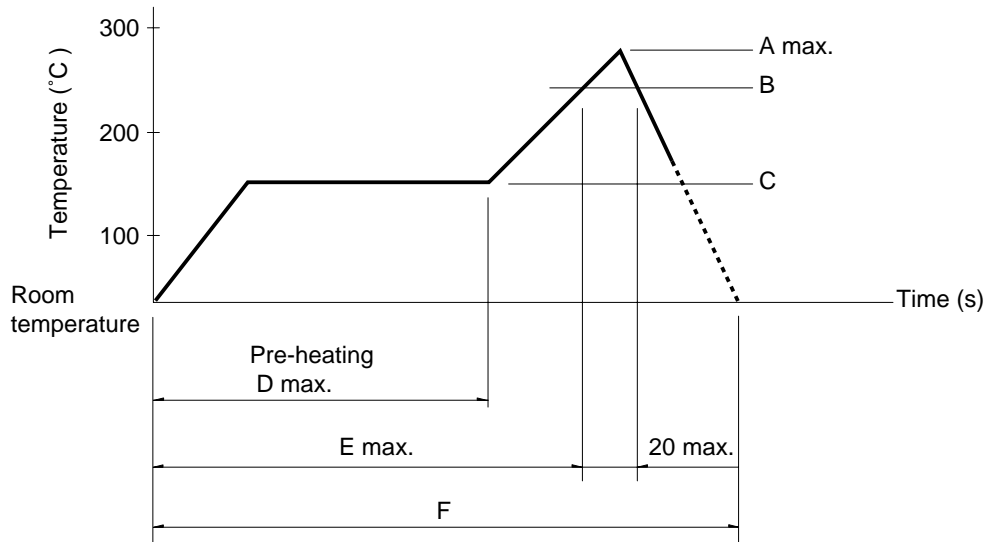
### Note

- ※1 Horizontal type products in SSSS2 Series with 1 pole and 2 positions are not dip solderable.
- ※2 SSSS213202 only 100cycles.

## 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  $\phi$  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 (°C)	D (s)	E (s)	F (s)				
SSSS2	Vertical	1-pole, 3-positions	250	200	150	120	—	—				
	Horizontal	1-pole, 2-positions										
	Vertical	1-pole, 2-positions										
	Horizontal	1-pole, 3-positions 2-poles, 3-positions										
SSSS7			250									
SSAD			240	220								
SSSS8	Horizontal	1-pole, 2-positions 1-pole, 3-positions (1.5mm)	255	200								
		1-pole, 3-positions (2mm) 1-pole, 4-positions 2-poles, 2-positions	240	220								
	Vertical											
SSST			240	200								

### 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. You are requested to verify the soldering conditions thoroughly beforehand.

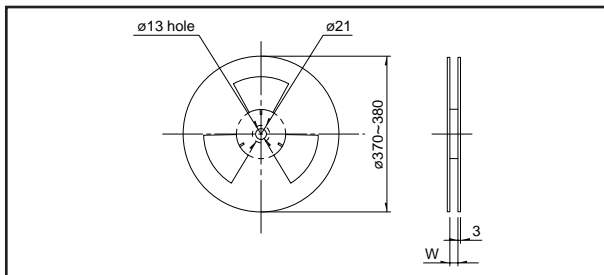


## Taping Specifications

### Taping Packaging

Reel Size

Unit : mm



Series		Number of packages (pcs.)			Reel width W (mm)	Tape width (mm)	
		1 reel	1 case/domestic	1 case/export packing			
SSSS2		1,400	2,800	5,600	24.4	24	
SSSS7※		2,000	4,000	8,000	25.5		
SSSS8	Vertical	1,800	3,600	7,200	24.4	16	
	Horizontal	1-pole, 2-positions (1.5mm) 1-pole, 2-positions (2mm) 1-pole, 3-positions (1.5mm)	4,500	9,000	18,000		16.4
		1-pole, 3-positions (2mm)	4,500	9,000	18,000		24.4
		1-pole, 4-positions 2-poles, 2-positions	2,500	5,000	10,000		
SSST		1,100	2,200	4,400	16.4	16	
SSAD		5,000	10,000	20,000			

### Notes

- Order products in N minimum packing units (1 reel or 1 case).
- ※For the SSSS7 Series only, the reel is different from what is illustrated.

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Small size  
General Use typeBig size  
General Use type

Other Use type