

## ■ Typical Specifications

| Items                       | Specifications   |
|-----------------------------|------------------|
| Total resistance tolerance  | ± 20%            |
| Maximum operating voltage   | Please see P.372 |
| Operating force             | 0.3 to 2.5N      |
| Operating life              | 15,000cycles     |
| Operating temperature range | − 25°C to + 70°C |

## ■ Product Line

## Insulated lever

| Number of resistor elements | Travel (mm) | Lever types | Length of lever (L <sub>1</sub> ) (mm) | Total resistance (k Ω) | Resistance taper | Detent  | Mounting plate | Minimum order unit (pcs.) |               | Products No. | Drawing No.   |
|-----------------------------|-------------|-------------|--|------------------------|------------------|---------|----------------|---------------------------|---------------|--------------|---------------|
|                             |             |             |  |                        |                  |         |                | Japan                     | Export        |              |               |
| Single-unit                 | 20          | J-1         | 5                                      | 10                     | 1B               | Without | Without        | 700                       | 2,800         | RS201111J011 | 1             |
|                             | 30          |             |  |                        | 15A              |         |                | 600                       | 2,400         | RS301111J00P | 2             |
|                             |             |             |  | 1B                     | With             |         | RS301111AJ01R  |                           |               | 3            |               |
|                             |             |             |  | 15A                    | Without          |         | RS301111J00R   |                           |               | 2            |               |
|                             |             | 45          | A                                      | 10                     | 10               |         | 1B             |                           |               | Without      | RS301111AJ01K |
|                             | Without     |             |  |                        |                  |         |                |                           |               | RS301111A01G | 4             |
|                             | C           |             | With                                   |                        |                  |         |                |                           |               | RS301111C01L | 5             |
|                             |             |             | B                                      |                        |                  |         |                | Without                   | RS301111AC00V | 6            |               |
| Dual-unit                   | 30          | C           | 5                                      | 3B                     | With             |         | 1,300          | 1,300                     | RS451111ABA02 | 7            |               |
|                             |             | J-1         |  |                        |                  |         | 600            | 2,400                     | RS30112AC00J  | 8            |               |
|                             |             |             |  |                        |                  |         |                |                           | RS30112AJA02  | 9            |               |

## Metal lever

| Number of resistor elements | Travel (mm) | Lever types | Length of lever (L <sub>1</sub> ) (mm) | Total resistance (k Ω) | Resistance taper | Detent  | Mounting plate | Minimum order unit (pcs.) |               | Products No.  | Drawing No.  |     |     |              |    |
|-----------------------------|-------------|-------------|--|------------------------|------------------|---------|----------------|---------------------------|---------------|---------------|--------------|-----|-----|--------------|----|
|                             |             |             |  |                        |                  |         |                | Japan                     | Export        |               |              |     |     |              |    |
| Single-unit                 | 15          | 9-1         | 10                                     | 10                     | 15A              | Without | With           | 700                       | 2,800         | RS151111A900B | 10           |     |     |              |    |
|                             | 20          |             |  |                        | 1B               |         |                | 600                       | 2,400         | RS201111A9A03 | 11           |     |     |              |    |
|                             | 30          | 4           | 15                                     | 20                     |                  |         | Without        |                           |               | RS301111A9012 | 12           |     |     |              |    |
|                             |             | 6           |  |                        |                  |         |                |                           |               | RS301111A602N | 14           |     |     |              |    |
|                             | 45          | 9-1         | 10                                     | 10                     | With             |         | 1,300          | 1,300                     | RS451111A900F | 15            |              |     |     |              |    |
|                             | 60          | 6           | 15                                     |                        | 10               |         |                |                           | Without       | RS4511119A04  | 16           |     |     |              |    |
|                             |             |             |  |                        |                  |         | 6              | 15                        |               | 15A           | With         | 900 | 900 | RS6011YA600M | 17 |
|                             |             |             |  |                        |                  |         | 9-1            | 10                        |               | 1B            | Without      |     |     | RS6011Y19004 | 18 |
|                             | 6           | 15          | RS6011Y1600Q                           |                        | 19               |         |                |                           |               |               |              |     |     |              |    |
|                             | Dual-unit   | 45          | 4                                      | 20                     | 20               |         | 15A            | With                      | 1,150         | 1,150         | RS451121400A | 20  |     |              |    |
| 60                          |             | 6           | 15                                     | 20                     |                  |         |                |                           |               |               | 15A          | 900 | 900 | RS45112A400G | 21 |
|                             |             |             |  |                        | RS60112A600N     |         | 22             |                           |               |               |              |     |     |              |    |
|                             |             |             |  |                        | RS60112A600U     |         |                |                           |               |               |              |     |     |              |    |

## Notes

Other varieties are also available. Refer to "Other Specifications" (P.372).

Refer to P.372 for other specifications.  
 Refer to P.373 for configuration details.  
 Refer to P.374 for ordering products not listed.  
 Refer to P.403 for soldering conditions

## Packing Specifications

### Tray

| Travel (mm) | Number of resistor elements | Number of packages (pcs.) |                         | Export package measurements (mm) |
|-------------|-----------------------------|---------------------------|-------------------------|----------------------------------|
|             |                             | 1 case / Japan            | 1 case / export packing |                                  |
| 15, 20      | Single-unit                 | 700                       | 2,800                   | 378 × 518 × 422                  |
| 30          | Single-unit/<br>Dual-unit   | 600                       | 2,400                   |                                  |
| 45          | Single-unit                 | 1,300                     | 1,300                   | 373 × 529 × 273                  |
|             | Dual-unit                   | 1,150                     | 1,150                   |                                  |
| 60          | Single-unit/<br>Dual-unit   | 900                       | 900                     |                                  |

## Dimensions

Unit:mm

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

The length of the operating part ( $L_1$ ) can be customized. Refer to P.373 for details.

Rotary  
Potentiometers

Slide  
Potentiometers

General-use

Mixer

## Dimensions

Unit:mm

Rotary  
PotentiometersSlide  
Potentiometers

General-use

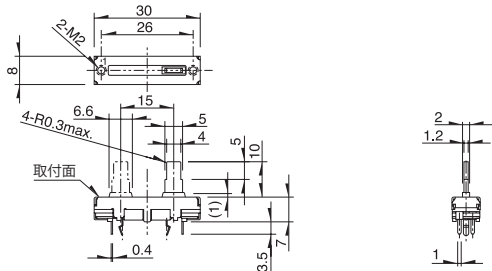
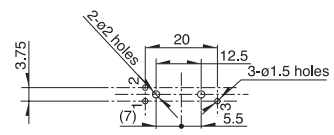
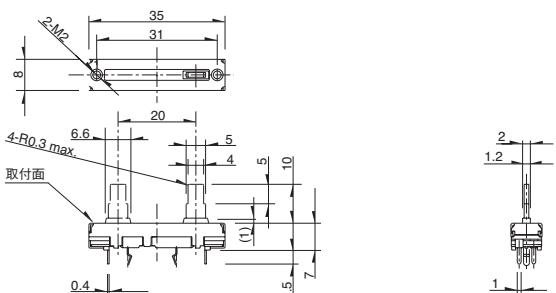
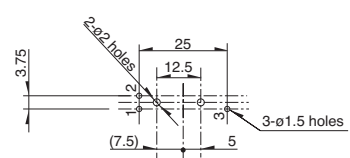
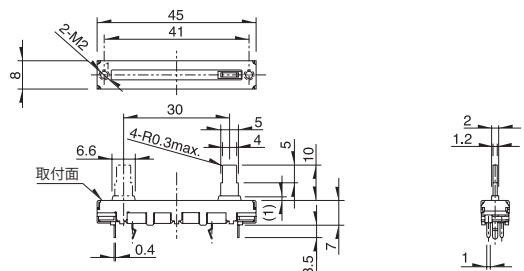
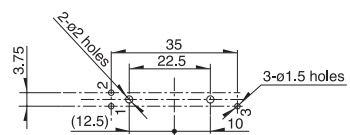
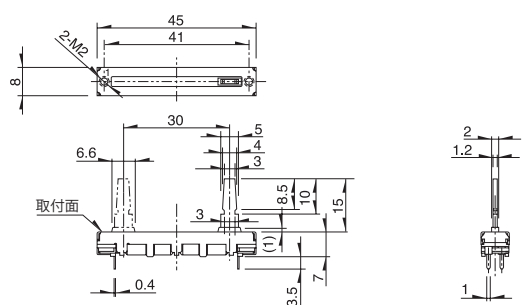
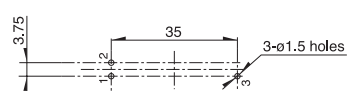
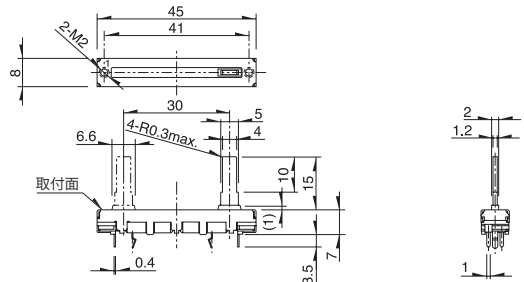
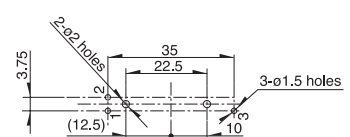
Mixer

| No. | Style | PC board mounting hole dimensions<br>(Viewed from mounting side) |
|-----|-------|--|
| 5   |       |  |
| 6   |       |  |
| 7   |       |  |
| 8   |       |  |
| 9   |       |  |

The length of the operating part ( $L_1$ ) can be customized. Refer to P.373 for details.

Dimensions

Unit:mm

| No. | Style   | PC board mounting hole dimensions<br>(Viewed from mounting side)                      |
|-----|---|---|
| 10  |    |    |
| 11  |    |    |
| 12  |  |  |
| 13  |  |  |
| 14  |  |  |

The length of the operating part ( $L_1$ ) can be customized. Refer to P.373 for details.

Rotary  
Potentiometers

Slide  
Potentiometers

General-use

Mixer

## ■ Dimensions

Unit:mm

## Rotary Potentiometers

## Slide Potentiometers

## General-use

## Mixer

| No. | Style | PC board mounting hole dimensions<br>(Viewed from mounting side) |
|-----|-------|--|
| 15  |       |  |
| 16  |       |  |
| 17  |       |  |
| 18  |       |  |
| 19  |       |  |

The length of the operating part ( $L_1$ ) can be customized. Refer to **P.373** for details.

## Unit:mm

## Mixer

The length of the operating part ( $L_1$ ) can be customized. Refer to **P.373** for details.

In addition to the products listed, we can accommodate the follow specifications.

## Travel Distance Variety

| Travel (mm) | 15 | 20 | 30 | 45 | 60 |
|-------------|----|----|----|----|----|
|-------------|----|----|----|----|----|

## Total Resistance Variety

| Total resistance (kΩ) | 10 | 20 | 50 | 100 | 200 |
|-----------------------|----|----|----|-----|-----|
|-----------------------|----|----|----|-----|-----|

## Resistance taper

| Resistance taper | 1B | 3B | 4B | 10A | 15A |
|------------------|----|----|----|-----|-----|
|------------------|----|----|----|-----|-----|

## Note

DC (10V DC) is also available. (Tapped types are not available)

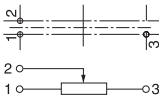
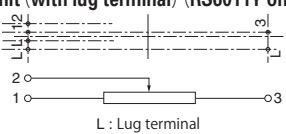
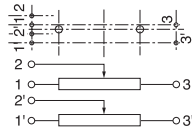
## Rated Voltage

| Travel | Single-unit |              | Dual-unit |              |
|--------|-------------|--------------|-----------|--------------|
|        | 1B          | 4B, 10A, 15A | 1B, 3B    | 4B, 10A, 15A |
| 15mm   | 0.05W       | 0.025W       | 0.025W    | 0.012W       |
| 20mm   | 0.1W        | 0.05W        | 0.05W     | 0.025W       |
| 30mm   | 0.2W        | 0.1W         | 0.1W      | 0.05W        |
| 45mm   | 0.25W       | 0.125W       | 0.125W    | 0.06W        |
| 60mm   | 0.2W        | 0.1W         | 0.2W      | 0.1W         |

## Maximum operating voltage

| Travel | Single-unit    |                | Dual-unit      |                |
|--------|----------------|----------------|----------------|----------------|
|        | 1B             | 4B, 10A, 15A   | 1B, 3B         | 4B, 10A, 15A   |
| 15mm   | 100V AC,10V DC | 50V AC,10V DC  | 100V AC,10V DC | 50V AC,10V DC  |
| 20mm   | 200V AC,10V DC | 150V AC,10V DC |                |                |
| 30mm   |                |                |                |                |
| 45mm   |                |                |                |                |
| 60mm   |                |                |                |                |
|        |                |                | 200V AC,10V DC | 150V AC,10V DC |

## Terminal Layout / Circuit Diagram (Viewed from Mounting Side)

| Single-unit   | Single-unit (with lug terminal) (RS6011Y only)                                      | Dual-unit   |
|---|---|---|
|  |  |  |

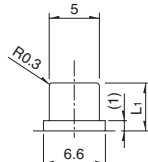
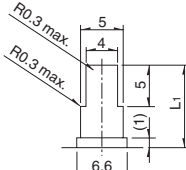
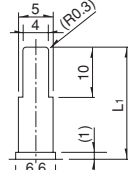
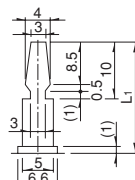
## Note

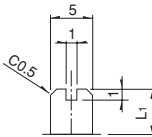
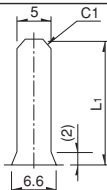
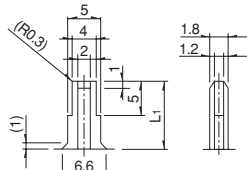
marked are specifications recommended by Alps.

In addition to the products listed, we can accommodate the follow specifications.

## Lever Types

Unit:mm

| Lever Types    |  |                |    |
|----------------|--|----------------|----|
| Metal lever    |  |                |    |
| Code           | Dimensions   |                |    |
| 9-2            |       |                |    |
|                | <table><tr><td>L<sub>1</sub></td></tr><tr><td>5</td></tr></table>                      | L <sub>1</sub> | 5  |
| L <sub>1</sub> |  |                |    |
| 5              |  |                |    |
| 9-1            |       |                |    |
|                | <table><tr><td>L<sub>1</sub></td></tr><tr><td>10</td></tr></table>                     | L <sub>1</sub> | 10 |
| L <sub>1</sub> |  |                |    |
| 10             |  |                |    |
| 6              |       |                |    |
|                | <table><tr><td>L<sub>1</sub></td></tr><tr><td>15</td></tr><tr><td>20</td></tr></table> | L <sub>1</sub> | 15 |
| L <sub>1</sub> |  |                |    |
| 15             |  |                |    |
| 20             |  |                |    |
| 4              |      |                |    |
|                | <table><tr><td>L<sub>1</sub></td></tr><tr><td>15</td></tr><tr><td>20</td></tr></table> | L <sub>1</sub> | 15 |
| L <sub>1</sub> |  |                |    |
| 15             |  |                |    |
| 20             |  |                |    |

| Insulated lever |  |                |    |    |
|-----------------|--|----------------|----|----|
| Code            | Dimensions   |                |    |    |
| J-1             | <div></div> <div><div>t=2</div><table><tr><td>L<sub>1</sub></td></tr><tr><td>5</td></tr></table></div>                      | L <sub>1</sub> | 5  |    |
| L <sub>1</sub>  |  |                |    |    |
| 5               |  |                |    |    |
| A               | <div></div> <div><div>t=2</div><table><tr><td>L<sub>1</sub></td></tr><tr><td>10</td></tr><tr><td>15</td></tr></table></div> | L <sub>1</sub> | 10 | 15 |
| L <sub>1</sub>  |  |                |    |    |
| 10              |  |                |    |    |
| 15              |  |                |    |    |
| C               | <div></div> <div><table><tr><td>L<sub>1</sub></td></tr><tr><td>10</td></tr><tr><td>15</td></tr></table></div>               | L <sub>1</sub> | 10 | 15 |
| L <sub>1</sub>  |  |                |    |    |
| 10              |  |                |    |    |
| 15              |  |                |    |    |

## Corresponding Specifications

Unit:mm

| Corresponding Specifications |   |
|------------------------------|---|
| Resistance taper             | 3B, 15C                                   |
| Dust cover                   | Available                                 |
| Tap                          | Available<br>(Only the center-positioned) |

| Insulated lever configuration |  |
|-------------------------------|--|
| B                             |  |
|                               |  |

## Note

marked are specifications recommended by Alps.

Rotary  
Potentiometers

Slide  
Potentiometers

General-use

Mixer



When ordering product varieties that are not listed, specify referring to the examples below.

## Sample Part Number

**R S 6 0 1 1 Y** — **J 1 0 5** — **C 0** — **P 0** — **B 1 0 3**

Specify the travel distance from the below codes.

| Travel (mm) | Code | Travel (mm) | Code |
|-------------|------|-------------|------|
| 15          | 15   | 45          | 45   |
| 20          | 20   | 60          | 60   |
| 30          | 30   |             |      |

Number of resistor elements

|               |                                |
|---------------|--------------------------------|
| <b>Single</b> | 1 (Enter "Y" for 60 mm travel) |
| <b>Dual</b>   | 2                              |

Lever type / Length of operation unit (mm)

**Insulated lever**

| Code | Configuration | Length |
|------|---------------|--------|
| J1   | J-1           | 5      |
| 0A   | A             | 10     |
|      |               | 15     |
| 0C   | C             | 10     |
|      |               | 15     |
| 0B   | B             | 10     |
|      |               | 15     |

**Metal lever**

| Code | Configuration | Length |
|------|---------------|--------|
| 91   | 9-1           | 10     |
| 92   | 9-2           | 5      |
| 04   | 4             | 15     |
|      |               | 20     |
| 06   | 6             | 15     |
|      |               | 20     |

Length of operation unit

If the length is less than 10 mm, add a "0" before the number.  
(e.x., 5 mm length="05")

Detent

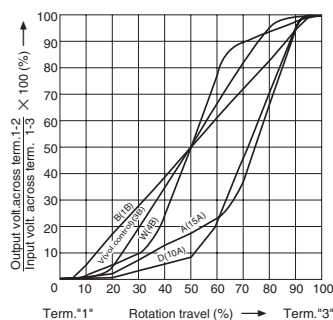
| Code | Detent  |
|------|---------|
| C0   | Without |
| C1   | Center  |

Mounting plate

| Code | Mounting plate |
|------|----------------|
| P0   | Without        |
| P1   | With           |

Resistance taper

| Code | Resistance taper |
|------|------------------|
| A    | 15A              |
| B    | 1B               |
| D    | 10A              |
| W    | 4B               |
| V    | 3B               |



Total resistance


















| Code | Total resistance (kΩ) | Code | Total resistance (kΩ) |
|------|-----------------------|------|-----------------------|
| 103  | 10                    | 104  | 100                   |
| 203  | 20                    | 204  | 200                   |
| 503  | 50                    |      |                       |

## Note

marked are specifications recommended by Alps.

# Slide Potentiometers

## List of Varieties

| Type                         |                                   | Standard Type   |   |   |   |              |  |
|------------------------------|-----------------------------------|---|---|---|---|--------------|--|
| Series                       |                                   | RS □□ 1   | RS □□ H   |   | Compact Reflow Type   |              |  |
|                              |                                   |   |   |   | RS08U   |              |  |
| photo                        |                                   |  |    |    |   |              |  |
| Travel (mm)                  |                                   | 15, 20, 30, 45, 60  | 15, 20, 30  |   | 8   |              |  |
| Direction of lever           |                                   | Vertical  |   | Horizontal  | Vertical  | Horizontal   |  |
| Shaft material               |                                   | Metal / Resin   | Resin   |   |   |              |  |
| Number of resistor elements  |                                   | Single-unit / Dual-unit   |   |   |   | Single-unit  |  |
| Operating temperature range  |                                   | -25℃ to +70℃  |   |   |   | -10℃ to +70℃ |  |
| Operating life               |                                   | 15,000cycles  | 10,000cycles  |   |   |              |  |
| Available for automotive use |                                   |  |    |    |    |              |  |
| Life cycle (availability)    |                                   |  |    |   |    |              |  |
| Electrical performance       | Total resistance (kΩ)             | 10, 20, 50, 100, 200  | 5, 10, 20, 50, 100 200, 250   |   | 10  |              |  |
|                              | Resistance taper                  | 10A, 15A, 1B, 3B, 4B  | 15A, 1B, 3B   |   | 1B  |              |  |
|                              | Rated Power                       | Please see P.372  | Please see P.379  |   | 0.025W  |              |  |
|                              | Insulation resistance             | 100MΩ min. 250V DC  | Dual-unit : 100MΩ min. 250V DC  |   | 100MΩ min. 100V DC  |              |  |
|                              | Voltage proof                     | 300V AC for 1 minute  | Dual-unit : 300V AC for 1 minute  |   | 100V AC for 1 minute  |              |  |
|                              | Center-taps                       | Without / With  |   |   |   | Without      |  |
| Mechanical performance       | Operating force                   | 0.3 to 2.5N   | 0.6 <sup>+0.5</sup> <sub>-0.4</sub> N   |   | 0.17±0.15N  |              |  |
|                              | Center detent                     | Without / With  |   |   |   | Without      |  |
|                              | Stopper strength                  | 50N   | 30N   |   | 5N  |              |  |
|                              | Lever push-pull strength          | 50N   | 30N   |   | 5N  |              |  |
|                              | Lever wobble (mm)<br>※Both sides  | $\frac{2(2 \times L)}{20}$  | 1.6 max.  |   |    |              |  |
|                              | Detent slip-out force             | Operating force + (0.2 to 2N)   | Operating force + 0.3 <sup>+0.5</sup> <sub>-0.25</sub> N                            |   |    |              |  |
|                              | Lever deviation (mm)<br>※One side | 0.5 max.  |  |  |    |              |  |
| Terminal style               |                                   | Insertion   |   |   |   | Reflow       |  |
| Page                         |                                   | 366   | 375   |   | 381   |              |  |

|   |     |
|---|-----|
| Slide Potentiometers Soldering Conditions   | 403 |
| Potentiometer Cautions                      | 404 |
| Potentiometers Measurement and Test Methods | 406 |
| Potentiometers Resistance Taper             | 408 |

## Notes

1. "L" in the "Lever Wobble" column of the above table indicates the length of lever.
2. 「RS □□」 □□ indicates travel.
3. ○ indicates applicability to some products in the series.

## Slide Potentiometers Soldering Conditions

### Reference for Hand Soldering

| Series  | Tip temperature | Duration of Soldering time | No. of solders |
|---|-----------------|----------------------------|----------------|
| RS□□1, RS□□H, RS08U, RS□□K (Standard), RS□□N, RS□□N11S, RS6011□P, RS□□N1□M, RSA0K1□V (Motor terminal) | 350°C max.      | 3s max.                    | 1 time         |

Rotary Potentiometers

Slide Potentiometers

### Reference for Dip Soldering

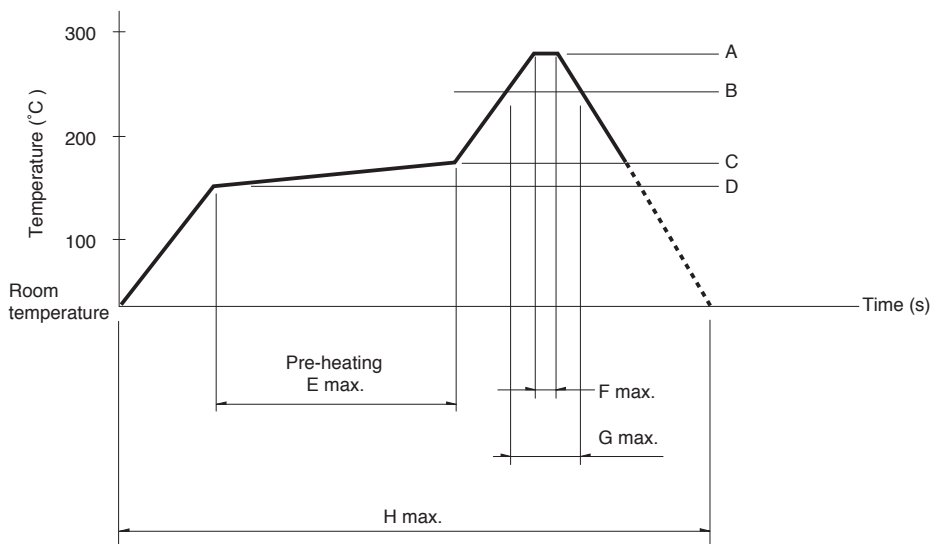
| Series  | Preheating                    |              | Dip soldering         |                | Number of soldering |
|---|-------------------------------|--------------|-----------------------|----------------|---------------------|
|   | Soldering surface temperature | Heating time | Soldering temperature | Soldering time |                     |
| RS□□1, RS□□H, RS□□N, RS□□N11S, RS6011□P, RS□□N1□M | 100°C max.                    | 1 min. max.  | 260°C                 | 5s max.        | 1 time              |

General-use

Mixer

### Example of Reflow Soldering Condition

Temperature profile



| Series | A     | B     | C     | D     | E      | F  | G   | H      | No. of reflows |
|--------|-------|-------|-------|-------|--------|----|-----|--------|----------------|
| RS08U  | 250°C | 200°C | 150°C | 150°C | 2 min. | 3s | 40s | 4 min. | 1 time         |

### Notes

- When using an infrared reflow oven, solder may sometimes not be applied. Be sure to use a hot air reflow oven or a type that uses infrared rays in combination with hot air.
- The temperatures given above are the maximum temperatures at the terminals of the potentiometer when employing a hot air reflow method. The temperature of the PC board and the surface temperature of the potentiometer may vary greatly depending on the PC board material, its size and thickness. Ensure that the surface temperature of the potentiometer does not rise to 250° C or greater.
- Conditions vary to some extent depending on the type of reflow bath used. Be sure to give due consideration to this prior to use.