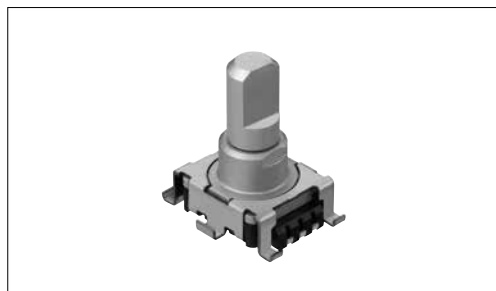


# RK119 1 1 mm Size Metal Shaft Reflow Type

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



## Typical Specifications

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

## Product Line

Number of resistor elements	Mounting direction	Shaft type	Length of the shaft L <sub>1</sub> (mm)	Detent	Total resistance (kΩ)	Resistance taper	Switch travel (mm)	Minimum order unit (pcs.)		Products No.	Drawing No.
								Japan	Export		
Single-unit	Vertical type	Flat	15	Without	10	1B	Without	480	480	<b>RK1191110001</b>	1
							0.5			<b>RK1191114001</b>	2
							1.5			<b>RK1191124001</b>	3

### Note

Other varieties are also available. Refer to "Other Specifications" (P.323).

## Packing Specifications

Tray


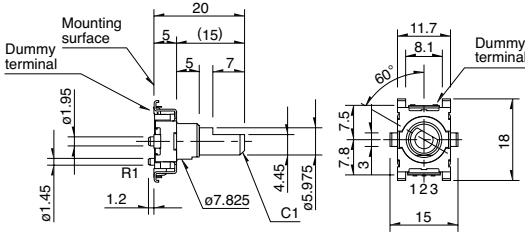
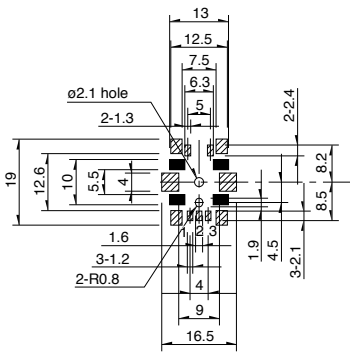

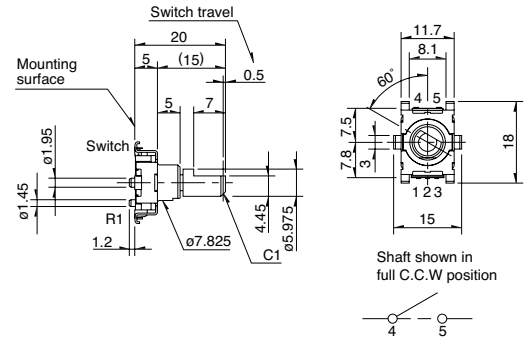
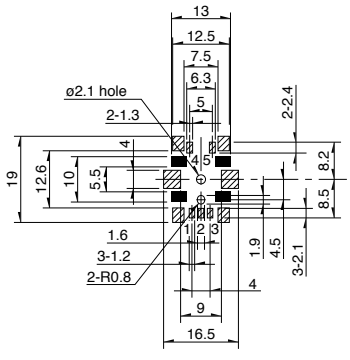

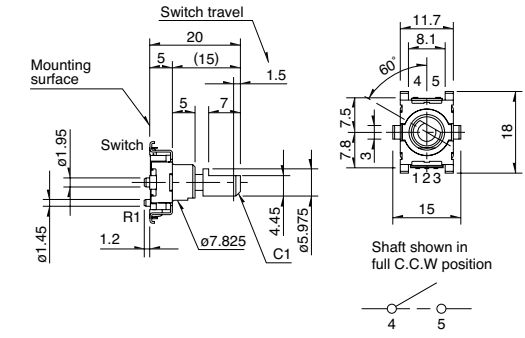
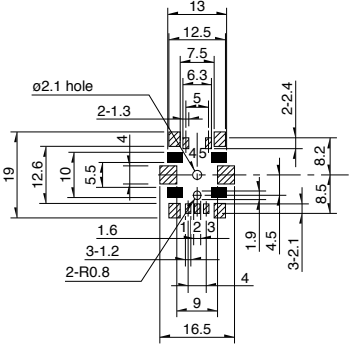
Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
480	480	300×240×270

Refer to P.323 for other specifications.  
 Refer to P.323 for switch specifications.  
 Refer to P.324 for ordering products not listed.  
 Refer to P.343 for soldering conditions.

# RK119 1 1 mm Size Metal Shaft Reflow Type

## Dimensions

Unit:mm

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

# 1 1 mm Size Metal Shaft Reflow Type / Other Specifications

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

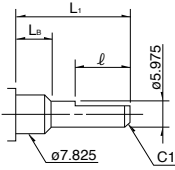
## ■ Detent and Attached Switch

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

## ■ Dimensions of Shaft

Flat type

Unit:mm



Detail dimensions (mm)

L <sub>1</sub>	※ L <sub>B</sub>	l
(15)	5	7
(20)	5	10

Shaft shown in full CCW position.

### Notes

- ※ L<sub>B</sub> does not support M7 (with screws).
- Marked are specifications recommended by Alps Alpine.

# 1 1 mm Size Metal Shaft Reflow Type / Switch Specifications

Switch type	Momentary push switch	
Contact arrangement	Single pole and single throw (Push-on)	
Travel (mm)	0.5±0.3	1.5±0.5
Operating force	5±2N	4±2N
Operating life	20,000 times	
Electrical performance	Rating	0.1A 5V DC (0.1mA 5V DC min. ratings)
	Contact resistance	100mΩ max. for initial period, 200mΩ max. after operating life.
	Insulation resistance	100MΩ max. 250V DC
	Voltage proof	300V AC for 1 minute or 360V AC for 2 second

# 1 mm Size Metal Shaft Reflow Type / Ordering Products Not Listed

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

## ■ Sample Part Number

**R K 1 1 9 1 1 1 0** - **F 1 5** - **C 0** - **B 1 0 3**

### Switch Specification

Code	Switch Specification
10	Without switch
14	With momentary push switch (0.5mm travel)
24	With momentary push switch (1.5mm travel)

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

Code	Length of the shaft
15	15
20	20

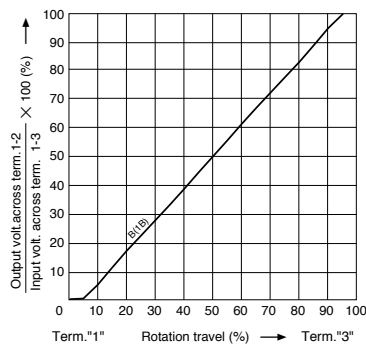
### Detent

Code	Detent
C0	Without

### Resistance taper

Code	Resistance taper
B	1B

B: For tone & general



### Total resistance

Code	Total resistance (kΩ)
103	10











### Note

Marked are specifications recommended by Alps Alpine.

Rotary Potentiometers  
 Slide Potentiometers  
 Metal Shaft  
 Insulated Shaft  
 Knob Operating  
 Through Shaft Type  
 Ring Type

# Metal Shaft Potentiometers

## List of Varieties

Type	9mm size				11mm size
Series	RK09L		RK0971	RK0972	RK119
	Single-shaft			Dual-shaft	Single-shaft
Number of resistor elements	Single/dual			Dual	Single
Photo					
Terminal mounting	Horizontal	Vertical	Horizontal		Vertical
Fixing method of bushing	Screw				Guide
Operating temperature range	-10°C to +70°C		-20°C to +70°C -40°C to +85°C (Vehicle-compatible)		-40°C to +85°C
Operating life	15,000 cycles				
Available for automotive use	—	—	○	○	○
Life cycle (availability)					
Electrical performance	Total resistance (kΩ)	10, 20, 50, 100			10
	Resistance taper	15A, 1B, 3B, 15C			1B
	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.
	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 1minute			300V AC for 1 minute or 360V for 2s
	Center-taps	Without	Without / With		Without
Mechanical performance	Detent	Without, Center			Without
	Stopper strength	0.5N·m	0.5N·m (With push-lock mechanism: 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			
Shaft style	Flat type			Inner-shaft: flat type Outer-shaft: slotted type	Flat type
Terminal style	Insertion				Reflow
Attached switch	—	—	Rotary switch Push-on push-off switch Push-on switch Push-lock switch	—	Push-on switch
Page	306		310		321

Metal Shaft Potentiometers Soldering Conditions	343
Potentiometers Cautions	418
Potentiometers Measurement and Test Methods	420
Potentiometers Resistance Taper	422

### 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

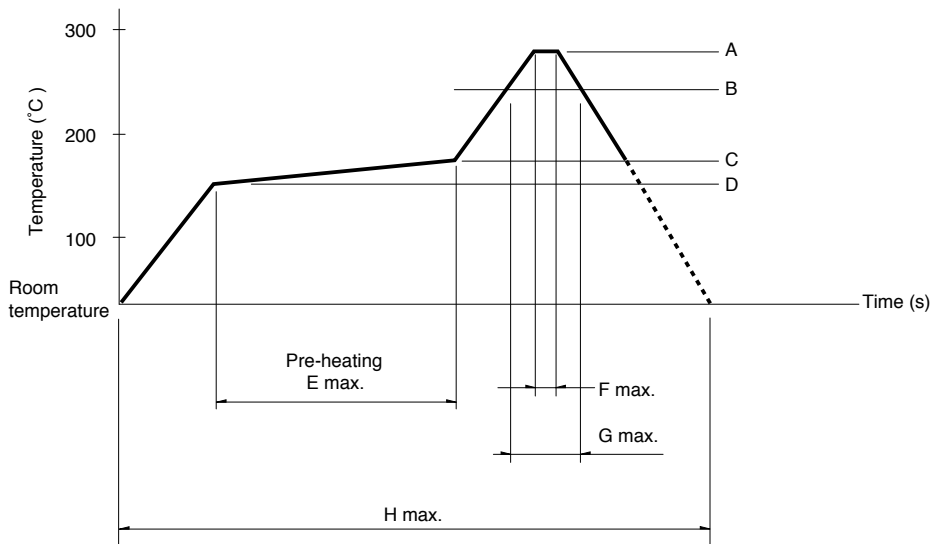
Series	Tip temperature	Soldering time	No. of solders
<b>RK09L, RK097</b>	350°C max.	3s max.	1 time
<b>RK203</b>	300°C max.	3s max.	1 time
<b>RK119</b>	350±10°C	3 <sup>+1</sup> <sub>0</sub> s	1 time
<b>RK271</b>	350°C max.	5s max.	1 time
<b>RK501</b>	350±10°C	5 <sup>+1</sup> <sub>0</sub> s	1 time
<b>RK163</b>	350°C max.	5s max.	1 time
<b>RK168</b>	<b>Potentiometer terminal</b>	300°C max.	3s max.
	<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, RK203</b>	100°C max.	2 min. max.	260±5°C	5±1s	2 time max.
<b>RK501</b>	120±10°C	2 min. max.	260±5°C	5±1s	2 time

## Example of Reflow Soldering Condition

Temperature profile



Series	A	B	C	D	E	F	G	H	No. of reflows
<b>RK119</b>	260°C	230°C	180°C	150°C	2 min.	3s	40s	4 min.	2 time max.

### Notes

1. When using an infrared reflow oven, solder may sometimes not be applied. Be sure to use a hot air reflow oven or at type that uses infrared rays in combination with hot air.
2. The temperatures given above are the maximum temperatures at the terminals of the potentiometer when employing a hot air reflow method. The temperature of the PC board and the surface temperature of the potentiometer may vary greatly depending on the PC board material, its size and thickness. Ensure that the surface temperature of the potentiometer does not rise to 250°C or greater.
3. Conditions vary to some extent depending on the type of reflow bath used. Be sure to give due consideration to this prior to use.

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