

2mm-travel Horizontal Type



Horizontal type suitable for multiple circuits.



Typical Specifications

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

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line Package Type

TACT Switch™

Product Line

Changeover	Travel	Total travel	Mounting	Poles	Operation	Terminal	Minimum ord	ler unit (pcs.)	Product No.
timing	(mm)	(mm)	method	Poles	les Operation	type	Japan	Export	Product No.
	2 3		PC board		Latching	Straight	100	3,000	SPUJ190900
Non shorting		3		2		Snap-in			SPUJ191000
					Momentary	Straight			SPUJ191500
						Snap-in			SPUJ191900
				Latelita	Straight			SPUJ193700	
				4	4 Latching	Snap-in		2,000	SPUJ193900
					Momentary	Straight			SPUJ194500

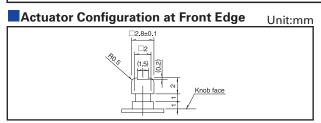
- Notes 1. Other varieties are also available. Please inquire.
 - 2. Please contact us for automotive use.

Packing Specifications **Bulk**

Due due t Ne	Number of pa	Export package	
Product No.	1 case / Japan	1 case / export packing	measurements (mm)
SPUJ190900, SPUJ191000, SPUJ191500, SPUJ191900	600	3,000	400 × 270 × 290
SPUJ193700, SPUJ193900, SPUJ194500	400	2,000	400 × 270 × 290

Horizontal Type Vertical Type

Dimensions Unit:mm PC board mounting hole dimensions (Viewed from the direction A) Style 2-poles, 4-poles Straight terminal **Snap-in terminal** Travel Total travel Terminal No.1 2.5×5 ∕0.7×ø0.9 holes Thickness of PC board t=1.6mm



Circuit Diagram (Viewed from Direction A)

2-poles	4-poles
4—————————————————————————————————————	7 — 1 — 1 — 2 — 3 — 3 — 4 — 5 — 6

Attached Parts

Unit:mm

Knob outline draw	Model				
Ф	Color:Black				
4.6		UJ206022			

Notes

- 1. Other knob varieties are also available. Please inquire.
- 2. We recommend the use of adhesive to securethe knob when mounting ontoswitches.



Push Switches

■ List of Varieties

					Horiz	ontal				Vertical	
S	Series		SPPJ3	SPPJ2	SPUJ*1	SPUP*1	SPUN	SPUN medium current **1	SPEG	SPEJ	SPEH
Photo									2		
		W	5 or 6.6	7.2	7	.5	1	0	7.2	7	6
Dimensio (mm)		D	1	2	15.2 22.7			24 36		7	6
		н	8.3	9.6	8.8	10.3	1	3	3.5	5.95	5
Trav	/el (mm)	2.	5	2	1.5 2	2	.5	_	1.7	_
Total t	ravel (n	nm)	3.	.5	3	2.5 3	3	.5	1.1	1.7	1 1.6
Numb	er of po	oles	1 2	2			<u>2</u> 4		1	2	1
Op temper	erating ature ra		−40°C to +85°C			−10°C to	o +60°C			−40°C to +85°C	−40°C to +90°C
Auton	notive	use	•	•	_	_	_	_	_	•	•
Lif	e cycle		*3	*3	*3	\bigstar_1	*3	*3	*3	*3	* 3
	ng (max stive lo		0.2A 3	0.2A 30V DC 0.1A 30V DC 1A 25V DC				1A 25V DC	1mA 5V DC	0.2A 14V DC	50mA 16V DC
	ng (min stive lo				50μA 3V DC	;		1A 25V DC	50μA 3V DC	_	10 μ A 1V DC
Durability		ting life ut load	10,000cycles 40m Ω max. $\begin{array}{c} 30,000\text{cycles} \\ 40\text{m}\Omega \text{ max}. \end{array}$					100,000cycles 40mΩ max.	30,000cycles 500mΩ max.	10,000cycles 150m Ω max.	100,000cycles 400mΩ max.
Durability		life with load rated load)	10,000 cycles $40 \text{m}\Omega$ max. $\begin{array}{c} 5,000 \text{cycles} \\ 40 \text{m}\Omega \end{array}$					30,000cycles 500mΩ max.	10,000cycles 150mΩ max.	$\begin{array}{c} \text{100,000cycles} \\ \text{400m}\Omega \text{ max.} \end{array}$	
		contact tance			20mΩ	! max.			200mΩ max.	150mΩ max.	$200 m \Omega$ max.
Electrical performance		lation tance		100MΩ min. 500V DC					3MΩ min. 100V DC	100MΩ min. 500V DC	100MΩ min. 100V DC
		tage oof			500V AC f	or 1minute			100V AC for 1minute	500V AC for 1minute	250V AC for 1minute
		ninal ngth			5N for	1minute			0.5N for 1minute	_	_
Mechanical performance	Actuator	Operating direction	50N	30N			50N			49N	50N
	strength	Pulling direction	_	_		50	N		_	_	_
	C	old	-40±2°C for 96h		−20±2°C for 96h				-40±2℃ for 500h	-40±2℃ for 1000h	
Environmental performance	Dry	heat			85±2°C for 96h				85±2℃ for 500h	90±2℃ for 1000h	
	Damı	p heat			40±2°C,	90 to 95%R	H for 96h			60±2°C, 90 to 95% RH for 500h	60±2°C, 90 to 95%RH for 1000h
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Notes

1. ※1. The operating temperature range for automotive applications can be raised upon request. Please contact us for details.

2. • indicates applicability to all products in the series.

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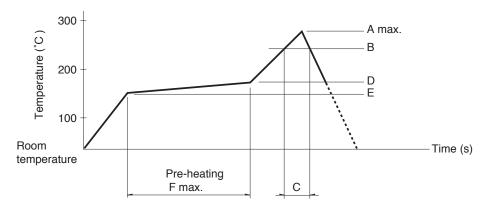
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Push Switches Soldering Conditions

■ Example of Reflow Soldering Condition

- 1. Heating method: Double heating method with infrared heater.
- 2. Temperature measurement: Thermocouple 0.1 to 0.2 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 (℃) 3s max.	B (℃)	C (s)	D (℃)	E (℃)	F (s)
SPEG	- 260	230	40	180	150	120
SPEJ						
SPEF						
SPEH						

Horizontal Type Vertical Type

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±5℃	3+1/0s	
SPED2, SPED4	350±5℃	3±1s	
SPEJ	350±5℃	4s max.	
SPEG, SPPH2, SPEF	350±10°C	3s max.	
SPEH	350°C max.	3s max.	
SPUJ, SPUP	300±5℃	3+1/0s	

■Reference for Dip Soldering

(For PC board terminal types)

Series	Ite	ms	Dip soldering		
Series	Preheating temperature	Preheating time	Soldering temperature	Duration of immersion	
SPPJ3	100°C max. 60s max.		260±5℃	5±1s	
SPUN	100°C max. 60s max.		260±5℃	10±1s	
SPUJ, SPUP, SPPH2, SPPH4	_		260±5℃	5±1s	
SPPJ2, SPPH1, SPED2, SPED4, SPEF	_		260±5℃	10±1s	

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