

Metal Shaft Potentiometer  
**9mm Size Metal Shaft Multi-ganged Type**  
RK097/RK098 Series



9.5mm width potentiometer ideal for various types of control.



■ Typical Specifications

| Items                       | Specifications                                                         |
|-----------------------------|------------------------------------------------------------------------|
| Total resistance tolerance  | ± 20 %                                                                 |
| Maximum operating voltage   | 50V AC , 10V DC                                                        |
| Total rotational angle      | 300 ± 5 ( For shaft movable type, 300 <sup>+10°</sup> <sub>-5°</sub> ) |
| Rotational torque           | 2 to 25mN·m                                                            |
| Operating life              | 15,000cycles                                                           |
| Operating temperature range | - 20    to    + 70                                                     |

Rotary  
Potentiometers  
Slide  
Potentiometers

■ Product Line

Single-shaft without switch type

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) | Products No. | Drawing No. |
|-----------------------------|--------------------|------------|--------------------------|---------------|-----------------------|------------------|---------------------------|--------------|-------------|
| Single-unit                 | Horizontal type    | Flat       | 15                       | Without       | 10                    | 15A              | 1,200                     | RK097111080J | 1           |
|                             |                    |            |                          |               | 20                    | 1B               |                           | RK0971110909 |             |
|                             |                    |            |                          |               | 50                    | 15A              |                           | RK097111050B |             |
|                             |                    |            |                          | With          | 10                    | 15A              |                           | RK0971110D7F |             |
|                             |                    |            |                          |               | 50                    | 1B               |                           | RK097111020N |             |
|                             |                    |            |                          |               | 100                   | 1B               |                           | RK09711100WY |             |
|                             |                    |            | 20                       | Without       | 50                    | 15A              | 800                       | RK097111080R |             |
|                             |                    |            |                          |               | 10                    | 15A              |                           | RK0971110D88 |             |
|                             |                    |            |                          | With          | 50                    | 1B               |                           | RK09711100F8 |             |
|                             |                    |            |                          |               | 100                   | 1B               |                           | RK09711100Q2 |             |
|                             |                    |            | 25                       | Without       | 10                    | 15A              |                           | RK097111091M |             |
|                             |                    |            |                          |               |                       | 1B               |                           | RK0971110D57 |             |

Metal  
Shaft  
Insulated  
Shaft  
Knob  
Operating

Note

Products other than those listed in above products are also available. Please contact us for details.

**Product Line**

**Single-shaft without switch type**

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) | Products No. | Drawing No. |
|-----------------------------|--------------------|------------|--------------------------|---------------|-----------------------|------------------|---------------------------|--------------|-------------|
| Dual-unit for tone          | Horizontal type    | Flat       | 20                       | With          | 20                    | 1B               | 800                       | RK0971210Z2M | 2           |
|                             |                    |            |                          | Without       | 50                    |                  |                           | RK09712100AV |             |
|                             |                    |            | 25                       |               | 10                    | 1B               |                           | RK0971210097 |             |
| 15                          |                    |            |                          |               |                       | 15A              | 1,200                     | RK09712200MC |             |
|                             |                    |            | 3B                       |               |                       | RK09712200MY     |                           |              |             |
|                             |                    |            | 20                       |               |                       | 15A              | 800                       | RK09712200HA |             |
| 3B                          |                    |            |                          |               |                       | RK097122008T     |                           |              |             |
| 20                          |                    |            |                          |               | 15A                   | RK09712200MT     |                           |              |             |

**Single-shaft with rotary switch type**

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) | Products No. | Drawing No.  |
|-----------------------------|--------------------|------------|--------------------------|---------------|-----------------------|------------------|---------------------------|--------------|--------------|
| Single-unit                 | Horizontal type    | Flat       | 15                       | Without       | 20                    | 15A              | 700                       | RK0971111Z0P | 3            |
|                             |                    |            |                          |               | 50                    |                  |                           | RK0971111Z32 |              |
|                             |                    |            | 20                       |               | 10                    |                  |                           | 1B           |              |
|                             |                    |            |                          |               |                       | RK09711110EL     |                           |              |              |
| Dual-unit for vol.          |                    |            | 15                       |               | 3B                    | RK0971221Z05     |                           | 4            |              |
|                             |                    |            | 20                       |               |                       |                  |                           |              | RK0971221Z11 |

**Single-shaft push-on push-off switch type**

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) | Products No. | Drawing No. |
|-----------------------------|--------------------|------------|--------------------------|---------------|-----------------------|------------------|---------------------------|--------------|-------------|
| Single-unit                 | Horizontal type    | Flat       | 20                       | Without       | 10                    | 15A              | 700                       | RK097111201V | 5           |
|                             |                    |            | 25                       |               |                       | 1B               |                           | RK097111202P |             |
|                             |                    |            |                          |               |                       | RK097111202Q     |                           |              |             |
| Dual-unit for tone          |                    |            | 15                       |               | 15A                   | 600              | RK097121200C              | 6            |             |
|                             |                    |            | 20                       |               | 3B                    |                  | RK097122200G              |              |             |

**Single-shaft momentary push(0.5mm travel) switch type**

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft (mm) | Center detent | Total resistance (kΩ) | Resistance taper | Minimum order unit (pcs.) | Products No. | Drawing No. |
|-----------------------------|--------------------|------------|--------------------------|---------------|-----------------------|------------------|---------------------------|--------------|-------------|
| Single-unit                 | Horizontal type    | Flat       | 15                       | With          | 10                    | 3B               | 700                       | RK0971114D0B | 7           |
| Dual-unit for tone          |                    |            | 20                       | Without       |                       | 1B               |                           | RK0971214Z06 | 8           |
| Dual-unit for vol.          |                    |            |                          |               |                       | 15A              |                           | RK0971224Z01 |             |

**Note**

Products other than those listed in above products are also available. Please contact us for details.

## Product Line

### Single-shaft momentary push( 1.5mm travel )switch type

| Number of resistor elements | Mounting direction | Shaft type | Length of the shaft ( mm ) | Center detent | Total resistance ( k $\Omega$ ) | Resistance taper | Minimum order unit ( pcs. ) | Products No. | Drawing No. |
|-----------------------------|--------------------|------------|----------------------------|---------------|---------------------------------|------------------|-----------------------------|--------------|-------------|
| Single-unit                 | Horizontal type    | Flat       | 20                         | Without       | 10                              | 1B               | 700                         | RK0971114Z07 | 9           |
|                             |                    |            | 25                         |               |                                 | 15A              |                             | RK0971114Z0T |             |

### Single-shaft with push-lock mechanism type

| Number of<br>resistor elements | Mounting<br>direction | Shaft<br>type | Length<br>of the shaft<br>( mm ) | Center<br>detent | Total<br>resistance<br>( kΩ ) | Resistance<br>taper | Minimum<br>order unit<br>( pcs. ) | Products No. | Drawing<br>No. |
|--------------------------------|-----------------------|---------------|----------------------------------|------------------|-------------------------------|---------------------|-----------------------------------|--------------|----------------|
| Single-unit                    | Horizontal<br>type    | Flat          | 25                               | Without          | 10                            | 1B                  | 700                               | RK097111T065 | 10             |
|                                |                       |               |                                  |                  | 100                           | 15A                 |                                   | RK097111TZ17 |                |
|                                |                       |               |                                  | With             | 10                            | 1B                  |                                   | RK097111T064 |                |
|                                |                       |               |                                  |                  | 100                           |                     |                                   | RK097111TD2M |                |
|                                |                       |               |                                  |                  | 100                           |                     |                                   | RK097111TD44 |                |
| Dual-unit<br>for tone          | Dual-unit<br>for vol  |               |                                  |                  | 10                            | 600                 | RK097121TD57                      | 11           |                |
|                                |                       |               |                                  |                  | Without                       |                     | 15A                               |              | RK097122T017   |
|                                |                       |               |                                  |                  |                               |                     | 50                                |              | 3B             |

### Single-shaft, dual-unit with push-lock mechanism and pull-lock mechanism type

| Number of resistor elements | Mounting direction | Mechanism specifications | Shaft type | Length of the shaft ( mm ) | Center detent | Total resistance ( k $\Omega$ ) | Resistance taper | Minimum order unit ( pcs. ) | Products No. | Drawing No. |
|-----------------------------|--------------------|--------------------------|------------|----------------------------|---------------|---------------------------------|------------------|-----------------------------|--------------|-------------|
| Single-unit                 | Horizontal type    | The pull lock section    | Flat       | 30                         | With          | 50                              | 1B               | 400                         | RK098122TE04 | 12          |
|                             |                    | The normal section       |            |                            |               |                                 |                  |                             |              |             |

### Dual-shaft, dual-unit without switch type

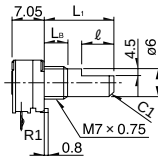
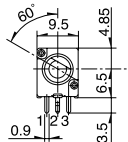
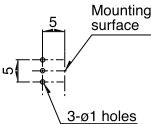
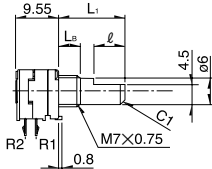
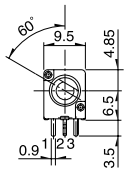
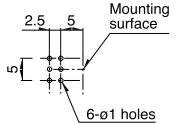
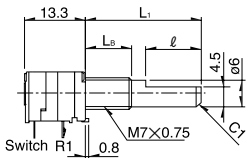
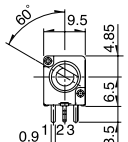
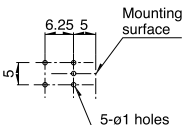
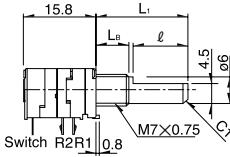
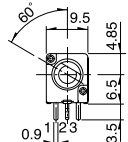
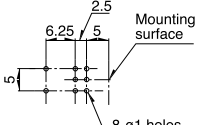
| Number of resistor elements | Mounting direction | shaft           | Shaft type | Length of the shaft ( mm ) | Center detent | Total resistance ( k $\Omega$ ) | Resistance taper | Minimum order unit ( pcs. ) | Products No. | Drawing No. |              |
|-----------------------------|--------------------|-----------------|------------|----------------------------|---------------|---------------------------------|------------------|-----------------------------|--------------|-------------|--------------|
| Single-unit                 | Horizontal type    | The outer shaft | Slotted    | 10                         | Without       | 10                              | 1B               | 700                         | RK0972210C07 | 13          |              |
|                             |                    | The inner shaft | Flat       | 20                         |               |                                 | 15A              |                             | RK097221005C | 14          |              |
|                             |                    | The outer shaft | Slotted    | 15                         |               |                                 |                  |                             |              |             |              |
|                             |                    | The inner shaft | Flat       | 25                         |               |                                 |                  |                             | 15C          |             | RK097221004C |
|                             |                    | The outer shaft | Slotted    | 15                         |               |                                 |                  |                             |              |             |              |
|                             |                    | The inner shaft | Flat       | 25                         |               |                                 |                  |                             |              |             |              |

## Note

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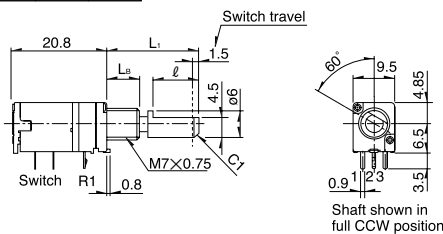
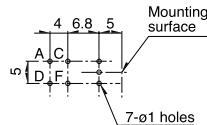
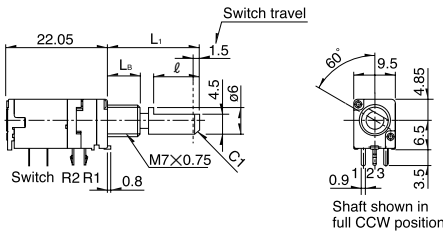
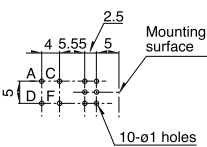
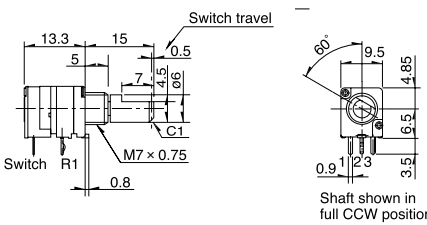
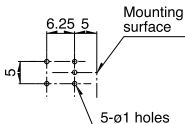
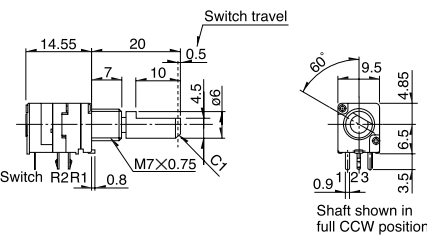
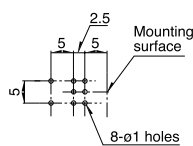
Dimensions

Unit:mm

| No.            | Photo                                                                               | Style                                                                                                                                                                                                                                                                                                                                                                                                           | PC board mounting<br>hole dimensions<br>( Viewed from mounting side ) |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
|----------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----|----|----------------|----------------|---|---|----|----|---------------------------------------------------------------------------------------|----|----|--------------------------------------------------------------------------------------|
| 1              |    | <table><tr><td>L<sub>1</sub></td><td>15</td><td>20</td><td>25</td></tr><tr><td>L<sub>B</sub></td><td>5</td><td>7</td><td>10</td></tr><tr><td>ℓ</td><td>7</td><td>12</td><td>12</td></tr></table>   <p>Shaft shown in full CCW position</p>   | L <sub>1</sub>                                                        | 15 | 20 | 25             | L <sub>B</sub> | 5 | 7 | 10 | ℓ  | 7                                                                                     | 12 | 12 |   |
| L <sub>1</sub> | 15                                                                                  | 20                                                                                                                                                                                                                                                                                                                                                                                                              | 25                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| L <sub>B</sub> | 5                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                               | 10                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| ℓ              | 7                                                                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                              | 12                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| 2              |   | <table><tr><td>L<sub>1</sub></td><td>15</td><td>20</td><td>25</td></tr><tr><td>L<sub>B</sub></td><td>5</td><td>7</td><td>10</td></tr><tr><td>ℓ</td><td>7</td><td>12</td><td>12</td></tr></table>   <p>Shaft shown in full CCW position</p> | L <sub>1</sub>                                                        | 15 | 20 | 25             | L <sub>B</sub> | 5 | 7 | 10 | ℓ  | 7                                                                                     | 12 | 12 |  |
| L <sub>1</sub> | 15                                                                                  | 20                                                                                                                                                                                                                                                                                                                                                                                                              | 25                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| L <sub>B</sub> | 5                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                               | 10                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| ℓ              | 7                                                                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                              | 12                                                                    |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| 3              |  | <table><tr><td>L<sub>1</sub></td><td>15</td><td>20</td></tr><tr><td>L<sub>B</sub></td><td>5</td><td>7</td></tr><tr><td>ℓ</td><td>7</td><td>12</td></tr></table>   <p>Shaft shown in full CCW position</p>                                | L <sub>1</sub>                                                        | 15 | 20 | L <sub>B</sub> | 5              | 7 | ℓ | 7  | 12 |  |    |    |                                                                                      |
| L <sub>1</sub> | 15                                                                                  | 20                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| L <sub>B</sub> | 5                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| ℓ              | 7                                                                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| 4              |  | <table><tr><td>L<sub>1</sub></td><td>15</td><td>20</td></tr><tr><td>L<sub>B</sub></td><td>5</td><td>7</td></tr><tr><td>ℓ</td><td>7</td><td>12</td></tr></table>   <p>Shaft shown in full CCW position</p>                                | L <sub>1</sub>                                                        | 15 | 20 | L <sub>B</sub> | 5              | 7 | ℓ | 7  | 12 |  |    |    |                                                                                      |
| L <sub>1</sub> | 15                                                                                  | 20                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| L <sub>B</sub> | 5                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |
| ℓ              | 7                                                                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                       |    |    |                |                |   |   |    |    |                                                                                       |    |    |                                                                                      |

■ Dimensions

Unit:mm

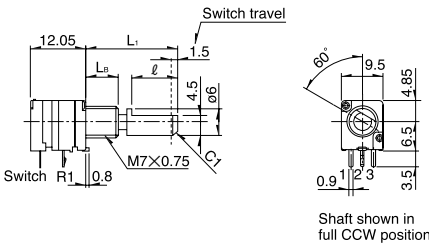
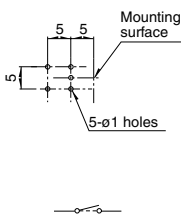
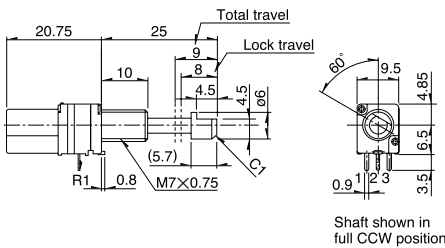
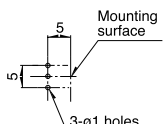
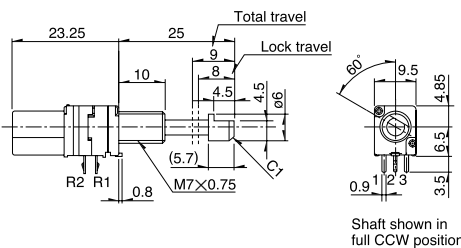
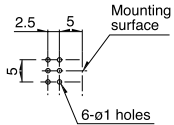
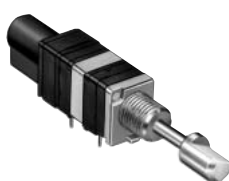
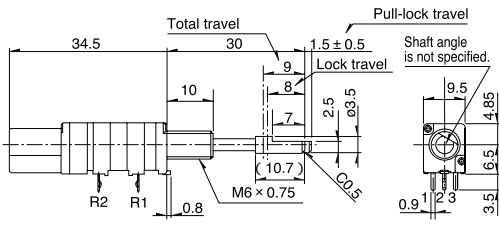
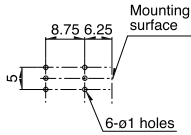
| No.            | Photo                                                                                                                                                                                                                                | Style                                                                                                                                                                                                                                                | PC board mounting hole dimensions<br>( Viewed from mounting side )                                                                                                          |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----------------|---|----|---|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5              | <p>Single-shaft, single-unit<br/>with push-on push-off switch<br/>RK0971112-5R2412</p>                                                              | <table><tr><td>L<sub>1</sub></td><td>20</td><td>25</td></tr><tr><td>L<sub>B</sub></td><td>7</td><td>10</td></tr><tr><td>ℓ</td><td>10</td><td>12</td></tr></table>  | L <sub>1</sub>                                                                                                                                                              | 20 | 25 | L <sub>B</sub> | 7 | 10 | ℓ | 10 | 12 |     |
| L <sub>1</sub> | 20                                                                                                                                                                                                                                   | 25                                                                                                                                                                                                                                                   |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| L <sub>B</sub> | 7                                                                                                                                                                                                                                    | 10                                                                                                                                                                                                                                                   |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| ℓ              | 10                                                                                                                                                                                                                                   | 12                                                                                                                                                                                                                                                   |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| 6              | <p>Single-shaft, dual-unit<br/>with push-on push-off switch<br/>RK0971212-5R2412( For tone )<br/>RK0971222-5R2412( For vol. )</p>                  | <table><tr><td>L<sub>1</sub></td><td>15</td><td>20</td></tr><tr><td>L<sub>B</sub></td><td>5</td><td>7</td></tr><tr><td>ℓ</td><td>7</td><td>10</td></tr></table>   | L <sub>1</sub>                                                                                                                                                              | 15 | 20 | L <sub>B</sub> | 5 | 7  | ℓ | 7  | 10 |   |
| L <sub>1</sub> | 15                                                                                                                                                                                                                                   | 20                                                                                                                                                                                                                                                   |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| L <sub>B</sub> | 5                                                                                                                                                                                                                                    | 7                                                                                                                                                                                                                                                    |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| ℓ              | 7                                                                                                                                                                                                                                    | 10                                                                                                                                                                                                                                                   |                                                                                                                                                                             |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| 7              | <p>Single-shaft, single-unit<br/>with momentary push switch<br/>travel 0.5mm<br/>RK0971114-5R4211</p>                                             |                                                                                                                                                                  |   |    |    |                |   |    |   |    |    |                                                                                                                                                                           |
| 8              | <p>Single-shaft, dual-unit<br/>with momentary push switch<br/>travel 0.5mm<br/>RK0971214-5R4211( For tone )<br/>RK0971224-5R4211( For vol. )</p>  |                                                                                                                                                                  |   |    |    |                |   |    |   |    |    |                                                                                                                                                                           |

Rotary Potentiometers  
 Slide Potentiometers

Metal Shaft  
 Insulated Shaft  
 Knob Operating

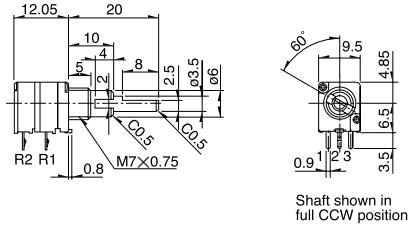
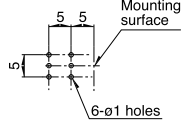
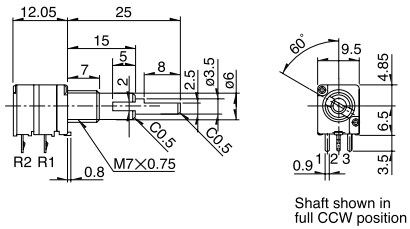
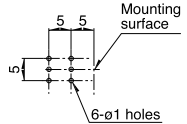
**Dimensions**

Unit:mm

| No.            | Photo                                                                                                                                                                                               | Style                                                                                                                                                                                                                                                           | PC board mounting hole dimensions<br>( Viewed from mounting side )                    |    |    |                |   |    |   |    |    |                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----|----|----------------|---|----|---|----|----|-------------------------------------------------------------------------------------|
| 9              | <p>Single-shaft, single-unit<br/>with momentary push switch<br/>travel 1.5mm<br/>RK0971114-5R4611</p>              | <table border="1"><tr><td>L<sub>1</sub></td><td>20</td><td>25</td></tr><tr><td>L<sub>B</sub></td><td>7</td><td>10</td></tr><tr><td>ℓ</td><td>10</td><td>12</td></tr></table>  | L <sub>1</sub>                                                                        | 20 | 25 | L <sub>B</sub> | 7 | 10 | ℓ | 10 | 12 |  |
| L <sub>1</sub> | 20                                                                                                                                                                                                  | 25                                                                                                                                                                                                                                                              |                                                                                       |    |    |                |   |    |   |    |    |                                                                                     |
| L <sub>B</sub> | 7                                                                                                                                                                                                   | 10                                                                                                                                                                                                                                                              |                                                                                       |    |    |                |   |    |   |    |    |                                                                                     |
| ℓ              | 10                                                                                                                                                                                                  | 12                                                                                                                                                                                                                                                              |                                                                                       |    |    |                |   |    |   |    |    |                                                                                     |
| 10             | <p>Single-shaft, single-unit<br/>with push-lock mechanism<br/>RK097111T</p>                                       |                                                                                                                                                                              |   |    |    |                |   |    |   |    |    |                                                                                     |
| 11             | <p>Single-shaft, dual-unit<br/>with push-lock mechanism<br/>RK097121T( For tone )<br/>RK097122T( For vol. )</p>  |                                                                                                                                                                             |  |    |    |                |   |    |   |    |    |                                                                                     |
| 12             | <p>Single-shaft, dual-unit<br/>with push-lock mechanism and<br/>pull-lock mechanism<br/>RK098122T</p>            |                                                                                                                                                                             |  |    |    |                |   |    |   |    |    |                                                                                     |

## Dimensions

Unit:mm

| No. | Photo                                                                              | Style                                                                                                                       | PC board mounting hole dimensions<br>( Viewed from mounting side )                   |
|-----|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 13  |   |  <p>Shaft shown in full CCW position</p>  |   |
| 14  |  |  <p>Shaft shown in full CCW position</p> |  |

Rotary  
Potentiometers  
Slide  
Potentiometers

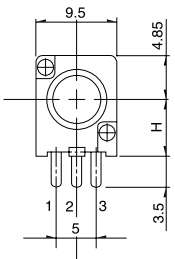
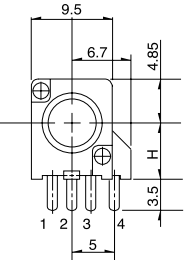
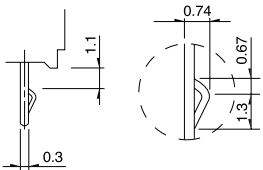
Metal  
Shaft  
Insulated  
Shaft  
Knob  
Operating

## Product Varieties

In addition to the recommended products, the following specifications can also be accommodated.

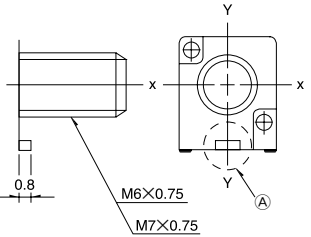
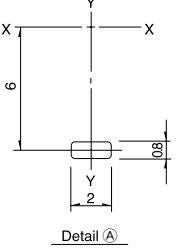
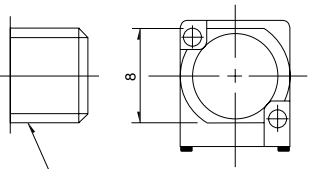
## Dimensions of Terminal

Unit:mm

|                                                                                                                        |                                                                                                                     |                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Outline drawing without tap</p> |  <p>Outline drawing with tap</p> | <p>Mounting height (H): 6.5mm(10mm and 12.5mm also available upon request.)<br/>For single-unit type with tap is only available with H=6.5mm.<br/>Tap is on the terminal 3 side only.</p>  <p>Detail of 2 terminal belong part</p> |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Dimensions of Bushings

Unit:mm

| Bushing      | M6                                                                                  | M7                                                                                  | M9                                                                                    |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dimensions   |  |  |  |
| Applications | For single-shaft only                                                               | For single and dual-shaft                                                           | For dual-shaft only                                                                   |

Product Varieties

In addition to the recommended products, the following specifications can also be accommodated.

Total Resistance Variety

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

Resistance Taper

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

Note

Can be fitted with center-taps.

Single-shaft Dimension

Flat type

Unit:mm

Style( Shaft diameter : φ 6 )

Shaft shown in full CCW position.

Detail dimensions

| L <sub>1</sub> | L <sub>B</sub> | l        |
|----------------|----------------|----------|
| 15             | 5              | 7        |
| 20             | 7              | 12( 10 ) |
| 25             | 10             | 12       |
| 30             | 10             | 12       |

Models in parenthesis apply to those with a push-on switch and those with a push-on, push-off switch.

Style( Shaft diameter : φ 3.5 )

Shaft shown in full CCW position.

Detail dimensions

| L <sub>1</sub> | L <sub>B</sub> | l        |
|----------------|----------------|----------|
| 15             | 5              | 7        |
| 20             | 7              | 12( 10 ) |
| 25             | 10             | 12       |
| 30             | 10             | 12       |

Models in parenthesis apply to those with a push-on switch and those with a push-on, push-off switch.

Dimension of Dual-shaft Type

Applications Both switchless and rotary switch models are available.

Flat type for inner shaft, slotted type for outer shaft

Unit:mm

Style( Inner-shaft : φ6 Outer-shaft : φ8 )

Shaft shown in full CCW position.

Detail dimensions

| L <sub>1</sub> | L <sub>2</sub> | L <sub>B</sub> | l <sub>1</sub> | l <sub>2</sub> |
|----------------|----------------|----------------|----------------|----------------|
| 20             | 10             | 5              | 8              | 4              |
| 25             | 15             | 7              | 8              | 5              |
| 30             | 20             | 10             | 8              | 5              |
| 35             | 25             | 10             | 8              | 5              |

Style( Inner-shaft : φ3.5 Outer-shaft : φ6 )

Shaft shown in full CCW position.

Detail dimensions

| L <sub>1</sub> | L <sub>2</sub> | L <sub>B</sub> | l <sub>1</sub> | l <sub>2</sub> |
|----------------|----------------|----------------|----------------|----------------|
| 20             | 10             | 5              | 8              | 4              |
| 25             | 15             | 7              | 8              | 5              |
| 30             | 20             | 10             | 8              | 5              |
| 35             | 25             | 10             | 8              | 5              |

Note

marked are specifications recommended by ALPS.

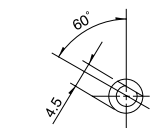
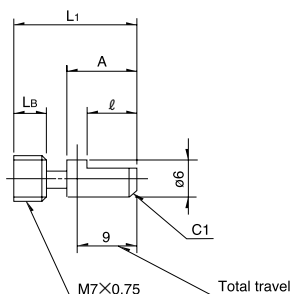
Refer to P.338, 502 for resistance taper.

## Product Varieties

In addition to the recommended products, the following specifications can also be accommodated.

### Shaft Dimensions of with Push-lock Mechanism

Unit:mm



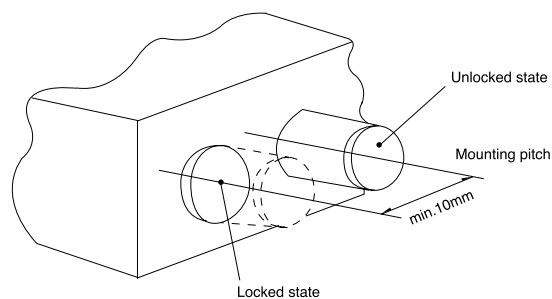
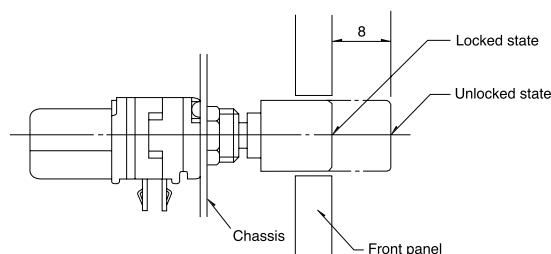
Shaft shown in full CCW position.

#### Detail dimensions

| L <sub>1</sub> | L <sub>8</sub> | A        | ℓ   |
|----------------|----------------|----------|-----|
| 25             | 10             | ( 5.7 )  | 4.5 |
| 30             | 10             | ( 10.7 ) | 7   |
| 35             | 10             | ( 15.7 ) | 12  |

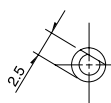
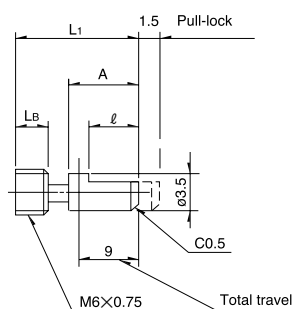
Dimensions in unlocked state

#### Example of uses



### Shaft Dimensions of with Push-lock Mechanism and with Pull-lock Mechanism

Unit:mm



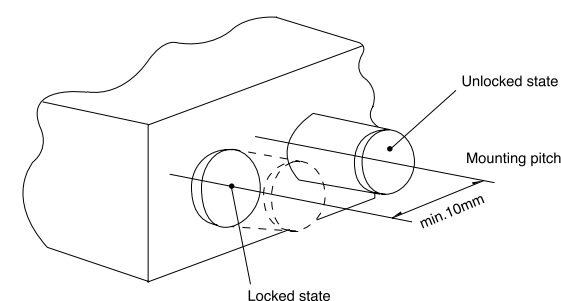
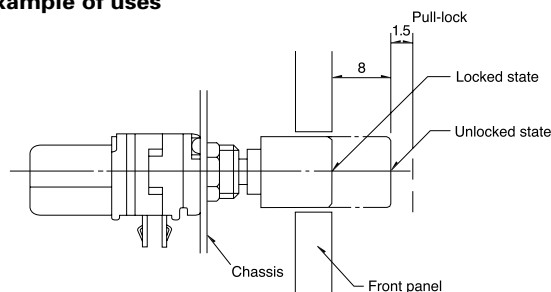
Shaft angle is not specified

#### Detail dimensions

| L <sub>1</sub> | L <sub>8</sub> | A        | ℓ   |
|----------------|----------------|----------|-----|
| 25             | 10             | ( 5.7 )  | 4.5 |
| 30             | 10             | ( 10.7 ) | 7   |
| 35             | 10             | ( 15.7 ) | 12  |

Dimensions in unlocked state

#### Example of uses



#### Note

marked are specifications recommended by ALPS.

## Specification for Switches

### Mechanical Characteristics

| Switch type             |        | Pole-position | Rating      | Operating force                   | Changeover angle (travel) |
|-------------------------|--------|---------------|-------------|-----------------------------------|---------------------------|
| Rotary switch           | 5R1211 | SPST          | 3A 16V DC   | 50mN·m max.                       | 50 °max.                  |
|                         | 5R1212 | SPDT          | 1A 16V DC   |                                   |                           |
| Push-on Push-off switch | 5R2412 |               | 3A 16V DC   | 12 ± 8N                           | 1.5mm                     |
|                         | 5R2421 | DPST          |             |                                   |                           |
| Momentary push switch   | 5R4211 | SPST          | 0.5A 12V DC | 4 <sup>+4</sup> / <sub>-2</sub> N | 0.5mm                     |
|                         | 5R4611 |               |             | 5 ± 2N                            | 1.5mm                     |

### Electrical Characteristics

| Model                                              | Contact resistance                                      | Insulation resistance                                      | Voltage proof            |
|----------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------|--------------------------|
| 5R1211, 5R1212<br>5R2412, 5R2421<br>5R4211, 5R4611 | 100mΩ for initial period,<br>200mΩ after operating life | 100MΩ min.<br>Measured with a 250V DC<br>insulation tester | 300V AC<br>1 minute min. |

### Durability

|                           |                                          |                                                                                                                                                                                                                   |
|---------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating life under load | 5R1211,5R1212<br>5R2412,5R2421<br>5R4211 | The switch under a rated resistance load shall be subjected to a total of 10,000 cycles of operation at a speed of 600 to 1,000 cycles per hour.<br>The contact resistance after testing should not exceed 200mΩ. |
|                           | 5R4611                                   | The switch under a rated resistance load shall be subjected to a total of 20,000 cycles of operation at a speed of 600 to 1,000 cycles per hour.<br>The contact resistance after testing should not exceed 200mΩ. |

### Note

The operating current should be 10mA or greater.

Rotary  
Potentiometers

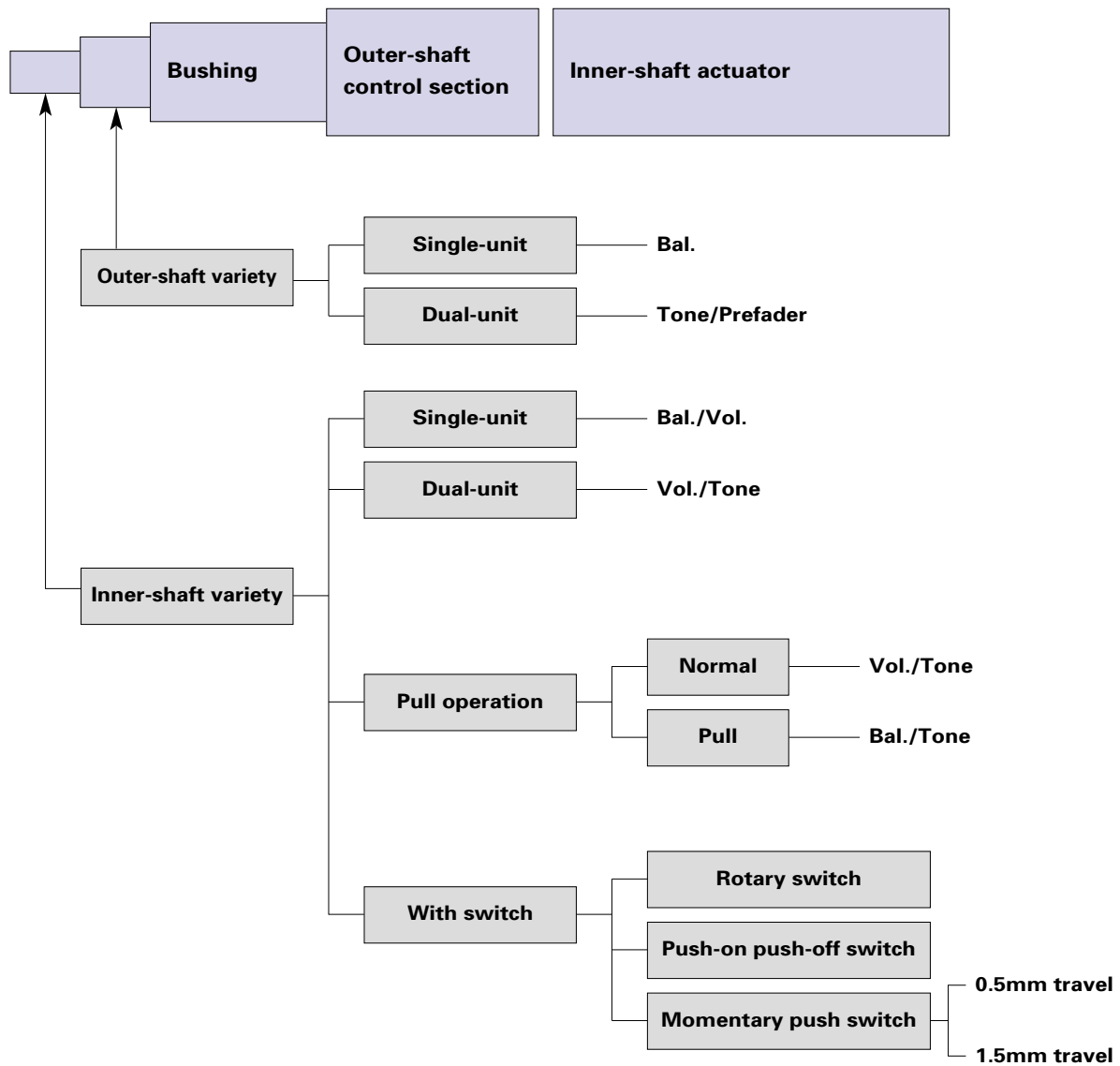
Slide  
Potentiometers

Metal  
Shaft

Insulated  
Shaft

Knob  
Operating

## Configuration Chart



Rotary  
Potentiometers  
Slide  
Potentiometers

Metal  
Shaft  
Insulated  
Shaft  
Knob  
Operating

### Note

The single-shaft type product lineups are the same as those in the inner-shaft variety.

## Orders Other Than Recommended Products

When ordering product varieties that are not listed in the Product Line, please specify by referring to the below example.

### Sample Part Number

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | K | 0 | 9 | 7 | 1 | 1 | 1 | 0 | — | F | 1 | 5 | — | C | 0 | — | B | 1 | 0 | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

#### Model type

| Code | Model type                      |
|------|---------------------------------|
| 111  | Single-shaft single-unit        |
| 121  | Single-shaft dual-unit for tone |
| 122  | Single-shaft dual-unit for vol. |

#### Switch specifications

| Code | Switch specifications                    |
|------|------------------------------------------|
| 0    | Without switch                           |
| 1    | With rotary switch                       |
| 2    | With push-on push-off switch             |
| 4    | With momentary push switch(0.5mm travel) |
| T    | With push-lock mechanism                 |

\*Push on switch 1.5mm stroke is individually specified.

#### Shaft type

| Code | Shaft type               |
|------|--------------------------|
| F    | Flat(shaft diameter : 6) |

\*Shaft diameter 3.5 is individually specified.

#### Length of the shaft (L: X 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 | 11   | 11     |
| C1   | Center  | 31   | 31     |

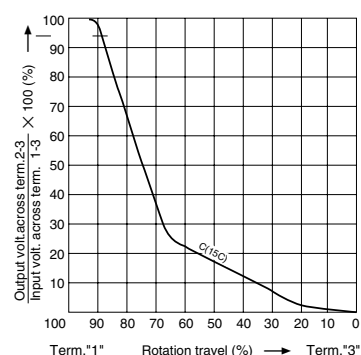
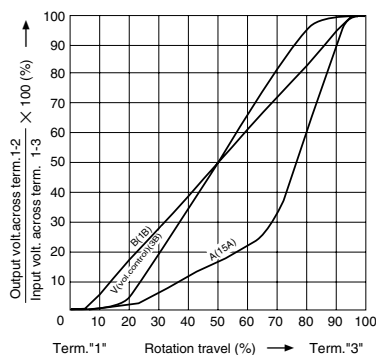
#### Resistance taper

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

\*The resistance taper for rotary switches are individually defined.

B:For tone & general(model type : 111,121)

V:For vol.(model type : 111,122)



#### Total resistance

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

#### Notes

1.      marked are specifications recommended by ALPS.
2. The above specification is only applicable to the one-shaft single-unit model and dual-unit ganged model.

# List of Varieties

Rotary  
Potentiometers  
Slide  
Potentiometers

Metal  
Shaft  
Insulated  
Shaft  
Knob  
Operating

| Type                                                                       |                                        | 9mm size metal shaft snap-in                                                                                                         |                                                                                   | 9mm size metal shaft multi-ganged                                                 |                                                                                   | 11mm size metal shaft low-profile                                                  | 11mm size metal shaft reflow                                                                                                           | 16mm size metal shaft                                                               |                                                                                                |
|----------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Number of drive shafts                                                     |                                        | Single-shaft                                                                                                                         |                                                                                   |                                                                                   | Dual-shaft                                                                        | Single-shaft                                                                       |                                                                                                                                        |                                                                                     |                                                                                                |
| Model                                                                      |                                        | RK09L1                                                                                                                               |                                                                                   | RK0971<br>RK0981                                                                  | RK0972                                                                            | RK117111                                                                           | RK119                                                                                                                                  | RK1631□1<br>RK1631□A                                                                |                                                                                                |
| Photo                                                                      |                                        |                                                                                                                                      |  |  |  |  |                                                     |  |                                                                                                |
| Fixing method of bushing                                                   |                                        | The bushing can be screwed down                                                                                                      |                                                                                   |                                                                                   | Bushing screw clamp                                                               |                                                                                    | Bushing guide type                                                                                                                     |                                                                                     |                                                                                                |
| Terminal mounting                                                          |                                        | Horizontal type                                                                                                                      | Vertical type                                                                     | Horizontal type                                                                   |                                                                                   | Vertical type                                                                      |                                                                                                                                        | Horizontal type                                                                     |                                                                                                |
| Attached switch                                                            |                                        | Without                                                                                                                              |                                                                                   | Rotary switch 1                                                                   |                                                                                   | Momentary push switch                                                              |                                                                                                                                        | Without                                                                             |                                                                                                |
|                                                                            |                                        |                                                                                                                                      |                                                                                   | Push-on push-off switch 1                                                         |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
|                                                                            |                                        |                                                                                                                                      |                                                                                   | Momentary push switch 1                                                           |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
| Gang error applicable to Dual-unit parts for audio volume control purposes |                                        | - 40dB to 0dB<br>3dB max.                                                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        | - 40dB to 0dB<br>3dB max.                                                           |                                                                                                |
| Solder heat resistance                                                     | Manual soldering                       | 350 max. 3s max.                                                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 350 ± 10<br>3 <sup>+</sup> <sub>0</sub> s                                                                                              | 350 max. 3s max.<br>Motor terminal : 360° max 2s max.                               |                                                                                                |
|                                                                            | Dip soldering                          | 260 ± 5 , 5 ± 1s                                                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
|                                                                            | Reflow soldering                       |                                                                                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                    | Please see P.347                                                                                                                       |                                                                                     |                                                                                                |
| Operating emperature range                                                 |                                        | - 10 to + 70                                                                                                                         |                                                                                   | - 20 to + 70                                                                      |                                                                                   | - 30 to + 70                                                                       | - 40 to + 85                                                                                                                           | - 10 to + 70                                                                        |                                                                                                |
| Electrical performance                                                     | Rated power                            | 0.05W                                                                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
|                                                                            | Residual resistance                    | 10kΩ < R < 50kΩ<br>50kΩ < R<br>10kΩ < R < 50kΩ<br>50kΩ < R<br>20Ω max.<br>30Ω max.<br>Nominal total resistance of 0.1% or less       |                                                                                   |                                                                                   |                                                                                   |                                                                                    | R < 10kΩ 50Ω max.<br>50kΩ < R < 80Ω max.<br>50kΩ < R<br>10kΩ < R < 50kΩ 30max.<br>50kΩ < R<br>Nominal total resistance of 0.2% or less |                                                                                     | R < 10kΩ 20Ω max.<br>50kΩ < R < 30max.<br>50kΩ < R<br>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.                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
|                                                                            | Insulation resistance                  | 100MΩ min. 250V DC                                                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        | 100MΩ min. 500V DC                                                                  |                                                                                                |
|                                                                            | Voltage proof                          | 300V AC for 1minute                                                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        | 500V AC for 1minute                                                                 |                                                                                                |
| Mechanical performance                                                     | Stopper strength                       | 0.5N・m( With push-lock mechanism type: 0.4N・m )                                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.5N・m                                                                                                                                 | 0.9N・m                                                                              |                                                                                                |
|                                                                            | Push-pull strength                     | 80N max.                                                                                                                             |                                                                                   | 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 and for 2 hours respectively |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                                                                        |                                                                                     |                                                                                                |
| Environmental performance                                                  | Cold                                   | - 20 ± 2 for 96h                                                                                                                     |                                                                                   | - 30 ± 2 for 96h                                                                  |                                                                                   |                                                                                    | - 40 ± 2 for 240h                                                                                                                      | - 20 ± 2 for 96h                                                                    |                                                                                                |
|                                                                            | Dry heat                               | 70 ± 2 for 96h                                                                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 85 ± 2 for 240h                                                                                                                        | 70 ± 2 for 96h                                                                      |                                                                                                |
|                                                                            | Damp heat                              | 40 ± 2 , 90 to 95%RH for 96h                                                                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 60 ± 2 , 90 to 95%RH for 240h                                                                                                          | 40 ± 2 , 90 to 95%RH for 96h                                                        |                                                                                                |
| Page                                                                       |                                        | 323                                                                                                                                  |                                                                                   | 327                                                                               |                                                                                   | 339                                                                                | 343                                                                                                                                    | 348                                                                                 |                                                                                                |

## Push-on Switch Specifications

| Items                 | RK097                                               |                   | RK117             |                   | RK119                                 |                   |
|-----------------------|-----------------------------------------------------|-------------------|-------------------|-------------------|---------------------------------------|-------------------|
| Contact arrangement   | Single pole and single throw ( Push on )            |                   |                   |                   |                                       |                   |
| Travel( mm )          | 0.5                                                 | 1.5               | 0.5               | 1.5               | 0.5 ± 0.3                             | 1.5 ± 0.5         |
| Operating force ( N ) | 4 <sup>+4</sup> <sub>-2</sub>                       | 5 ± 2             | 6 ± 3             | 5 ± 2             |                                       | 4 ± 2             |
| Rating                | 0.5A 12V DC                                         |                   | 3A 16V DC         |                   | 0.1A 5V DC<br>(1mA 5V DC min.ratings) |                   |
| Contact resistance    | 100mΩ for initial period;200mΩ after operating life |                   |                   |                   |                                       |                   |
| Operating life        | 10,000 times min.                                   | 20,000 times min. | 10,000 times min. | 20,000 times min. | 100,000 times min.                    | 20,000 times min. |

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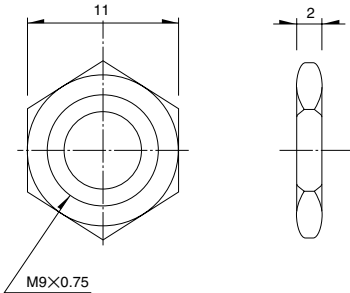
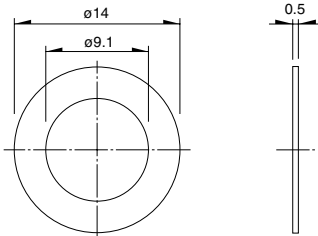
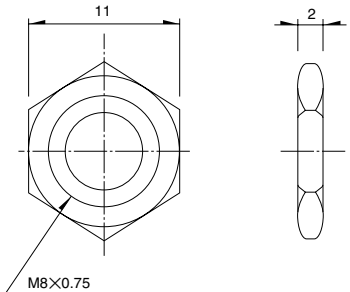
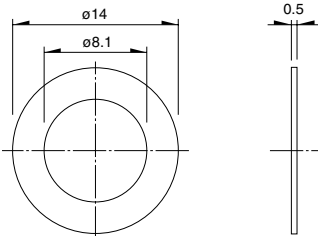
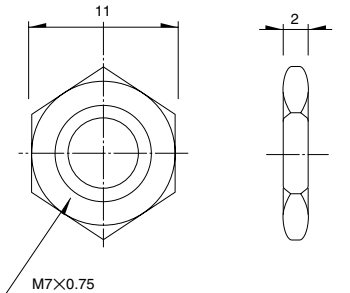
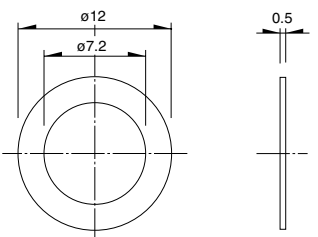
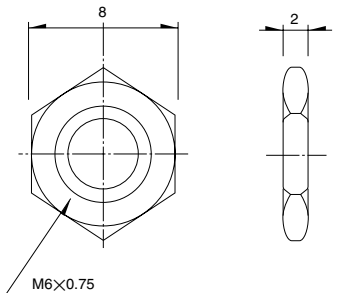
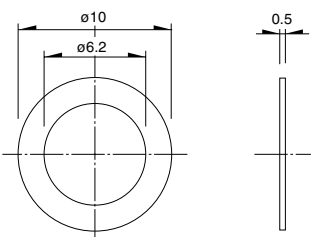
## Notes

1. For the switch attached, the single-shaft or inner shaft of the dual-shaft type can be chosen.
2. The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.

# Attached Parts

The following parts are included with the product.

Unit:mm

| Applicable products              | Bearing screw diameter | Hexagonal nut                                                                       | Flat washer                                                                           |
|----------------------------------|------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| RK09L<br>RK168<br>RK097<br>RK203 | M9                     |    |    |
| RK271                            | M8                     |   |   |
| RK097<br>RK098<br>RK163          | M7                     |  |  |
| RK097<br>RK098                   | M6                     |  |  |

Rotary  
Potentiometers

Slide  
Potentiometers

Metal  
Shaft

Insulated  
Shaft

Knob  
Operating