

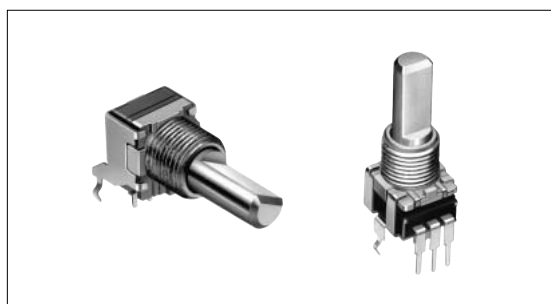
Metal Shaft Potentiometer

9mm Size Metal Shaft Snap-in Type

RK09L Series



Single-unit and dual-unit type suits 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	15,000cycles
Operating temperature range	- 10 to + 70

Rotary
Potentiometers
Slide
Potentiometers

Metal
Shaft
Insulated
Shaft
Knob
Operating

Product Line

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	1,000	RK09L1120A2S	1		
				With	20	1B		RK09L112003P			
	20		Without	10	1B	RK09L1120A69		2			
	12.5								RK09L1140A5E		
	15			50		RK09L1140A66					
	20			10		RK09L1140A5P					
	25			With		10			RK09L1140A2U		
				Without		5			RK09L114001T		
Dual-unit	Horizontal type for tone		15	With		50			15A	1,000	RK09L1140A65
	Horizontal type for vol.			Without		100		RK09L122002M			
	Vertical type for tone		25	Without	50	15A		RK09L1220A1B	4		
			15		10	3B		RK09L12B0A31			
	Vertical type for vol.		20	50	1B	RK09L12B0A3Z					
			15	Without		10		15A			RK09L124000Z
	20		RK09L1240A12								
									RK09L12D0A1W		
						RK09L12D0A1T					

Note

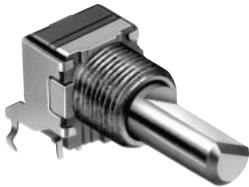
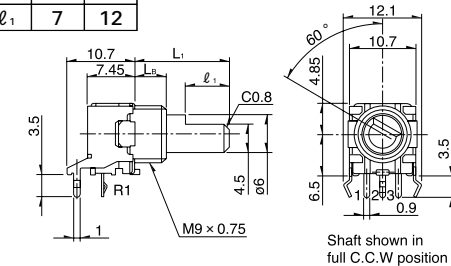
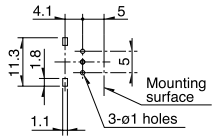
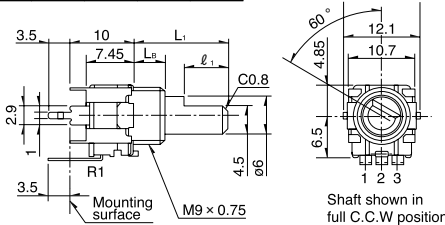
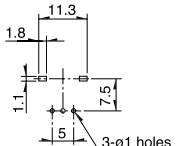
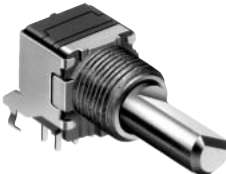
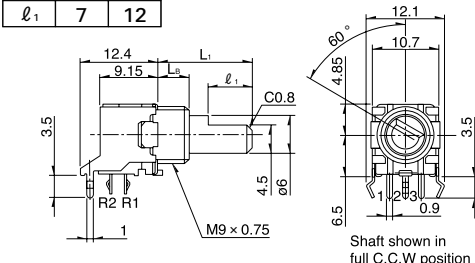
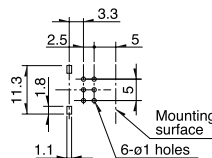
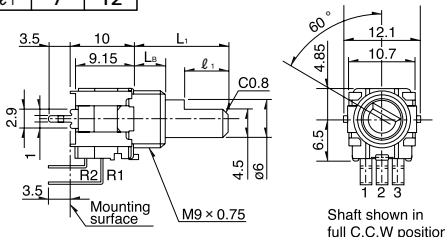
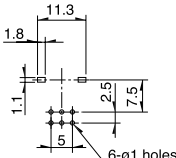
Products other than those listed in above products are also available. Please contact us for details.

Refer to P.325 for product varieties.

Metal Shaft Potentiometer
9mm Size Metal Shaft Snap-in Type | RK09L Series

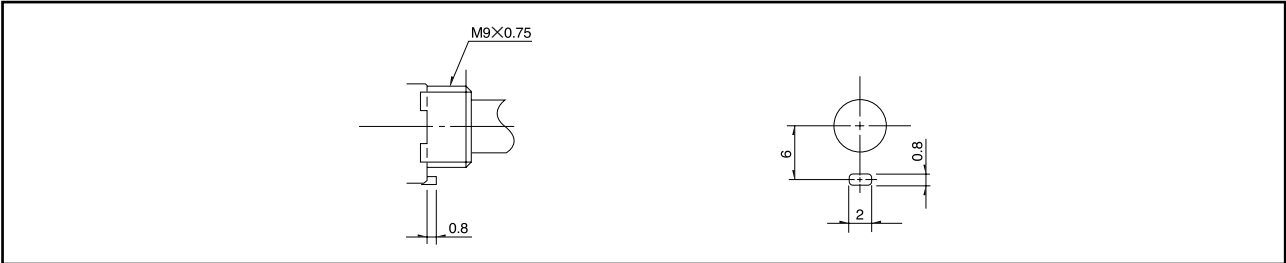
Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)															
1	Single-shaft, single-unit Horizontal type RK09L1120 	<table><tr><td>L₁</td><td>15</td><td>20</td></tr><tr><td>L_B</td><td>5</td><td>7</td></tr><tr><td>ℓ₁</td><td>7</td><td>12</td></tr></table>  Shaft shown in full C.C.W position	L ₁	15	20	L _B	5	7	ℓ ₁	7	12							
L ₁	15	20																
L _B	5	7																
ℓ ₁	7	12																
2	Single-shaft, single-unit Vertical type RK09L1140 	<table><tr><td>L₁</td><td>12.5</td><td>15</td><td>20</td><td>25</td></tr><tr><td>L_B</td><td>5</td><td>5</td><td>7</td><td>7</td></tr><tr><td>ℓ₁</td><td>7</td><td>7</td><td>12</td><td>12</td></tr></table>  Shaft shown in full C.C.W position	L ₁	12.5	15	20	25	L _B	5	5	7	7	ℓ ₁	7	7	12	12	
L ₁	12.5	15	20	25														
L _B	5	5	7	7														
ℓ ₁	7	7	12	12														
3	Single-shaft, dual-unit Horizontal type RK09L1220 (For tone) RK09L12B0 (For vol.) 	<table><tr><td>L₁</td><td>15</td><td>25</td></tr><tr><td>L_B</td><td>5</td><td>7</td></tr><tr><td>ℓ₁</td><td>7</td><td>12</td></tr></table>  Shaft shown in full C.C.W position	L ₁	15	25	L _B	5	7	ℓ ₁	7	12							
L ₁	15	25																
L _B	5	7																
ℓ ₁	7	12																
4	Single-shaft, dual-unit Vertical type RK09L1240 (For tone) RK09L12D0 (For vol.) 	<table><tr><td>L₁</td><td>15</td><td>20</td></tr><tr><td>L_B</td><td>5</td><td>7</td></tr><tr><td>ℓ₁</td><td>7</td><td>12</td></tr></table>  Shaft shown in full C.C.W position	L ₁	15	20	L _B	5	7	ℓ ₁	7	12							
L ₁	15	20																
L _B	5	7																
ℓ ₁	7	12																

Dimensions of Bushing and Fixing Lug

Unit:mm



Refer to P.325, 326, 502 for resistance taper.

Product Varieties

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

Total Resistance Variety

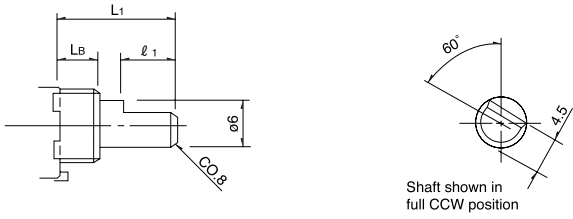
Total resistance(kΩ)	5	10	20	50	100
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Resistance Taper

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

Unit:mm



Technical drawing of a potentiometer shaft showing dimensions L_1 , L_B , l_1 , and a 60 degree angle. The shaft is shown in full CCW position.

Detail dimensions

L_1	L_B	l_1
12.5	5	7
15	5	7
17.5	5	7
20	7	12
25	7	12

Note

marked are specifications recommended by ALPS.

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Orders For Specifications Not Listed In The 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 L 1 1 4 0 — F 1 5 — C 0 — B 1 0 3

Model type

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

Shaft type

Code	Shaft type
F	Flat

* Only available in flat format.

Length of the shaft (L, 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		

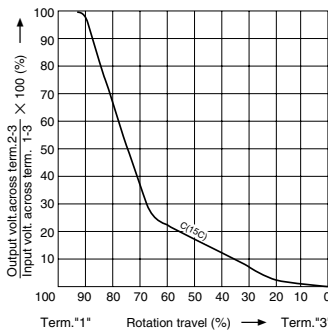
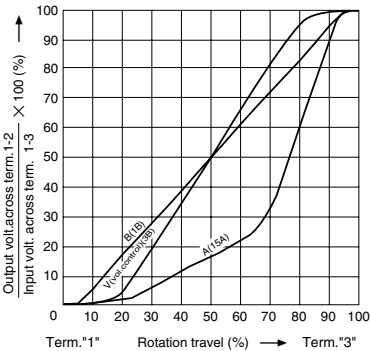
Detent

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 (kΩ)	Code	Total resistance (kΩ)
502	5	503	50
103	10	104	100
203	20		

Note

marked are specifications recommended by ALPS.

List of Varieties

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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 RK0981	RK0972	RK117111	RK119	RK1631□1 RK1631□A
Photo								
Fixing method of bushing		The bushing can be screwed down		Bushing screw clamp		Bushing guide type		Bushing screw clamp
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 3dB max.				—————	- 40dB to 0dB 3dB max.	
Solder heat resistance	Manual soldering	350 max. 3s max.					350 ± 10 3 ⁺ 1 ₀ s	350 max. 3s max. Motor terminal : 350° 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	$\begin{matrix} R & 10k\Omega & 20\Omega \text{ max.} \\ 10k\Omega < R < 50k\Omega & 30\Omega \text{ max.} \\ 50k\Omega & R \end{matrix}$ Nominal total resistance of 0.1% or less					$\begin{matrix} R & 10k\Omega & 50\Omega \text{ max.} \\ 10k\Omega < R & 50k\Omega & 80\Omega \text{ max.} \\ 50k\Omega < R \end{matrix}$ Nominal total resistance of 0.2% or less	$\begin{matrix} R & 10k\Omega & 20\Omega \text{ max.} \\ 10k\Omega < R & 50k\Omega & 30\Omega \text{ max.} \\ 50k\Omega < R \end{matrix}$ Nominal total resistance of 0.1% or less
	Maximum attenuation (Volume control)	$\begin{matrix} 5k\Omega & R < 10k\Omega & 70dB \text{ min.} \\ 10k\Omega & R < 50k\Omega & 80dB \text{ min.} \\ 50k\Omega & R < 100k\Omega & 90dB \text{ min.} \\ 100k\Omega & R & 100dB \text{ min.} \end{matrix}$						
	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
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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 ⁺⁴ ₋₂	5 ± 2	6 ± 3	5 ± 2		4 ± 2
Rating	0.5A 12V DC		3A 16V DC		0.1A 5V DC (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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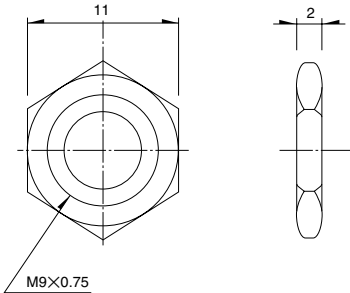
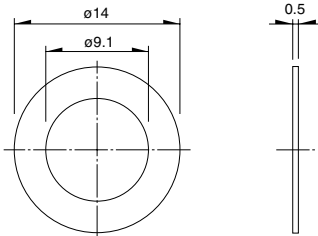
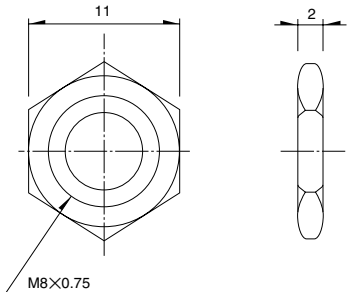
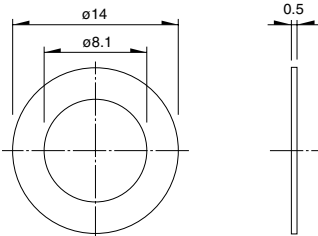
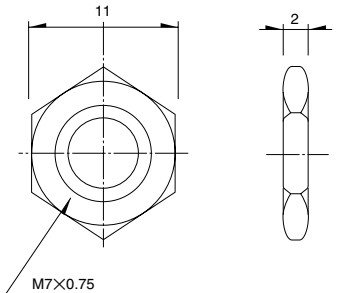
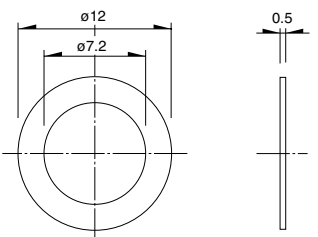
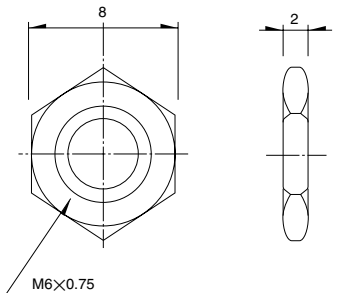
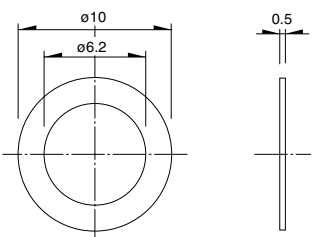
Notes

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 RK168 RK097 RK203	M9		
RK271	M8		
RK097 RK098 RK163	M7		
RK097 RK098	M6		

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