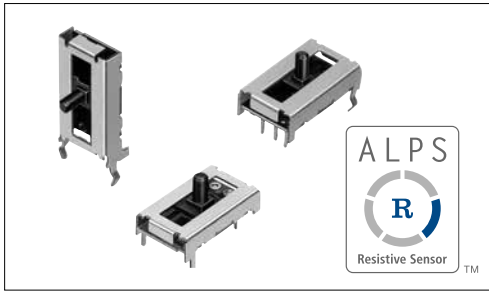


Exclusive for headlight angle detection with high accuracy and space-saving design



### 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	<b>RD708A029A</b>	1
	Horizontal type	5		1,500	3,000	<b>RD7081015A</b>	2
9				Horizontal type	1,800	3,600	<b>RD7091008A</b>
12	Vertical type	2.2		2,000	4,000	<b>RD712A028A</b>	1
	Horizontal type	10		1,800	3,600	<b>RD7121008A</b>	4

### Note

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

### Packing Specifications

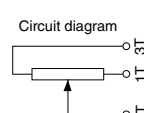

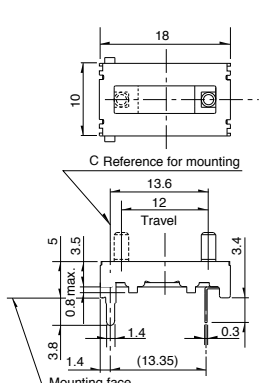
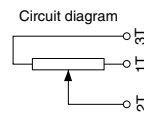

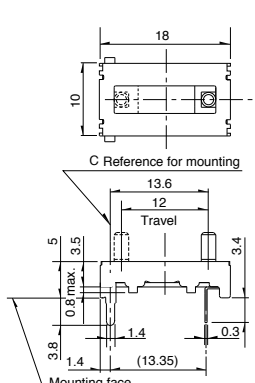
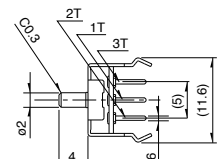
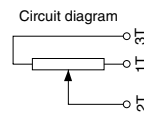
Tray

Model No.	Mounting method	Number of packages (pcs.)		Export package measurements (mm)
		1 case /Japan	1 case /export packing	
<b>RD708</b>	Vertical	2,000	4,000	527×363×215
	Horizontal	1,500	3,000	507×363×216
<b>RD709</b>		Horizontal	1,800	3,600
<b>RD712</b>	Vertical	2,000	4,000	527×363×118
	Horizontal	1,800	3,600	507×363×216

Refer to P.466 for product specifications.  
Refer to P.467 for soldering conditions.

■ Dimensions









Unit:mm

No.	Photo	Style												
1	<p><b>RD708A</b> <b>RD712A</b></p> 	   <table border="1" data-bbox="1085 582 1404 705"> <thead> <tr> <th>Dimension Model</th> <th>S</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <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> </tbody> </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	<p><b>RD7081</b></p> 	  												
3	<p><b>RD7091</b></p> 	  												
4	<p><b>RD7121</b></p> 	  												

Resistive  
Position Sensors

Rotary Type

Linear Type

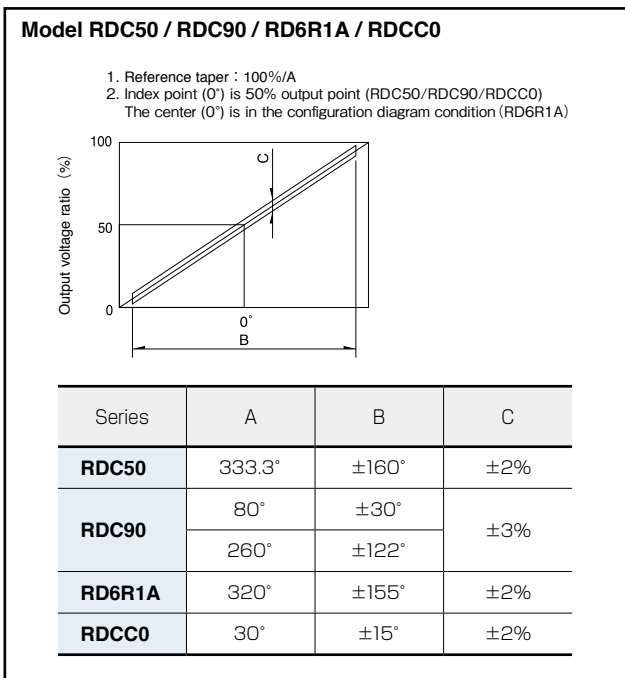
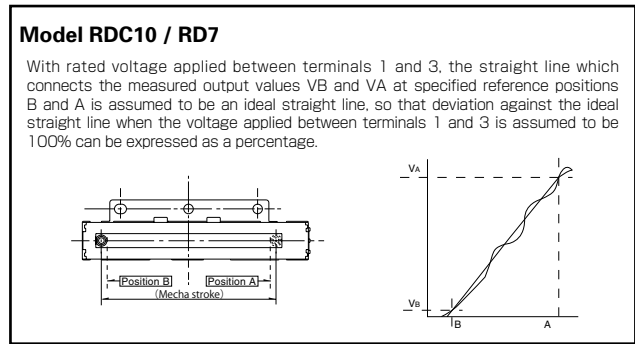
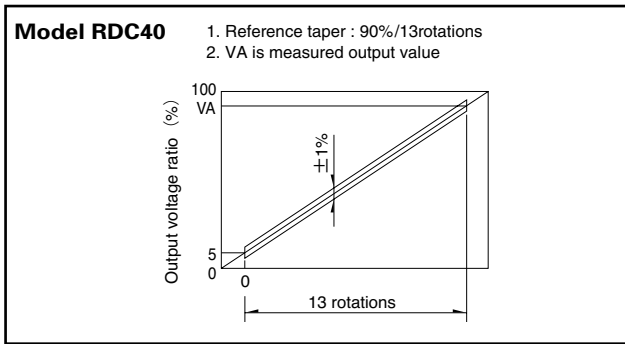
Type	Magnetic Rotary Type	Linear Type			
Series	<b>RDCC0</b>	<b>RDC1010</b>	<b>RDC10</b>	<b>※ RD7</b>	
Photo					
Direction of lever	Vertical			Vertical   Horizontal	
Effective electrical angle (°)	30	—	—	—	
Linearity guarantee range (°)	±15	—	—	—	
Travel	—	10mm	14mm 22mm 32mm 47mm	8mm 12mm   8mm 9mm 12mm	
Operating temperature range	0°C to +50°C	-30°C to +85°C		-40°C to +105°C	
Operating life	10,000,000 cycles	50,000 cycles	200,000 cycles	100,000 cycles	
Available for automotive use	—	—	●	●	
Life cycle (availability)					
Mechanical performance	Operating force	—	0.25N max.		
	Rotational torque	5mN·m max.	—	—	
Electrical performance	Total resistance tolerance	—	±30%		
	Linearity (%)	±2	±0.5		
	Rated voltage (V DC)	5			12
Environmental performance	Cold	-40°C 240h			-40°C 96h
	Dry heat	85°C 240h	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	Connector	Insertion	Lead terminal/Insertion	Insertion	
Page	460	461		464	

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Resistive Position Sensors Soldering Conditions	467
Resistive Position Sensors Cautions	468

**Notes**

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

## Method for Regulating the Linearity



## 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)

## Reference for Manual Soldering

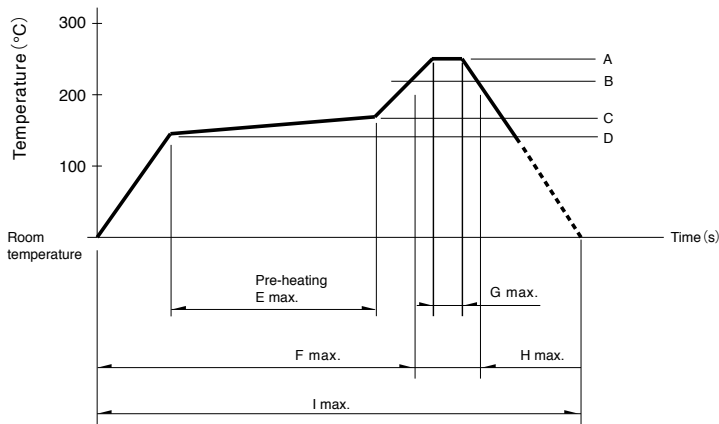
Series	Tip temperature	Soldering time
<b>RDC50, RDC90</b>	350±5°C	3 <sup>+1</sup> <sub>0</sub> s
<b>RDC10, RD7</b>	350°C max.	3s max.

## Reference for Dip Soldering

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

## Example of Reflow Soldering Condition

1. Cleaning sensors 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
<b>RDC503 RDC506</b>	250°C	230°C	180°C	150°C	2min.	—	5s	40s	4min.	1 time
<b>RDC90</b>	255°C	230°C	—	—	—	2min.	10s	1min.	4min.	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.