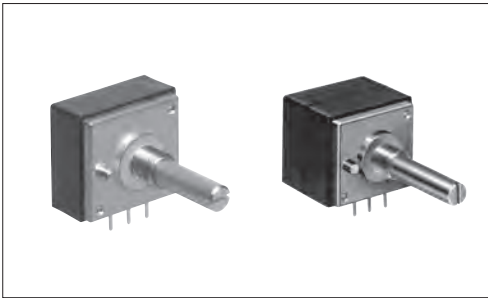


# RK271 27mm Size Metal Shaft Type

High performance potentiometer with excellent operational feel



## Typical Specifications

| Items                       | Specifications |
|-----------------------------|----------------|
| Total resistance tolerance  | ±20%           |
| Maximum operating voltage   | 30V AC         |
| Total rotational angle      | 300° ±3°       |
| Rotational torque           | 8 to 35mN·m    |
| Operating life              | 15,000 cycles  |
| Operating temperature range | -10°C to +70°C |

Rotary Potentiometers  
Slide Potentiometers

Metal Shaft

Insulated Shaft

Knob Operating

Through Shaft Type

Ring Type

## Product Line

| Number of resistor elements | Shaft type | Length of the shaft L <sub>1</sub> (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) |        | Products No. | Drawing No. |
|-----------------------------|------------|---|---------------|-----------------------|------------------|---------------------------|--------|--------------|-------------|
|                             |            |   |               |                       |                  | Japan                     | Export |              |             |
| Single-unit                 | Slotted    | 25                                      | 31            | 100                   | 15A              | 100                       | 500    | RK2711120026 | 1           |
|                             |            |   | Without       |                       |                  |                           |        | RK271111001T |             |
| Dual-unit                   | Slotted    | 20                                      | Without       | 100                   | 15A              | 100                       | 500    | RK27112A00AK | 2           |
|                             |            | 25                                      |               |                       |                  |                           |        | RK27112A00CC |             |
|                             | Flat       | 20                                      |               |                       |                  |                           |        | RK27112A0A16 | 3           |
|                             |            | 25                                      |               |                       |                  |                           |        | RK27112A00B9 |             |

### Note

Other varieties are also available. Refer to "Other Specifications" (P.303).

## Packing Specifications

Bulk

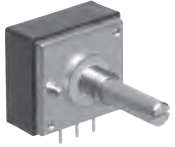
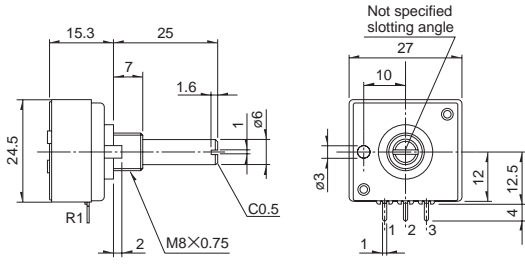
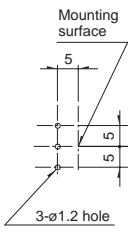

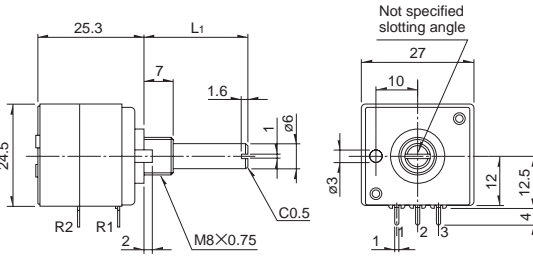
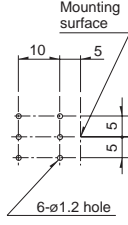

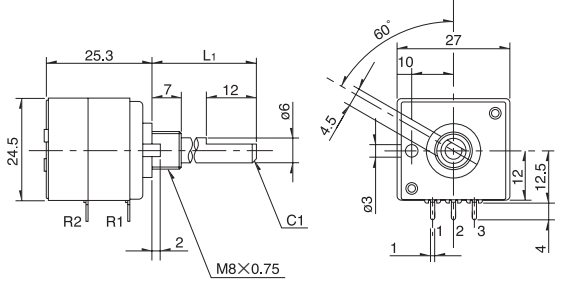
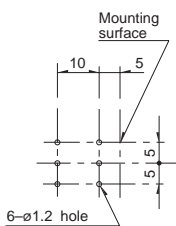
| Number of resistor elements/<br>Shaft length         | Number of packages (pcs.) |                        | Export package measurements (mm) |
|--|---------------------------|------------------------|----------------------------------|
|  | 1 case /Japan             | 1 case /export packing |                                  |
| <b>Single-unit / 25mm</b><br><b>Dual-unit / 20mm</b> | 100                       | 500                    | 540×380×314                      |
| <b>Dual-unit / 25mm</b>                              |                           |                        | 510×360×359                      |

Refer to P.302 for attached parts.  
Refer to P.303 for other specifications.  
Refer to P.304 for ordering products not listed.  
Refer to P.311 for soldering conditions.

# RK271 27mm Size Metal Shaft Type

## Dimensions

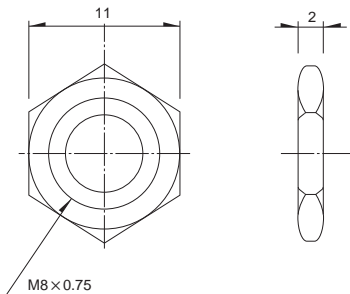
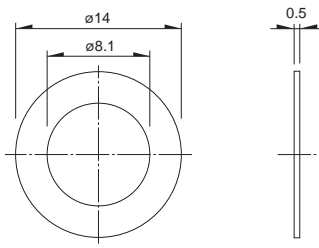
Unit:mm

| No. | Photo   | Style  | PC board mounting hole dimensions<br>(Viewed from mounting side)                      |
|-----|---|--|---|
| 1   |    | <p><b>Single-shaft, single-unit<br/>RK27111</b></p>    |    |
| 2   |    | <p><b>Single-shaft, dual-unit<br/>RK27112</b></p> <p><math>L_1</math> 20 25</p>   |   |
| 3   |  | <p><b>Single-shaft, dual-unit<br/>RK27112</b></p> <p><math>L_1</math> 20 25</p>  <p>Shaft shown in full<br/>CCW position</p> |  |

## 27mm Size Metal Shaft Type / Attached Parts

The following parts are included with the product.

Unit:mm

| Nut   | Washer   |
|---|--|
|  |  |

# 27mm Size Metal Shaft Type / Other Specifications

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products.

## Products Specification

| Type                      | Model          | Mounting height (mm) | Detent variety           | Gang error ※   |
|---------------------------|----------------|----------------------|--------------------------|--|
| Single-shaft, single-unit | <b>RK27111</b> | 12.5                 | Center<br>21<br>31<br>41 | —  |
| Single-shaft, dual-unit   | <b>RK27112</b> |                      |                          | —60dB to 0dB<br>within 3dB   |
| Single-shaft, quad-unit   | <b>RK27114</b> |                      |                          | —80dB to —60dB<br>within 5dB<br>possible depending on total<br>resistance and taper. |

## Total Resistance Variety

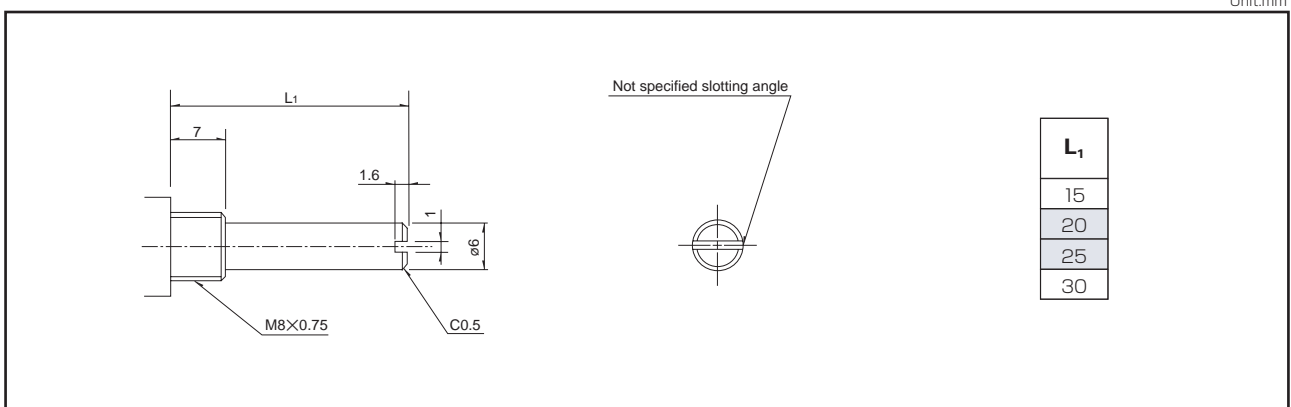
| Total resistance (kΩ) | 5 | 10 | 20 | 50 | 100 | 250 |
|-----------------------|---|----|----|----|-----|-----|
|                       |   |    |    |    |     |     |

## Resistance Taper

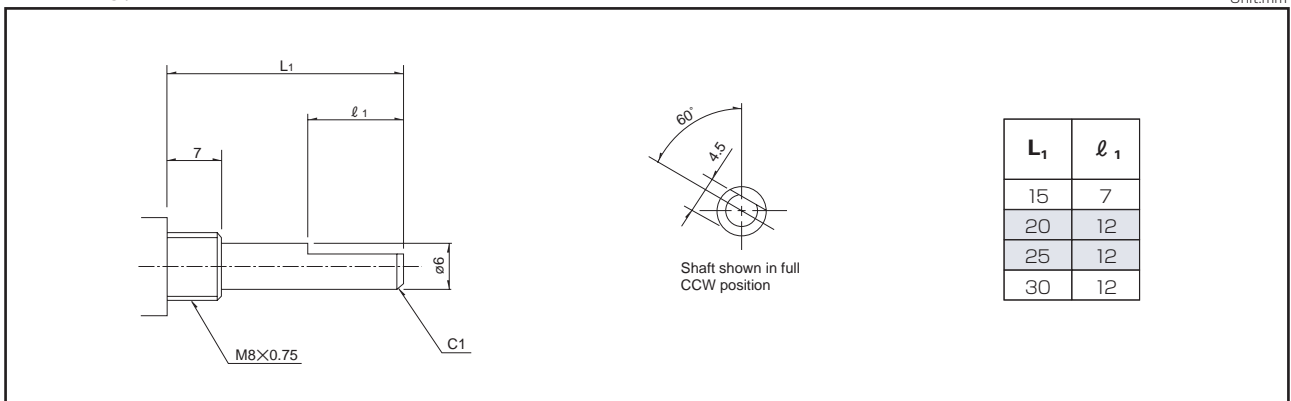
| Resistance taper | 15A | 3B |
|------------------|-----|----|
|                  |     |    |

## Dimensions of Shaft

### 1) Slotted type



### 2) Flat type



## Note

Marked are specifications recommended by Alps Alpine.

※ The gang error of single-shaft, 4-gang potentiometers is the gang error between R1 and R2 and between R3 and R4. The gang error for 5kΩ is within 3dB at —50dB to 0dB.

# 27mm Size Metal Shaft Type / Ordering Products Not Listed

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products. Please refer to the notation example below.

## Sample Part Number

**R K 2 7 1 1 2 A 0** — **S 2 5** — **C 0** — **A 1 0 4**

### Model type

| Code | Model type                          |
|------|-------------------------------------|
| 111  | Single-unit without detent          |
| 112  | Single-unit, with detent            |
| 12A  | Dual-unit for vol. (without detent) |
| 12B  | Dual-unit for vol. (with detent)    |
| 14A  | Quad-unit for vol. (without detent) |
| 14B  | Quad-unit for vol. (with detent)    |

### Shaft type

| Code | Shaft type |
|------|------------|
| F    | Flat       |
| S    | Slotted    |

### Length of the shaft L<sub>1</sub> (mm)

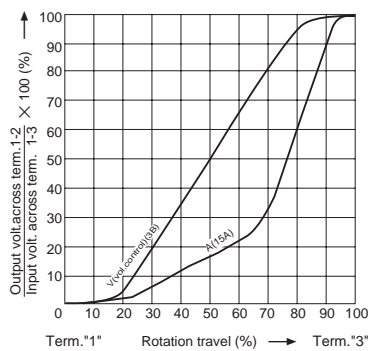
| Code | Length of the shaft | Code | Length of the shaft |
|------|---------------------|------|---------------------|
| 15   | 15                  | 25   | 25                  |
| 20   | 20                  | 30   | 30                  |

### Detent

| Code | Detent  | Code | Detent |
|------|---------|------|--------|
| C0   | Without | 31   | 31     |
| C1   | Center  | 41   | 41     |
| 21   | 21      | —    | —      |

### Resistance taper

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



### Total resistance

| Code | Total resistance (k Ω) | Code | Total resistance (k Ω) |
|------|------------------------|------|------------------------|
| 502  | 5                      | 503  | 50                     |
| 103  | 10                     | 104  | 100                    |
| 203  | 20                     | 254  | 250                    |

### Note

Marked are specifications recommended by Alps Alpine.

Rotary Potentiometers

Slide Potentiometers









Metal Shaft

Insulated Shaft

Knob Operating

Through Shaft Type

Ring Type

| Type                         | 16mm size   | 27mm size  | 50mm size   | Rotary motor-driven   |   |
|------------------------------|---|--|---|---|---|
| Series                       | <b>RK163</b>  | <b>RK271</b>   | <b>RK501</b>  | <b>RK168</b>  |   |
|                              | Single-shaft  |  |   |   |   |
| Number of resistor elements  | Single/dual   | Single/dual/quad   | Dual/quad   |   |   |
| Photo                        |  |   |                          |  |   |
| Control part orientation     | Horizontal  |  |   |   |   |
| Fixing method of bushing     | Bushing screw clamp   |  |   |   |   |
| Operating temperature range  | -10°C to +70°C  |  |   |   |   |
| Operating life               | 15,000 cycles   |  |   |   |   |
| Available for automotive use | —   | —  | —   | —   |   |
| Life cycle (availability)    |  |   |                          |  |   |
| Electrical performance       | Total resistance (kΩ)   | 5, 10, 20, 50, 100, 200  | 5, 10, 20, 50, 100, 250   | 10, 20, 50, 100   |   |
|                              | Resistance taper  | 15A, 1B, 3B, 15C   | 15A, 3B   |   |   |
|                              | Rated Power   | 0.1W<br>0.05W (15A)  | 0.05W   | 0.1W  | 0.05W   |
|                              | Residual resistance   | R ≤ 10kΩ 20Ω max.<br>10kΩ < R ≤ 50kΩ 30Ω max.<br>50kΩ < R Nominal total resistance of 0.1% or less                               | R ≤ 10kΩ 20Ω max.<br>10kΩ < R ≤ 50kΩ 30Ω max.<br>50kΩ < R Nominal total resistance of 0.1% or less          | —   | —   |
|                              | Maximum attenuation (Volume control)  | 5kΩ ≤ R < 10kΩ 70dB min.<br>10kΩ ≤ R < 50kΩ 80dB min.<br>50kΩ ≤ R < 100kΩ 90dB min.<br>100kΩ ≤ R 100dB min.                      | 5kΩ ≤ R < 10kΩ 70dB min.<br>10kΩ ≤ R < 50kΩ 80dB min.<br>50kΩ ≤ R < 100kΩ 90dB min.<br>100kΩ ≤ R 100dB min. | 120dB min.  | 5kΩ ≤ R < 10kΩ 70dB min.<br>10kΩ ≤ R < 50kΩ 80dB min.<br>50kΩ ≤ R < 100kΩ 90dB min.<br>100kΩ ≤ R 100dB min. |
|                              | Gang error applicable to Dual-unit parts for audio volume control purposes        | -40dB to 0dB 3dB max.  | -70dB to -60dB 3dB max.<br>-60dB to 0dB 2dB max.  | -100dB to 0dB 3dB max. ※  | -60dB to -40dB 5dB max.<br>-40dB to 0dB 3dB max.  |
|                              | Insulation resistance   | 100MΩ min. 500V DC   |   |   | 100MΩ min. 250V DC  |
|                              | Voltage proof   | 500V AC for 1 minute   |   |   | 300V AC for 1 minute  |
|                              | Center-taps   | Without  |   |   |   |
| Mechanical performance       | Detent  | Without, Cente   | Without, Center, 21, 31, 41   | Without   |   |
|                              | Stopper strength  | 0.9 N·m  |   | 1.5 N·m<br>0.9 N·m  |   |
|                              | Push-pull strength  | 100N max.  |   | 150N max.<br>100N max.  |   |
|                              | Vibration   | 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 |   |   |   |
| Shaft style                  | Serrated type.<br>Flat type, Slotted type   | Slotted type, Flat type  | Slotted type  | Flat type   |   |
| Terminal style               | Insertion, Lead   | Insertion  |   |   |   |
| Attached switch              | —   |  |   |   |   |
| Page                         | 296   | 301  | 305   | 307   |   |

|   |     |
|---|-----|
| Metal Shaft Potentiometers Soldering Conditions | 311 |
| Potentiometers Cautions                         | 384 |
| Potentiometers Measurement and Test Methods     | 386 |
| Potentiometers Resistance Taper                 | 388 |

**Note**

○ Indicates applicability to some products in the series.

※ Gang error of 4-gang (quad) model: - 100dB to 0dB 3dB max. (applies only between R1 and R2 and between R3 and R4)