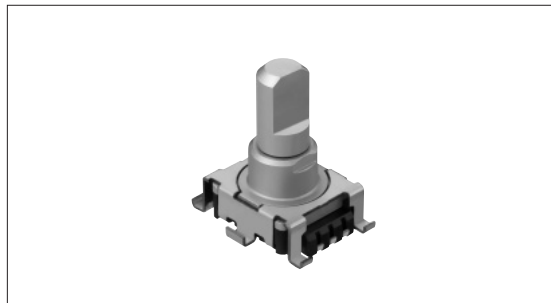


Metal Shaft Potentiometer 11mm Size Metal Shaft Reflow Type

RK119 Series



1.5mm-travel push-on switch achieved in a low-profile of only 5mm height.



Typical Specifications

Items	Specifications
Total resistance tolerance	±20%
Maximum operating voltage	50V AC, 10V DC
Total rotational angle	300 ^{+10°} _{-5°}
Rotational torque	7.5±3.5mN·m
Operating life	15,000cycles
Operating temperature range	-40°C to +85°C

Rotary Potentiometers
Slide Potentiometers

Metal Shaft

Insulated Shaft

Knob Operating

Product Line

Single-shaft without switch type

Number of resistor elements	Mounting direction	Shaft type	Length of the shaft (mm)	Total resistance (kΩ)	Resistance taper	Switch travel (mm)	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit	Vertical type	Flat	20	10	1B	Without	240	RK1191110001	1
						0.5		RK1191114001	2
						1.5		RK1191124001	3

Packing Specifications

Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case export packing	
240	480	※

Note

1. Products other than those listed in above products are also available. Please contact us for details.
2. Please place purchase orders per minimum order unit N (integer).
3. ※Please contact Alps for export packing measurements.



Automotive Use

Refer to P.362 for product varieties.
Refer to P.362, 363, 456 for resistance taper.
Refer to P.362 for switch specifications.
Refer to P.364 for soldering conditions.

Dimensions

Unit:mm

Rotary Potentiometers

Slide Potentiometers

Metal Shaft

Insulated Shaft

Knob Operating



Automotive Use

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	<p>Single-shaft, single-unit RK1191110001</p>	<p>Mounting surface Dummy terminal</p> <p>Shaft shown in full C.C.W position</p>	<p>PC board mounting details Slant line area: solder land Black area: do not solder and wire for electrical contact</p>
2	<p>Single-shaft, single-unit with push-on switch travel 0.5mm RK1191114001</p>	<p>Mounting surface Switch Switch travel</p> <p>Shaft shown in full C.C.W position</p>	<p>PC board Mounting detail A slant line part: The solder land Black part: Do not solder and wiring for electrical contact</p>
3	<p>Single-shaft, single unit with push-on switch travel 1.5mm RK1191124001</p>	<p>Mounting surface Switch Switch travel</p> <p>Shaft shown in full C.C.W position</p>	<p>PC board Mounting detail A slant line part: The solder land Black part: Do not solder and wiring for electrical contact</p>

Product Varieties

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

Total Resistance Variety

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

Resistance Taper

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

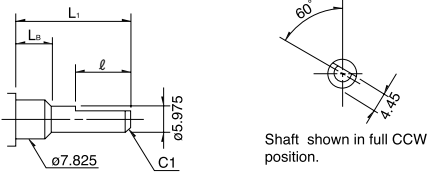
Detent and Attached Switch

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

Dimensions of Shaft

Flat type

Unit:mm

 <p>Shaft shown in full CCW position.</p>	<p>Detail dimensions (mm)</p> <table border="1"> <thead> <tr> <th>L₁</th> <th>※L_b</th> <th>ℓ</th> </tr> </thead> <tbody> <tr> <td>(15)</td> <td>5</td> <td>7</td> </tr> <tr> <td>(20)</td> <td>5</td> <td>10</td> </tr> </tbody> </table>	L ₁	※L _b	ℓ	(15)	5	7	(20)	5	10
L ₁	※L _b	ℓ								
(15)	5	7								
(20)	5	10								

Notes

- ※L_b does not support M7(with Screws).
- Marked with a blue background are specifications recommended by ALPS.

Specification for Switch

Mechanical Characteristics

Type	Travel (mm)	Contact arrangement	Rating	Changeover torque (Operating force)
Momentary push type	0.5±0.3	SPST	DC 5V 0.1A (1mA 5V DC min.rating)	5±2N
	1.5±0.5			4±2N

Electrical Characteristics

Type	Contact resistance	Insulation resistance	Voltage proof
Momentary push type	100mΩ for initial period, 200mΩ after operating life	100MΩ min. Measured with a 250V DC megger.	300V AC 1 minute min.

Durability

Operating life under load	Travel 0.5mm	The switch under a rated resistive load shall be subjected to a total of 100,000 cycles of operation at a speed of 600 to 1,000 cycles per hour. The contact resistance after testing should not exceed 200mΩ.
	Travel 1.5mm	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 200mΩ.

Note

The operating current should be 10mA or greater.

Refer to P.363, 456 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



Switch Travel (mm)

Code	Switch
1	0.5
2	1.5

*For "without switch" type, select 1.

Switch

Code	Switch
0	Without switch
4	With push-on switch

Length of the shaft (L₁) (mm)

Code	Length of the shaft
15	15
20	20

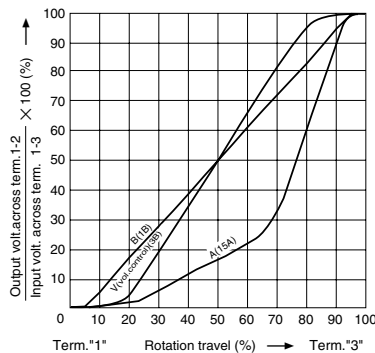
Detent

Code	Detent
C0	Without

Resistance taper

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

B:For tone & general
V:For vol.



Total resistance

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






Note

marked are specifications recommended by ALPS.

Rotary Potentiometers
Slide Potentiometers

Metal Shaft
Insulated Shaft
Knob Operating

List of Varieties

Type	9mm size metal shaft snap-in		9mm size metal shaft multi-ganged		11mm size metal shaft reflow
Number of drive shafts	Single-shaft			Dual-shaft	Single-shaft
Model	RK09L1		RK0971	RK0972	RK119
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
Attached switch	Without		Rotary switch ※1		Momentary push switch
			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.				—
Solder heat resistance	Manual soldering	350°C max. 3s max.			350±10°C 3 ⁺ ₁ s
	Dip soldering	260±5°C, 5±1s			—
	Reflow soldering	—			Please see P.364
Operating emperature range	-10°C to +70°C		-20°C to +70°C -40°C to +85°C (Vehicle-compatible)		-40°C to +85°C
Electrical performance	Rated power	0.05W			
	Residual resistance	$R \leq 10k\Omega$ 20Ω max. $10k\Omega < R < 50k\Omega$ 30Ω max. $50k\Omega \leq R$ Nominal total resistance of 0.1% or less			$R \leq 10k\Omega$ 50Ω max. $10k\Omega < R \leq 50k\Omega$ 80Ω max. $50k\Omega < R$ Nominal total resistance of 0.2% or less
	Maximum attenuation (Volume control)	$5k\Omega \leq R < 10k\Omega$ 70dB min. $10k\Omega \leq R < 50k\Omega$ 80dB min. $50k\Omega \leq R < 100k\Omega$ 90dB min. $100k\Omega \leq R$ 100dB min.			
	Insulation resistance	100MΩ min. 250V DC			
	Voltage proof	300V AC for 1minute			
Mechanical performance	Stopper strength	0.5N·m	0.5N·m (With push-lock mechanism type: 0.4N·m)		0.5N·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°C±2°C for 96h	-30±2°C for 96h -40±2°C for 96h (Vehicle-compatible)		-40±2°C for 240h
	Dry heat	70±2°C for 96h	70±2°C for 96h 85±2°C for 96h (Vehicle-compatible)		85±2°C for 240h
	Damp heat	40±2°C, 90 to 95%RH for 96h			60±2°C, 90 to 95%RH for 240h
Page	345		349		360

Push-on Switch Specifications

Items	RK097		RK119	
Contact arrangement	Single pole and single throw (Push on)			
Travel (mm)	0.5	1.5	0.5±0.3	1.5±0.5
Operating force (N)	4 [±] ₂	5±2	5±2	4±2
Rating	0.5A 12V DC		0.1A 5V DC (0.1mA 5V DC min.ratings)	
Contact resistance	100mΩ for initial period;200mΩ after operating life			
Operating life	10,000 times min.	20,000 times min.	100,000 times min.	20,000 times min.

- Metal Shaft Potentiometers Attached Parts377
- Metal Shaft Potentiometers Cautions378, 379

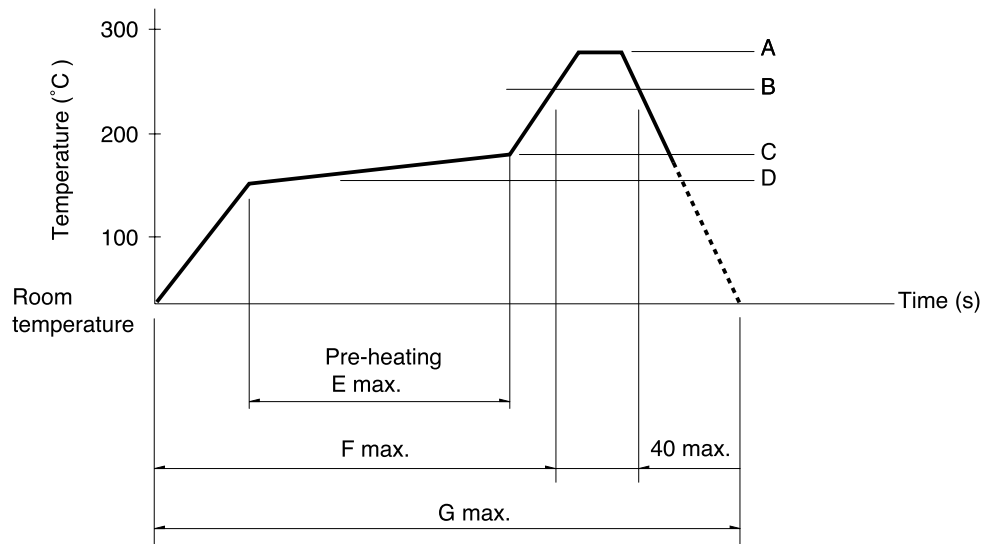
Notes

- ※1. 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.

Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 ϕ CA (K) or CC (T) at soldering portion (copper foil surface). A heat resisting tape should be used for fixed measurement.
3. Temperature profile



Series(Reflow type)	A (°C) 3s max.	B (°C)	C (°C)	D (°C)	E (s)	F (s)	G (s)
RK119	260	230	180	150	120	—	240

Notes

1. The condition mentioned above is the temperature on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the PC board's material, size, thickness, etc. The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines. Prior verification of soldering condition is highly recommended.