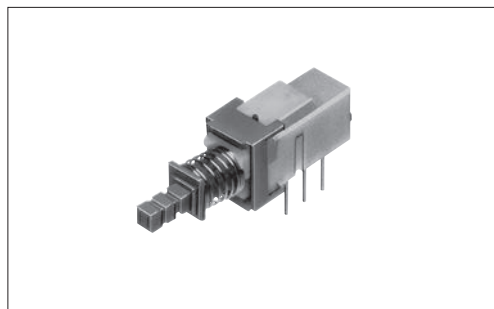




Typical Specifications



Items		Specifications	
		Standard	Medium-current
Rating (max.) / (min.) (Resistive load)		0.1A 30V DC 50 μ A 3V DC	1A 25V DC
Contact resistance (Initial / After operating life)		20m Ω max. / 40m Ω max.	
Operating forces	2-pole	2 $\pm$ 1N	3 $\pm$ 1.5N
	4-pole	2.5 $\pm$ 1N	4 $\pm$ 2N
Operating life	Without load	30,000 cycles	10,000 cycles
	With load	10,000 cycles (0.1A 30V DC)	5,000 cycles (1A 25V DC)

Product Line

Changeover timing	Travel (mm)	Total travel (mm)	Rating	Mounting method	Poles	Operation	Terminal type	Minimum order unit (pcs.)		Product No.
								Japan	Export	
Non shorting	2.5	3.5	Standard	PC board	2	Latching	Straight	250	1,250	SPUN191400
							Snap-in			SPUN191600
						Momentary	Straight			SPUN190900
							Snap-in			SPUN191000
			4		Latching	Straight	140	700	SPUN194700	
						Snap-in			SPUN194900	
			2			Straight	250	1,250	SPUN192600	
						Snap-in			SPUN192800	
4	Snap-in	140	700	SPUN19C400						

Note

Please contact us for automotive use.

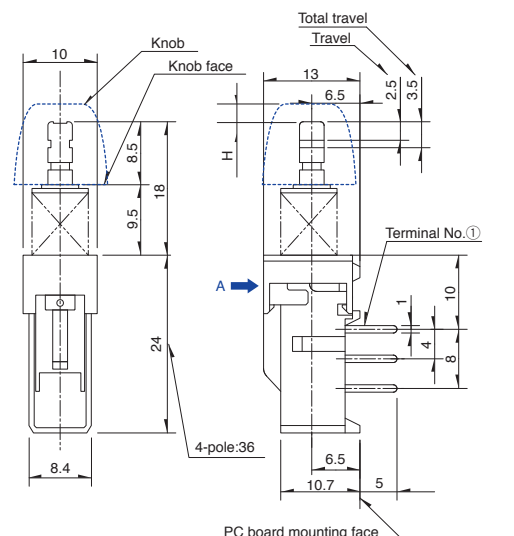
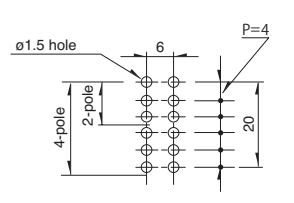
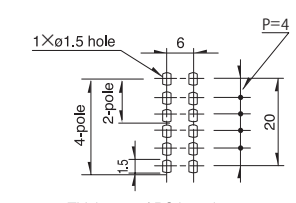
Packing Specifications

Bulk

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SPUN190900, SPUN191000 SPUN191400, SPUN191600 SPUN192600, SPUN192800	250	1,250	400 $\times$ 270 $\times$ 290
SPUN194700, SPUN194900 SPUN19C400	140	700	

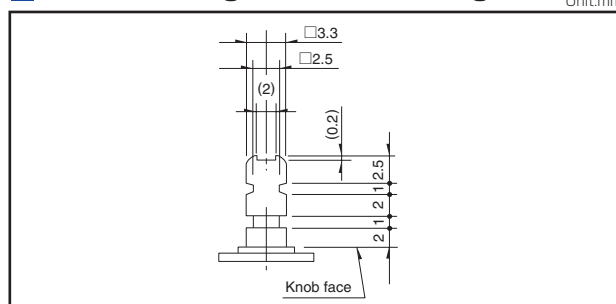
Dimensions

Unit:mm

Style	PC board mounting hole dimensions (Viewed from the direction A)	
 Technical drawing of the PC board mounting assembly. The front view (left) shows a 4-pole connector with a width of 10mm, a mounting hole diameter of 1.5mm, and a total height of 24mm. The side view (right) shows the terminal height and the PC board mounting face. Dimensions include: 10mm (width), 8.5mm (height), 9.5mm (height), 18mm (height), 24mm (height), 8.4mm (width), 13mm (width), 6.5mm (width), 2.5mm (height), 3.5mm (height), 1mm (height), 10mm (height), 4mm (height), 8mm (height), 6.5mm (width), 10.7mm (width), 5mm (height), 4-pole:36, Knob, Knob face, Total travel, Travel, Terminal No. ①, PC board mounting face, and direction A.	Straight terminal  Technical drawing of the straight terminal layout. It shows a 4-pole connector with a width of 6mm, a mounting hole diameter of 1.5mm, and a total height of 20mm. Dimensions include: 1.5mm (hole diameter), 6mm (width), 4-pole, 2-pole, 20mm (height), and P=4.	Snap-in terminal  Technical drawing of the snap-in terminal layout. It shows a 4-pole connector with a width of 6mm, a mounting hole diameter of 1.5mm, and a total height of 20mm. Dimensions include: 1.5mm (hole diameter), 6mm (width), 4-pole, 2-pole, 20mm (height), 1.5mm (height), and P=4. Thickness of PC board $t=1.6\text{mm}$

Actuator Configuration at Front Edge

Unit:mm



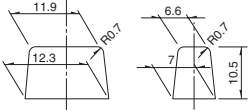
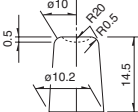
■ Circuit Diagram (Viewed from Direction A)

2-pole

4-pole

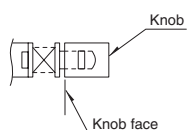
Attached Parts Please specify required knob.

Unit:mm

Knob outline drawing		Model	Knob attachment height (H)
Square knob 	Color:Black	UE201011	2
Round knob 	Color:Black	UE200011	6

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℃ to +85℃		−10℃ to +60℃		
Automotive use			●	●	—	—	—
Life cycle							
Rating (max.) (Resistive load)			0.2A 30V DC			0.1A 30V DC	
Rating (min.) (Resistive load)			50μA 3V DC				1A 25V DC
Durability	Operating life without load		10,000 cycles 40mΩ max.				30,000 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	Operating direction	50N	30N	50N		
		Pulling direction	—	—	50N		
Environmental performance	Cold		−40℃ 96h	−20℃ 96h			
	Dry heat		85℃ 96h				
	Damp heat		40℃, 90 to 95%RH 96h				
Page			116	118	120	122	

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Push Switches Cautions 139

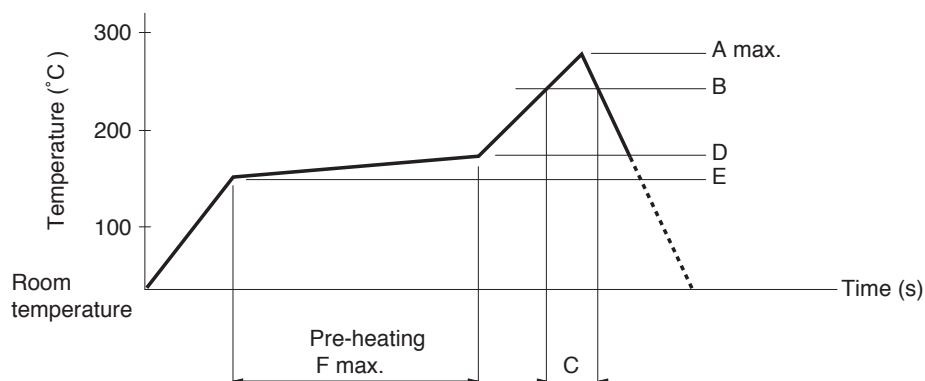
Notes

- ※ The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- Indicates applicability to all products in the series.

Push Switches Soldering Conditions

■ Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple ϕ 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)
SPEG	260	230	40	180	150	120
SPEJ						
SPEF						
SPEH						

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
SPPJ3, SPPJ2, SPUN, SPPH4, SPPH1	350±10°C	3+1/0s
SPED2, SPED4	350±10°C	3±0.5s
SPEJ	350±10°C	4s max.
SPEG, SPEF	350±5°C	3s max.
SPEH, SPPH2	350°C max.	3s max.
SPUJ	300±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
SPPJ3	100°C max.	60s max.	260±5°C	5±1s
SPUN	100°C max.	60s max.	260±5°C	10±1s
SPUJ, SPPH2, SPPH4	—		260±5°C	5±1s
SPPJ2, SPPH1, SPED2, SPED4, SPEF	—		260±5°C	10±1s