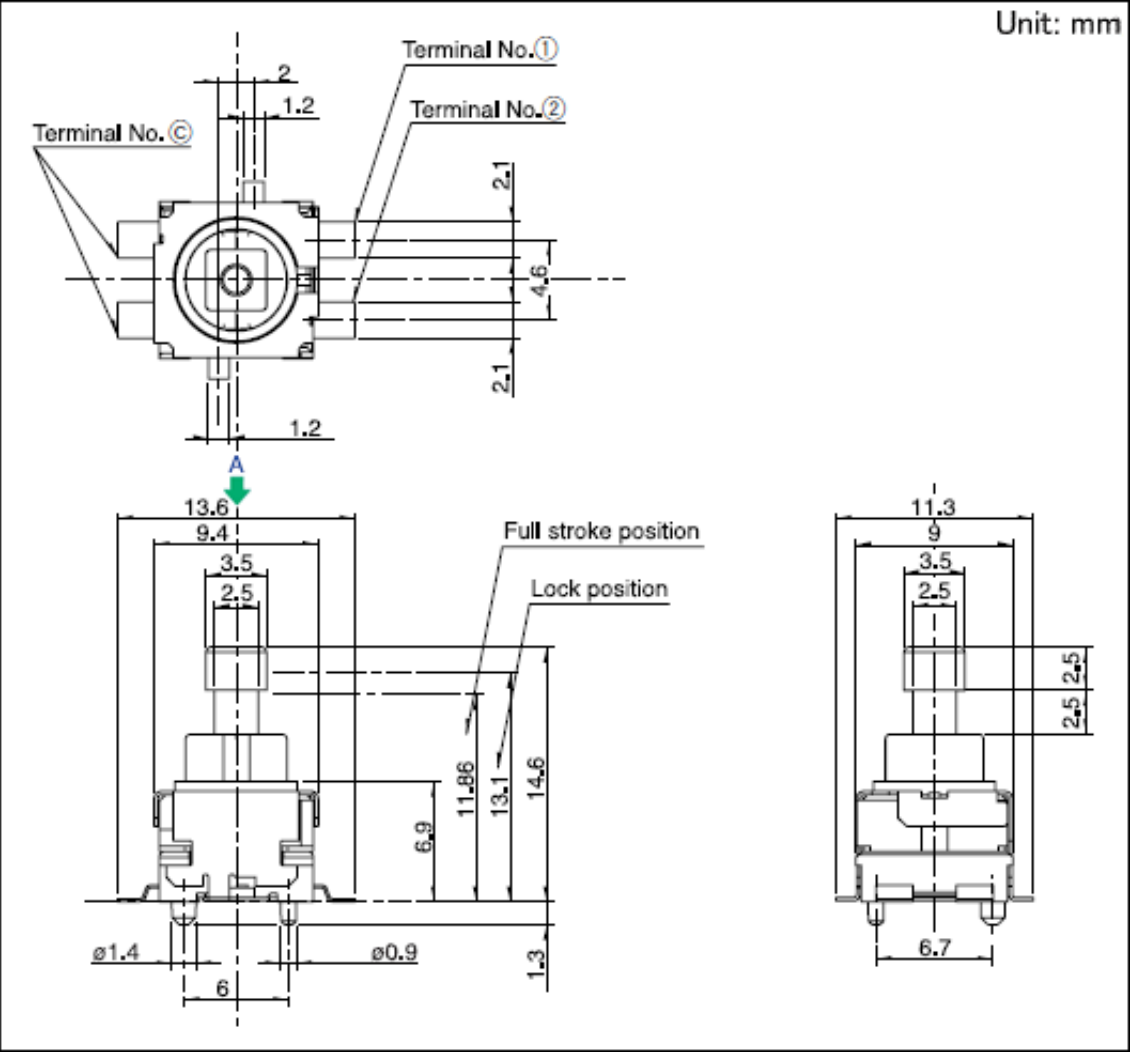


1.5mm-travel Vertical Type SPEF Series

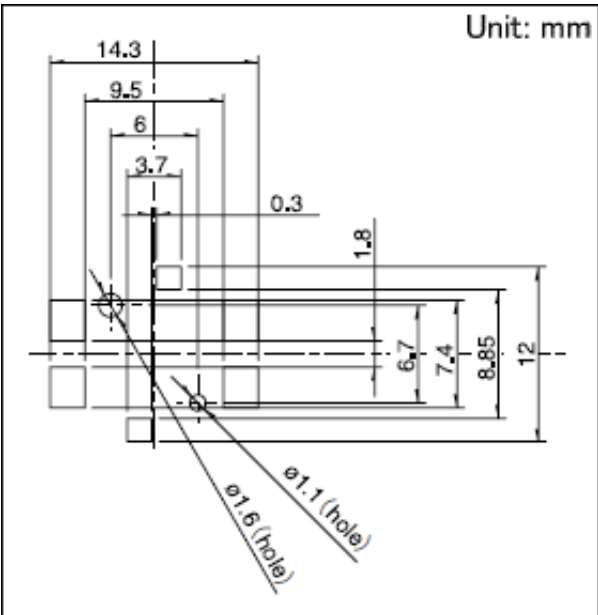
| | | | |
|---------------------------------------|---|-----------------------------|-----|
| Part number | SPEF220200 | | |
| Changeover timing | Non shorting | | |
| Total travel | 2.7mm | | |
| Operating force | 5N | | |
| Mounting method | PC board | | |
| Poles-Positions | 1-pole, 2-positions | | |
| Operation | Alternate | | |
| 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°C, 90 to 95%RH for 96h | |

| | | |
|---------------------------|--------|-------|
| Minimum order unit (pcs.) | Japan | 660 |
| | Export | 1,320 |

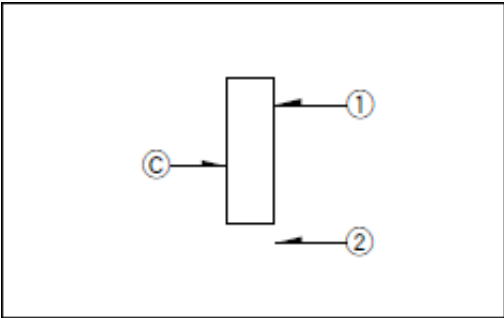
Dimensions



Land Dimensions



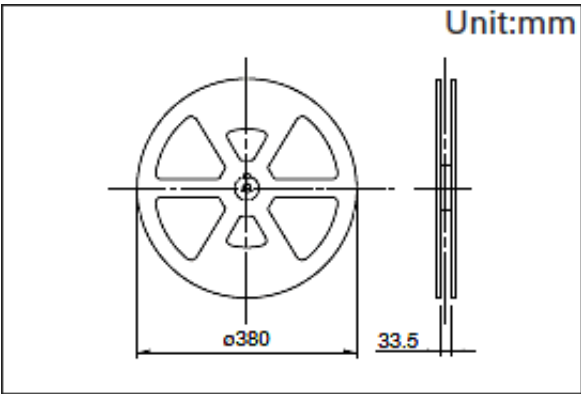
Circuit Diagram



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

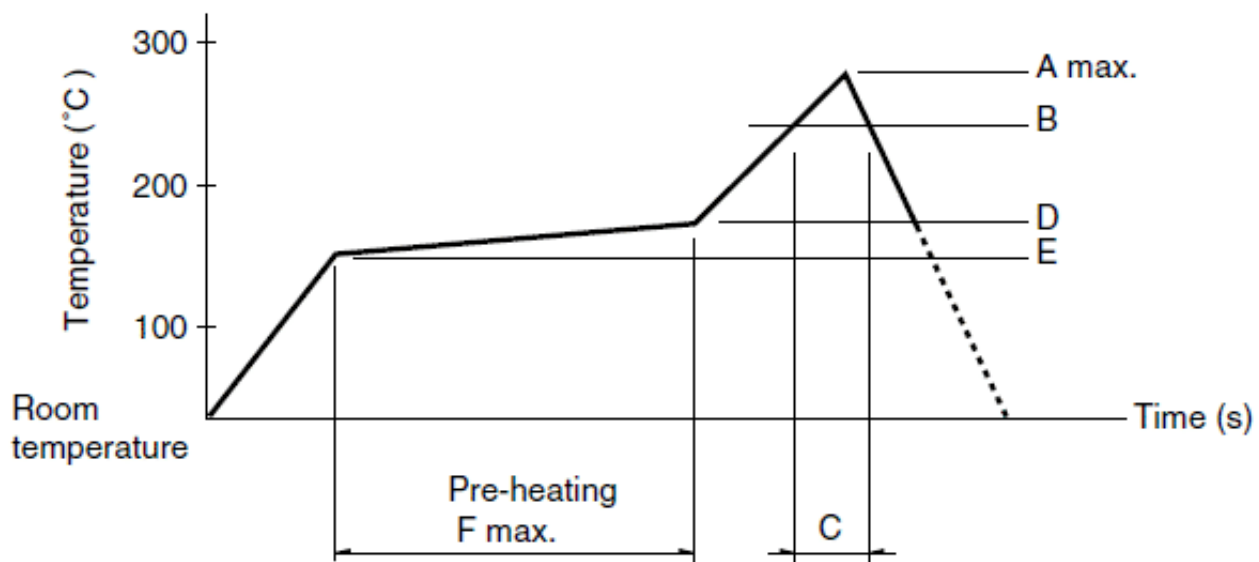
1. Heating method

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.