

## 1.5mm-travel Vertical Type SPEF Series

Part number		<b>SPEF210101</b>	
Changeover timing		Non shorting	
Travel		1.5mm	
Total travel		2.7mm	
Operating force		3N	
Mounting method		PC board	
Poles-Positions		1-pole, 2-positions	
Operation		Latching	
Terminal type		Reflow	
Operating temperature range		-40°C to +85°C	
Rating (max.)/(min.) (Resistive load)		1A 14.5V DC/50μA 3V DC	
Electrical performance	Contact resistance (Initial performance/After lifetime)	100mΩ max./100mΩ max.	
	Insulation resistance	3MΩ min. 100V DC	
	Voltage proof	100V AC for 1 minute	
Mechanical performance	Actuator strength	Operating direction	90N
		Pulling direction	30N
Durability	Operating life with load (at max. rated load)	30,000 cycles 100mΩ max.	
Environmental performance	Cold	-40±2°C for 96h	
	Dry heat	85±2°C for 96h	

Damp heat

40±2℃, 90 to 95%RH for 96h

Minimum order unit (pcs.)

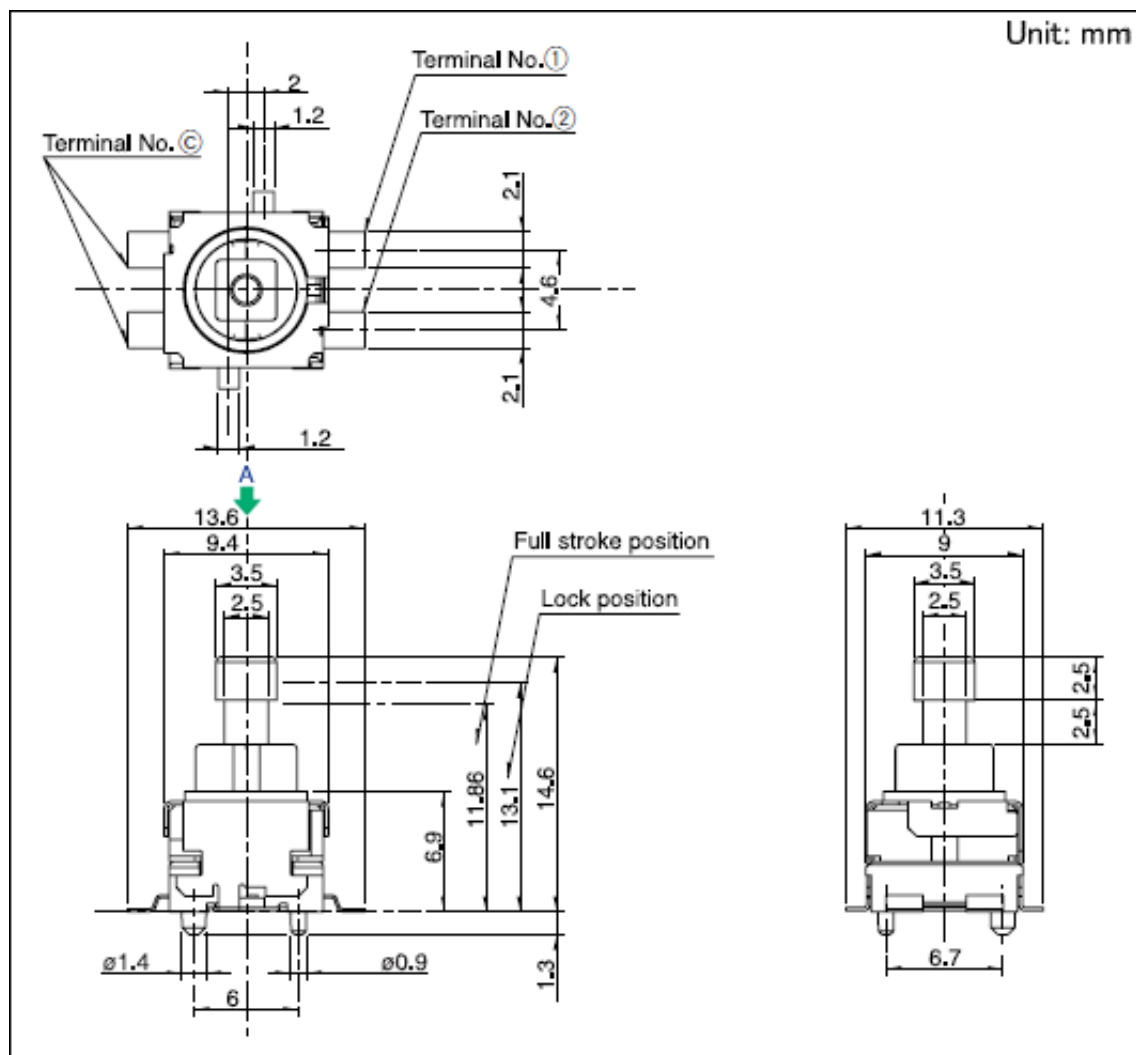
Japan

660

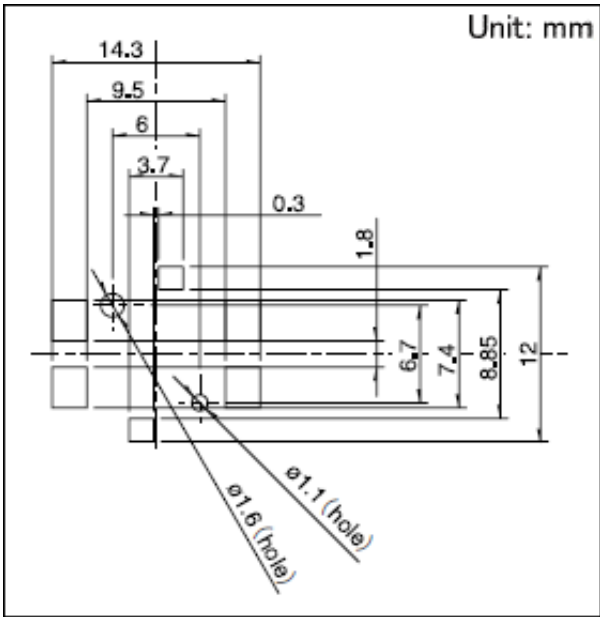
Export

1,320

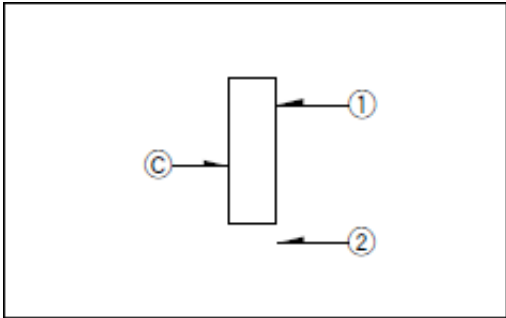
## Dimensions



## Land Dimensions



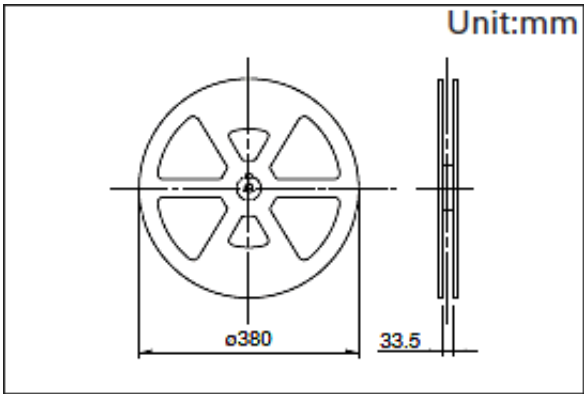
Circuit Diagram



Viewed from direction A in the dimensions.

Packing Specifications

Taping



Number of packages 1 reel (pcs.)	165
1 case / Japan	660
1 case / export packing	1,320

Tape width (mm)	32
Export package measurements (mm)	403×403×360

## Soldering Conditions

### Example of Reflow Soldering Condition

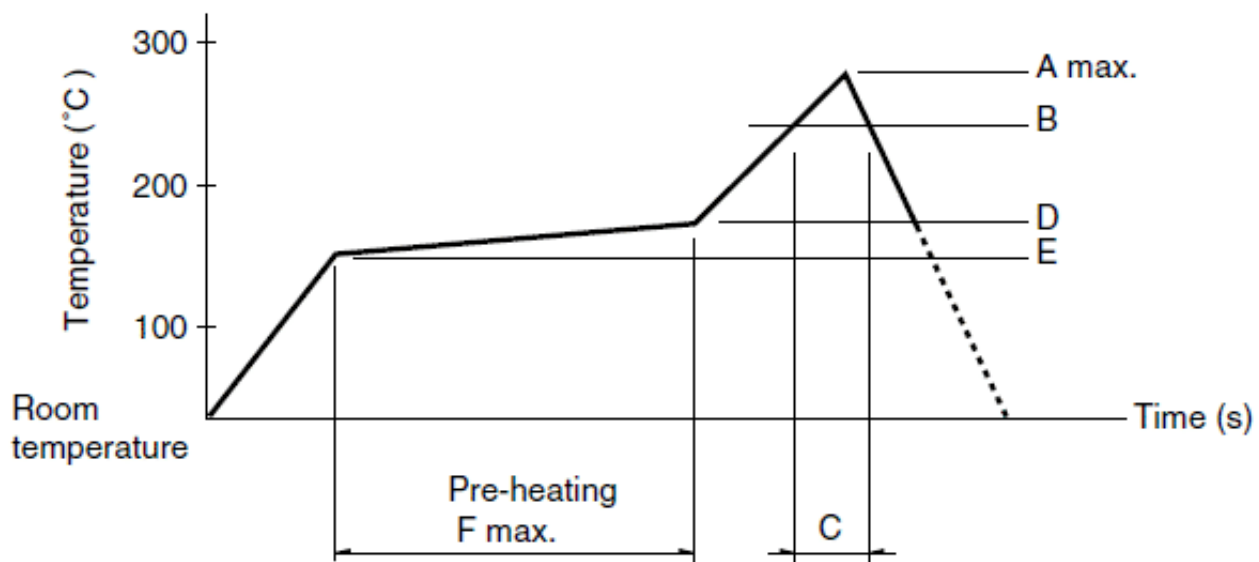
#### 1. Heating method

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



A(°C)	B(°C)	C(s)	D(°C)	E(°C)	F(s)
3s max.					
260	230	40	180	150	120

(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

Soldering temperature	350±10℃
Soldering time	3s max.

Notes are common to this series/models.

1. This site catalog shows only outline specifications. When using the products, please obtain formal specifications for supply.
2. Please place purchase orders per minimum order unit (integer).
3. This products can be used in vehicles.  
Although these products are designed to perform over a wide operating temperature range, please ensure that you receive and read the formal delivery specifications before use.