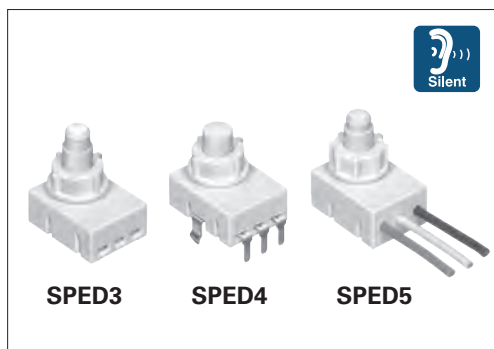


SPED3/4/5 3.8mm-travel Alternate Type

Smooth and linear operation feeling



Typical Specifications



Items	Specifications
Rating (Resistive load)	2A 14.5V DC
Contact resistance (Initial / After operating life)	100mΩ max. / 100mΩ max.
Operating force	4.17±0.74N
Operating life (With load)	30,000 cycles (2A 14.5V DC)
Circuit configuration	1-pole, 2-position

Product Line

Changeover timing	Total travel (mm)	Mounting method	Poles	Operation	Terminal type	Minimum order unit (pcs.)		Product No.	Drawing No.
						Japan	Export		
Non shorting	3.8	Connector	1	Alternate	—	500	2,500	SPED310200	1
		PC board			For PC board	280	1,120	SPED420200	2
		With wire			—	240	960	SPED53※	3

Note

※ If the lead wire length and color are not specified, length (terminal ① and ②: 125mm, common terminal: 45mm), color can be specified from black, white, and light green freely. Please consult us for modification.

Packing Specifications

Tray

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SPED420200	280	1,120	555×375×223

Bulk

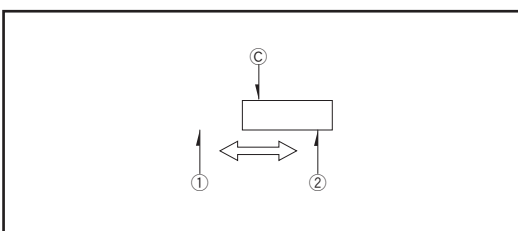
Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SPED310200	500	2,500	400×270×290
SPED53	240	960	

■ Dimensions

Unit:mm

No.	Style	Reference dimension of connection terminal (T=0.5 ~ 0.65mm)
1	Full stroke point Turnover point (Mechanical and Electrical) Reset point Terminal No.① Terminal No.③ Terminal No.②	
2	Full stroke point Turnover point (Mechanical and Electrical) Reset point Terminal No.① Terminal No.③ Terminal No.②	PC board mounting hole dimensions (Viewed from the direction A)
3	Full stroke point Turnover point (Mechanical and Electrical) Reset point Wire length Strip length Terminal No.① Terminal No.③ Terminal No.②	

■ Circuit Diagram (Viewed from direction A)



Note

Factory setting for contact points can be either 1 or 2.

Push Switches

List of Varieties

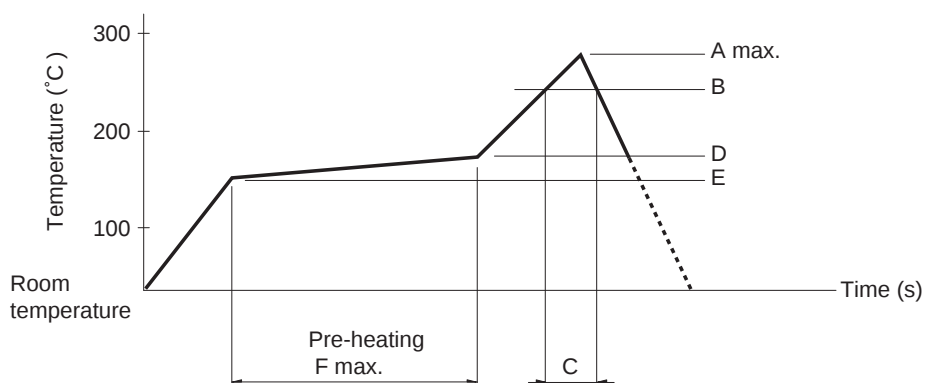
Series			Vertical					
			SPEF		SPED2	SPED3	SPED4	SPED5
Photo								
Dimensions (mm)	W	9.4		14			13.5	
	D	9		16.8	18		18.2	
	H	6.9		18.3	13.2	13.17	14.3	
Travel (mm)		1.5		—	—	—	—	
Total travel (mm)		2.7		4.5	3.8			
Number of poles		1		1 2	1			
Operating temperature range		−40℃ to +85℃			−40℃ to +95℃			
Automotive use								
Life cycle								
Rating (max.) (Resistive load)		1A 14.5V DC			2A 14.5V DC			
Rating (min.) (Resistive load)		50μA 3V DC		—	—	—	—	
Durability	Operating life without load	—	—	—	—	—	—	
	Operating life with load (at max. rated load)	30,000 cycles 100mΩ max.						
Electrical performance	Initial contact resistance	100mΩ max.						
	Insulation resistance	3MΩ min. 100V DC		3MΩ min. 500V DC				
	Voltage proof	100V AC for 1minute						
Mechanical performance	Terminal strength	—	—	—	—	—	Wire strength 30N	
	Actuator strength	Operating direction	90N			98N	90N	98N
		Pulling direction	30N		—	—	—	—
Environmental performance	Cold	−40℃ 96h						
	Dry heat	85℃ 96h		85℃ 96h (Connector type) 105℃ 192h (Dip type)	105℃ 192h			
	Damp heat	40℃, 90 to 95%RH 96h						
Page		124		126	128			

Push Switches Soldering Conditions	130
Push Switches Cautions	131

Note
 Indicates applicability to all products in the series.

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)
SPEJ	260	230	40	180	150	120
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, SPUJ, SPPH4, SPPH1	350±10°C	3+1/0s
SPED2, SPED4	350±10°C	3±0.5s
SPEJ	350±10°C	4s max.
SPEF	350±5°C	3s max.
SPEH	350°C max.	3s max.

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, SPPH4	—		260±5°C	5±1s
SPPJ2, SPPH1, SPED2, SPED4, SPEF	—		260±5°C	10±1s