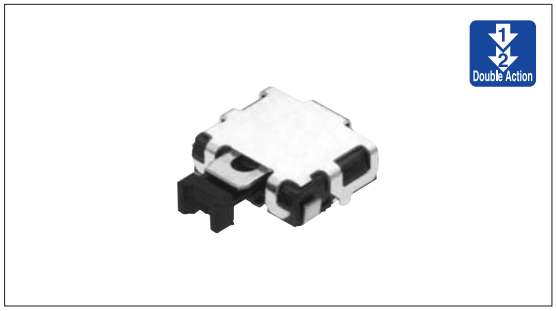
Horizontal Type Double Action

SPEE Series

RoHS compliant

Low-profile 0.7mm-travel type push switch.



Typical Specifications

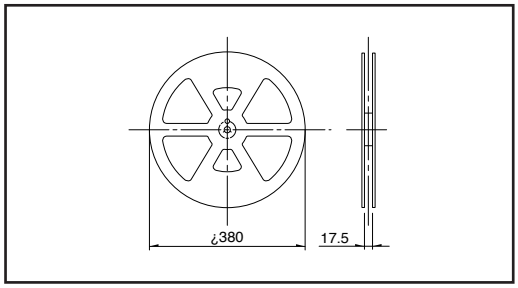
Items	Specifications	
Rating (max.) / (min.) (Resistive load)	20mA 5V DC/100μA 3V DC	
Travel	1st 0.3mm	2nd 0.71mm
Operating force	1st 1.75N	2nd 1.1N
Operating life	100,000cycles	

Product Line

Poles	Positions	Terminal type	Minimum order unit (pcs.)	Product No.
1	2	For PC board (Reflow)	14,000	SPEE120103

Taping Specifications (Taping Packaging)

Reel Size Unit:mm

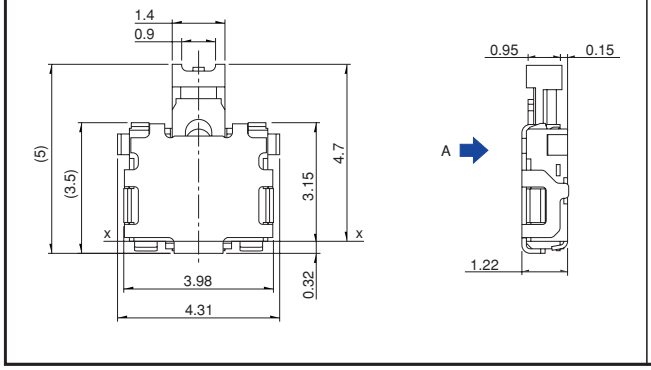


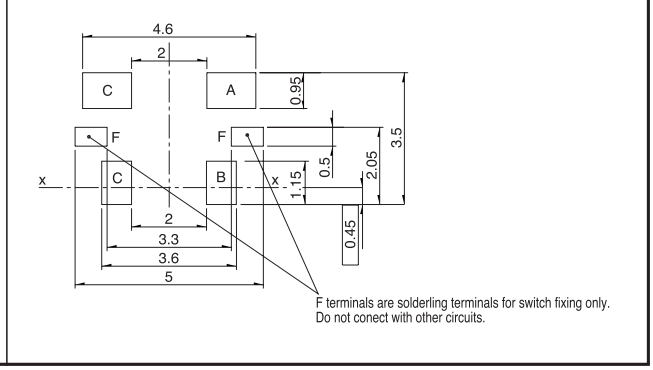
Number of packages (pcs.)			Tape width (mm)
1 reel	1 case /Japan	1 case /export packing	
3,500	7,000	14,000	16

Dimensions

Unit:mm

Style	PC board mounting hole dimensions (Viewed from direction A)

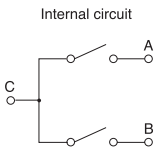




Out Put Chart

	A	B
Initial position	—	—
First position	○	—
Second position	○	○
Full travel	—	○

Circuit Diagram (Viewed from Direction A)



Notes

1. Products other than those listed in the above chart are also available. Please contact us for details .
2. Please place purchase orders per minimum order unit (integer).

List of Varieties

Series		SPEE	SPPJ6	SPPJ3	SPPJ2	SPUJ ※1	SPUP ※1	SPUN	SPUN medium curent※1	SPEG	SPPH2
Photo											
Travel (mm)		0.3 0.71	1.5	2.5		2	1.5 2	2.5		—	1
Total travel (mm)		0.9	2.5	3.5		3	2.5 3	3.5		1.2	1.5
Number of poles		1	2	1 2	2	2 4				1	2
Dimensions (mm)	W	4	9	6.6	7.2	7.5		10		7.15	6.5
	D	5		12		15.2 22.7		24 36		8.35	6
	H	1.22	4.5	8.3	9.6	8.8	10.3	13		3.5	6.5
Operating temperature range		−10°C to +60°C		−40°C to +85°C		−10°C to +60°C					
Rating (max.) (Resistive load)		20mA 5V DC	0.2mA 5V DC	0.2mA 30V DC		0.1mA 30V DC			1A 25V DC	50mA 16V DC	0.1A 12V DC
Rating (min.) (Resistive load)		100μA 3V DC	50μA 3V DC							50μA 3V DC	
Electrical performance	Initial contact resistance	※2	20mΩ max.							200mΩ max.	30mΩ max.
	Insulation resistance	10MΩ min. 100V DC	100MΩ min. 500V DC							3MΩ min. 100V DC	100MΩ min. 500V DC
	Voltage proof	100V AC for 1minute	500V AC for 1minute							100V AC for 1minute	500V AC for 1minute
Mechanical performance	Terminal strength	—	5N for 1minute							0.5N for 1minute	5N for 1minute
	Actuator strength Operating direction	50N		30N		50N				50N	30N
	Actuator strength Pulling direction	———								—	—
Durability	Operating life without load	100,000 cycles	10,000cycles 40mΩ max.					30,000cycles 40mΩ max.	10,000cycles 40mΩ max.	35,000cycles 500mΩ max.	10,000cycles 50mΩ max.
	Operating life without load Load:as rating	100,000 cycles	10,000cycles 40mΩ max.						5,000cycles 40mΩ max.		
Environmental performance	Cold	−40±2°C for 96h	−20±2°C for 96h							−20±2°C for 96h	
	Dry heat	85±2°C for 96h								85±2°C for 96h	
	Damp heat	40±2°C, 90 to 95%RH for 96h								40±2°C, 90 to 95%RH for 96h	
Soldering	Manual soldering	350±10°C 4^{+1}_{0}s	350±10°C 3^{+1}_{0}s			300±10°C 3^{+1}_{0}s		350±10°C 3^{+1}_{0}s		350±5°C 3s max.	350°C max. 3s max.
	Dip soldering	—	260±5°C 5±1s		260±5°C 10±1s	260±5°C 5±1s		260±5°C 10±1s		—	260±5°C 5±1s
	Reflow soldering	Please see P.108	———							Please see P.108	—
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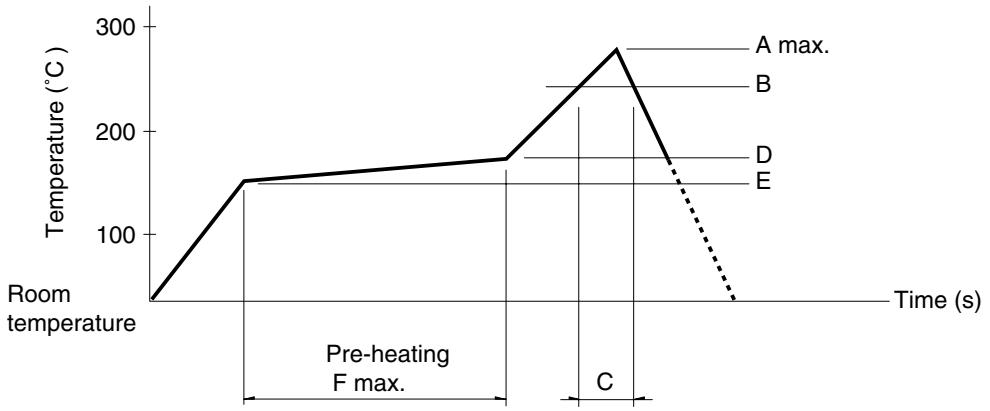
Notes

1. ※1. The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.
2. ※2. 1V or less, at the present rating of 1mA, 5V DC for output voltage.

Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2ϕ 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)
SPEE	260	230	40	180	150	120
SPEF, SPEG						

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.