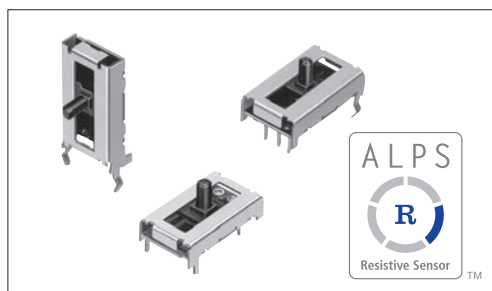


Exclusive for headlight angle detection with high accuracy and space-saving design



Typical Specifications



Items	Specifications
Rated Voltage	12V DC
Operating life	2N max.
Total resistance	100,000 cycles
Operating temperature range	-40°C to +105°C

Product Line

Travel (mm)	Mounting method	Total resistance (k Ω)	Linearity	Minimum order unit (pcs.)		Model No.	Drawing No.
				Japan	Export		
8	Vertical type	4.7	±1%	2,000	4,000	RD708A029A	1
	Horizontal type	5		1,500	3,000	RD7081015A	2
9				1,800	3,600	RD7091008A	3
12				Vertical type	2.2	2,000	4,000
	Horizontal type	10		1,800	3,600	RD7121008A	4

Note

For linearity, various specifications will be available, depending on the applications. Please consult with us when placing your orders.

Packing Specifications

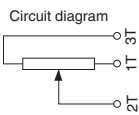
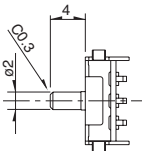
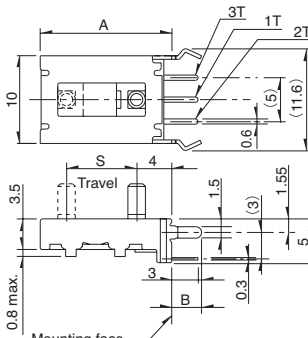
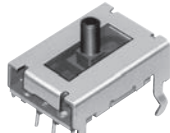
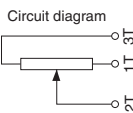
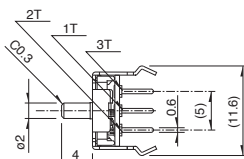
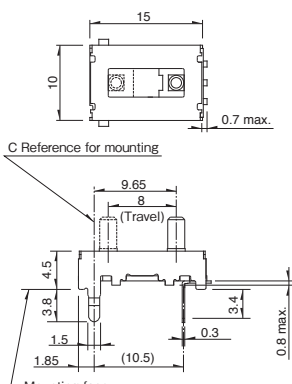
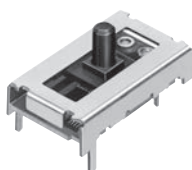
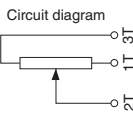
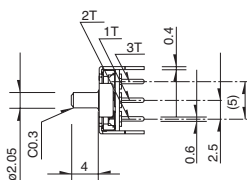
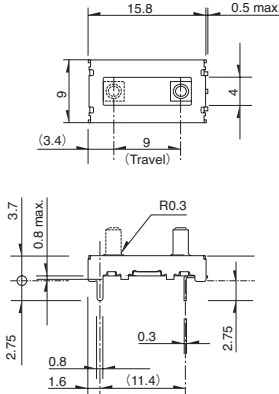
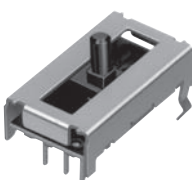
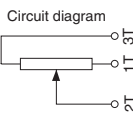
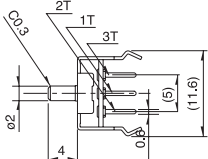
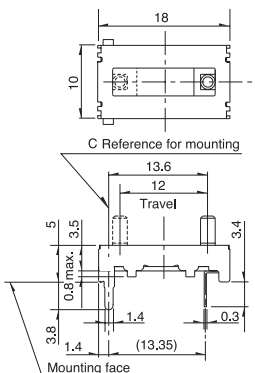
Tray

Model No.	Mounting method	Number of packages (pcs.)		Export package measurements (mm)
		1 case /Japan	1 case /export packing	
RD708	Vertical	2,000	4,000	363×527×215
	Horizontal	1,500	3,000	363×507×216
RD709		1,800	3,600	364×508×192
RD712	Vertical	2,000	4,000	363×527×215
	Horizontal	1,800	3,600	363×507×216

Refer to P.477 for product specifications.
Refer to P.478 for soldering conditions.

■ Dimensions

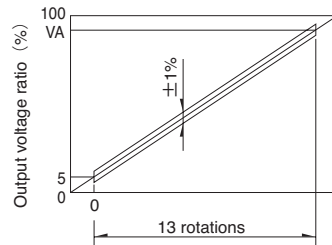
Unit:mm

No.	Photo	Style												
1	RD708A RD712A 	<table><tr><th>Dimension Model</th><th>S</th><th>A</th><th>B</th></tr><tr><td>RD708A</td><td>8</td><td>15</td><td>3.4</td></tr><tr><td>RD712A</td><td>12</td><td>19</td><td>3.8</td></tr></table>	Dimension Model	S	A	B	RD708A	8	15	3.4	RD712A	12	19	3.8
Dimension Model	S	A	B											
RD708A	8	15	3.4											
RD712A	12	19	3.8											
2	RD7081 													
3	RD7091 													
4	RD7121 													

Method for Regulating the Linearity

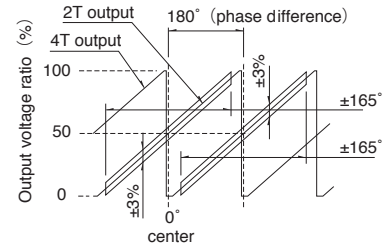
Model RDC40

1. Reference taper : 90%/13rotations
2. VA is measured output value



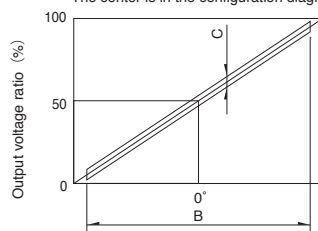
Model RDC80

1. Reference taper : 100%/340°
2. The center is in the configuration diagram condition



Model RDC50 / RDC90 / RD6R1A / RDCC0

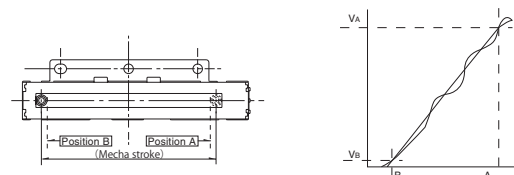
1. Reference taper : 100%/A
 2. Index point is 50% output point(RDC50/RDC90/RDCC0)
- The center is in the configuration diagram condition



Series	A	B	C
RDC50	333.3°	±160°	±2%
RDC90	80°	±30°	±3%
	260°	±122°	
RD6R1A	320°	±155°	±2%
RDCC0	30°	±15°	±2%

Model RDC10 / RD7

With rated voltage applied between terminals 1 and 3, the straight line which connects the measured output values VB and VA at specified reference positions B and A is assumed to be an ideal straight line, so that deviation against the ideal straight line when the voltage applied between terminals 1 and 3 is assumed to be 100% can be expressed as a percentage.



Resistive Position Sensors / Measurement and Test Methods

Resistive Position Sensor

[Total Resistance]

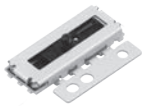
The total resistance, with the shaft (lever) placed at the end of terminal 1 or 3, shall be determined by measuring the resistance between the resistor terminals 1 and 3 unless otherwise specified.

[Rating Voltage]

The rating voltage corresponding to the rated power shall be determined by the following equation. When the resulting rated voltage exceeds the maximum operating voltage of a specific resistor, the maximum operating voltage shall be taken as the rated voltage.

$$E = \sqrt{P \cdot R}$$

E : Rated voltage (V)
P : Rated power (W)
R : Total nominal resistance (Ω)

Type	Linear Type			
Series	RDC1010	RDC10	※ RD7	
Photo	 		 	
Direction of lever	Vertical		Vertical	Horizontal
Effective electrical angle (°)	—	—	—	
Linearity guarantee range (°)	—	—	—	
Travel	10mm	14mm 22mm 32mm 47mm	8mm 12mm	8mm 9mm 12mm
Operating temperature range	−30°C to +85°C		−40°C to +105°C	
Operating life	50,000 cycles	200,000 cycles	100,000 cycles	
Available for automotive use	—	●	●	
Life cycle (availability)				
Mechanical performance	Operating force	0.25N max.		2N max.
	Rotational torque	—	—	—
Electrical performance	Total resistance tolerance	±30%		±20%
	Linearity (%)	±0.5		±1
	Rated voltage (V DC)	5		12
Environmental performance	Cold	−40°C 240h		−40°C 96h
	Dry heat	80°C 240h	90°C 240h	105°C 96h
	Damp heat	60°C, 90 to 95%RH 240h		40°C, 90 to 95%RH 96h
Terminal style	Insertion	Lead terminal/Insertion		Insertion
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Resistive Position Sensors Soldering Conditions	478
Resistive Position Sensors Cautions	479

Notes

1. ※ The RD7 series are used to detect vehicle headlight angles.
2. ● Indicates applicability to all products in the series.

Reference for Manual Soldering

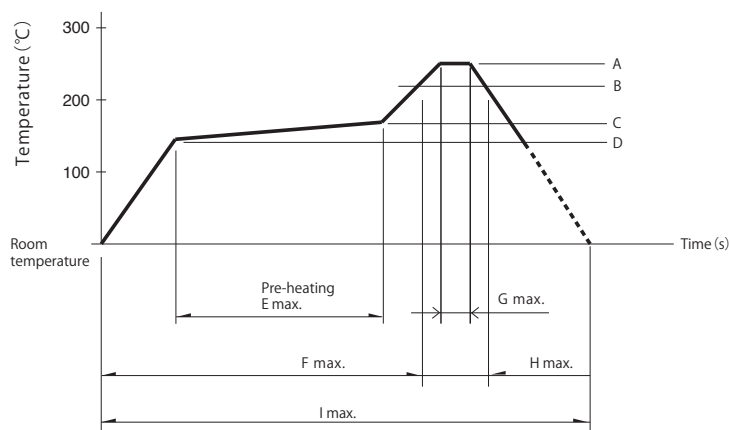
Series	Tip temperature	Soldering time
RDC50, RDC90, RDC80	350±5°C	3 ⁺¹ ₀ s
RDC10, RD7	350°C max.	3s max.

Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
RDC501, RDC502	100 to 150°C	1minute max.	260±5°C	10±1s	1 time
RD7	100°C max.	1minute max.	260°C max.	5s max.	1 time

Example of Reflow Soldering Condition

1. Cleaning Cleaning should not be attempted.
2. Type of solder to be used Use cream solder that contains 10 to 15 %wt flux.
3. Number of solder applications - apply solder only once
4. Recommended reflow conditions



Series	A	B	C	D	E	F	G	H	I	No. of reflows
RDC503 RDC506	250°C	230°C	180°C	150°C	2min.	—	5s	40s	4min.	1 time
RDC90	255°C	230°C	—	—	—	2min.	10s	1min.	4min.	1 time
RDC80	250°C	—	180°C	150°C	90±30s	—	10±1s	—	—	1 time

Notes

1. When using an infrared reflow oven, solder may not always be applied as intended.
Be sure to use a hot air reflow oven or a type that uses infrared rays in combination with hot air.
2. The temperatures given above are the maximum temperatures at the terminals of the sensor when employing a hot air reflow method. The temperature of the PC board and the surface temperature of the sensor may vary greatly depending on the PC board material, its size and thickness. Ensure that the surface temperature of the sensor 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.