

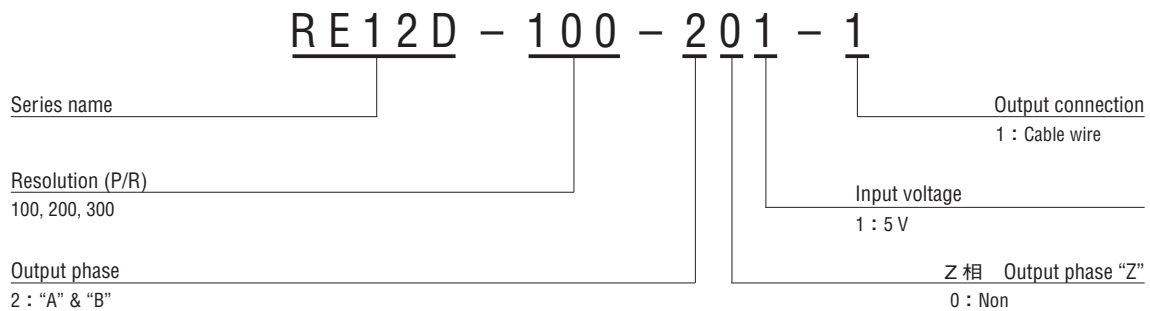
## FEATURES

- $\phi$ 12 mm, 2 phases square wave
- High resolution 100 to 300 P/R
- Low torque, low inertia
- Cost effective
- RoHS compliant

RoHS compliant



## PART NUMBER DESIGNATION



## LIST OF PART NUMBERS

| Resolution | Item | Part number     |
|------------|------|-----------------|
| 100 (P/R)  |      | RE12D-100-201-1 |
| 200 (P/R)  |      | RE12D-200-201-1 |
| 300 (P/R)  |      | RE12D-300-201-1 |

※ Verify the above part numbers when placing orders.

## MECHANICAL CHARACTERISTICS

|                                  |                               |                         |
|----------------------------------|-------------------------------|-------------------------|
| Starting torque                  | 0.05 mN·m {0.5 gf·cm} maximum |                         |
| Inertia                          | 0.01 g·cm <sup>2</sup>        |                         |
| Shaft loading<br>(When mounting) | Radial                        | 1.96 N {200 gf} maximum |
|                                  | Axial                         | 1.96 N {200 gf} maximum |
| Net weight                       | 10 g                          |                         |

## ELECTRICAL CHARACTERISTICS

|                                   |                 |                 |
|-----------------------------------|-----------------|-----------------|
| Input voltage                     | DC5 V $\pm$ 5 % |                 |
| Input current                     | 50 mA maximum   |                 |
| Output wave form                  | Square wave     |                 |
| Output phases                     | A, B            |                 |
| Resolution (P/R)                  | 100, 200, 300   |                 |
| Phase difference of A & B outputs | 90° $\pm$ 45°   |                 |
| Maximum frequencies response      | 10 kHz          |                 |
| Output signal                     | "1 (High)"      | + 4.5 V minimum |
|                                   | "0 (Low)"       | + 0.5 V maximum |
| Output impedance                  | 1 k $\Omega$    |                 |
| Light source                      | LED             |                 |

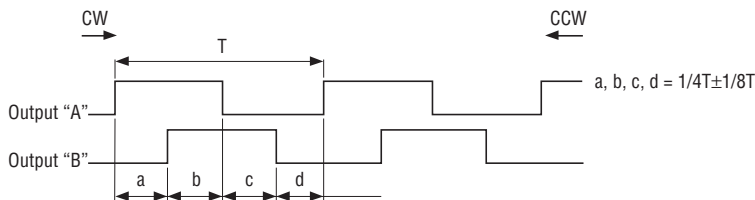
## Environmental characteristics

|                       |              |
|-----------------------|--------------|
| Operating temp. range | 0 ~ 50 °C    |
| Storage temp. range   | - 20 ~ 80 °C |
| Protection grade      | IP40         |

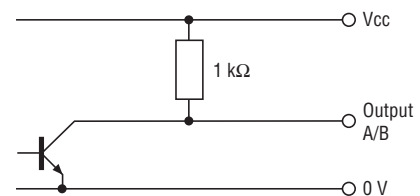
### RELIABILITY TEST

| Test item                 |           | Test conditions   |   |
|---------------------------|-----------|---|---|
| Vibration                 | Power OFF | Amplitude : 1.52 mm or 98.1 m/s <sup>2</sup> (10 G) whichever is smaller.<br>10 ~ 500 Hz excursion 5 min/cycle, 1 hour each for X, Y, Z, directions.                              |   |
| Shock                     | Power OFF | 1 time each in 6 directions (X, Y, Z) at 490 m/s <sup>2</sup> (50 G), 11 ms.  |   |
| High temperature exposure | Power OFF | 80 °C 96 h  | (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) |
|                           | Power ON  | 50 °C 96 h  |   |
| Low temperature exposure  | Power OFF | - 20 °C 96 h  |   |
|                           | Power ON  | 0 °C 96 h   |   |
| Humidity                  | Power OFF | 40 °C Relative humidity 90 ~ 95 % 96 h<br>(To be measured after wiping out moisture and leaving samples for 1 h at normal temperature and humidity after the test.)               |   |
| Thermal shock             | Power OFF | To be done 5 cycles with the following condition<br>(To be measured after leaving samples for 1 h at normal temperature and humidity after the test.)<br>70 °C 0.5 h、-20 °C 0.5 h |   |

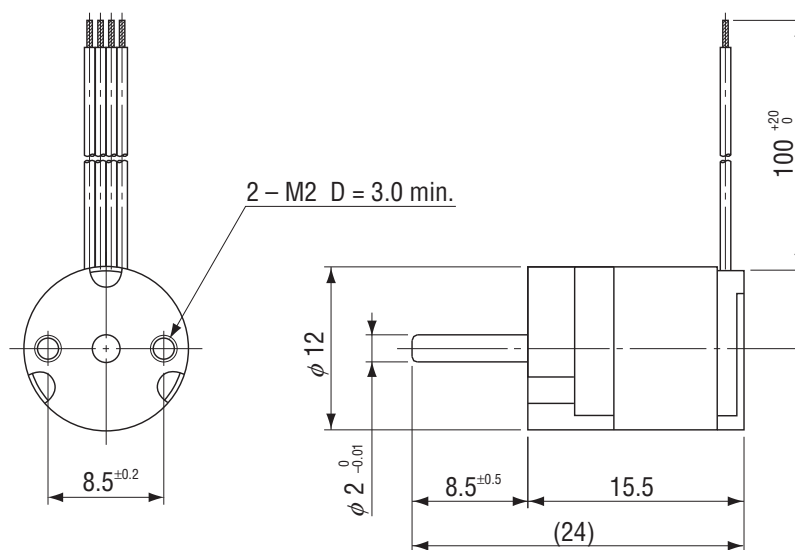
### OUTPUT



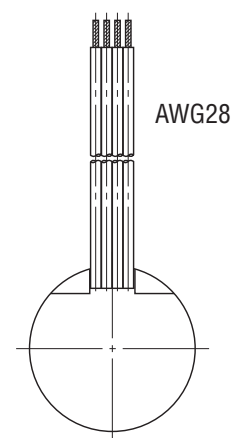
### OUTPUT CIRCUIT



### OUTLINE DIMENSIONS



Unless otherwise specified, tolerance : ± 0.4 (Unit : mm)



### ELECTRICAL WIRING

|       |             |
|-------|-------------|
| Red   | Power ⊕     |
| Black | Power 0 (V) |
| White | Output "A"  |
| Green | Output "B"  |