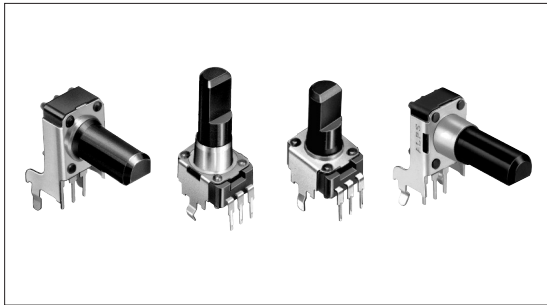


# Insulated Shaft Potentiometer 9mm Size Insulated Shaft Snap-in Type

RK09K/RK09D Series



Compact type potentiometer with 9.8mm width is ideal for designing high density sets.



## Typical Specifications

Items		Specifications
Total resistance tolerance	Single-unit	±20%
	Dual-unit	±30%
Maximum operating voltage	Single-unit	50V AC 20V DC
	Dual-unit	50V AC for AC only
Total rotational angle	Single-unit	RK09K: 280±5° RK09D: 300±5°
	Dual-unit	280±5°
Rotational torque		1 to 8mN·m
Operating life	Single-unit	5,000cycles
	Dual-unit	10,000cycles
Operating temperature range		-10°C to +70°C

Rotary Potentiometers  
Slide Potentiometers

Metal Shaft  
Insulated Shaft  
Knob Operating  
Ring Type Devices

## Product Line

Number of resistor elements	Mounting direction	Total rotation angle	Collar (Sleeve type)	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.			
Single-unit (20V DC)	Vertical type	280±5°	Without	Flat	15	With	10	1B	2,000	RK09K113004U	2			
							5			RK09K1130AU2				
							10			RK09K1130A6S				
						Without	20	RK09K1130AJ3						
							50	RK09K1130ACM						
							10	RK09K1130ACL						
				Knob	20	With	5	1B		RK09K1130AAU				
							10			RK09K1130AH1				
							15			RK09K1130BM4				
						Driver	20			10		7	RK09K1130A8G	
										15			RK09K1130A5R	
										20			RK09K1130081	
	Flat	15	Without	5	1B	RK09K1130A70								
				10		RK09K1130AP5								
				15		RK09K1130AV7								
				Knob		20	With	5	15A	RK09K1110A2S				
								10		RK09K1110AK4				
								20		RK09K1110AH8				
	Horizontal type H=6.5mm	300±5°	With	Flat	15	Without	10	1B	4	RK09K1110B1V				
							20			RK09K1110A0J				
							5			RK09K1110B1R				
						With	10			RK09D1130C1B				
							20			RK09D1130C2P				
							50			RK09D1130A1L				
Horizontal type H=10mm				20	Without	Flat	20	With		10	1B	RK09D1130A1N		
										25		RK09D1130C3W		
										30		RK09D1130C3C		
								Without		25		10	3	RK09D113000F
												20		RK09D1130C0R
												50		

## Note

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

Refer to P.388 for product varieties.  
Refer to P.388, 389, 470 for resistance taper.

Rotary Potentiometers  
 Slide Potentiometers

**Product Line**

Number of resistor elements	Mounting direction	Total rotation angle	Collar (Sleeve type)	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.
Dual-unit (50V AC)	Vertical type	280±5°	Without	Flat	15	Without	10	15A	2,000	RK09K12C0A19	10
					20		50			RK09K12C0A2S	
					30		10			RK09K12C0A4D	
					25					RK09K12C0A8P	
	Horizontal type H=6.5mm		Without		30	10	RK09K12C0A8K				
					15		RK09K12A0A2K				
			With		20	50	RK09K12A0A6R				
							RK09K12A0B0W				

**For the mixing console market**

Number of resistor elements	Mounting direction	Total rotation angle	Collar (Sleeve type)	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.)	Products No.	Drawing No.
Single-unit (20V DC)	Vertical type	300±5°	With	Flat	30	With	10	1B	1,000	RK09D117000B	4
						Without		15A		RK09D117000C	

Metal Shaft  
 Insulated Shaft  
 Knob Operating  
 Ring Type Devices

**Note**

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

**Packing specifications**


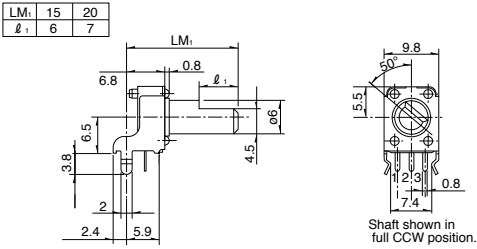
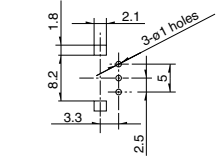

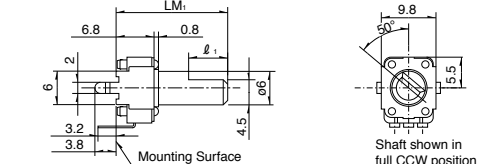
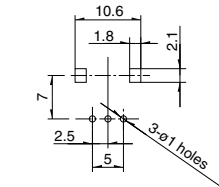
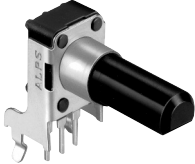
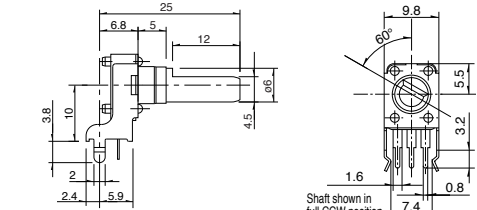
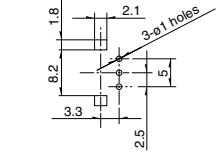
**Bulk**

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case/export packing	
1,000	2,000	368 × 530 × 180

**Dimensions**

Single-shaft, single-unit

Unit:mm


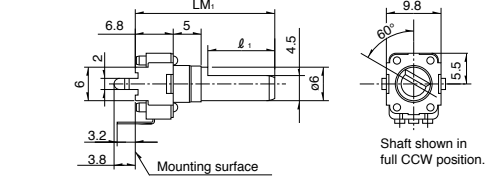
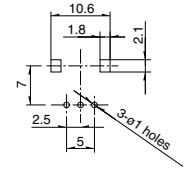

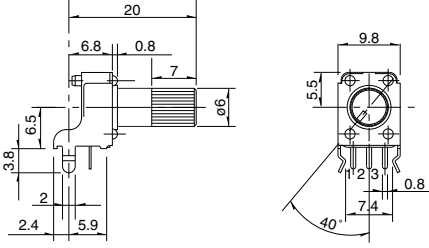
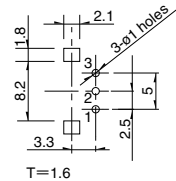
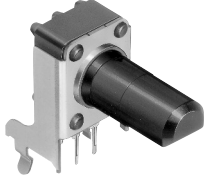
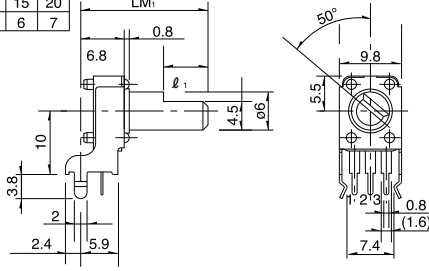
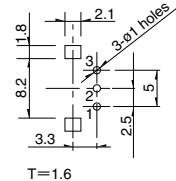

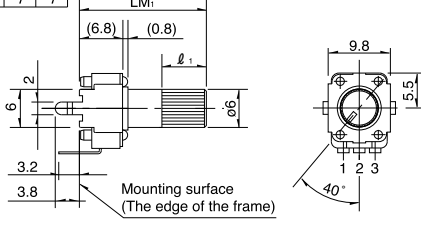
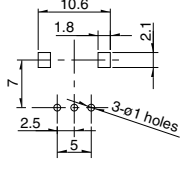
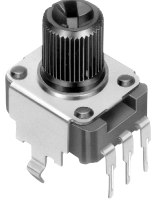
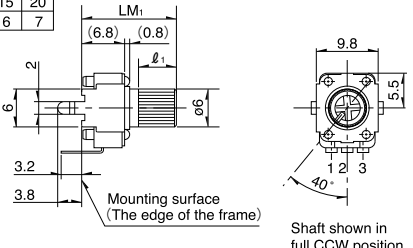
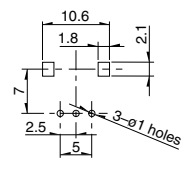
No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1		 <p>Shaft shown in full CCW position.</p>	
2		 <p>Mounting Surface                      Shaft shown in full CCW position.</p>	
3		 <p>Shaft shown in full CCW position.</p>	

Refer to P.388 for product varieties.  
 Refer to P.388, 389, 470 for resistance taper.

**Dimensions**

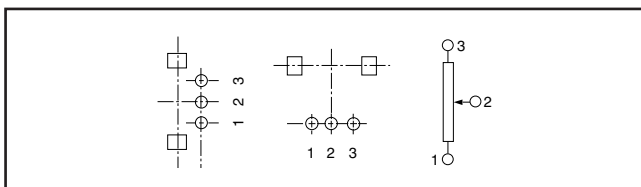
Single-shaft, single-unit

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)								
4	Vertical type with collar RK09D113 	<table border="1"> <tr> <td>LM<sub>1</sub></td> <td>20</td> <td>25</td> <td>30</td> </tr> <tr> <td>ℓ<sub>1</sub></td> <td>7</td> <td>12</td> <td>12</td> </tr> </table>  <p>Shaft shown in full CCW position.</p>	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								
5	Horizontal type RK09K111 		 <p>T=1.6</p>								
6	Horizontal type RK09K111 	<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									
7	Vertical type RK09K113 	<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>7</td> </tr> </table>  <p>Mounting surface (The edge of the frame)</p>	LM <sub>1</sub>	15	20	30	ℓ <sub>1</sub>	6	7	7	
LM <sub>1</sub>	15	20	30								
ℓ <sub>1</sub>	6	7	7								
8	Vertical type RK09K113 	<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>  <p>Mounting surface (The edge of the frame)</p> <p>Shaft shown in full CCW position.</p>	LM <sub>1</sub>	15	20	ℓ <sub>1</sub>	6	7			
LM <sub>1</sub>	15	20									
ℓ <sub>1</sub>	6	7									

**Terminal Layout/Circuit Diagram**


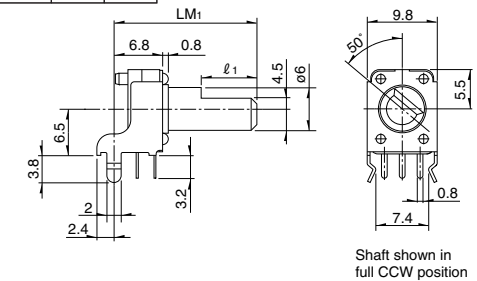
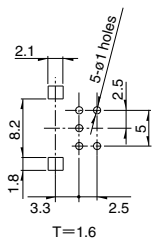
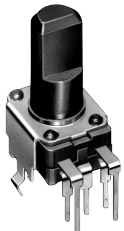
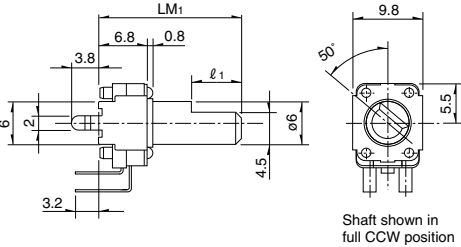
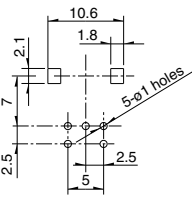
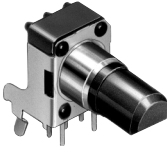
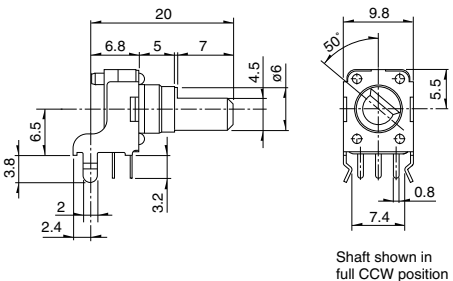
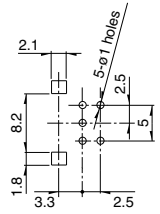
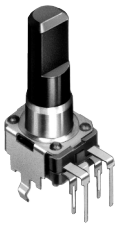
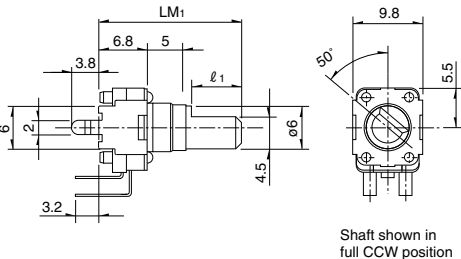
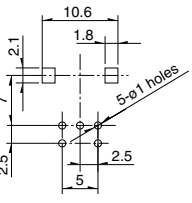
Single-unit



**Dimensions**

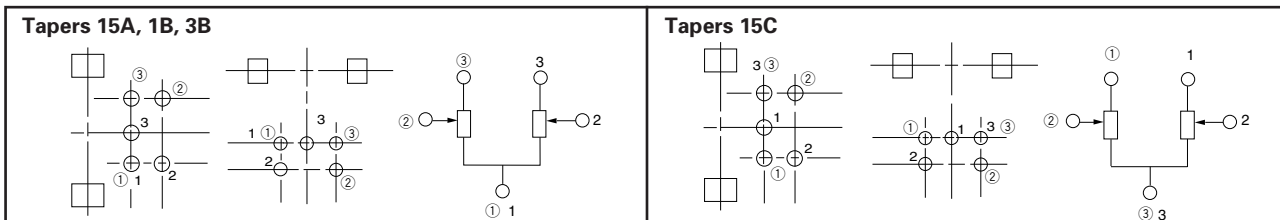
Single-shaft, dual-unit

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)								
9		<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>  <p>Shaft shown in full CCW position</p>	LM <sub>1</sub>	15	20	ℓ <sub>1</sub>	6	7			
LM <sub>1</sub>	15	20									
ℓ <sub>1</sub>	6	7									
10		<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>  <p>Shaft shown in full CCW position</p>	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		 <p>Shaft shown in full CCW position</p>									
12		<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>  <p>Shaft shown in full CCW position</p>	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



## Product Varieties

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

### Total Resistance Variety

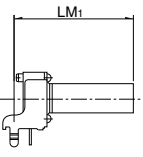
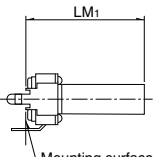
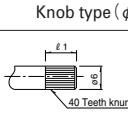
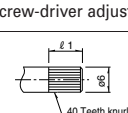
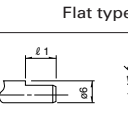
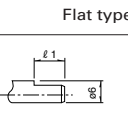
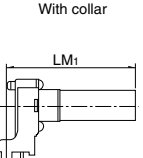
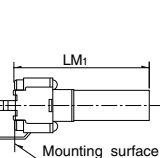
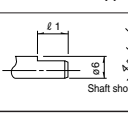
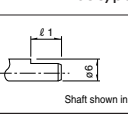
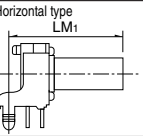
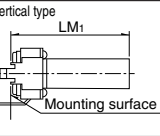
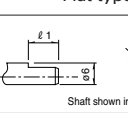
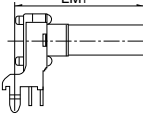
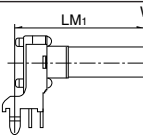
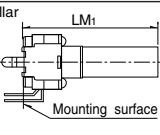
Total resistance (kΩ)	5	10	20	50	100	200
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### Resistance Taper

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 (φ6)	 <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									
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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
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### Notes

1.   marked are specifications recommended by ALPS.
2. RK09D117 is only for flat type of 20mm, 25mm, 30mm

Refer to P.389, 470 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



### 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.  
 \* For other horizontal type mount height requirements, please indicate separately.

### Shaft type

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

\* All RK09D types are only available in flat format.

### Length of the shaft (LM<sub>1</sub>) (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.  
 \* 9.5, 15 and 20 are the only available models in the driver shape.

### Detent

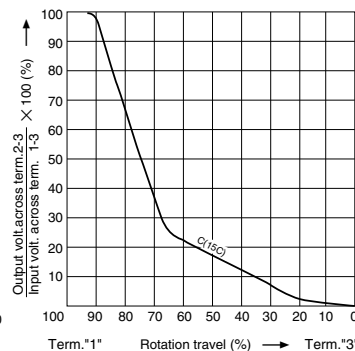
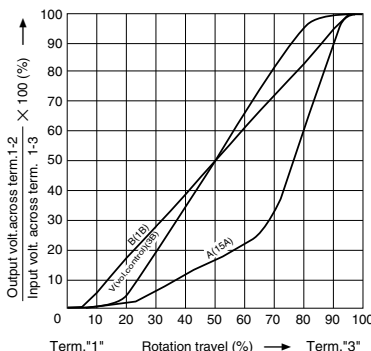
Code	Center detent
C0	Without
C1	With

### Resistance taper

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

B: For tone & general  
 V: For vol.

\* 1B is a recommended specification for single-unit.  
 \* 3B is a recommended specification for dual-unit.



### Total resistance

Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
502	5	503	50
103	10	104	100
203	20	204	200

### Notes

1. RK09D comes with a collar.
2. The recommended specification for RK09K does not include a collar. For collar requirements please indicate separately.
3.   marked are specifications recommended by ALPS.

Rotary Potentiometers  
Slide Potentiometers

Metal Shaft

Insulated Shaft

Knob Operating

Ring Type Devices

## List of Varieties

Items	Type	9mm Size Insulated Shaft Snap-in		11mm Size Insulated Shaft Snap-in	12mm Size Insulated Shaft Snap-in	14mm Size Insulated Shaft Snap-in	9mm Size Insulated shaft Long-life	12mm Size Insulated shaft Snap-in	
	Model	RK09K11□ RK09D11□	RK09K12□	RK11K11□	RK12L12□	RK14K12□	RK09Y11L	RK12L115	
		Single-unit	Dual-unit	Single-unit	Dual-unit		Single-unit		
Photo									
Bushing	Without		With/With out	Without	With/With out	Without	With		
Operating temperature range	-10°C to +70°C							-40°C to +85°C	
Automotive use								○	
Electrical performance	Total resistance tolerance	±20%	±30%	±20%			±30%	±20%	
	Maximum operating voltage	50V AC 20V DC	50V AC For AC only	50V AC 20V DC	50V AC For AC only		50V AC 5V DC	50V AC 20V DC	
	Insulation resistance	100MΩ min. 250V DC		100MΩ min. 500V DC	100MΩ min. 250V DC				
	Voltage proof	250V AC for 1minute		500V AC for 1minute	300V AC for 1minute		250V AC for 1minute	300V AC for 1minute	
	Gang error	—	-40dB to 0dB 3dB max.	—	Volume control -40dB to 0dB 3dB max. For tone control within 2dB at center		—		
Mechanical performance	Strength of the actuator	Stopper strength	0.3N·m		Without bushing 0.5N·m With bushing 0.6N·m	0.5N·m	0.6N·m	—	0.5N·m
		Push-pull strength	50N max.		80N max.		30N max.	80N 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						
	Resistance to soldering heat	Manual soldering	350°C max. 3s max.						
Dip Soldering		—		260°C max. 5s max.	—				
Environmental performance	Cold	-30±2°C for 96h					-30±2°C for 240h	-40±3°C for 96h	
	Dry heat	70±2°C for 96h			70±2°C for 240h	70±2°C for 96h	70±2°C for 240h	85±3°C for 96h	
	Damp heat	40±2°C, 90 to 95% RH for 96h					40±2°C, 90 to 95% RH for 240h	40±2°C, 90 to 95% RH for 96h	
Page	384		390	394	397	401	402		

● Insulated Shaft Potentiometers Cautions .....404, 405

### Note

○marks in "Available for automotive use" indicate that some of the series products can work at the operating temperature range from -40°C to +85°C.

Rotary Potentiometers  
Slide Potentiometers

Metal Shaft  
Insulated Shaft  
Knob Operating  
Ring Type Devices