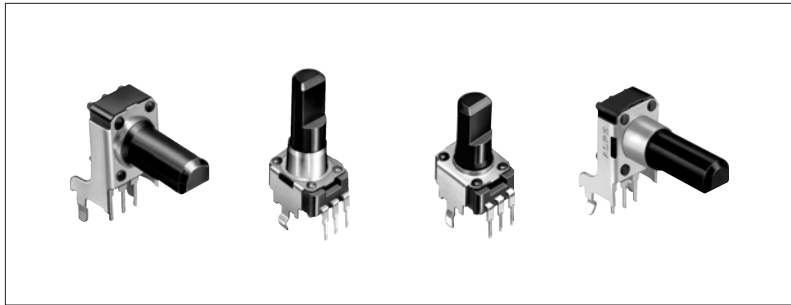


# 9mm Size Snap-in Insulated Shaft Potentiometer

RK09K/RK09D Series

Compact type with a width of 9.8mm is ideal for designing a high-density set.



## Features

- Closed structure improved dust-proofing capacity and flux resistance.
- 9.8mm outline dimensions, ideal for high-density set design.

## Applications

- Controls for audio devices, including mini component stereos, portable audio players and speaker systems
- Controls for audio mixing console and musical instruments
- Controls for LCD-TVs, game consoles, photo copiers and refrigerators(temperature control)

## Typical Specifications

Items		Specifications
Total resistance tolerance	Single-unit	$\pm 20\%$
	Dual-unit	$\pm 30\%$
Maximum operating voltage	Single-unit	50V AC 20V DC
	Dual-unit	50V AC for AC only
Total rotational angle	Single-unit	$280 \pm 5^\circ$ 300° turning type is also available
	Dual-unit	$280 \pm 5^\circ$
Rotational torque		1 to 8mN · m
Operating life		5,000 cycles
Operating temperature range		-10°C to +60°C

Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating

Recommended Products List

Number of resistor elements	Mounting direction	Products No.	Total rotation angle	Collar (Sleeve type)	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum packing unit (pcs.)	Drawing No.							
Single-unit (20V DC)	Vertical type	RK09K113004U	280°	Without	Flat	15	With	10	1B	100	2							
		RK09K1130AU2					5											
		RK09K1130A6S					10	15A										
		RK09K1130AJ3					20	1B										
		RK09K1130ACM					50											
		RK09K1130ACL					10											
		RK09K1130AAU			20	Without	10	5										
		RK09K1130AH1			25													
		RK09K1130BM4			30													
		RK09K1130A8G			15													
		RK09K1130A5R			20	Knob	10	1B	7									
		RK09K1130081			20							With						
		RK09K1130A70			30													
		RK09K1130AP5			15	Driver	5	8										
	RK09K1130AV7	20																
	Horizontal type H=6.5mm	Flat	RK09K1110A2S	280°	Without	15	15	Without	10	15A	100	1						
			RK09K1110AK4						20	1B								
			RK09K1110AH8						5									
			RK09K1110B1V						10									
			RK09K1110A0J						20	Knob			10	5				
RK09K11100E9			50															
Horizontal type H=10mm		Flat	RK09K1110B1R			20	15	15	Without	10			15A	100	6			
			RK09K1110B26							50								
Vertical type		Flat	RK09D1130C1B			300°	With	25	25	Without			10	1B	100	4		
			RK09D1130C2P										50					
	RK09D1130A1L		30															
	RK09D1130A1N		20	With	10													
	RK09D1130C3W		25															
	RK09D1130C3C		30															
	Horizontal type H=10mm		Flat	RK09D1110C0R	25						50	3						
Dual-unit (Not applicable to DC current)	Vertical type	RK09K12C0A19	280°	Without	Flat	20	Without	10	15A	100	10							
		RK09K12C0A2S						50										
		RK09K12C0A8G						20										
		RK09K12C0D0U						10										
		RK09K12C0A8K						15										
	Horizontal type H=6.5mm	Flat		RK09K12A0A2K				With				Without	20	20	Without	50	100	11
				RK09K12A0A6R												15		
				RK09K12A0B0W												20		
				RK09K12A0B0W												50		

Note

Additional product specifications in response to those not included in the above recommended products are also available.

For product specifications, see P.57  
For other detailed specifications, see P.75

# Product Specifications

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

## Total Resistance Variety

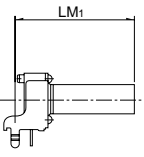
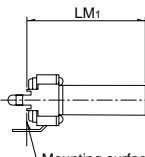
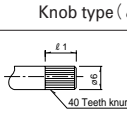
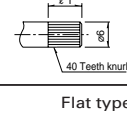
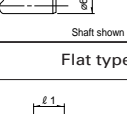
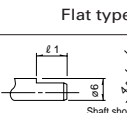
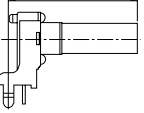
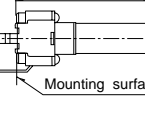
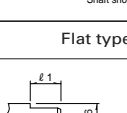
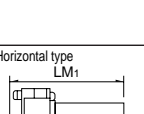
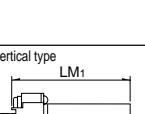
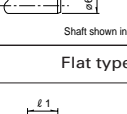
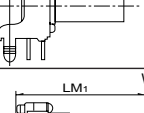
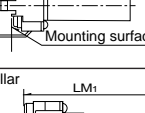
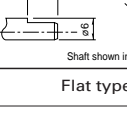
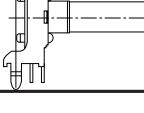
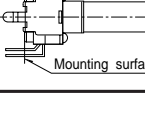
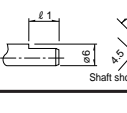
Total resistance (kΩ)	5	10	20	50	100	200
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## Resistance Taper

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

## Shaft Variety

Unit : mm

Number of resistor elements	Style	Shaft type		Shaft color										
		Knob variety	Detail dimensions											
Single-unit	Horizontal type  Vertical type 	Knob type (φ 6)	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> <td>7</td> <td>7</td> </tr> </table>	LM <sub>1</sub>	15	20	25	30	ℓ <sub>1</sub>	6	7	7	7	Black
		LM <sub>1</sub>	15	20	25	30								
		ℓ <sub>1</sub>	6	7	7	7								
		Screw-driver adjustment type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>9.5</td> <td>15</td> <td>20</td> <td></td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>—</td> <td>6</td> <td>7</td> <td></td> </tr> </table>	LM <sub>1</sub>	9.5	15	20		ℓ <sub>1</sub>	—	6	7		
	LM <sub>1</sub>	9.5	15	20										
	ℓ <sub>1</sub>	—	6	7										
Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>	LM <sub>1</sub>	15	20	25	30	ℓ <sub>1</sub>	6	7	12	12			
LM <sub>1</sub>	15	20	25	30										
ℓ <sub>1</sub>	6	7	12	12										
Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>	LM <sub>1</sub>	15	20	25	30	ℓ <sub>1</sub>	6	7	12	12			
LM <sub>1</sub>	15	20	25	30										
ℓ <sub>1</sub>	6	7	12	12										
With collar	 	Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM <sub>1</sub>	20	25	30		ℓ <sub>1</sub>	7	12	12		Black
	LM <sub>1</sub>	20	25	30										
ℓ <sub>1</sub>	7	12	12											
 	Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM <sub>1</sub>	20	25	30		ℓ <sub>1</sub>	7	12	12		Gray (20,25) Black (30)	
LM <sub>1</sub>	20	25	30											
ℓ <sub>1</sub>	7	12	12											
Dual-unit	Horizontal type  Vertical type 	Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>	LM <sub>1</sub>	15	20	25	30	ℓ <sub>1</sub>	6	7	12	12	Black
	LM <sub>1</sub>	15	20	25	30									
ℓ <sub>1</sub>	6	7	12	12										
 	Flat type	 <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM <sub>1</sub>	20	25	30		ℓ <sub>1</sub>	7	12	12			
LM <sub>1</sub>	20	25	30											
ℓ <sub>1</sub>	7	12	12											

Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating

## Orders other than recommended products

Specify orders for varieties that are not listed in the Recommended Product List, referring to the following example.

### Sample part number



#### Model type

Code	Model type
K111	280° single-unit horizontal type H=6.5
K113	280° single-unit vertical type
D111	300° single-unit horizontal type H=10
D113	300° single-unit vertical type
K12A	280° dual-unit horizontal type H=6.5
K12C	280° dual-unit vertical type

\* All RK09D types are single-ganged.  
 \* If you wish to mount a horizontal model in a position that is not covered above, please provide us with the specific details.

#### Shaft type

Code	Shaft type	Code	Shaft type
F	Flat	X	Driver
K	Knob		

\* All RK09D types and 2-ganged types are only available in flat format.

#### Length of the shaft (LM1) (mm)

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

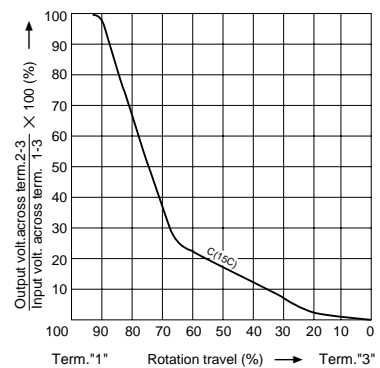
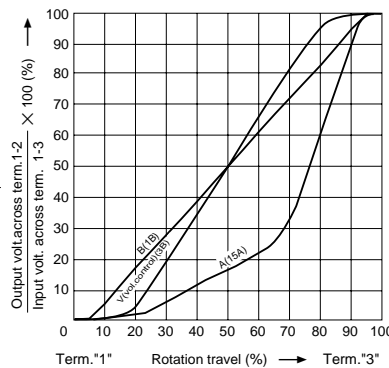
\* 20, 25 and 30 are the only available RK09D types.  
 \* 15 and 20 are the only available models in the driver shape.

#### Detent

Code	Center detent
C0	Without
C1	With

#### Resistance taper

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



#### Total resistance

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

#### Notes

- Shows the specification recommended by us.
- RK09D comes with a collar.
- The recommended specification for RK09K does not include a collar. Please specify if you need a collar.

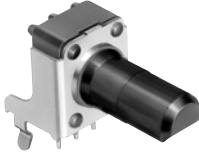
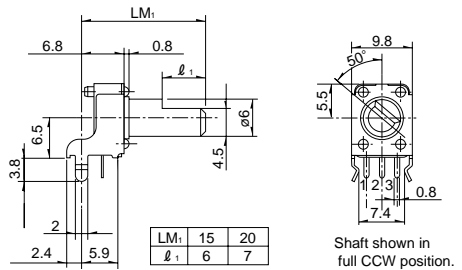
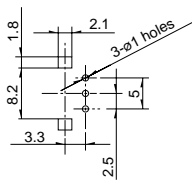

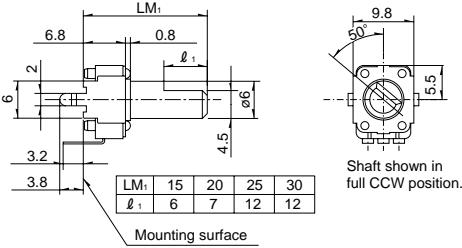
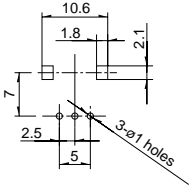
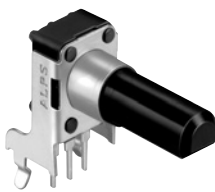
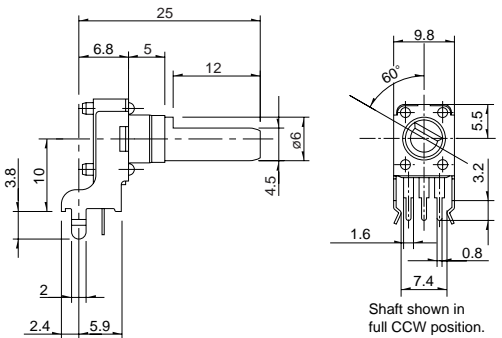
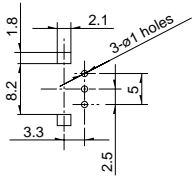

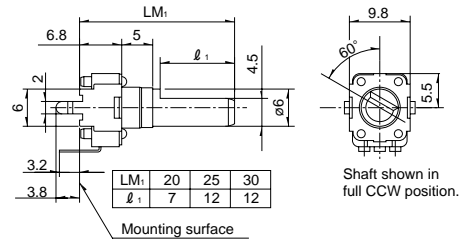
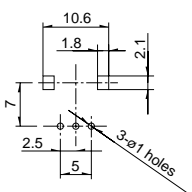
Rotary Potentiometers  
 Slide Potentiometers  
 Trimmer Potentiometers  
 Multi Control Devices  
 Position Sensors

Metal Shaft  
 Insulated Shaft  
 Knob Operating

**Dimensions**

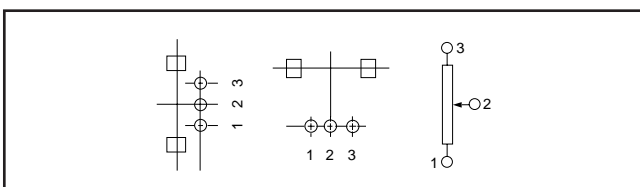
Single-shaft, Single-unit

Unit : mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)										
1	Horizontal type RK09K111	  <table border="1" data-bbox="837 660 965 705"> <tr> <td>LM1</td> <td>15</td> <td>20</td> </tr> <tr> <td>l1</td> <td>6</td> <td>7</td> </tr> </table>	LM1	15	20	l1	6	7					
LM1	15	20											
l1	6	7											
2	Vertical type RK09K113	  <table border="1" data-bbox="805 985 1013 1030"> <tr> <td>LM1</td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>l1</td> <td>6</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>	LM1	15	20	25	30	l1	6	7	12	12	
LM1	15	20	25	30									
l1	6	7	12	12									
3	Horizontal type with collar RK09D111	 											
4	Vertical type with collar RK09D113	  <table border="1" data-bbox="805 1691 965 1736"> <tr> <td>LM1</td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>l1</td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>	LM1	20	25	30	l1	7	12	12			
LM1	20	25	30										
l1	7	12	12										

**Circuit Diagram**

Single-unit



**Dimensions**

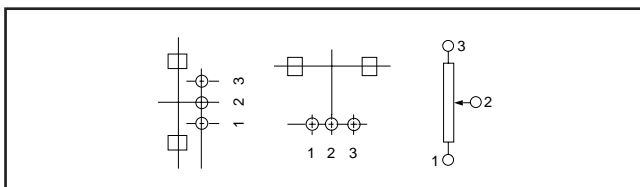
Single-shaft, Single-unit

Unit : mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
5	Horizontal type RK09K111		
6	Horizontal type RK09K111		
7	Vertical type RK09K113		
8	Vertical type RK09K113		

**Terminal Layout / Circuit Diagram**

Single-unit



**Dimensions**

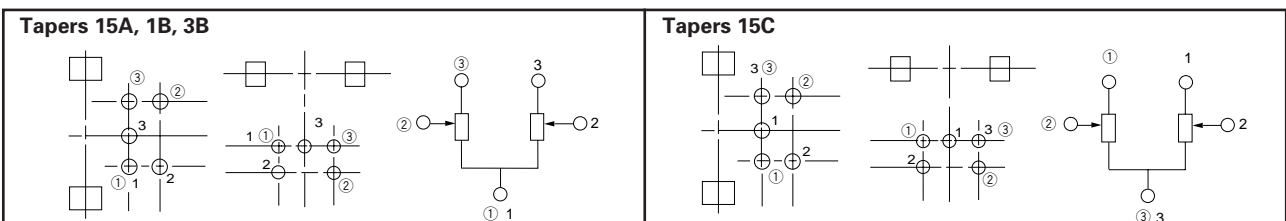
Single-shaft, Dual-unit

Unit : mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)								
9	Horizontal type RK09K12A	<p>Shaft shown in full CCW position</p> <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> </tr> </table>	LM <sub>1</sub>	15	20	ℓ <sub>1</sub>	6	7	<p>T=1.6</p>		
LM <sub>1</sub>	15	20									
ℓ <sub>1</sub>	6	7									
10	Vertical type RK09K12C	<p>Shaft shown in full CCW position</p> <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>15</td> <td>20</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>6</td> <td>7</td> <td>12</td> </tr> </table>	LM <sub>1</sub>	15	20	30	ℓ <sub>1</sub>	6	7	12	
LM <sub>1</sub>	15	20	30								
ℓ <sub>1</sub>	6	7	12								
11	Horizontal type with collar RK09K12A	<p>Shaft shown in full CCW position</p>									
12	Vertical type with collar RK09K12C	<p>Shaft shown in full CCW position</p> <table border="1"> <tr> <td>LM<sub>1</sub></td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>12</td> <td>12</td> </tr> </table>	LM <sub>1</sub>	25	30	ℓ <sub>1</sub>	12	12			
LM <sub>1</sub>	25	30									
ℓ <sub>1</sub>	12	12									

**Terminal Layout / Circuit Diagram**

Dual-unit



## Products Specifications

Items		Type	9mm size		11mm size	12mm size 14mm size	
		Model	RK09K11□ RK09D11□	RK09K12□	RK11K11□	RK12L12□ RK14K12□	
			Single-unit	Dual-unit	Single-unit	Dual-unit	
<b>Operating temperature range</b>		-10°C to +60°C			-10°C to +70°C		
<b>Electrical performance</b>	<b>Total resistance tolerance</b>	±20%	±30%	±20%			
	<b>Rated power</b>	0.05W	0.03W	0.05W			
	<b>Maximum operating voltage</b>	50V AC 20V DC	50V AC For AC only	50V AC 20V DC	50V AC For AC only		
	<b>Insulation resistance</b>	100MΩ min. 250V DC		100MΩ min. 500V DC	100MΩ min. 250V DC		
	<b>Voltage proof</b>	1 minute 250V AC		1 minute 500V AC	1 minute 300V AC		
	<b>Gang error</b>	—	-40dB to 0dB within 3dB	—	Volume control -40dB to 0dB max. 3dB For tone control within 2dB at center		
<b>Mechanical performance</b>	<b>Total rotational angle</b>		280±5° RK09D11□ : 300±5°		300±5°		
	<b>Rotational torque</b>		1 to 8mN · m		3 to 20mN · m		
	Strength of the operating section	<b>Stopper strength</b>	0.3N · m		Without bushing 0.5N · m With bushing 0.6N · m	14mm 0.6N · m 12mm 0.5N · m	
		<b>Push-pull strength</b>	50N max.		80N max.		
	<b>Vibration</b>		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				
	<b>Solderability</b>		230±5°C, 3±0.5s				
	Solder heat resistance	Manual soldering	Lower than 350°C for less than 3 seconds				
	<b>Endurance</b>	<b>Operating life</b>	5,000 cycles		Without detent : 10,000 cycles With detent : 5,000 cycles		
<b>Environmental test</b>	<b>Cold</b>	-10°C for 96h					
	<b>Long-term heat resistance</b>	+70°C for 96h					
	<b>Moisture resistance</b>	+40±2°C, 90 to 95%RH for 96h					

Rotary Potentiometers

Slide Potentiometers

Trimmer Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating