

### ■ Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 30V DC / 50 $\mu$ A 3V DC
Contact resistance (Initial/After operating life)		20m $\Omega$ max. / 40m $\Omega$ max.
Operating forces	2-pole	1.5 $\pm$ 1N
	4-pole	2.3 $\pm$ 1N
Operating life	Without load	10,000 cycles
	With load	10,000 cycles (0.1A 30V DC)

### ■ Product Line

Changeover timing	Travel (mm)	Total travel (mm)	Mounting method	Poles	Operation	Terminal type	Minimum order unit (pcs.)		Product No.			
							Japan	Export				
Non shorting	2	3	PC board	2	Latching	Straight	600	3,000	<b>SPUJ190900</b>			
						Snap-in			<b>SPUJ191000</b>			
				4	Momentary	Straight			<b>SPUJ191500</b>			
						Snap-in			<b>SPUJ191900</b>			
	4	400	Latching		Straight	2,000			<b>SPUJ193700</b>			
					Snap-in				<b>SPUJ193900</b>			
			Momentary		Straight				<b>SPUJ194500</b>			

### ■ Packing Specifications

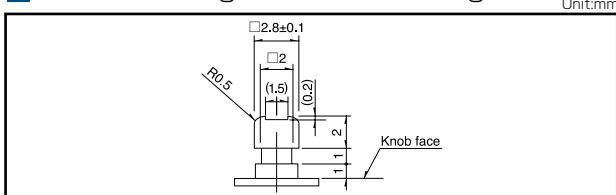
#### Bulk

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
<b>SPUJ190900, SPUJ191000, SPUJ191500, SPUJ191900</b>	600	3,000	400×270×290
<b>SPUJ193700, SPUJ193900, SPUJ194500</b>	400	2,000	

### ■ Dimensions

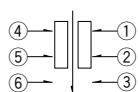
Style	PC board mounting hole dimensions (Viewed from the direction A)	
	4-pole, 2-pole	4-pole, 2-pole
	<b>Straight terminal</b>	<b>Snap-in terminal</b>
		Thickness of PC board t=1.6mm

## ■ Actuator Configuration at Front Edge

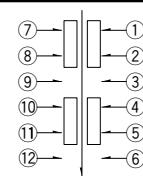


## ■ Circuit Diagram (Viewed from Direction A)

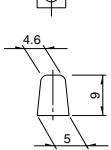
## 2-pole



## 4-pole

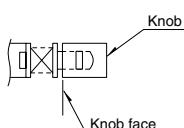


## ■ Attached Parts

Knob outline drawing	Model
 Color:Black	UJ206022

## Notes

1. Other knob varieties are also available. Please inquire.
2. We recommend the use of adhesive to secure the knob when mounting onto switches.



# Push Switches

## List of Varieties

Series		Horizontal							
		SPPJ3	SPPJ2	SPUJ	SPUN	SPUN medium current			
Photo									
Dimensions (mm)	W	5 or 6.6	7.2	7.5	10				
	D	12		15.2 22.7	24 36				
	H	8.3	9.6	8.8	13				
Travel (mm)		2.5		2	2.5				
Total travel (mm)		3.5		3	3.5				
Number of poles		1 2	2	2 4					
Operating temperature range		-40°C to +85°C		-10°C to +60°C					
Automotive use		●	●	—	—	—			
Life cycle		 3	 3	 3	 3	 3			
Rating (max.) (Resistive load)		0.2A 30V DC		0.1A 30V DC		1A 25V DC			
Rating (min.) (Resistive load)		50µA 3V DC				—			
Durability	Operating life without load	10,000 cycles 40mΩ max.			30,000 cycles 40mΩ max.	10,000 cycles 40mΩ max.			
	Operating life with load (at max. rated load)	10,000 cycles 40mΩ max.				5,000 cycles 40mΩ max.			
Electrical performance	Initial contact resistance	20mΩ max.							
	Insulation resistance	100MΩ min. 500V DC							
	Voltage proof	500V AC for 1minute							
Mechanical performance	Terminal strength	5N for 1minute							
	Actuator strength	50N	30N	50N					
		—	—	50N					
Environmental performance	Cold	-40°C 96h		-20°C 96h					
	Dry heat	85°C 96h							
	Damp heat	40°C, 90 to 95%RH 96h							
Page		111	113	115	117				

Push Switches Soldering Conditions	130
Push Switches Cautions	131

## Note

- Indicates applicability to all products in the series.

# Push Switches / Soldering Conditions

Detector

Slide

Push

Rotary

Power

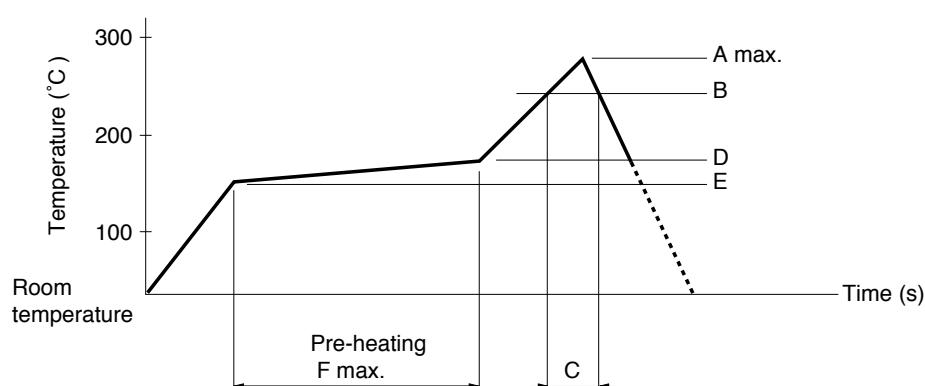
Dual-in-line  
Package Type

Horizontal

Vertical  
Type

## ■ 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>SPEJ</b>						
<b>SPEF</b>	260	230	40	180	150	120
<b>SPEH</b>						

## 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.

## ■ Reference for Hand Soldering

Series	Soldering temperature	Soldering time
<b>SPPJ3, SPPJ2, SPUN, SPPH4, SPPH1</b>	$350 \pm 10^\circ\text{C}$	3+1/0s
<b>SPED2, SPED4</b>	$350 \pm 10^\circ\text{C}$	3±0.5s
<b>SPEJ</b>	$350 \pm 10^\circ\text{C}$	4s max.
<b>SPEF</b>	$350 \pm 5^\circ\text{C}$	3s max.
<b>SPEH</b>	$350^\circ\text{C}$ max.	3s max.
<b>SPUJ</b>	$300 \pm 10^\circ\text{C}$	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>SPPJ3</b>	100°C max.	60s max.	$260 \pm 5^\circ\text{C}$	5±1s
<b>SPUN</b>	100°C max.	60s max.	$260 \pm 5^\circ\text{C}$	10±1s
<b>SPUJ, SPPH4</b>	—	—	$260 \pm 5^\circ\text{C}$	5±1s
<b>SPPJ2, SPPH1, SPED2, SPED4, SPEF</b>	—	—	$260 \pm 5^\circ\text{C}$	10±1s

# Mouser Electronics

Authorized Distributor

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ALPS:

[SPUJ193900](#) [SPUJ190900](#) [SPUJ193700](#) [SPUJ194500](#) [SPUJ191500](#) [SPUJ191900](#) [SPUJ191000](#)