

# RD

## ROTARY CODED SWITCHES

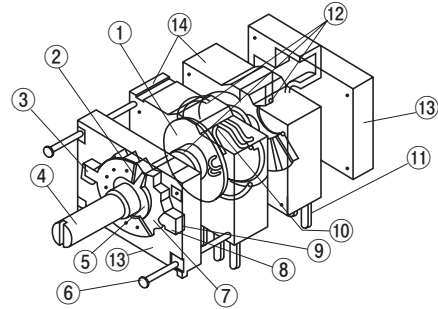
RoHS compliant



### FEATURES

- RoHS compliant
- P.C.B. mounted, compact size and DIP compatible
- Protection by “O” ring (contact block) against dust and washable after soldering
- Precious metal alloy wiping type contacts provide a long life (50000 revolutions at no load) and high reliability (In house comparison)

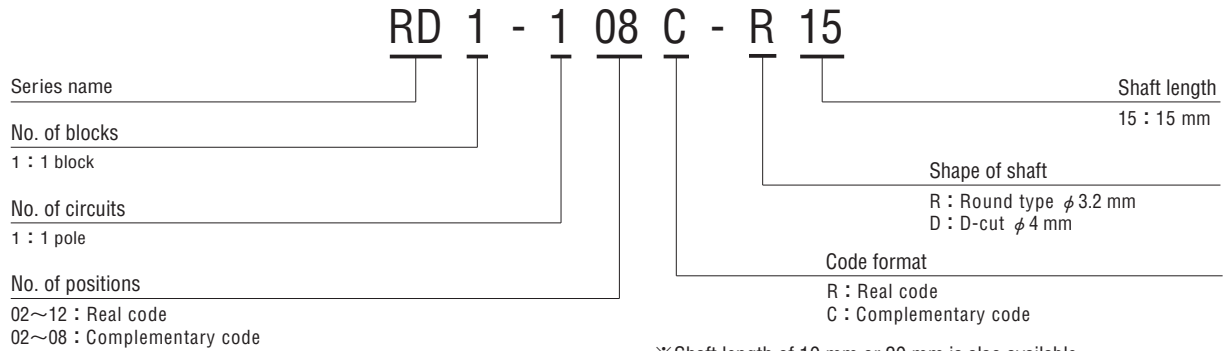
### INTERNAL STRUCTURE



	Part name	Material	Flammability
①	Rotor	POM(Polyoxymethylene)	UL-94HB
②	Stopper pin	Copper alloy	—
③	Stopper pin holder		
④	Shaft		
⑤	Stopper ring	Nickel-plated	UL-94HB
⑥	Linking pin	Copper alloy, Nickel-plated	
⑦	Click gear	PA (Polyamide)	
⑧	Click plate	POM (Polyoxymethylene)	—
⑨	Click spring	SWPA (Piano wire)	
⑩	Contact spring	Multi metal alloy	
⑪	Terminal pin	Copper alloy, Gold-plated	UL-94HB
⑫	“O” ring	Silicone rubber	
⑬	Cover	PBT(Polybutyleneterephthalate)	
⑭	Housing		

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### ■ PART NUMBER DESIGNATION



### ■ LIST OF PART NUMBERS

No. of circuits	Code	No. of positions											
		02	03	04	05	06	07	08	09	10	11	12	
1	Real code	RD1-102R	RD1-103R	RD1-104R	RD1-105R	RD1-106R	RD1-107R	RD1-108R	RD1-109R	RD1-110R	RD1-111R	RD1-112R	
	Complementary code	RD1-102C	RD1-103C	RD1-104C	RD1-105C	RD1-106C	RD1-107C	RD1-108C					

- ☐: Not manufactured  
 ※ Verify the above part numbers when placing orders.  
 ※ The above part numbers are all available with a round or D-cut shaft.

### ■ CODE FORMAT

No. of positions		1	2	3	4	5	6	7	8	9	10	11	12	
Binary code		0	1	2	3	4	5	6	7	8	9	A	B	
Code	Real code	8								●	●	●	●	
		4					●	●	●	●				
		2			●	●			●	●			●	●
		1		●		●		●		●		●		●
	Complementary code	$\overline{4}$	●	●	●	●								
		$\overline{2}$	●	●			●	●						
$\overline{1}$		●		●		●		●						

● ... Contact closed

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### STANDARD SPECIFICATIONS

Circuit type	Binary code
Operating temperature range	-40 ~ 85 °C
Storage temperature range	
Sealing	Washable (only contact block, "O" ring sealed)
Net weight	Approx. 7 g

### ELECTRICAL CHARACTERISTICS

Contact rating	1 VA
Maximum current	1 A
Minimum current	1 μA
Maximum voltage	30 V
Minimum voltage	20 mV
Contact resistance	100 mΩ maximum
Insulation resistance	1000 MΩ (DC500 V) minimum
Dielectric strength	AC500 V, 60 s
Electrostatic capacity	4 pF maximum, 10 kHz

### MECHANICAL CHARACTERISTICS

No. of positions	Real code: 12 maximum Complementary code: Below 8 maximum
Adjustment torque	60 ± 30 mN·m {612 ± 306 gf·cm}
Stepping angle	30°
Terminal strength	10 N {1.02 kgf} minimum
Solderability	245 ± 3 °C, 2 ~ 3 s
Soldering heat	Flow : 260 ± 3 °C as the temperature in a pot of molten solder, immersion from head of terminal to backside of board, 5 ~ 6 s, two times maximum
	Manual soldering : 380 ± 10 °C, 3 ~ 4 s

{ } : Reference only

### ENVIRONMENTAL CHARACTERISTICS

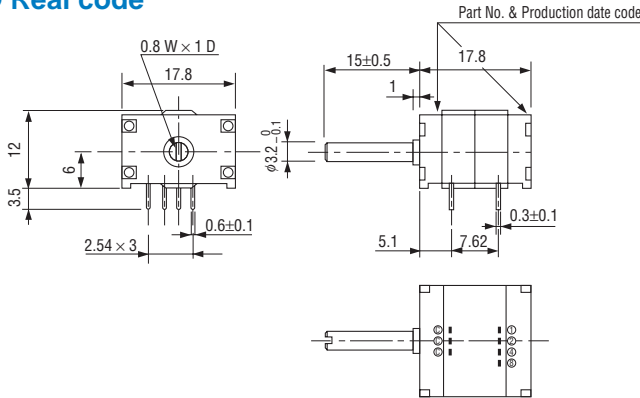
Vibration	Amplitude 3 mm or Acceleration 196 m/s <sup>2</sup> , 10-2000-10 Hz, 3 directions for 4 h each
Shock	980 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each
Load life	500,000 steps or 50,000 cycles at 6 positions with no load 200,000 steps or 20,000 cycles at 6 positions with rated load
Humidity (Steady state)	40 °C, Relative humidity 90 ~ 95 %, 240 h
High temperature exposure	85 °C, 16 h
Low temperature exposure	-40 °C, 16 h

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### OUTLINE DIMENSIONS

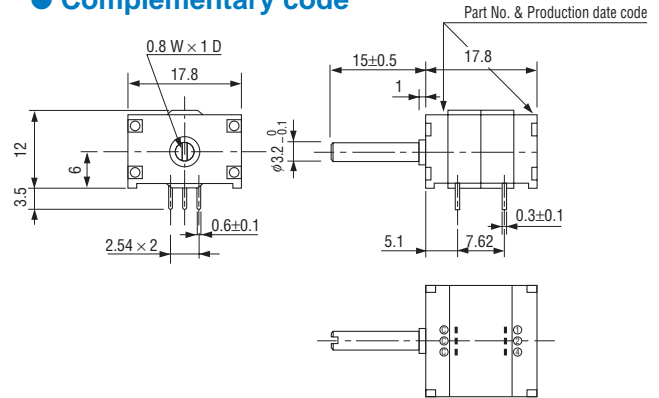
Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)

#### ● Real code



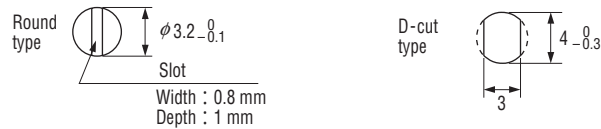
The above shows when a shaft is fully turned to CCW direction.

#### ● Complementary code



The above shows when a shaft is fully turned to CCW direction.

#### Diameter of shaft (A)



### TERMINAL CONNECTION / P.C.B. THROUGH HOLE DIMENSIONS

(Unit: mm)

	Real code	Complementary code
Terminal pin layout (Bottom view)		
P.C.B. dimensions (Bottom view)		

### PACKAGING SPECIFICATIONS

- Boxing is performed with 20 pcs. per box.

Note: The conventional knob (Round shaft,  $\phi 3.2$  mm) available in the market such as the one in the picture can be used.



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