

Part number **RDC506A03A** Rotary Type RDC50 Series

 **Standard** 

## Basic information



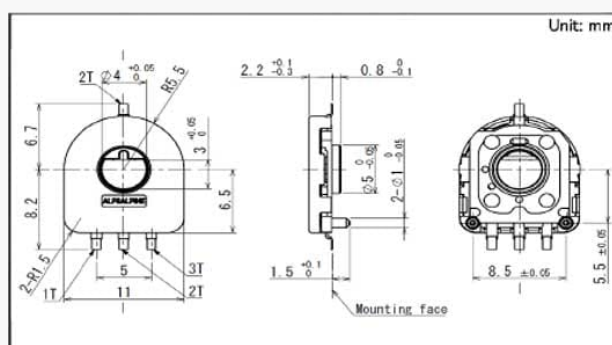
+ ZOOM

Control part orientation	Vertical
Mounting method	Reflow (Low-profile, Long-life, Without case hole)
Total resistance	10kΩ
Effective electrical range	333.3°
Linearity guarantee range	320°
Linearity	±2%
Hollow shaft variation	φ4
Operating life	2,000,000 cycles
Rated voltage	5V DC
Dimensions	11.0×12.0×2.2mm

## Specifications

Operating temperature range		-40°C to +120°C
Mechanical performance	Rotational torque	2mN·m max.
Electrical performance	Total resistance tolerance	±30%
	Rated voltage	5V DC
Environmental test	Cold	-40°C 168h
	Dry heat	120°C 168h
	Damp heat	60°C, 90 to 95%RH 96h
Minimum order unit(pcs.)	Japan	3,600
	Export	3,600

## Dimensions

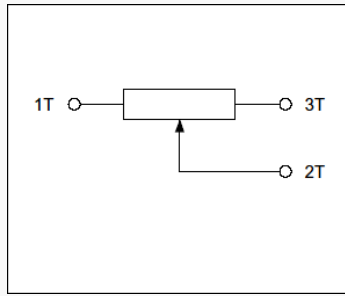


 [Open an expandable image in a separate window](#)

## Land Dimensions

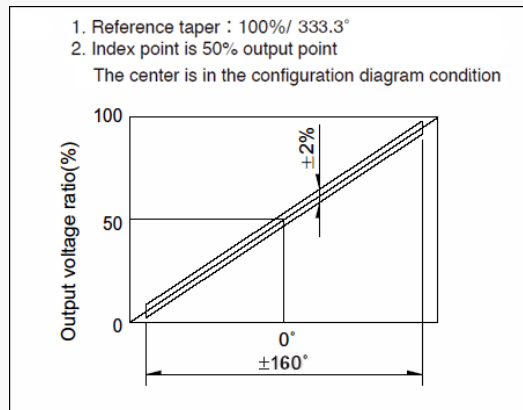
Viewed from mounting side

### Circuit Diagram



[Open an expandable image in a separate window](#)

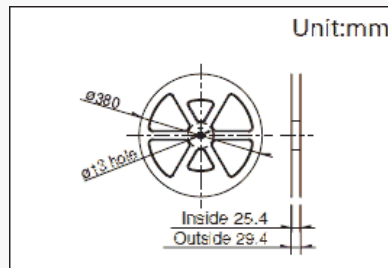
## Linearity



[Open an expandable image in a separate window](#)

## Packing Specifications

### Taping



#### Number of packages (pcs.)

1 reel	1,200
1 case / Japan	3,600
1 case / export packing	3,600

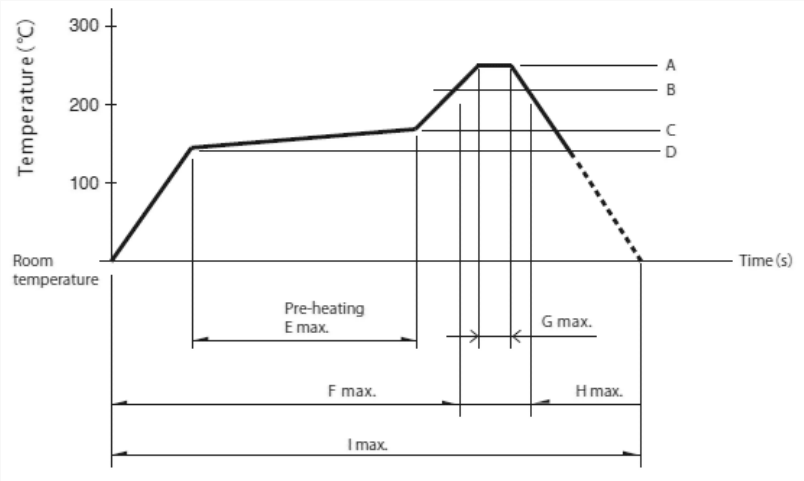
#### Export package measurements (mm)

415×407×135

## Soldering Conditions

### 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



A	B	C	D	E	F	G	H	I	No. of reflows
250°C	230°C	180°C	150°C	2 min.	-	5s	40s	4 min.	1 time

- (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.

Reference for Hand Soldering

Tip temperature
350±5°C
Soldering time
3(+1, 0)s

Notes are common to this series/models

1. This site catalog shows only outline specifications. When using the products, please obtain formal specifications for supply.
2. Place your purchase order in N minimum package units (N: integer).
3. For reflow type, 1-reel is the minimum packing unit. Please see taping specifications.
4. Ask us for the export packaging unit.
5. Products other than those listed in above products are also available. Please contact us for details.
6. This products can be used in vehicles.  
Although these products are designed to perform over a wide operating temperature range, please ensure that you receive and read the formal delivery specifications before use.

Cautions

Use of Chemicals

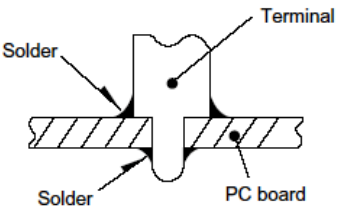
The sensors make use of synthetic resins, therefore avoid use in environments where there is a strong presence of gases from chemicals such as ammonia, amines, alkaline aqueous solutions, aromatic hydrocarbons, ketones, esters and halogenated hydrocarbons.

Measures to Deal with Noise Problems

While data is being received from the sensor, on rare occasions, penetrating external noise may cause interference with the outputs. To minimize the probability of this phenomenon pay attention to the following when you program the relevant software: receiving of data should always be repeated a number of times to ensure that you obtain a mean value. Have the system determine when/how to invalidate any data received in error. When doubt occurs let the system receive the subject data again and reconfirm that you have eliminated the anomaly.

Soldering

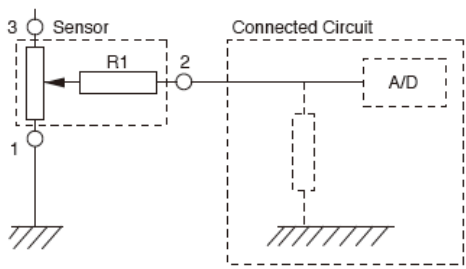
Avoid wiring and soldering that causes the solder to seep through to the top of the PC board (as illustrated). This can lead to a contact failure in the terminal section. If solder seepage is unavoidable, please consult with us.



Analog Output Contact Type

Connection Impedance

Resistive position sensors are constructed in a way that contact resistance (R1 below) occurs within the sensor. To reduce the effect of contact resistance (R1), set the impedance within the circuit connected to the output terminal to greater than 1MΩ.



Dew Condensation

Avoid using the sensor where dew or water vapor might be caused to condense on the surface of the resistor - deterioration of insulation or shorting may occur.

Measurement and Test Methods

Resistive Position Sensor

Total Resistance

Unless otherwise specified, total resistance is the resistance measured between resistor terminals 1 and 3.

Rated Voltage

The rated 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)