

Metal Shaft Potentiometer 11mm Size Metal Shaft Low-profile Type

RK117 Series



Available in without switch, 0.5mm-travel and 1.5mm-travel with push-on switch.



Typical Specifications

Items	Specifications
Total resistance tolerance	± 20 %
Maximum operating voltage	50V AC , 10V DC
Total rotational angle	300 $\pm 10^{\circ}$
Rotational torque	5 to 20mN·m
Operating life	15,000cycles
Operating temperature range	- 30 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 (k Ω)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.	
Single-unit	Vertical type	Flat	15	Without	10	1B	1,200	RK117111000N	1	
				With				RK1171110W04		
				Without	20	15A		RK1171110W0D		
				With				RK1171110W0L		
			20	Without	10	1B	1,000	RK1171110W03	2	
					20			RK117111000A		

Metal
Shaft
Insulated
Shaft
Knob
Operating

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 (k Ω)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit	Vertical type	Flat	20	Without	10	1B	1,000	RK117111400C	3
				With				RK1171114D01	

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

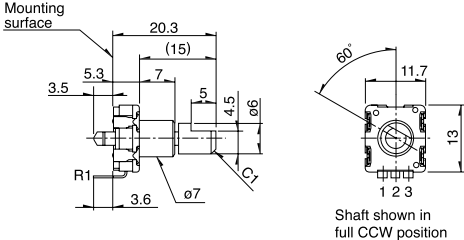
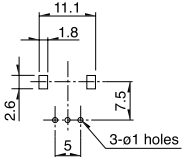
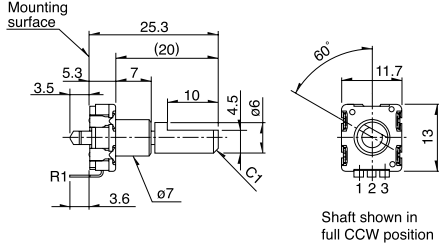
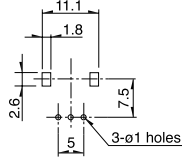
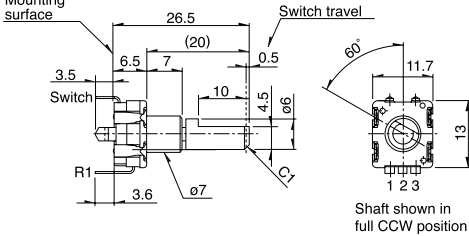
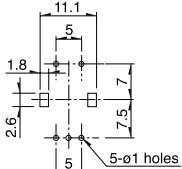
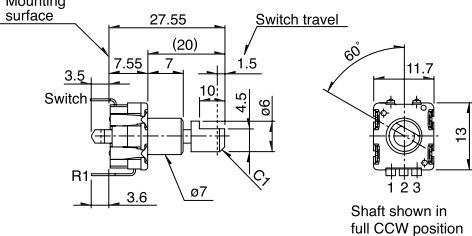
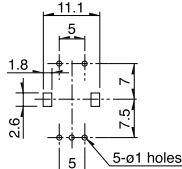
Number of resistor elements	Mounting direction	Shaft type	Length of the shaft (mm)	Number of detent	Total resistance (k Ω)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit	Vertical type	Flat	20	Without	10	3B	1,200	RK1171114W0W	4

Note

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

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	Single-shaft, single-unit RK1171110 		
2	Single-shaft, single-unit RK1171110 		
3	Single-shaft, single unit with push-on switch 0.5mm travel RK1171114-5R4411 		
4	Single-shaft, single unit with push-on switch 1.5mm travel RK1171114-5R4511 		

Product Varieties

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

Total Resistance Variety

Total resistance(k Ω)	10	20	50
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Resistance Taper

Resistance taper	15A	1B	3B
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Detent and Attached Switch

Variety	Items	Detent			Attached switches travel
Single-shaft, Single-unit	Without	Center	41		0.5, 1.5mm

Dimensions of Shaft

Flat type

Unit:mm

Shaft shown in full CCW position.

Detailed dimensions

L ₁	L _B	ℓ
15	7	5
20	7	10
25	7	12

Notes

1. marked are specifications recommended by ALPS.
2. L₂ is only available in 7mm, and does not support M7(with screws)

Specifications for the Switch

Mechanical Characteristics

Switch type		Pole-position	Rating	Changeover torque (Operating force)	Travel(mm)
Momentary push	5R4411	SPST	3A 16V DC	6 $\pm$ 3N	0.5
	5R4511			5 $\pm$ 2N	1.5

Electrical Characteristics

Model	Contact resistance	Insulation resistance	Voltage proof
5R4411, 5R4511	100m Ω for initial period, 200m Ω after operating life	100M Ω min. Measured with a 250V DC megger.	300V AC 1 minute min.

Durability

Operating life under load	5R4411	The switch under a rated resistive load shall be subjected to a total of 25,000 cycles of operation at a speed of 600 to 1,000 cycles per hour. The contact resistance after testing should not exceed 200m Ω .
	5R4511	The switch under a rated resistive load shall be subjected to a total of 20,000 cycles of operation at a speed of 600 to 1,000 cycles per hour. The contact resistance after testing should not exceed 200m Ω .

Note

The operating current should be 10mA or greater.

Refer to P.342, 502 for resistance taper.

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

1

1

7

1

1

1

0

—

F

1

5

—

C

0

—

B

1

0

3

Switch

Code	Switch
0	Without switch
4	With push-on switch(0.5mm travel)

Length of the shaft(L, X mm)

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

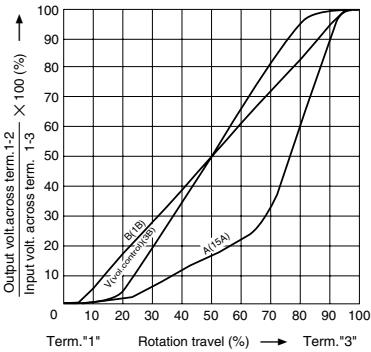
Detent

Code	Detent	Code	Detent
C0	Without	41	41
C1	Center		

Resistance taper

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

B:For tone & general
V:For vol.



Total resistance

Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
103	10	503	50
203	20		

Notes

1. marked are specifications recommended by ALPS.
2. For 1.5mm-travel push-on switch requirements, please indicate separately.

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 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 : 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 50kΩ < R 20Ω max. 30Ω max. Nominal total resistance of 0.1% or less					R 10kΩ 50Ω max. 10kΩ < R 50kΩ 80Ω max. 50kΩ < R Nominal total resistance of 0.2% or less		R 10kΩ 20Ω max. 10kΩ < R 50kΩ 30max. 50kΩ < R Nominal total resistance of 0.1% or less
	Maximum attenuation (Volume control)	5kΩ R < 10kΩ 70dB min. 10kΩ R < 50kΩ 80dB min. 50kΩ R < 100kΩ 90dB min. 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	
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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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- Metal Shaft Potentiometers Cautions364, 365

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.