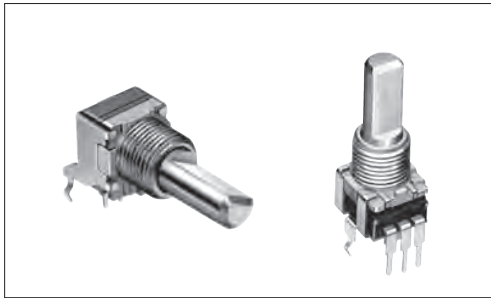


Single-unit and dual-unit types suit a variety of controls



### Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC, 10V DC
Total rotational angle	300° ±5°
Rotational torque	2 to 25mN·m
Operating life	15,000 cycles
Operating temperature range	-10°C to +70°C

### Product Line

Number of resistor elements	Control part orientation	Shaft type	Length of the shaft L <sub>1</sub> (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.)		Products No.	Drawing No.	
							Japan	Export			
Single-unit	Horizontal	Flat	15	Without	10	1B	1,000	2,000	RK09L1120A5F	1	
				With					RK09L1120036		
			20	Without					RK09L1120A0Z		
				With					RK09L112003S		
	Vertical		15	Without					RK09L1140A5L		2
				With					RK09L114001E		
			20	Without					RK09L1140A2U		
				With					RK09L114001T		
Dual-unit	Horizontal for tone	15	With	10	15A	1,000	2,000	RK09L122002H	3		
		25						RK09L122002L			
	Horizontal for vol.	15	Without					RK09L12B0A4S			
		25						RK09L12B0A1V			
	Vertical for tone	15	With					RK09L1240015		4	
		20						RK09L1240019			
	Vertical for vol.	15	Without					RK09L12D0A1W			
		20						RK09L12D0A1T			

### Note

Other varieties are also available. Refer to "Other Specifications" (P.284).

### Packing Specifications


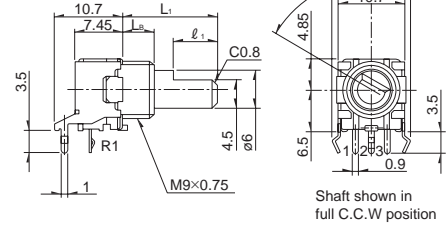
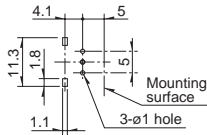

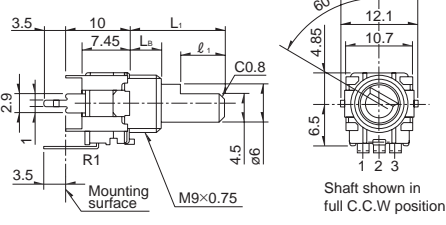
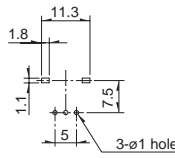

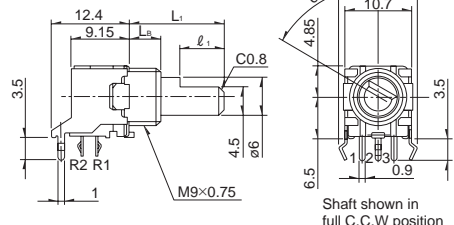
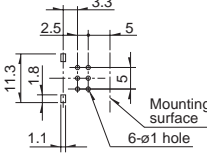

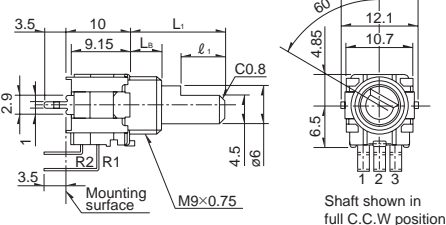
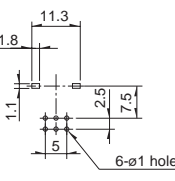
Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
1,000	2,000	479×369×181

Refer to P.284 for other specifications.  
 Refer to P.284 for attached parts.  
 Refer to P.285 for ordering products not listed.  
 Refer to P.311 for soldering conditions.

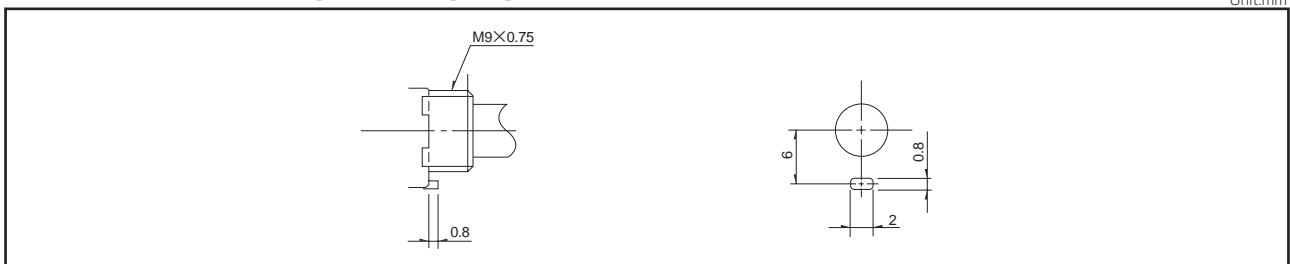
■ Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)															
1	<p><b>Single-shaft, single-unit Horizontal RK09L1120</b></p> 	<table border="1"> <tr> <td><math>L_1</math></td> <td>15</td> <td>20</td> </tr> <tr> <td><math>L_B</math></td> <td>5</td> <td>7</td> </tr> <tr> <td><math>l_1</math></td> <td>7</td> <td>12</td> </tr> </table>  <p>Shaft shown in full C.C.W position</p>	$L_1$	15	20	$L_B$	5	7	$l_1$	7	12	 <p>3-<math>\phi</math>1 hole</p>						
$L_1$	15	20																
$L_B$	5	7																
$l_1$	7	12																
2	<p><b>Single-shaft, single-unit Vertical RK09L1140</b></p> 	<table border="1"> <tr> <td><math>L_1</math></td> <td>12.5</td> <td>15</td> <td>20</td> <td>25</td> </tr> <tr> <td><math>L_B</math></td> <td>5</td> <td>5</td> <td>7</td> <td>7</td> </tr> <tr> <td><math>l_1</math></td> <td>7</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>  <p>Shaft shown in full C.C.W position</p>	$L_1$	12.5	15	20	25	$L_B$	5	5	7	7	$l_1$	7	7	12	12	 <p>3-<math>\phi</math>1 hole</p>
$L_1$	12.5	15	20	25														
$L_B$	5	5	7	7														
$l_1$	7	7	12	12														
3	<p><b>Single-shaft, dual-unit Horizontal RK09L1220 (For tone) RK09L12B0 (For vol.)</b></p> 	<table border="1"> <tr> <td><math>L_1</math></td> <td>15</td> <td>25</td> </tr> <tr> <td><math>L_B</math></td> <td>5</td> <td>7</td> </tr> <tr> <td><math>l_1</math></td> <td>7</td> <td>12</td> </tr> </table>  <p>Shaft shown in full C.C.W position</p>	$L_1$	15	25	$L_B$	5	7	$l_1$	7	12	 <p>6-<math>\phi</math>1 hole</p>						
$L_1$	15	25																
$L_B$	5	7																
$l_1$	7	12																
4	<p><b>Single-shaft, dual-unit Vertical RK09L1240 (For tone) RK09L12D0 (For vol.)</b></p> 	<table border="1"> <tr> <td><math>L_1</math></td> <td>15</td> <td>20</td> </tr> <tr> <td><math>L_B</math></td> <td>5</td> <td>7</td> </tr> <tr> <td><math>l_1</math></td> <td>7</td> <td>12</td> </tr> </table>  <p>Shaft shown in full C.C.W position</p>	$L_1$	15	20	$L_B$	5	7	$l_1$	7	12	 <p>6-<math>\phi</math>1 hole</p>						
$L_1$	15	20																
$L_B$	5	7																
$l_1$	7	12																

■ Dimensions of Bushing and Fixing Lug

Unit:mm



# 9mm Size Metal Shaft Snap-in Type / Other Specifications

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

## Total Resistance Variety

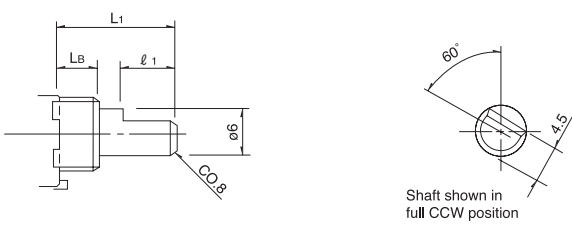
Total resistance (k $\Omega$ )	5	10	20	50	100
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## Resistance Taper

Resistance taper	15A	1B	3B	15C
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## Shaft Variety

Unit:mm



Detail dimensions

L <sub>1</sub>	L <sub>B</sub>	l <sub>1</sub>
12.5	5	7
15	5	7
17.5	5	7
20	7	12
25	7	12

Shaft shown in full CCW position

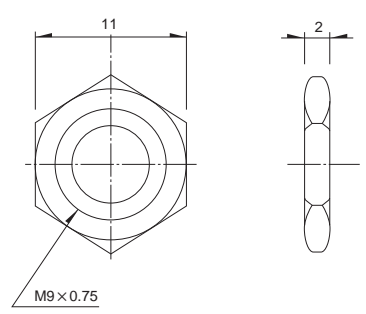
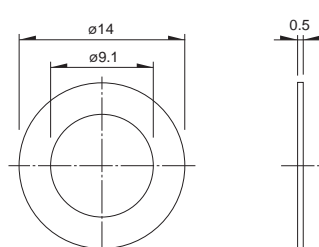
### Note

Marked are specifications recommended by Alps Alpine.

# 9mm Size Metal Shaft Snap-in Type / Attached Parts

The following parts are included with the product.

Unit:mm

Nut	Washer
 <p>M9 x 0.75</p>	

# 9mm Size Metal Shaft Snap-in Type / Ordering Products Not Listed

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

## Sample Part Number



### Model type

Code	Model type
112	Single-unit Horizontal
114	Single-unit Vertical
122	Dual-unit Horizontal for tone
124	Dual-unit Vertical for tone
12B	Dual-unit Horizontal for vol.
12D	Dual-unit Vertical for vol.

### Shaft type

Code	Shaft type
F	Flat

\* Only available in flat format.

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

Code	Length of the shaft	Code	Length of the shaft	Code	Length of the shaft
12	12.5	17	17.5	25	25
15	15	20	20	—	—

### Detent

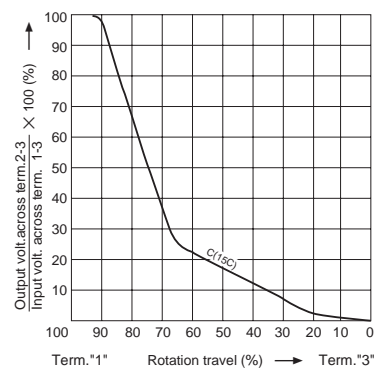
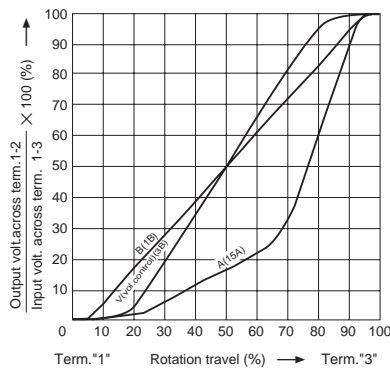
Code	Center detent
C0	Without
C1	With

### Resistance taper

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

B: For tone & general (model type : 112, 114, 122, 124)

V: For vol. (model type : 112, 114, 12B, 12D)



### Total resistance









Code	Total resistance (k Ω)	Code	Total resistance (k Ω)
502	5	503	50
103	10	104	100
203	20	—	—

### Note

Marked are specifications recommended by Alps Alpine.

# Metal Shaft Potentiometers

## List of Varieties

Type	9mm size				
Series	RK09L		RK0971	RK0972	
	Single-shaft			Dual-shaft	
Number of resistor elements	Single/dual			Dual	
Photo					
Control part orientation	Horizontal	Vertical	Horizontal		
Fixing method of bushing	Screw				
Operating temperature range	-10°C to +70°C		-20°C to +70°C -40°C to +85°C (Vehicle-compatible)		
Operating life	15,000 cycles				
Available for automotive use	—	—	○	○	
Life cycle (availability)					
Electrical performance	Total resistance (kΩ)	10, 20, 50, 100			
	Resistance taper	15A, 1B, 3B, 15C			
	Rated Power	0.05W			
	Residual resistance	$R \leq 10k\Omega$ 20Ω max. $10k\Omega < R \leq 50k\Omega$ 30Ω max. $50k\Omega < R$ Nominal total resistance of 0.1% or less			
	Maximum attenuation (Volume control)	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R$ 90dB min.	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R < 100k\Omega$ 90dB min. $100k\Omega \leq R$ 100dB min.		
	Gang error applicable to Dual-unit parts for audio volume control purposes	-40dB to 0dB 3dB max.			
	Insulation resistance	100MΩ min. 250V DC			
	Voltage proof	300V AC for 1 minute			
	Center-taps	Without	Without / With		
	Mechanical performance	Detent	Without, Center		
Stopper strength		0.5N·m	0.5N·m (With push-lock mechanism: 0.4N·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			
Shaft style	Flat type			Inner-shaft: flat type Outer-shaft: slotted type	
Terminal style	Insertion				
Attached switch	—	—	Rotary switch Push-on switch Push-lock switch	—	
Page	282		286	287	

Metal Shaft Potentiometers Soldering Conditions	311
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Potentiometers Measurement and Test Methods	386
Potentiometers Resistance Taper	388

### Notes

- For the switch attached, the single-shaft or inner shaft of the dual-shaft type can be chosen.
- The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- Indicates applicability to some products in the series.

## Reference for Manual Soldering

Series		Tip temperature	Soldering time	No. of solders
<b>RK09L, RK097</b>		350°C max.	3s max.	1 time
<b>RK271</b>		350°C max.	5s max.	1 time
<b>RK501</b>		350±10°C	5 <sup>+1</sup> <sub>0</sub> s	1 time
<b>RK163</b>		350°C max.	5s max.	1 time
<b>RK168</b>	<b>Potentiometer terminal</b>	300°C max.	3s max.	1 time
	<b>Motor terminal</b>	350°C max.	2s max.	

## Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
<b>RK09L, RK097</b>	100°C max.	2 min. max.	260±5°C	5±1s	2 times max.
<b>RK501</b>	120±10°C	2 min. max.	260±5°C	5±1s	2 times