

### Typical Specifications

| Items                                                        |              | Specifications             |
|--------------------------------------------------------------|--------------|----------------------------|
| Rating (max.) / (min.)<br>(Resistive load)                   |              | 0.3A 6V DC / 50μA 3V DC    |
| Contact resistance<br>(Initial performance / After lifetime) |              | 70mΩ max. / 130mΩ max.     |
| Operating force                                              |              | Refer to the dimensions.   |
| Operating life                                               | Without load | 10,000cycles※              |
|                                                              | With load    | 10,000cycles (0.3A 6V DC)※ |

**Note** ※ Operating life for SSSS213202 is 100 cycles

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Small size  
General Use typeBig size  
General Use type

### Product Line

| Product Line   |                       |                         |       |            |                      |                |                           |        |              |                |
|----------------|-----------------------|-------------------------|-------|------------|----------------------|----------------|---------------------------|--------|--------------|----------------|
| Travel<br>(mm) | Actuator<br>direction | Actuator<br>length (mm) | Poles | Positions  | Changeover<br>timing | Soldering      | Minimum order unit (pcs.) |        | Products No. | Drawing<br>No. |
|                |                       |                         |       |            |                      |                | Japan                     | Export |              |                |
| 2              | Vertical              | 2                       | 1     | 2          | Non<br>shorting      | Manual,<br>Dip | 100                       | 10,000 | SSSS213000   | 1              |
|                |                       |                         |       | 3          |                      |                |                           |        | SSSS211900   | 2              |
|                |                       |                         | 2     | 2          |                      |                |                           |        | SSSS222700   | 3              |
|                |                       |                         |       | 3          |                      |                |                           |        | SSSS223600   | 4              |
|                | Horizontal            |                         | 1     | 2          |                      | Reflow         | 12,00                     | 4,800  | SSSS213202   | 5              |
|                |                       |                         |       | 3          |                      |                | 1,000                     | 4,000  | SSSS212901   | 6              |
|                |                       |                         |       | 2          |                      | Manual,<br>Dip | 100                       | 10,000 | SSSS213100   | 7              |
|                |                       |                         |       | 3          |                      |                |                           |        | SSSS212200   | 8              |
|                |                       |                         | 4     | SSSS212400 |                      |                |                           |        | 9            |                |
|                |                       |                         | 2     | 2          |                      |                |                           |        | SSSS223200   | 10             |
|                |                       |                         |       | 3          |                      |                |                           |        | SSSS223900   | 11             |
|                |                       |                         |       | 4          |                      |                |                           |        | SSSS224100   | 12             |
|                |                       |                         | 1     | 2          |                      | Reflow         | 1,400                     | 5,600  | SSSS211603   | 13             |
|                |                       |                         |       | 3          |                      |                |                           |        | SSSS212301   | 14             |
|                |                       |                         |       |            |                      |                |                           |        | 2            | SSSS224001     |
|                |                       |                         |       |            |                      |                |                           |        |              |                |

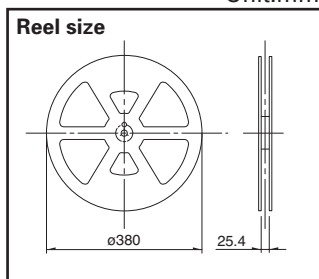
### Note

Other varieties are also available. Please inquire.

### Packing Specifications

#### Taping

Unit:mm



| Series                                 | Number of packages (pcs.) |                   |                            | Tape<br>width<br>(mm) | Export package<br>measurements<br>(mm) |
|----------------------------------------|---------------------------|-------------------|----------------------------|-----------------------|----------------------------------------|
|                                        | 1 reel                    | 1 case /<br>Japan | 1 case /<br>export packing |                       |                                        |
| SSSS213202                             | 1,200                     | 2,400             | 4,800                      | 24                    | 428 × 413 × 172                        |
| SSSS212901                             | 1,000                     | 2,000             | 4,000                      |                       | 406 × 406 × 190                        |
| SSSS211603<br>SSSS212301<br>SSSS224001 | 1,400                     | 2,800             | 5,600                      |                       |                                        |

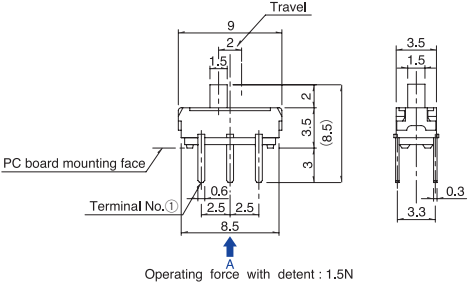
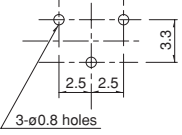
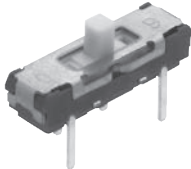
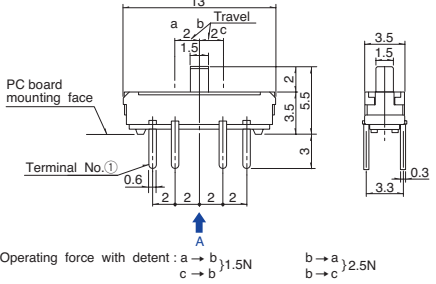
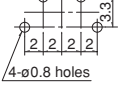
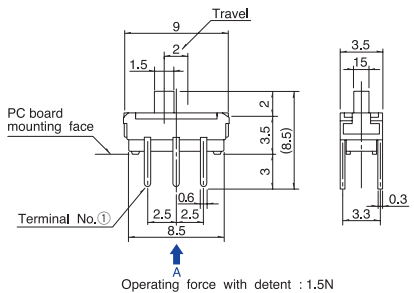
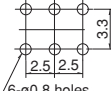
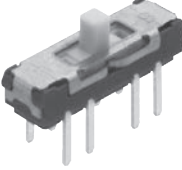
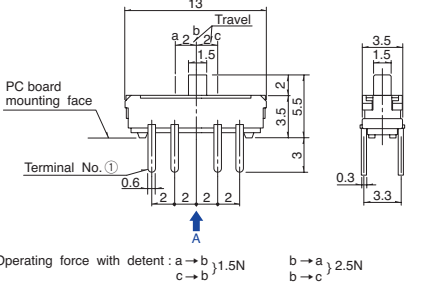
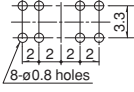
#### Bulk

| Series                                                                                                                       | Number of packages (pcs.) |                         | Export package<br>measurements (mm) |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------------------|
|                                                                                                                              | 1 case / Japan            | 1 case / export packing |                                     |
| SSSS211900, SSSS212200, SSSS212400, SSSS213000,<br>SSSS213100, SSSS222700, SSSS223200, SSSS223600,<br>SSSS223900, SSSS224100 | 2,000                     | 10,000                  | 400 × 270 × 290                     |

# Dimensions

## Vertical Actuator Type

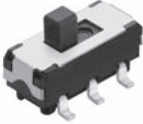
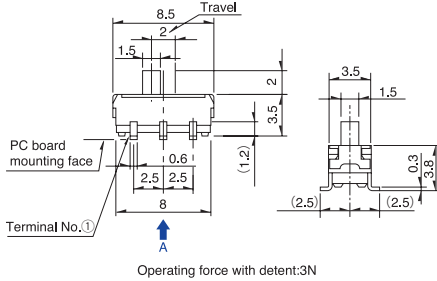
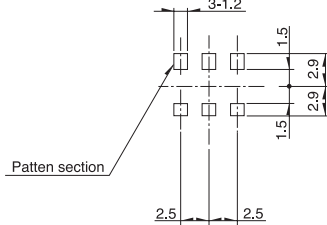
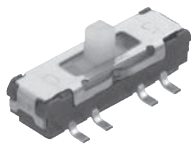
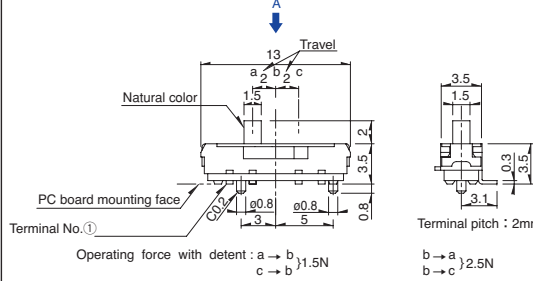
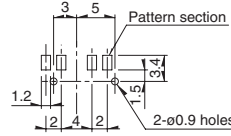
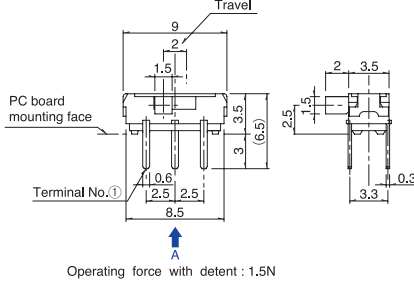
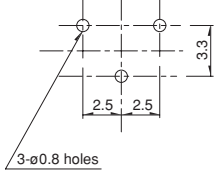
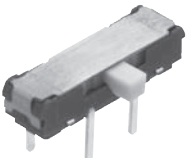
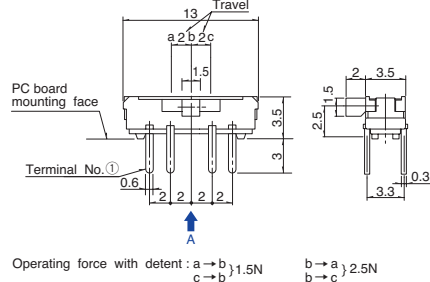
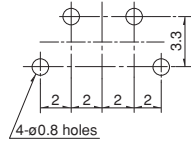
Unit:mm

| No. | Photo                                                                               | Style                                                                               | PC board mounting hole dimensions<br>(Viewed from direction A)                        |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1   |    |    |    |
| 2   |   |   |   |
| 3   |  |  |  |
| 4   |  |  |  |

## Dimensions

Vertical Actuator Type/Horizontal Actuator Type

Unit:mm

| No. | Photo                                                                               | Style                                                                               | PC board mounting hole dimensions<br>(Viewed from direction A)                        |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 5   |    |   |    |
| 6   |   |  |   |
| 7   |  |  |  |
| 8   |  |  |  |

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

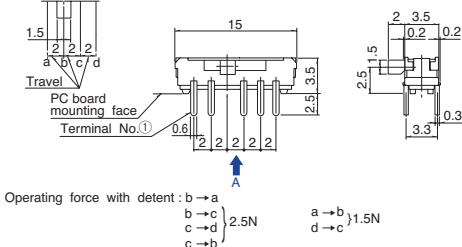
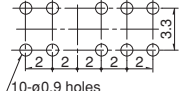
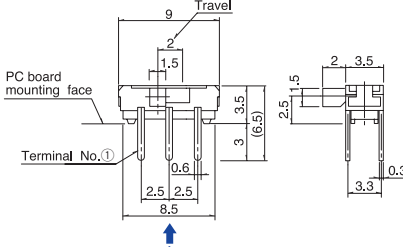
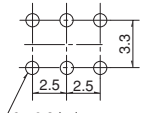
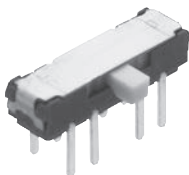
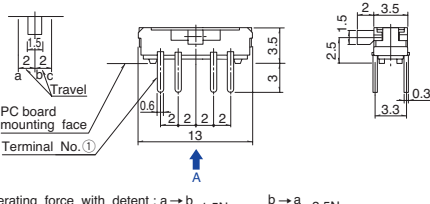
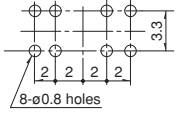
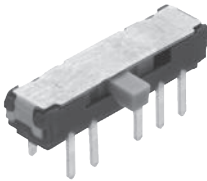
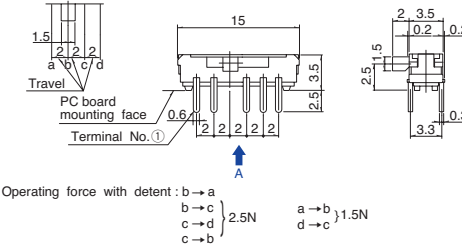
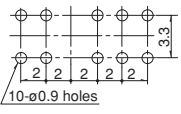
TACT Switch™

Small size  
General Use typeBig size  
General Use type

# Dimensions

## Horizontal Actuator Type

Unit:mm

| No. | Photo                                                                               | Style                                                                               | PC board mounting hole dimensions<br>(Viewed from direction A)                        |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 9   |    |    |    |
| 10  |   |   |   |
| 11  |  |  |  |
| 12  |  |  |  |

## Dimensions

Horizontal Actuator Type, Reflow Type

Unit:mm

| No. | Photo | Style                                                              | PC board mounting hole and land dimensions<br>(Viewed from direction A) |
|-----|-------|--------------------------------------------------------------------|-------------------------------------------------------------------------|
| 13  |       | <p>Operating force with detent : 1.5N</p>                          |                                                                         |
| 14  |       | <p>Operating force with detent : a → b } 1.5N<br/>c → b } 2.5N</p> |                                                                         |
| 15  |       | <p>Operating force with detent : a → b } 1.5N<br/>c → b } 2.5N</p> |                                                                         |

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Small size  
General Use typeBig size  
General Use type

## Circuit Diagram (Viewed from Direction A)

|                                                            |                                                         |                                                        |
|------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|
| <b>1-pole, 2-positions</b><br>Drawing No. : 1, 5, 7<br>    | <b>1-pole, 3-positions</b><br>Drawing No. : 2, 6, 8<br> | <b>2-poles, 2-positions</b><br>Drawing No. : 3, 10<br> |
| <b>2-poles, 3-positions</b><br>Drawing No. : 4, 11, 15<br> | <b>1-pole, 4-positions</b><br>Drawing No. : 9<br>       | <b>2-poles, 4-positions</b><br>Drawing No. : 12<br>    |
| <b>1-pole, 2-positions</b><br>Drawing No. : 13<br>         | <b>1-pole, 3-positions</b><br>Drawing No. : 14<br>      |                                                        |

# Slide Switches

## List of Varieties

| Series                            |                                               | SSAJ                                                                               | SSAH                                                                               | SSSS8                                                                              | SSAL                                                                               | SSAG                                                                                 | SSSS7※1                                                                              | SSSS2                                                                                |
|-----------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Photo                             |                                               |   |   |   |   |   |   |   |
| Actuator direction                | Horizontal                                    |   |   |   |   |   |   |   |
|                                   | Vertical                                      | —                                                                                  | —                                                                                  |   | —                                                                                  | —                                                                                    | —                                                                                    |   |
| Dimensions (mm)                   | W                                             | 5.5                                                                                | 9.5                                                                                | 9.7                                                                                | 7.6                                                                                | 9.05                                                                                 | 8.8                                                                                  | 13                                                                                   |
|                                   | D                                             | 2.5                                                                                | 3                                                                                  | 2.6                                                                                |                                                                                    | 3                                                                                    |                                                                                      | 3.5                                                                                  |
|                                   | H                                             | 0.7                                                                                | 0.9                                                                                | 1.4                                                                                | 1.2                                                                                | 1.15                                                                                 | 2                                                                                    |                                                                                      |
| Poles-positions                   | 1-2                                           |   | —                                                                                  |   |   | —                                                                                    |   |   |
|                                   | 1-3                                           | —                                                                                  |   |   | —                                                                                  |   |   |   |
|                                   | 1-4                                           | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                    | —                                                                                    |   |
|                                   | 2-2                                           | —                                                                                  | —                                                                                  |   | —                                                                                  | —                                                                                    | —                                                                                    |   |
|                                   | 2-3                                           | —                                                                                  | —                                                                                  |   | —                                                                                  | —                                                                                    | —                                                                                    |   |
|                                   | 2-4                                           | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                    | —                                                                                    |   |
|                                   | 4-2                                           | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                  | —                                                                                    | —                                                                                    | —                                                                                    |
| Travel (mm)                       |                                               | 1.4                                                                                | 1.5                                                                                | 1.5<br>2                                                                           | 2                                                                                  | 1.5                                                                                  | 2                                                                                    | 2                                                                                    |
| Operating temperature range       |                                               | −10℃ to +60℃                                                                       | −30℃ to +60℃                                                                       | −40℃ to +85℃                                                                       | −10℃ to +60℃                                                                       |                                                                                      | −40℃ to +85℃                                                                         |                                                                                      |
| Automotive use                    |                                               | —                                                                                  | —                                                                                  |   | —                                                                                  | —                                                                                    | —                                                                                    | —                                                                                    |
| Life cycle                        |                                               |  |  |  |  |  |  |  |
| Rating (max.)<br>(Resistive load) |                                               | 10mA<br>5V DC                                                                      | 1mA 5V DC                                                                          | 0.3A 5V DC                                                                         | 10mA 5V DC                                                                         |                                                                                      | 0.3A 4V DC                                                                           | 0.3A 6V DC                                                                           |
| Rating (min.)<br>(Resistive load) |                                               | 50μA 3V DC                                                                         | —                                                                                  | 50μA 3V DC                                                                         |                                                                                    |                                                                                      |                                                                                      |                                                                                      |
| Durability                        | Operating life without load                   | 10,000cycles<br>500mΩ max.                                                         | 10,000cycles<br>300mΩ max.                                                         | 10,000cycles<br>100mΩ max.                                                         | 100,000cycles<br>10Ω max.                                                          | 30,000cycles<br>(Lockside)<br>100,000cycles<br>(Recoilside)<br>500mΩ max.            | 10,000cycles<br>100mΩ max.※2                                                         |                                                                                      |
|                                   | Operating life without load<br>Load:as rating |                                                                                    |                                                                                    | 10,000cycles<br>130mΩ max.                                                         |                                                                                    |                                                                                      | 10,000cycles<br>130mΩ max.※2                                                         |                                                                                      |
| Electrical performance            | Initial contact resistance                    | 300mΩ max.                                                                         | 200mΩ max.                                                                         | 70mΩ max.                                                                          | 10Ω max.                                                                           | 200mΩ max.                                                                           | 70mΩ max.                                                                            |                                                                                      |
|                                   | Insulation resistance                         | 100MΩ min. 100V DC                                                                 |                                                                                    |                                                                                    |                                                                                    |                                                                                      | 100MΩ min. 500V DC                                                                   |                                                                                      |
|                                   | Voltage proof                                 | 100V AC for 1minute                                                                |                                                                                    |                                                                                    |                                                                                    |                                                                                      | 500V AC for 1minute                                                                  |                                                                                      |
| Mechanical performance            | Terminal strength                             |                                                                                    | 3N for 1minute                                                                     |                                                                                    |                                                                                    |                                                                                      |                                                                                      |                                                                                      |
|                                   | Actuator strength                             | Operating direction                                                                | 10N                                                                                | 10N                                                                                | 10N                                                                                |                                                                                      | 10N                                                                                  | 20N                                                                                  |
|                                   |                                               | Pulling direction                                                                  |                                                                                    | 10N<br>Static force                                                                |                                                                                    |                                                                                      | 10N<br>Static force                                                                  |                                                                                      |
| Environmental performance         | Cold                                          |                                                                                    | −40±2℃ for 96h                                                                     |                                                                                    | −40±2℃ for 96h                                                                     |                                                                                      | −20±2℃ for 500h                                                                      |                                                                                      |
|                                   | Dry heat                                      |                                                                                    | 85±2℃ for 96h                                                                      |                                                                                    | 85±2℃ for 96h                                                                      |                                                                                      | 85±2℃ for 500h                                                                       |                                                                                      |
|                                   | Damp heat                                     |                                                                                    | 40±2℃,<br>90 to 95%RH<br>for 96h                                                   | 60±2℃,<br>90 to 95%RH<br>for 240h                                                  | 60±2℃,<br>90 to 95%RH<br>for 500h                                                  | 40±2℃, 90 to 95%RH<br>for 96h                                                        |                                                                                      | 40±2℃, 90 to 95%RH<br>for 500h                                                       |
| Page                              |                                               | 70                                                                                 | 72                                                                                 | 74                                                                                 | 77                                                                                 | 79                                                                                   | 82                                                                                   | 85                                                                                   |

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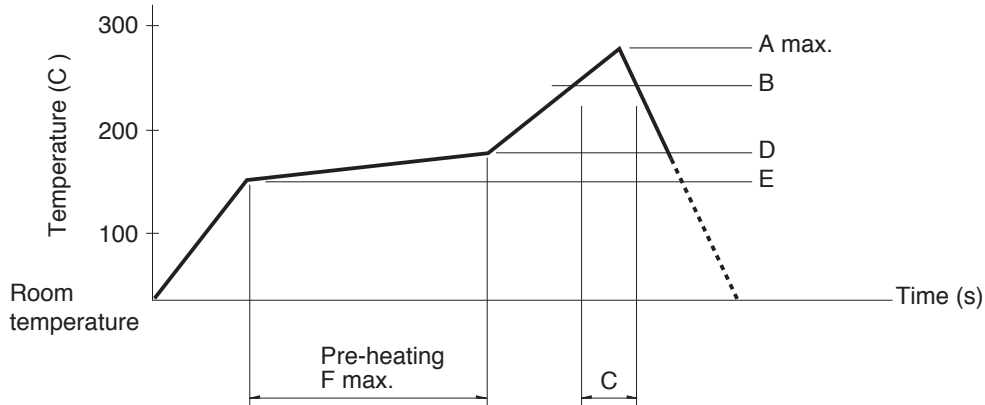
### Notes

- ※1. The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- ※2. Operating life for SSSS213202 is 100 cycles
- indicates applicability to all products in the series.

## Slide Switches 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



| Series (Reflow type)          |            |                                                                    | A (°C)<br>3s max. | B (°C) | C (s) | D (°C) | E (°C) | F (s) |
|-------------------------------|------------|--------------------------------------------------------------------|-------------------|--------|-------|--------|--------|-------|
| SSSS2                         | Vertical   | 1-pole, 3-positions                                                | 250               | 230    | 40    | 180    | 150    | 120   |
|                               | Horizontal | 1-pole, 2-positions<br>1-pole, 3-positions<br>2-poles, 3-positions | 260               |        |       |        |        |       |
|                               | Vertical   | 1-pole, 2-positions                                                | 250               |        |       |        |        |       |
| SSSS7                         |            |                                                                    | 260               |        |       |        |        |       |
| SSAH, SSAG, SSAJ, SSAL, SSSS8 |            |                                                                    |                   |        |       |        |        |       |

### 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 |
|--------------------------------------|-----------------------|----------------|
| SSSF, SSSU, SSSB, SSAA               | 350±10°C              | 3+1 / 0s       |
| SSSS2                                | 350±10°C              | 4s max.        |
| SSSS9                                | 350±10°C              | 3s max.        |
| SSAH, SSAG, SSAJ, SSAL, SSSS8, SSSS7 | 350±5°C               | 3s max.        |
| SSAC                                 | 300±5°C               | 2s max.        |

### Reference for Dip Soldering

(For PC board terminal types)

| Series           | Items                  |                 | Dip soldering         |                       |
|------------------|------------------------|-----------------|-----------------------|-----------------------|
|                  | Preheating temperature | Preheating time | Soldering temperature | Duration of immersion |
| SSSS2            | 100°C max.             | 60s max.        | 260±5°C               | 3±1s                  |
| SSSS9            | 120°C max.             | 60s max.        | 260±5°C               | 5+ 0 / -1s (2times)   |
| SSAA             | 100°C max.             | 60s max.        | 260±5°C               | 10±1s                 |
| SSSF, SSSU, SSSB | —                      |                 | 260±5°C               | 10±1s                 |
| SSAC             | —                      |                 | 260±5°C               | 5±1s                  |

Detector

Slide

Push

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Small size  
General Use type

Big size  
General Use type