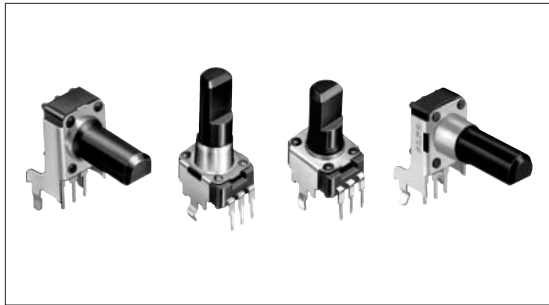


Insulated Shaft Potentiometer 9mm Size Snap-in Insulated Shaft Type

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.

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)

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Rotary Sensors
Linear Sensors

Metal Shaft

Insulated Shaft

Knob Operating

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	$280 \pm 5^\circ$, $300 \pm 5^\circ$ turning type is also available
	Dual-unit	$280 \pm 5^\circ$
Rotational torque		1 to $8\text{mN}\cdot\text{m}$
Operating life		5,000 cycles
Operating temperature range		-10°C to $+70^\circ\text{C}$

Insulated Shaft Potentiometer

9mm Size Snap-in Insulated Shaft Type | RK09K/RK09D Series

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±5°	Without	Flat	15	With	10	1B	100	2	
		RK09K1130AU2					5					
		RK09K1130A6S					10	15A				
		RK09K1130AJ3					20	Without				
		RK09K1130ACM					50					
		RK09K1130ACL					10					
		RK09K1130AAU			5							
		RK09K1130AH1			20	Knob	15	Without	10			1B
		RK09K1130BM4			25							
		RK09K1130A8G			30							
		RK09K1130A5R			15	Knob	20	With	10			7
		RK09K1130081			30							
		RK09K1130A70			15	Driver	15	Without	5			8
		RK09K1130AP5			20							
	RK09K1130AV7	15	Flat	15	Without	10	15A					
	RK09K1110A2S	20					1B					
	RK09K1110AK4	5										
	RK09K1110AH8	10										
	RK09K1110B1V	20					Knob	20	With	50	15A	
	RK09K1110A0J	10										
RK09K11100E9	15	Vertical type	300±5°	With	Flat	20	Without	10	1B	4		
RK09D1130C1B	25											
RK09D1130C2P	50											
RK09D1130A1L	30						With	10				
RK09D1130A1N	20											
RK09D1130C3W	25											
RK09D1130C3C	30											
RK09D113000F	25	Flat	25	Without	50	3						
RK09D1110C0R	50											
Dual-unit (Not applicable to DC)	Vertical type	RK09K12C0A19	280±5°	Without	Flat	15	Without	10	15A	10		
		RK09K12C0A2S						50				
		RK09K12C0A8G						20				
		RK09K12C0D0U						10				
		RK09K12C0A8K						15				
	Horizontal type H=6.5mm	RK09K12A0A2K	Without	20	With	50	9					
		RK09K12A0A6R										
		RK09K12A0B0W										

Note

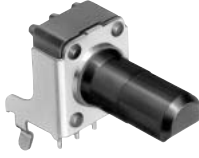
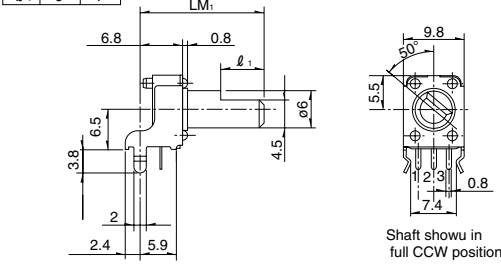
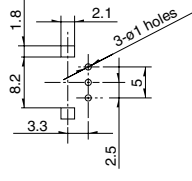

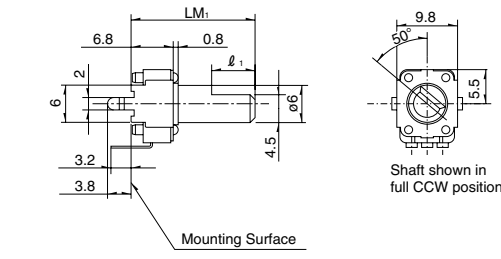
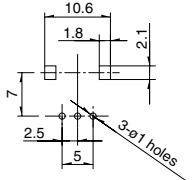
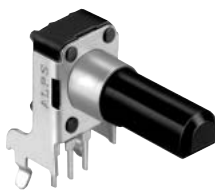
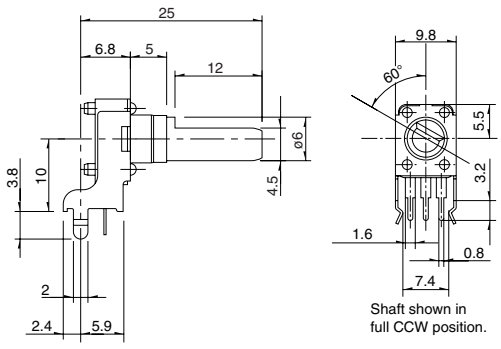
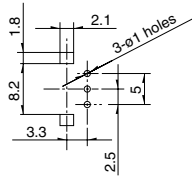

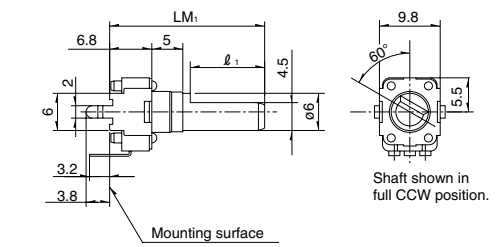
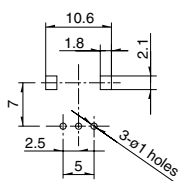
Additional product specifications in response to those not included in the above recommended products are also available.

For product varieties, see P.58
For products specifications, see P.72

■ Dimensions

Single-shaft, single-unit

Unit:mm

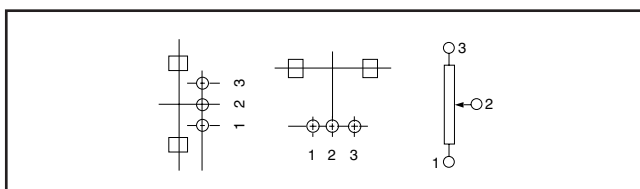
No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)										
1	<p>Horizontal type RK09K111</p> 	<table border="1" style="margin-bottom: 5px;"> <tr><td>LM₁</td><td>15</td><td>20</td></tr> <tr><td>ℓ₁</td><td>6</td><td>7</td></tr> </table>  <p style="font-size: small;">Shaft shown in full CCW position.</p>	LM ₁	15	20	ℓ ₁	6	7					
LM ₁	15	20											
ℓ ₁	6	7											
2	<p>Vertical type RK09K113</p> 	<table border="1" style="margin-bottom: 5px;"> <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>  <p style="font-size: small;">Mounting Surface Shaft shown in full CCW position.</p>	LM ₁	15	20	25	30	ℓ ₁	6	7	12	12	
LM ₁	15	20	25	30									
ℓ ₁	6	7	12	12									
3	<p>Horizontal type with collar RK09D111</p> 	 <p style="font-size: small;">Shaft shown in full CCW position.</p>											
4	<p>Vertical type with collar RK09D113</p> 	<table border="1" style="margin-bottom: 5px;"> <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>  <p style="font-size: small;">Mounting surface Shaft shown in full CCW position.</p>	LM ₁	20	25	30	ℓ ₁	7	12	12			
LM ₁	20	25	30										
ℓ ₁	7	12	12										

 Rotary Potentiometers
 Slide Potentiometers
 Multi Control Devices
 Rotary Sensors
 Linear Sensors

 Metal Shaft
 Insulated Shaft
 Knob Operating

■ Terminal Layout/Circuit Diagram

Single-unit



Insulated Shaft Potentiometer

9mm Size Snap-in Insulated Shaft Type | RK09K/RK09D Series

Dimensions

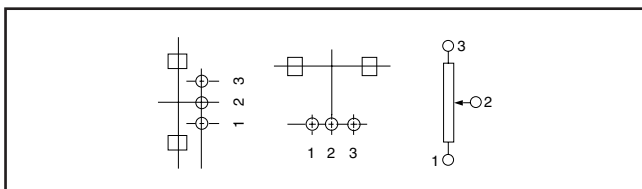
Single-shaft, single-unit

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)								
5											
6		<table border="1"> <tr> <td>LM₁</td> <td>15</td> <td>20</td> </tr> <tr> <td>ℓ₁</td> <td>6</td> <td>7</td> </tr> </table>	LM ₁	15	20	ℓ ₁	6	7			
LM ₁	15	20									
ℓ ₁	6	7									
7		<table border="1"> <tr> <td>LM₁</td> <td>15</td> <td>20</td> <td>30</td> </tr> <tr> <td>ℓ₁</td> <td>6</td> <td>7</td> <td>7</td> </tr> </table>	LM ₁	15	20	30	ℓ ₁	6	7	7	
LM ₁	15	20	30								
ℓ ₁	6	7	7								
8		<table border="1"> <tr> <td>LM₁</td> <td>15</td> <td>20</td> </tr> <tr> <td>ℓ₁</td> <td>6</td> <td>7</td> </tr> </table>	LM ₁	15	20	ℓ ₁	6	7			
LM ₁	15	20									
ℓ ₁	6	7									

Terminal Layout/Circuit Diagram


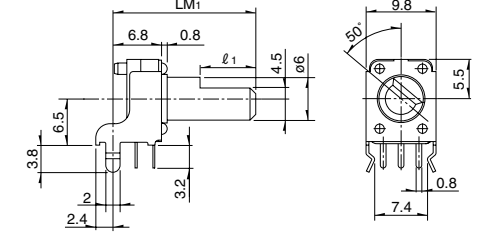
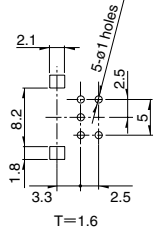

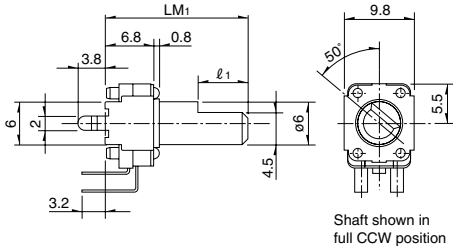
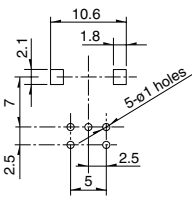
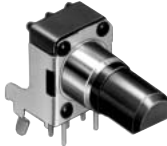
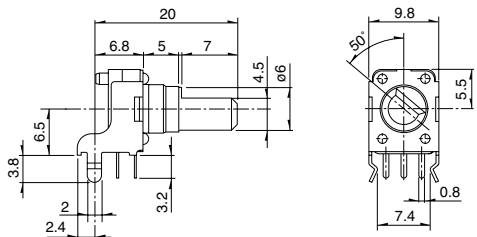
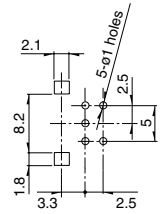

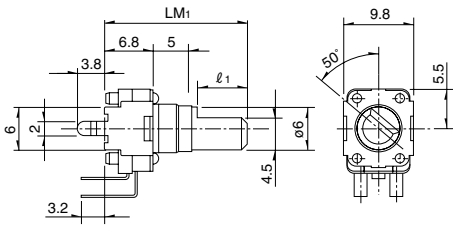
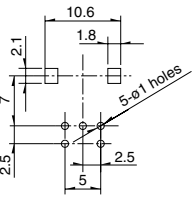
Single-unit



■ Dimensions

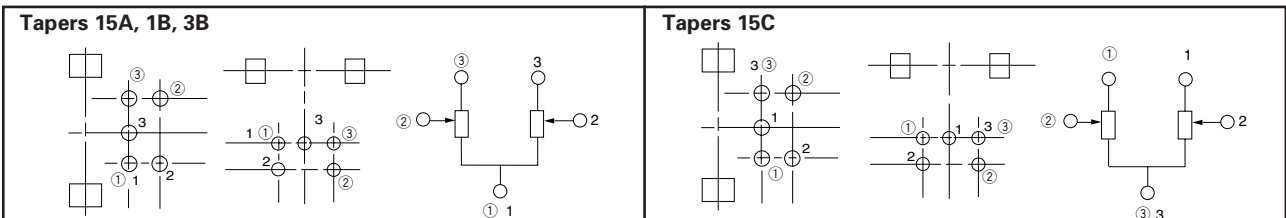
Single-shaft, dual-unit

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)								
9	Horizontal type RK09K12A 	<table border="1" style="margin-bottom: 10px;"> <tr><td>LM₁</td><td>15</td><td>20</td></tr> <tr><td>ℓ₁</td><td>6</td><td>7</td></tr> </table>  <p style="font-size: small;">Shaft shown in full CCW position</p>	LM ₁	15	20	ℓ ₁	6	7			
LM ₁	15	20									
ℓ ₁	6	7									
10	Vertical type RK09K12C 	<table border="1" style="margin-bottom: 10px;"> <tr><td>LM₁</td><td>15</td><td>20</td><td>30</td></tr> <tr><td>ℓ₁</td><td>6</td><td>7</td><td>12</td></tr> </table>  <p style="font-size: small;">Shaft shown in full CCW position</p>	LM ₁	15	20	30	ℓ ₁	6	7	12	
LM ₁	15	20	30								
ℓ ₁	6	7	12								
11	Horizontal type with collar RK09K12A 	 <p style="font-size: small;">Shaft shown in full CCW position</p>									
12	Vertical type with collar RK09K12C 	<table border="1" style="margin-bottom: 10px;"> <tr><td>LM₁</td><td>25</td><td>30</td></tr> <tr><td>ℓ₁</td><td>12</td><td>12</td></tr> </table>  <p style="font-size: small;">Shaft shown in full CCW position</p>	LM ₁	25	30	ℓ ₁	12	12			
LM ₁	25	30									
ℓ ₁	12	12									

■ Terminal Layout/Circuit Diagram

Dual-unit



Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Rotary Sensors
Linear Sensors

Metal Shaft

Insulated Shaft

Knob Operating

Product Varieties

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

Total Resistance Variety

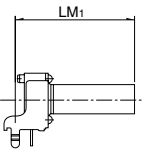
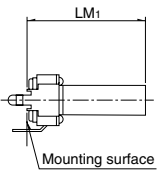
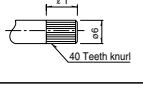
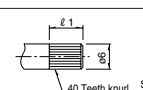
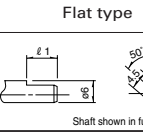
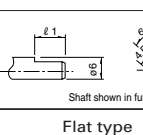
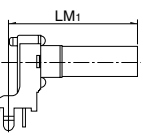
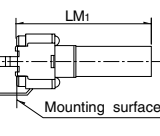
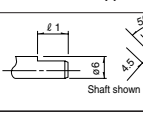
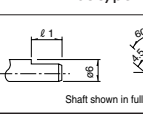
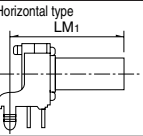
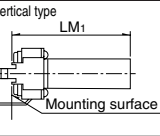
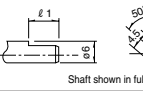
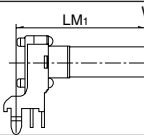
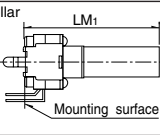
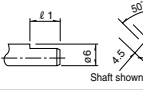
Total resistance (kΩ)	5	10	20	50	100	200
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Resistance Taper

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 ($\phi 6$) 	<table border="1"> <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>7</td> <td>7</td> </tr> </table>	LM ₁	15	20	25	30	ℓ ₁	6	7	7	7	Black
		LM ₁	15	20	25	30								
		ℓ ₁	6	7	7	7								
		Screw-driver adjustment type 	<table border="1"> <tr> <td>LM₁</td> <td>9.5</td> <td>15</td> <td>20</td> <td></td> </tr> <tr> <td>ℓ₁</td> <td>—</td> <td>6</td> <td>7</td> <td></td> </tr> </table>	LM ₁	9.5	15	20		ℓ ₁	—	6	7		
	LM ₁	9.5	15	20										
	ℓ ₁	—	6	7										
	Flat type 	<table border="1"> <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>	LM ₁	15	20	25	30	ℓ ₁	6	7	12	12		
	LM ₁	15	20	25	30									
ℓ ₁	6	7	12	12										
Flat type 	<table border="1"> <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>	LM ₁	15	20	25	30	ℓ ₁	6	7	12	12			
LM ₁	15	20	25	30										
ℓ ₁	6	7	12	12										
With collar  	Flat type 	<table border="1"> <tr> <td>LM₁</td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ₁</td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM ₁	20	25	30		ℓ ₁	7	12	12		Black	
	LM ₁	20	25	30										
	ℓ ₁	7	12	12										
	Flat type 	<table border="1"> <tr> <td>LM₁</td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ₁</td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM ₁	20	25	30		ℓ ₁	7	12	12		Gray (20,25) Black (30)	
LM ₁	20	25	30											
ℓ ₁	7	12	12											
Horizontal type  Vertical type 	Flat type 	<table border="1"> <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>	LM ₁	15	20	25	30	ℓ ₁	6	7	12	12	Black	
	LM ₁	15	20	25	30									
ℓ ₁	6	7	12	12										
With collar  	Flat type 	<table border="1"> <tr> <td>LM₁</td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> <tr> <td>ℓ₁</td> <td>7</td> <td>12</td> <td>12</td> <td></td> </tr> </table>	LM ₁	20	25	30		ℓ ₁	7	12	12			
LM ₁	20	25	30											
ℓ ₁	7	12	12											

Note

Shows the specification recommended by us.

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 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.
 * 9.5, 15 and 20 are the only available models in the driver shape.

Detent

Code	Center detent
C0	Without
C1	With

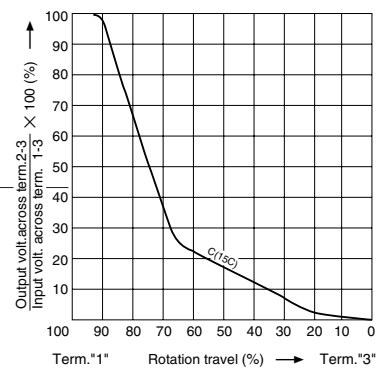
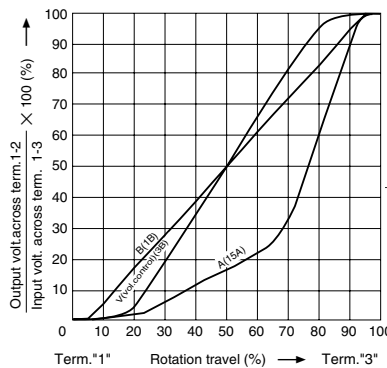
Resistance taper

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

B: For tone & general
 V: For vol.

Total resistance

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



Notes

1. RK09D comes with a collar.
2. The recommended specification for RK09K does not include a collar. Please specify if you need a collar.

Rotary Potentiometers

Slide Potentiometers

Multi Control Devices

Rotary Sensors
Linear Sensors

Metal Shaft

Insulated Shaft

Knob Operating

Products Specifications

Type		9mm Size Insulated Shaft Snap-in		9mm Size Insulated shaft Long-life	11mm Size Insulated Shaft Snap-in	12mm/14mm Size Insulated Shaft Snap-in	
		RK09K11□ RK09D11□	RK09K12□	RK09Y11L	RK11K11□	RK12L12□ RK14K12□	
Items		Single-unit	Dual-unit	Single-unit	Single-unit	Dual-unit	
Operating temperature range		-10°C to +70°C					
Electrical performance	Total resistance tolerance	±20%	±30%		±20%		
	Rated power	0.05W	0.03W	0.01W	0.05W		
	Maximum operating voltage	50V AC 20V DC	50V AC For AC only	50VDL	50V AC 20V DC	50V AC For AC only	
	Insulation resistance	100MΩ min. 250V DC			100MΩ min. 500V DC	100MΩ min. 250V DC	
	Voltage proof	1 minute 250V AC			1 minute 500V AC	1 minute 300V AC	
	Gang error	—	-40dB to 0dB within 3dB	—		Volume control -40dB to 0dB max. 3dB For tone control within 2dB at center	
Mechanical performance	Total rotational angle		280±5° RK09D11□ : 300±5°	300±5°			
	Rotational torque		1 to 8mN·m	5mN·m max	3 to 20mN·m		
	Strength of the operating section	Stopper strength	0.3N·m	150mN·m	Without bushing 0.5N·m With bushing 0.6N·m	14mm 0.6N·m 12mm 0.5N·m	
		Push-pull strength	50N 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				
	Solder heat resistance	Manual soldering	350°C max. 3s max.				
Endurance	Operating life	5,000 cycles	1,000,000 cycles	15,000 cycles			
Environmental test	Cold	-10°C for 96h					

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