

# SPED3/4/5 3.8mm-travel Push-push Type

Smooth and linear operation feeling



Detector

Slide

Push

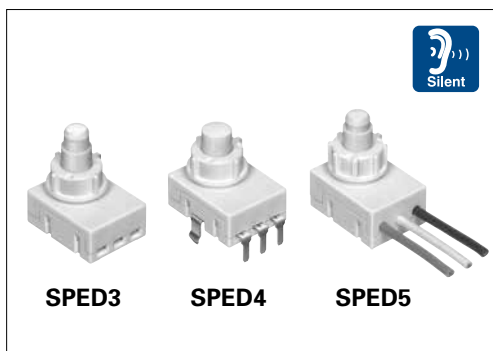
Rotary

Power

Dual-in-line Package Type

Horizontal Type

Vertical Type



## 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	<b>SPED310200</b>	1
		PC board			For PC board	280	1,120	<b>SPED420200</b>	2
		With wire			—	240	960	<b>SPED53</b> *	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	
<b>SPED420200</b>	280	1,120	555×375×223

### Bulk

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

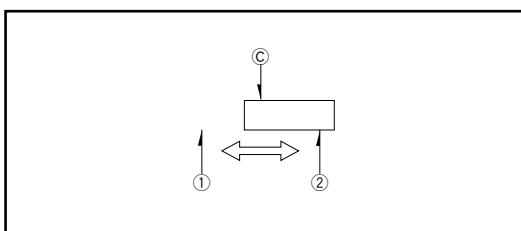
Refer to P.130 for soldering conditions.

■ Dimensions

Unit:mm

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

■ Circuit Diagram (Viewed from direction A)



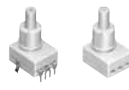










**Note**

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

# Push Switches

## List of Varieties

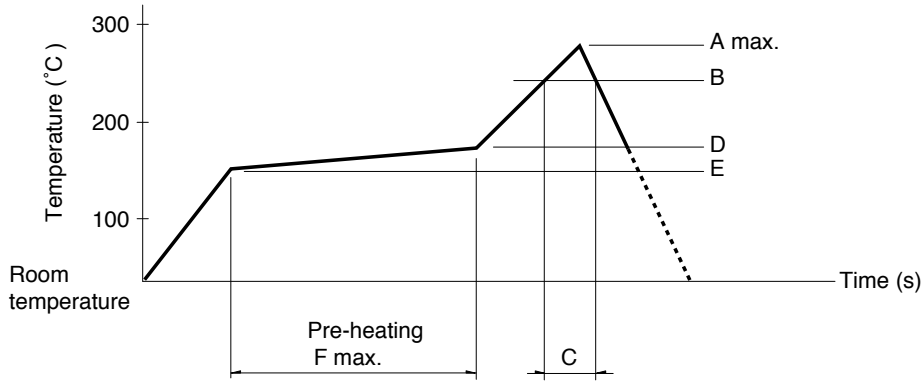
Series		Vertical					
		SPEF		SPED2	SPED3	SPED4	SPED5
Photo							
Dimensions (mm)	W	9.4		14		13.5	
	D	9		16.8	18		18.2
	H	6.9		18.3	13.2	13.1	14.3
Travel (mm)		1.5		—	—	—	—
Total travel (mm)		2.7		4.5	3.8		
Number of poles		1		1 2	1		
Operating temperature range		-40°C to +85°C			-40°C to +95°C		
Automotive 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			98N	90N	98N
		Pulling direction			30N	—	—
Environmental performance	Cold	-40°C 96h					
	Dry heat	85°C 96h		85°C 96h (Connector type) 105°C 192h (Dip type)	105°C 192h		
	Damp heat	40°C, 90 to 95%RH 96h					
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**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  $\phi$  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)
<b>SPEJ</b>	260	230	40	180	150	120
<b>SPEF</b>						
<b>SPEH</b>						

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