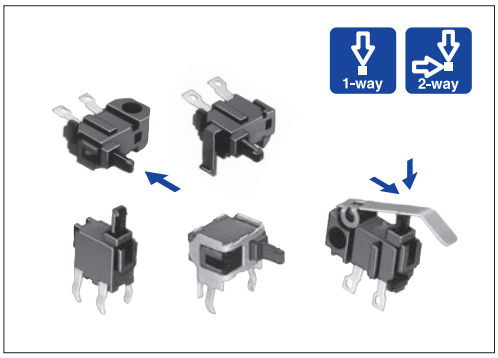
SPPB General-purpose Type

A wide variety of detector switches available for various digital AV devices



Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 30V DC / 50μA 3V DC
Contact resistance (Initial / After operating life)		1Ω max. / 2Ω max.
Operating force		0.35N max.
Operating life	Without load	50,000cycles
	With load	50,000cycles (0.1A 30V DC)

Product Line

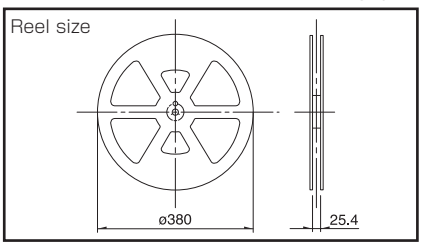
Poles	Positions	Operating part shape	Operating direction	Terminal type	Packaging style	Minimumorder unit (pcs) Japan	Minimumorder unit (pcs) Export	Product No.	Drawing No.
1	1	Push	Horizontal	For Lead	Bulk	100	10,000	**SPPB110300**	1
								SPPB120200	2
								SPPB310400	7
								SPPB320100	8
		Actuator A					5,000	**SPPB1A0100**	3
								SPPB1A0101	4
		Actuator C						**SPPB2A0100**	5
								SPPB2A0101	6
		Push	Vertical	For PC board (Dip)		200	20,000	**SPPB512300**	9
			Horizontal			100	10,000	**SPPB610400**	13
								SPPB620300	14
		Actuator A	Vertical				5,000	**SPPB5A0100**	10
			Horizontal					**SPPB6A0100**	15
								SPPB6A0400	16
		Push	Vertical	For PC board (Reflow)	Taping	1,500	6,000	**SPPB530701**	11
						600	2,400	**SPPB530601**	12
			Horizontal			1,300	5,200	**SPPB630101**	17
								SPPB640201	18

Packing Specifications

Taping

Product No.	Number of packages (pcs.) 1 reel	1 case /Japan	1 case /export packing	Tape width (mm)	Export package measurements (mm)
SPPB530701	1,500	3,000	6,000	24	406×406×160
SPPB530601	600	1,200	2,400		
SPPB630101 SPPB640201	1,300	2,600	5,200		

Unit:mm



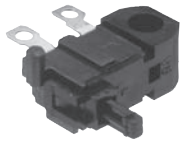
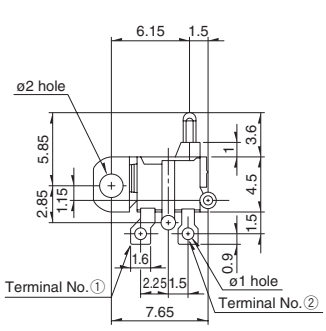
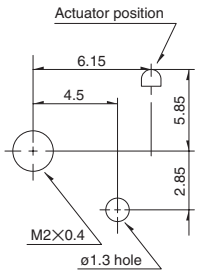
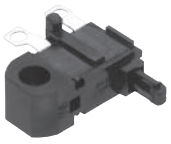
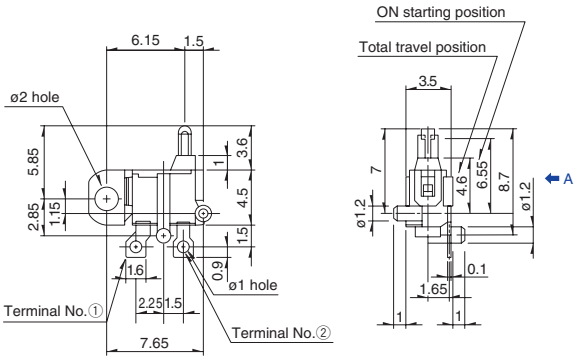
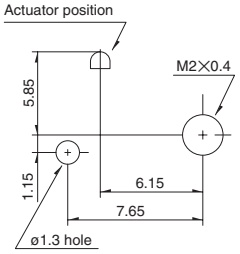
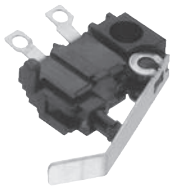
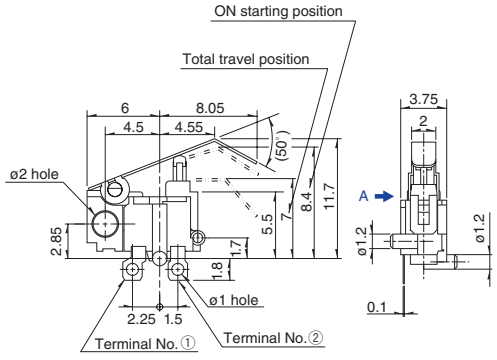
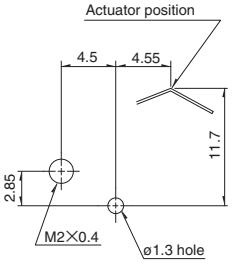
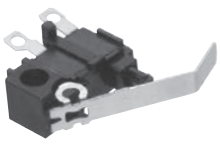
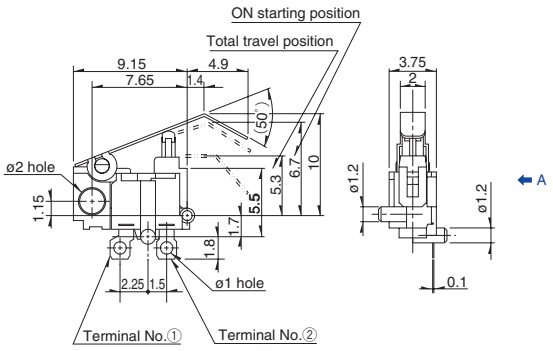
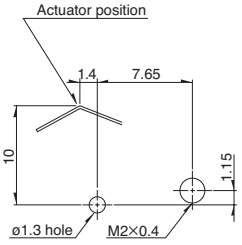
Bulk

Product No.	Number of packages (pcs.) 1 case /Japan	1 case /export packing	Export package measurements (mm)
SPPB512300	4,000	20,000	400×270×290
SPPB1A0100, SPPB1A0101, SPPB2A0100, SPPB2A0101, SPPB5A0100, SPPB6A0100, SPPB6A0400	1,000	5,000	
SPPB310400, SPPB320100, SPPB610400, SPPB620300, SPPB110300, SPPB120200	2,000	10,000	

Refer to P.71 for soldering conditions.

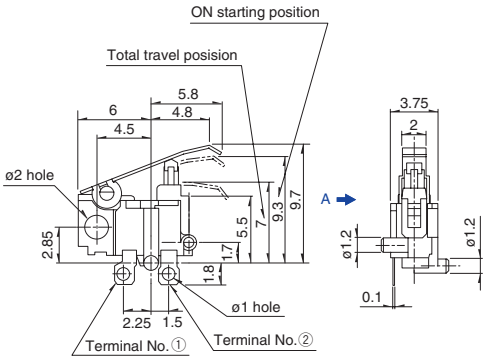
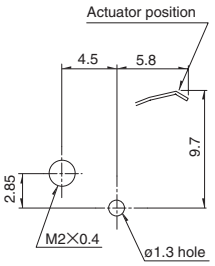
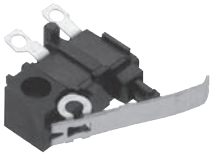
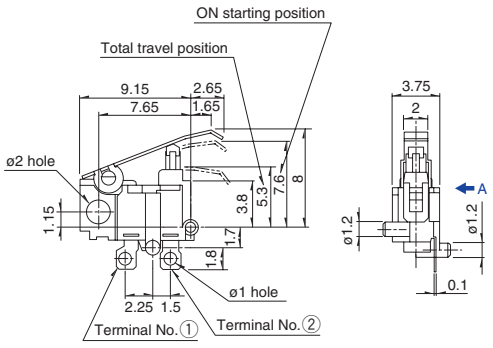
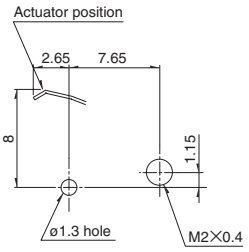
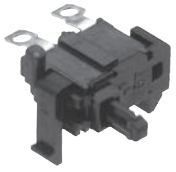
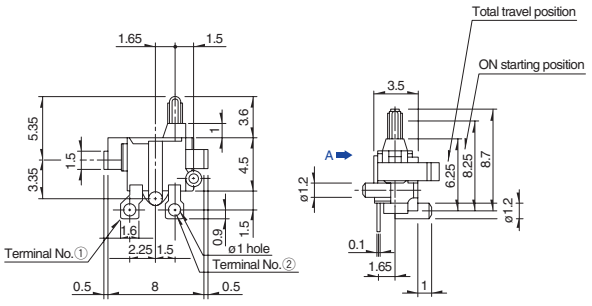
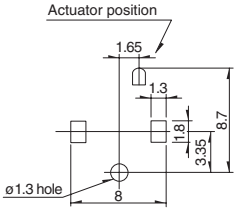
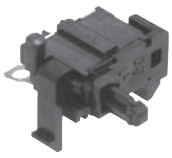
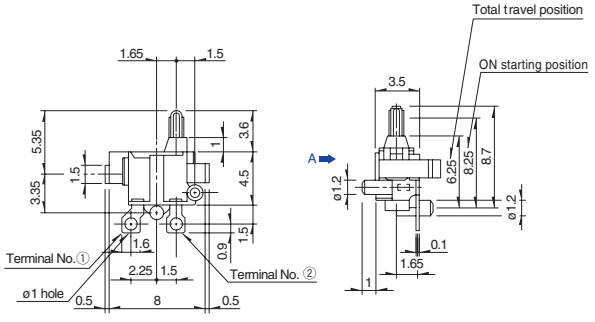
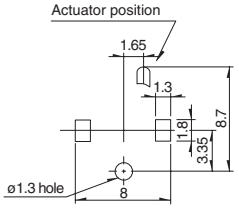
Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from direction A)
1	**Push** 		
2	**Push** 		
3	**Actuator A** 		
4	**Actuator A** 		

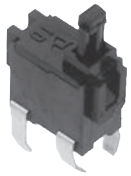
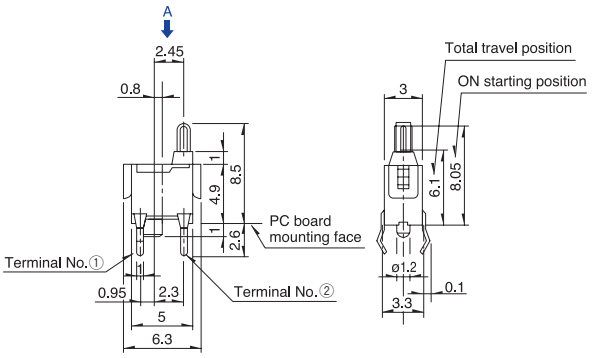
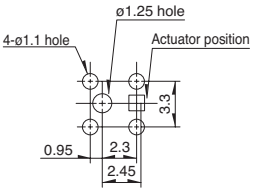
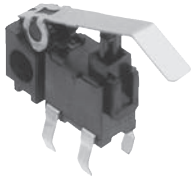
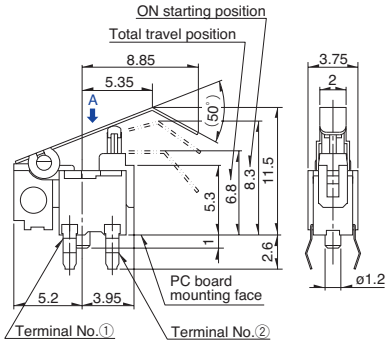
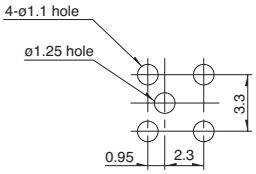
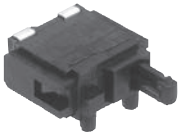
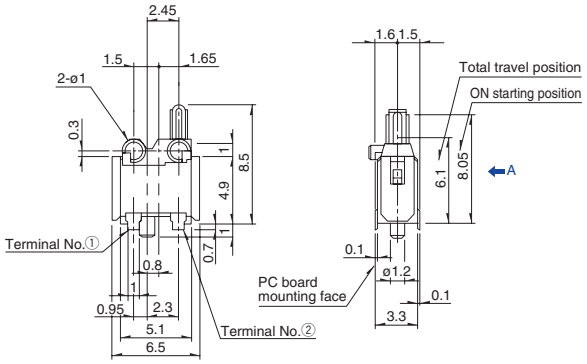
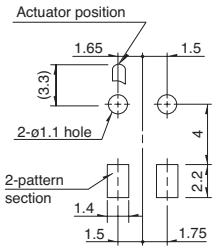
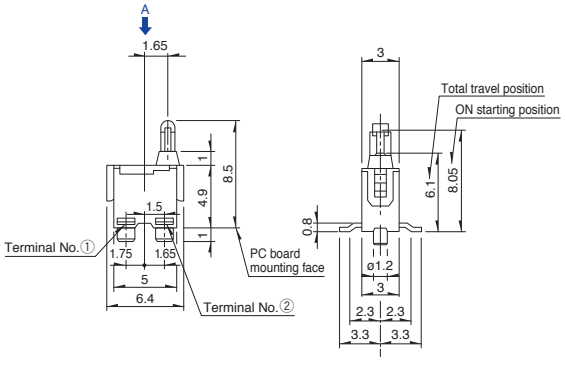
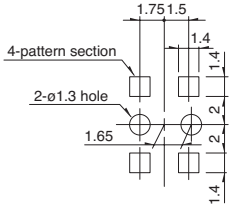
Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from direction A)
5	**Actuator C**		
6	**Actuator C** 		
7	**Push** 		
8	**Push** 		

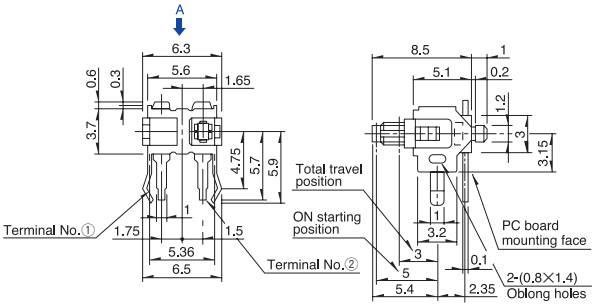
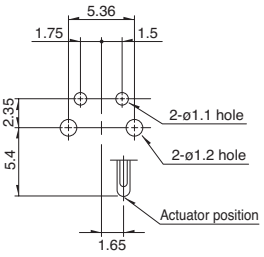
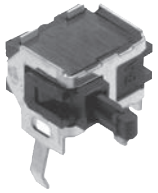
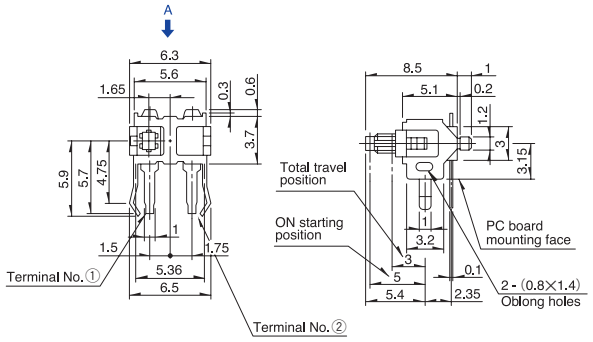
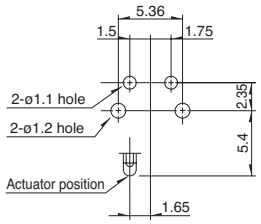
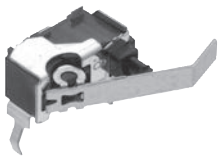
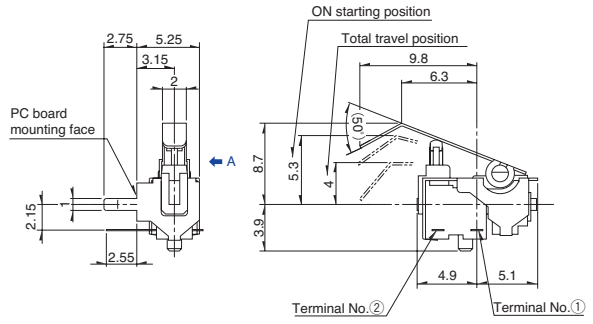
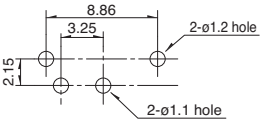
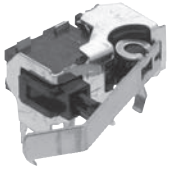
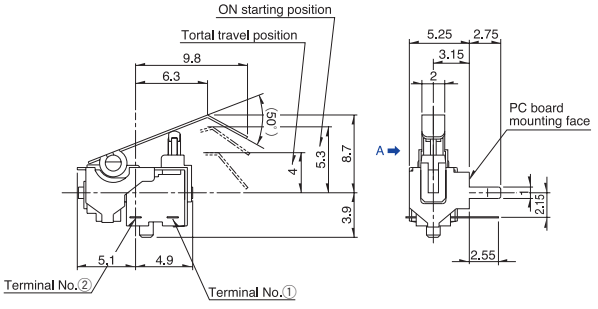
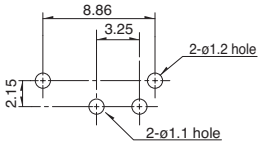
Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
9	**Push** 		
10	**Actuator A** 		
11	**Push** 		
12	**Push**		

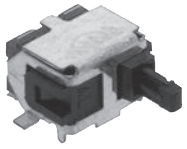
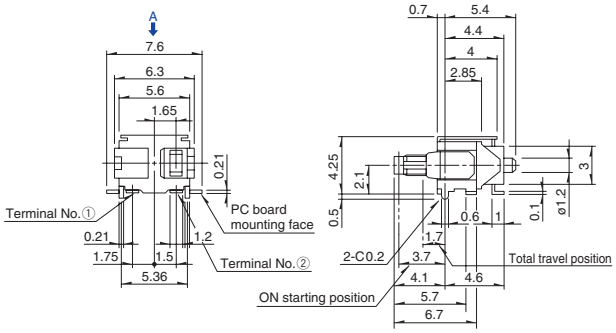
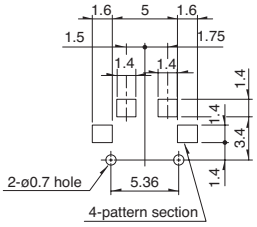
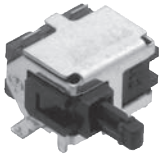
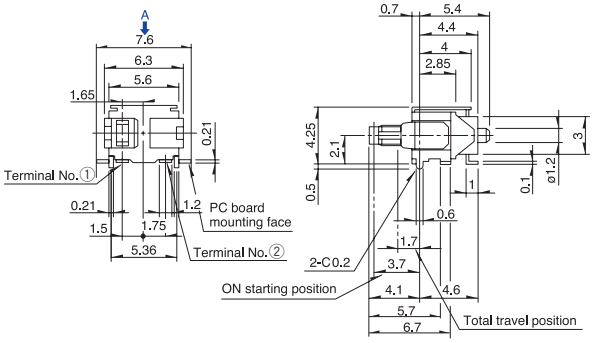
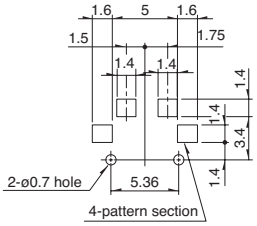
Dimensions

Unit:mm

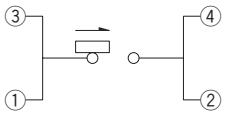
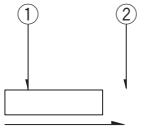
No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
13	**Push**		
14	**Push** 		
15	**Actuator A** 		
16	**Actuator A** 		

Dimensions

Unit:mm

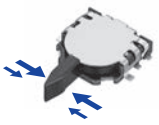
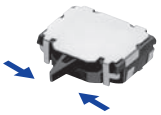
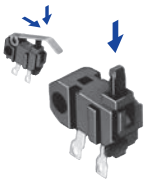
No.	Photo	Style	PC board mounting hole and land dimensions (Viewed from direction A)
17	**Push** 		
18	**Push** 		

Circuit Diagram (Viewed from Direction A)

Applicable to SPPB512300, SPPB530601, SPPB5A0100	**Applicable to other switches**
	

Detector Switches

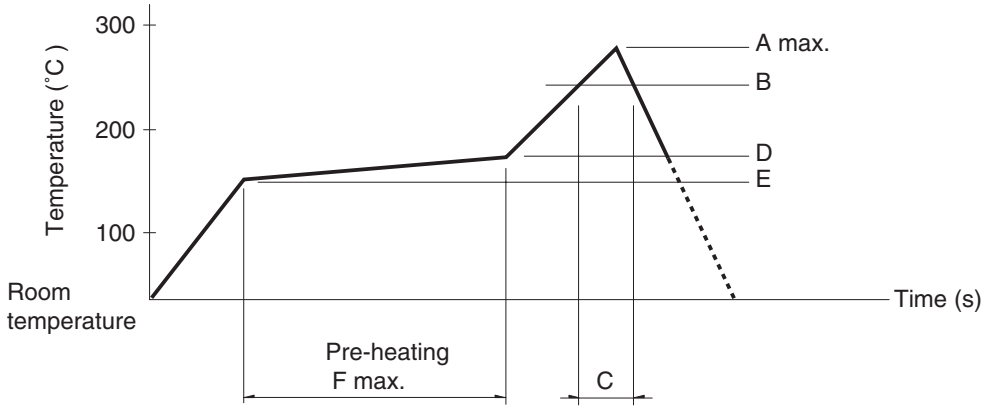
List of Varieties

Series		General-purpose Type				
		SPPW8	**SSCQ**	**SSCM**	**SPVL**	**SPPB**
Photo						
Operation type		One-way	Two-way Two-direction type	Two-way	Three-way	One-way Two-way
Dimensions (mm)	W	5	3.8	5	5.55	6.3
	D	4	3.6	4	6.6	3
	H		0.9	1.5	1	4.9
Operating temperature range		−10℃ to +60℃			−40℃ to +85℃	
Automotive use		—	—	—	●	●
Life cycle (availability)		★3	★3	★3	★3	★3
Poles / Positions		1/1	1 / Two-direction type: 2-position each side	1/2	1/1	
Rating (max.) (Resistive load)		0.1A 30V DC	1mA 5V DC			0.1A 30V DC
Rating (min.) (Resistive load)		100μA 3V DC	50μA 3V DC			
Durability	Operating life without load	100,000cycles 2Ω max.	50,000cycles 5Ω max.			50,000cycles 2Ω max.
	Operating life with load Rating (max.) (Resistive load)	100,000cycles 2Ω max.	50,000cycles 5Ω max.			50,000cycles 2Ω max.
Electrical performance	Initial contact resistance	1Ω max.	2Ω max.			1Ω max.
	Insulation resistance	100MΩ min. 100V DC				
	Voltage proof	100V AC for 1 minute				
Mechanical performance	Terminal strength	3N for 1minute	0.5N for 1minute		1N for 1minute	3N for 1minute
	Actuator strength	10N	1N	2N	5N	10N
Environmental performance	Cold	−20℃ 96h			−40℃ 500h	
	Dry heat	85℃ 96h			85℃ 500h	
	Damp heat	40℃, 90 to 95%RH 96h			60℃, 90 to 95%RH 500h	
Operation force		0.3N max.	0.35N max.			
Page		29	31	32	33	34

Detector Switches Soldering Conditions · · ·

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple ϕ0.1 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 (℃) 3s max.	B (℃)	C (s)	D (℃)	E (℃)	F (s)
SPPB	250	230	40	180	150	120
SPPW8			35			
SPVE	260		40			
SPVL						
SPVM						
SPVN						
SPVR						
SPVS						
SPVT						
SSCM						
SSCQ						
SPVQC	250					

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, surface 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
SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SPPW8,SSCQ, SSCM, SPVL, SSCT, SPVQC	350±5℃	3s max.
SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA	300±10℃	3 +1 / 0s
SPPB (Reflow)	300±5℃	5s max.
SSCF, SPPB (For Lead, Dip)	350±10℃	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
SSCT, SPVQ1, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA	100±10℃	60s max.	260±5℃	5±1s
SPPW8, SPPB	100 ℃ max.	60s max.	255±5℃	5±1s
SSCF	—		260±5℃	5±1s