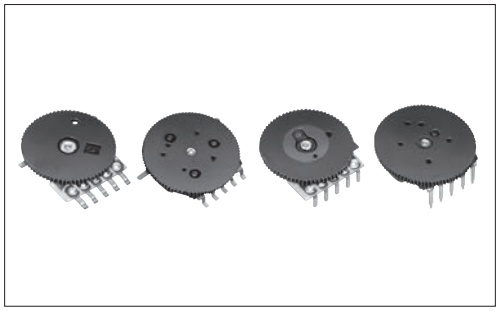
# RK10J RK14J With Knob Type

## Low-profile, dip and reflow solderable



### Typical Specifications

| Items | Specifications | |
|---|---|---|
| | RK10J | RK14J |
| Total resistance tolerance | ±30% | |
| Maximum operating voltage | 50V AC, 20V DC (Single-unit only) | |
| Total rotational angle | 270°±10° | 270°±5° |
| Rotational torque | 0.5 to 10mN·m | 1 to 10mN·m |
| Operating life | 10,000 cycles | |
| Operating temperature range | −10℃ to +60℃ | −25℃ to +70℃ |

### Product Line

| Type | Number of resistor elements | Knob type | Total resistance (k Ω) | Resistance taper | Soldering | Mounting type | For DC use | Minimum order unit (pcs.) Japan | Minimum order unit (pcs.) Export | Products No. | Drawing No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10mm Size | Single-unit | Knob diameter :φ 14 Knob thickness : t0.9 Color : Black | 10 | 1B | Manual | Insertion (2mm) | 20V DC | 3,000 | 2,400 | **RK10J11E0034** | 1 |
| | | | 20 | 3B | | | | | | **RK10J11E002Y** | |
| | Dual-unit | | 10 | 15A | | | Not applicable | | | **RK10J12E0A0A** | |
| | | | | 3B | | | | | | **RK10J12E002L** | |
| | | | 20 | 15C | | | | | | **RK10J12E0024** | |
| | Single-unit | Knob diameter :φ 14 Knob thickness : t1.0 Color : Black | 10 | 15A | Reflow | Surface mounting | 20V DC | 3,000 | 3,000 | **RK10J11R001Y** | 2 |
| | | | | 3B | | | | | | **RK10J11R0A0H** | |
| | Dual-unit | | | 15A | | | Not applicable | | | **RK10J12R0A0B** | |
| | | | | 15C | | | | | | **RK10J12R0052** | |
| 14mm Size | Single-unit | Knob diameter :φ 15 Knob thickness : t0.9 Color : Black | 10 | 1B | Manual/ Dip | Insertion (2mm) | 20V DC | 1,200 | 2,400 | **RK14J11A000G** | 3 |
| | | | 50 | 3B | | | | | | **RK14J11A0A02** | |
| | | | 100 | 1B | | | | | | **RK14J11A0007** | |
| | Dual-unit | | 20 | 15C | | | Not applicable | | | **RK14J12A0A0U** | |
| | | | 50 | 3B | | | | | | **RK14J12A0A0K** | |
| | Single-unit | | 10 | 1B | Reflow | Surface mounting | 20V DC | 3,000 | 3,000 | **RK14J11R000J** | 4 |
| | | | 50 | 3B | | | | | | **RK14J11R000H** | |
| | Dual-unit | | 10 | 15A | | | Not applicable | | | **RK14J12R0A01** | |
| | | | | 3B | | | | | | **RK14J12R0A0C** | |
| | | | | 15C | | | | | | **RK14J12R0A09** | |

Notes

1. Other varieties are also available. Refer to "Other Specifications" (P.391,392).
2. Dip soldering can be applied to RK14J. For dip soldering applications, specify separately as "dip soldering applicable product".

Refer to P.391 for other specifications.
Refer to P.393 for ordering products not listed.
Refer to P.394 for soldering conditions.

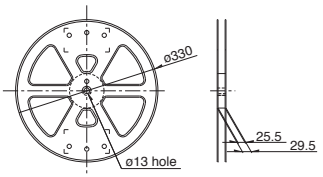
## Packing Specifications (RK10J)

Bulk / Taping

Unit:mm

| Soldering | Packing specifications | Number of packages (pcs.) | | | Tape width (mm) | Export package measurements (mm) |
|---|---|---|---|---|---|---|
| | | 1 reel | 1 case /Japan | 1 case /export packing | | |
| Manual | Bulk | — | 3,000 | 2,400 | — | 250×371×190 |
| Reflow | Taping | 1,000 | 3,000 | 3,000 | 24 | 397×401×139 |

Reel size



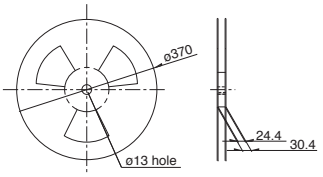

## Packing Specifications (RK14J)

Bulk / Taping

Unit:mm

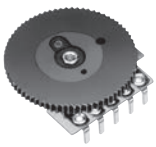
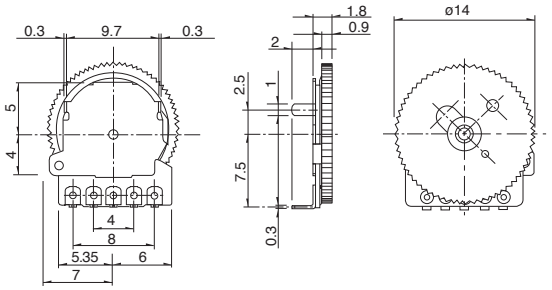
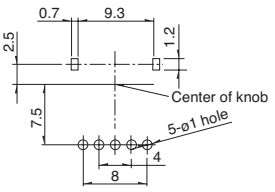
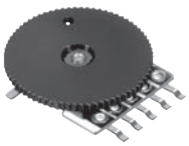
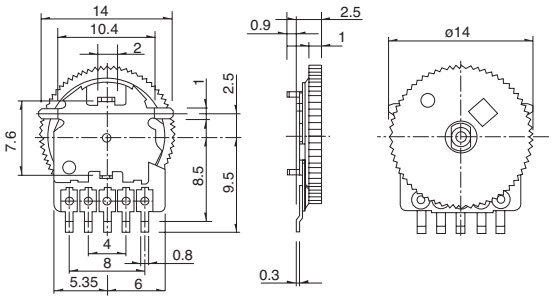
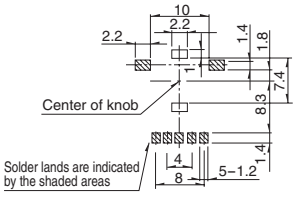
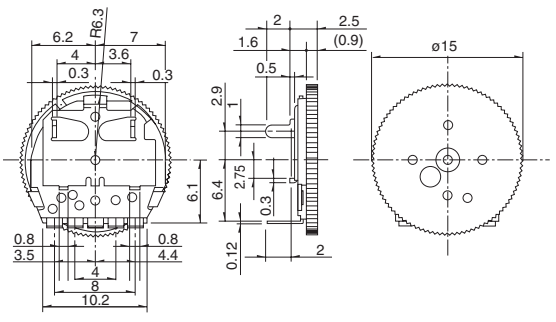
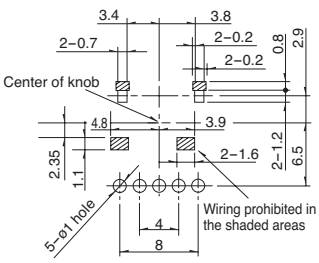
| Soldering | Packing specifications | Number of packages (pcs.) | | | Tape width (mm) | Export package measurements (mm) |
|---|---|---|---|---|---|---|
| | | 1 reel | 1 case /Japan | 1 case /export packing | | |
| Manual | Bulk | — | 1,200 | 2,400 | — | 259×379×206 |
| Reflow | Taping | 1,000 | 3,000 | 3,000 | 24 | 397×401×139 |

Reel size



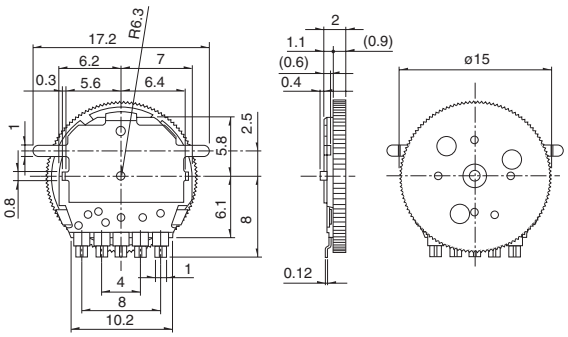
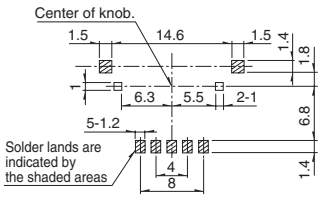

## Dimensions

Unit:mm

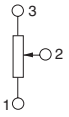
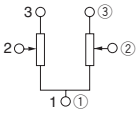
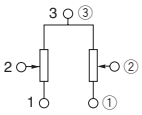
| No. | Photo | Style | PC board mounting hole dimensions (Viewed from mounting side) |
|---|---|---|---|
| 1 | **RK10J1 □ E**  |  |  |
| 2 | **RK10J1 □ R**  |  |  |
| 3 | **RK14J1 □ A**  |  |  |

## Dimensions

Unit:mm

| No. | Photo | Style | PC board mounting hole dimensions (Viewed from mounting side) |
|---|---|---|---|
| 4 | **RK14J1 □ R**  |   |   |

## Circuit Diagram

| Single-unit | Dual-unit | Dual-unit resistance taper 15C |
|---|---|---|
|   |   |   |

# With Knob Type / Other Specifications

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

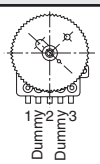
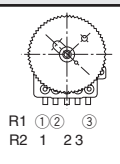
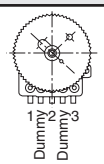
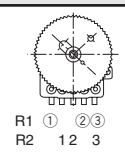
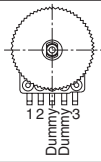
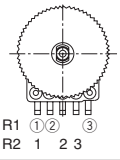
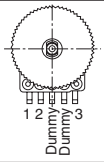
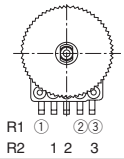
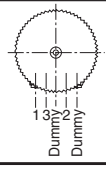
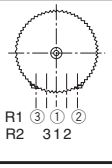
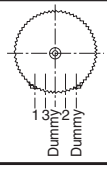
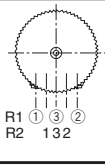
## Total Resistance Variety

| Total resistance (k Ω) | 10 | 20 | 50 | 100 |
|---|---|---|---|---|

## Resistance Taper

| Resistance taper | 15A | 1B | 3B | 15C |
|---|---|---|---|---|

## Terminal Layout

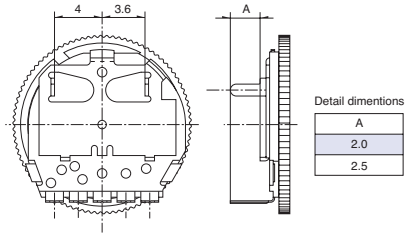
| | Resistance taper A or B | | Resistance taper C | |
|---|---|---|---|---|
| | Single-unit | Dual-unit | Single-unit | Dual-unit |
| **10mm Single-unit/ Dual-unit RK10J1□E** |   |   |   |   |
| **10mm Single-unit/ Dual-unit RK10J1□R (Reflow-type)** |   |   |   |   |
| **14mm Single-unit/ Dual-unit RK14J1□A RK14J1□R** |   |   |   |   |

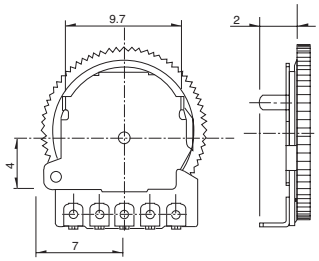
Refer to P.393 for ordering products not listed.

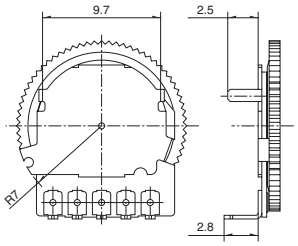
## Mounting Plate Types and Terminal Types

Unit:mm

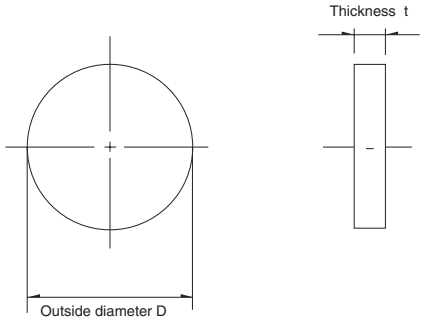
| RK14J1 □A | RK10J1 □E | |
|---|---|---|
| | Terminal length : 2.0 | Terminal length : 2.8 |




## Knob Variety




| Applicable models | Knob variety | | | | Body thickness (mm) |
|---|---|---|---|---|---|
| | Type | Outer diameter D | Thickness (mm) | Color | |
| **RK10J11E RK10J12E** | K4 | ϕ14 | 0.9 | Black | 1.8 |
| | K5 | ϕ16 | 3.0 | | 4.0 |
| **RK10J11R RK10J12R (Reflow-type)** | K1 | ϕ14 | 1.0 | Black | 2.5 |
| | K2 | ϕ14 | 2.5 | | 3.8 |
| | K3 | ϕ16 | | | |
| **RK14J11A RK14J12A** | K1 | ϕ15 | 0.9 | Black | 2.5 |
| | K2 | ϕ15 | 3.0 | | 4.6 |
| | K3 | ϕ18 | | | |
| **RK14J11R RK14J12R (Reflow-type)** | K1 | ϕ15 | 0.9 | Black | 2.0 |
| | K2 | ϕ15 | 3.0 | | 4.1 |

Note

Marked are specifications recommended by ALPS.

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

## Sample Part Number

| R | K | 1 | 4 | J | 1 | 1 | A | – | K | 1 | – | B | 2 | 0 | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

### Model type

| Code | Model type |
|---|---|
| RK10J11E | 10mm size single-unit Insertion type |
| RK10J12E | 10mm size dual-unit Insertion type |
| RK10J11R | 10mm size single-unit Reflow type |
| RK10J12R | 10mm size dual-unit Reflow type |
| RK14J11A | 14mm size single-unit Insertion type |
| RK14J12A | 14mm size dual-unit Insertion type |
| RK14J11R | 14mm size single-unit Reflow type |
| RK14J12R | 14mm size dual-unit Reflow type |

### Shaft type (Outer diameter/Thickness) (mm)

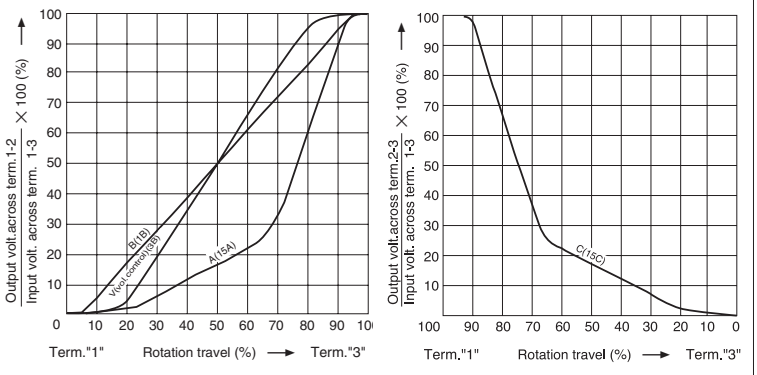
| Code | RK10J1□E | RK10J1□R | RK14J1□A | RK14J1□R |
|---|---|---|---|---|
| K1 | — | V14 t1.0 | V15 t0.9 | V15 t0.9 |
| K2 | — | V14 t2.5 | V15 t3.0 | V15 t3.0 |
| K3 | — | V16 t2.5 | V18 t3.0 | — |
| K4 | V14 t0.9 | — | — | — |
| K5 | V16 t3.0 | — | — | — |

*Color : Black

### Resistance taper

| Code | Resistance taper | Code | Resistance taper |
|---|---|---|---|
| A | 15A | C | 15C |
| B | 1B | V | 3B |

B: For tone & general
V: For vol.




### Total resistance

| Code | Total resistance (k Ω) | Code | Total resistance (k Ω) |
|---|---|---|---|
| 103 | 10 | 503 | 50 |
| 203 | 20 | 104 | 100 |

Note

Marked are specifications recommended by ALPS.

# Knob Operating Type Potentiometers

## List of Varieties

| Type | | Without knob type | | | With knob type | | | |
|---|---|---|---|---|---|---|---|---|
| Series | | RK08H1 □ 1 | RK08H1 □ 2 | RK08H1 □ 3 | RK10J1 □ E | RK10J1 □ R | RK14J1 □ A | RK14J1 □ R |
| | | Single-unit/Dual-unit | Single-unit/Dual-unit | Single-unit/Dual-unit | Single-unit/Dual-unit | Single-unit/Dual-unit | Single-unit/Dual-unit | Single-unit/Dual-unit |
| Photo | |  |  |  |  |  |  |  |
| Terminal orientation | | Vertical | Back-to-back mounting | Reflow type | — | — | — | — |
| Operating temperature range | | −10℃ to +60℃ | | | | | −25℃ to +70℃ | |
| Operating life | | Without detent 10,000 cycles<br>With detent 5,000 cycles | | | 10,000 cycles | | | |
| Automotive use | | — | — | — | — | — | — | — |
| Life cycle | | ★2 | | | ★2 | | ★2 | |
| Electrical performance | Total resistance (k Ω) | 5, 10, 20, 50, 100 | | | 10, 20, 50, 100 | | | |
| | Resistance taper | 15A, 1B, 3B, 15C | | | | | | |
| | Rated power | 0.03W | | | | | | |
| | Insulation resistance | — | — | — | 100MΩ min. 100V DC | | | |
| | Voltage proof | — | — | — | 100V AC for 1minute | | | |
| Mechanical performance | Detent | Without / Center detent | | | Without | | | |
| | Stopper strength | 0.1N | | | 70mN·m | | | |
| | Push-pull strength | 10N | | | 5N | | | |
| | Vibration | — | — | — | — | — | ※ | |
| Terminal style | | Insertion | | Reflow | Insertion | Reflow | Insertion | Reflow |
| Page | | 385 | | | 389 | | | |

## Residual Resistance

※ Applies only to products with specified residual resistance

| Nominal total resistance | ※ Residual resistance |
|---|---|
| 100kΩ≧R≧50kΩ | 0.1% or less of nominal total resistance |
| 50kΩ>R>10kΩ | 30Ω or less |
| 10kΩ≧R | 20Ω or less |

## Maximum Attenuation

| Nominal total resistance | Maximum attenuation |
|---|---|
| R≧100kΩ | 90dB min. |
| 100kΩ>R≧50kΩ | 80dB min. |
| 50kΩ>R≧10kΩ | 70dB min. |
| 10kΩ>R | 60dB min. |



※10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively

## Reference for Manual Soldering

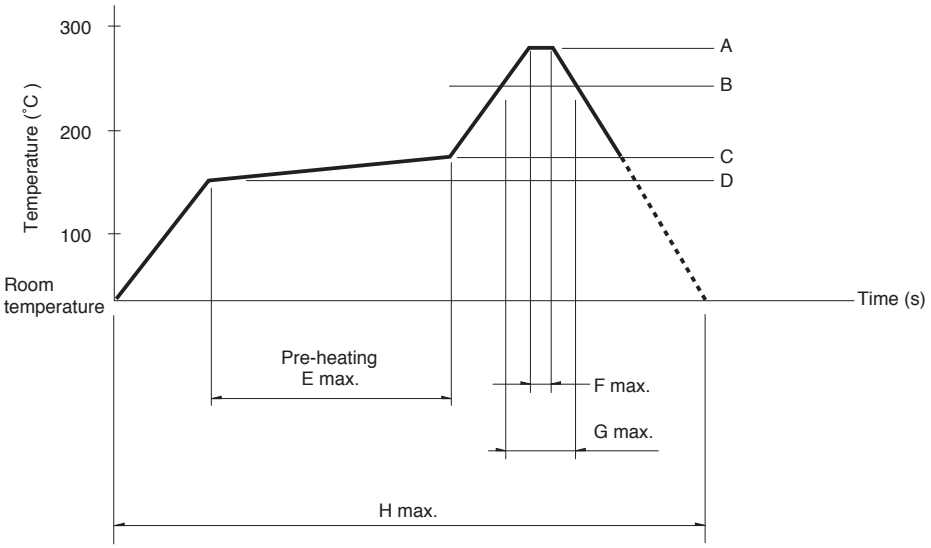
| Series | Tip temperature | Soldering time | No. of solders |
|---|---|---|---|
| **RK08H1□1, RK08H1□2, RK10J, RK14J** | 350℃ max. | 3s max. | 1 time |

## Reference for Dip Soldering

| Series | Preheating | | Dip soldering | | No. of solders |
|---|---|---|---|---|---|
| | Soldering surface temperature | Heating time | Soldering temperature | Soldering time | |
| **RK14J1□A** | 80 to 120℃ | 70±30s | 260℃±5℃ | 4±1s | 1 time |

## Example of Reflow Soldering Condition

Temperature profile




| Series | A | B | C | D | E | F | G | H | No. of reflows |
|---|---|---|---|---|---|---|---|---|---|
| **RK08H1□3, RK10J1□R, RK14J1□R** | 250℃ | 200℃ | 150℃ | 150℃ | 2 min. | 3s | 40s | 4 min. | 2 time max. |

Notes

1. 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.
2. 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℃ or greater.
3. Conditions vary to some extent depending on the type of reflow bath used. Be sure to give due consideration to this prior to use.