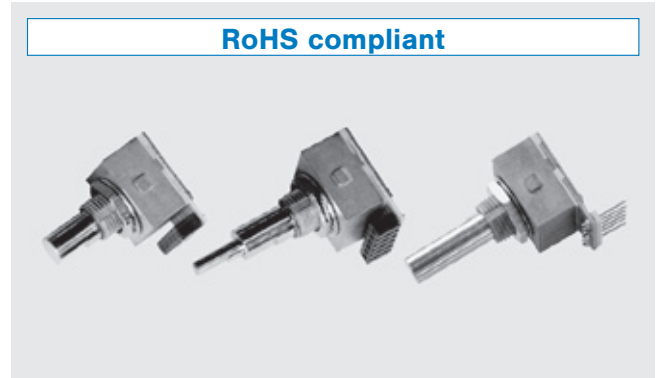
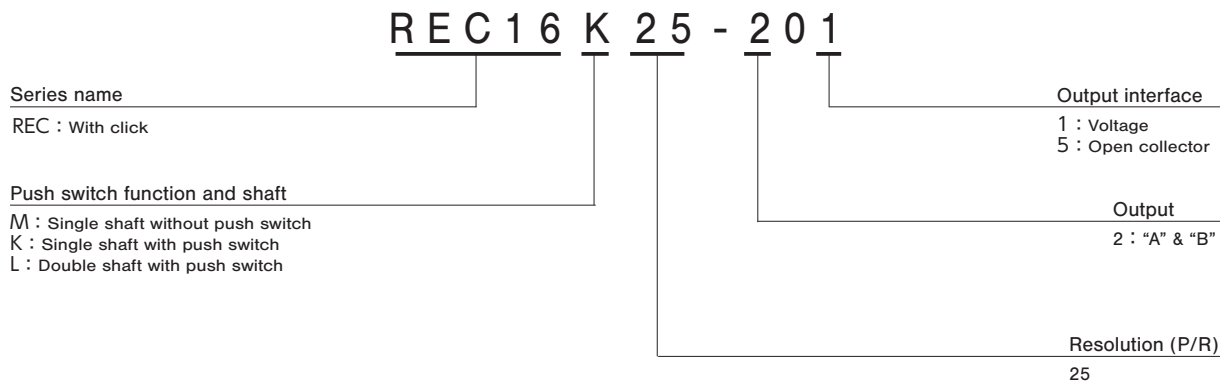


FEATURES

- 16mm square compact size
- Excellent click & switch feelings
- Long life of 2 million cycles



PART NUMBER DESIGNATION



LIST OF PART NUMBERS

| Resolution | Click | Push switch function | Shaft | Output interface | Part number |
|------------|------------|----------------------|--------------|------------------------------|---------------------------------|
| 25 (P/R) | With Click | No | Single Shaft | Voltage (PIN HEADER Type) | REC16M25-201 |
| | | Yes | | Double Shaft | Open Collector (SCOKET Type) |
| | | | | | |

The products indicated by ⊕ mark are manufactured upon receipt of order basis.

REC16K/REC16L/REC16M

OPTICAL ENCODERS

STANDARD SPECIFICATIONS

Electrical characteristics

| | | |
|-----------------------------------|---------------|-----------------|
| Input voltage | DC5 ± 5 % | |
| Input current | 30 mA maximum | |
| Output wave form | Square wave | |
| Output phases | A, B | |
| Resolution | 25 | |
| Phase difference of outputs A & B | 90° ± 45° | |
| Maximum frequency response | 100 Hz | |
| Output signal | "1 (High)" | + 4.5 V minimum |
| | "0 (Low)" | + 0.5 V maximum |
| Light source | LED | |
| Output Sink Current | 30 mA maximum | |

Switch characteristics

| | |
|------------------------|-----------------------------|
| Maximum contact rating | DC15 V, 20 mA |
| Contact resistance | 2 Ω maximum (Initial value) |

Note) Manual setting only.

Mechanical characteristics

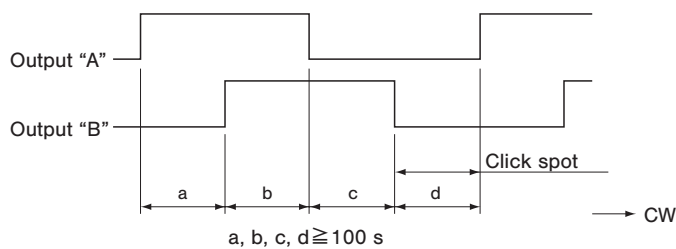
| | | |
|-------------------------------|---|-------------------------|
| Click torque | 7.35 mN·m ± 2.5 maximum (75 ± 25 gf·cm) (REC : With click) | |
| Click number | 25 | |
| Shaft loading (Pull-push) | 19.6 N maximum (2 kgf) | |
| Switch operation force | 2.45 ± 1.47 N (250 ± 150 gf) | |
| Switch stroke | 0.3 ± 0.2 mm | |
| Rotational life (Mechanical) | 2 million cycles | |
| Switching life | 1 million cycles | |
| Shaft loading (When mounting) | Radial | 4.90 N maximum (500 gf) |
| | Axial | 2.94 N maximum (300 gf) |
| Net weight | Approx. 12 g | |
| Strength of tighten screw | 1 N·m {10.2 kgf·cm} maximum | |

Environmental characteristics

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

OUTPUT

Click spot for 25P/R



The click spot is located somewhere outputs A & B are at Lo level.

REC16K/REC16L/REC16M

OPTICAL ENCODERS

RELIABILITY TEST

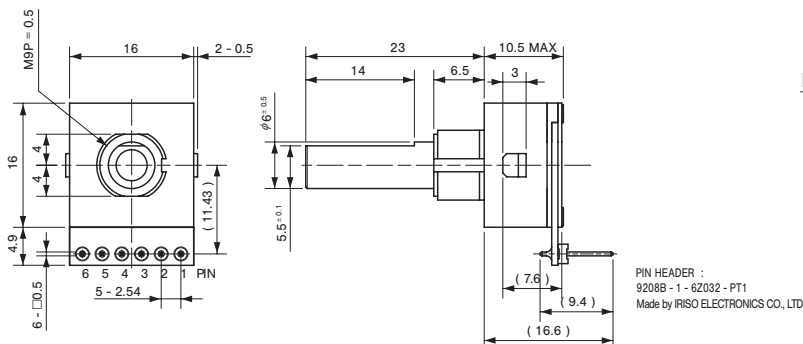
The output shall satisfy the criteria below after the following tests.

| Test item | | Test conditions |
|---------------------------|-----------|--|
| Vibration | Power OFF | Amplitude : 1.52 mm or 98.1 m/s ² (10 G) whichever is smaller. 10 ~ 500 Hz excursion 15 min/cycle, 8 cycles each for X, Z, directions. |
| Shock | Power OFF | 3 times each in directions (X, Z) at 490 m/s ² (50 G), 11 ms. |
| High temperature exposure | Power OFF | 80 °C 96 h |
| | 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 (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 10 cycles with the following condition (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) 80 °C 0.5 h, - 20 °C 0.5 h |

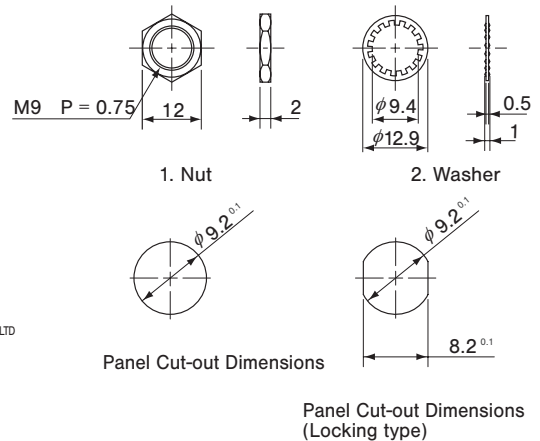
OUTLINE DIMENSIONS

Single shaft and PIN HEADER

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



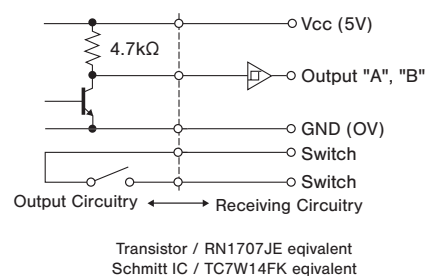
Accessories



PIN ASSIGNMENT

| Pin No. | Without switch | With switch |
|---------|----------------|-------------|
| 1 | Power 0 (V) | Power 0 (V) |
| 2 | N C | For switch |
| 3 | N C | For switch |
| 4 | Output "B" | Output "B" |
| 5 | Output "A" | Output "A" |
| 6 | Power + 5V | Power + 5V |

OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY



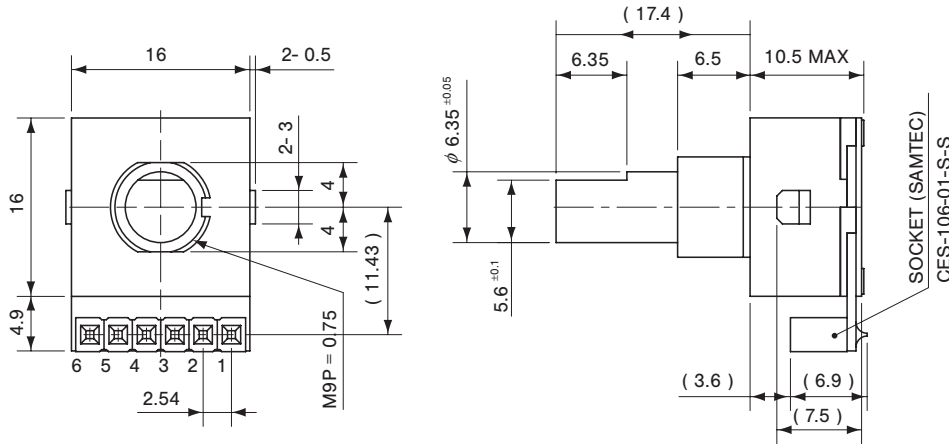
REC16K/REC16L/REC16M

OPTICAL ENCODERS

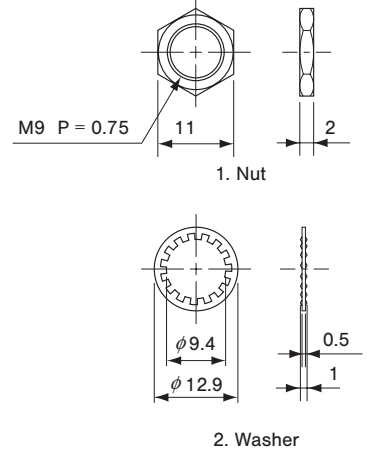
OUTLINE DIMENSIONS

Single shaft and SOCKET

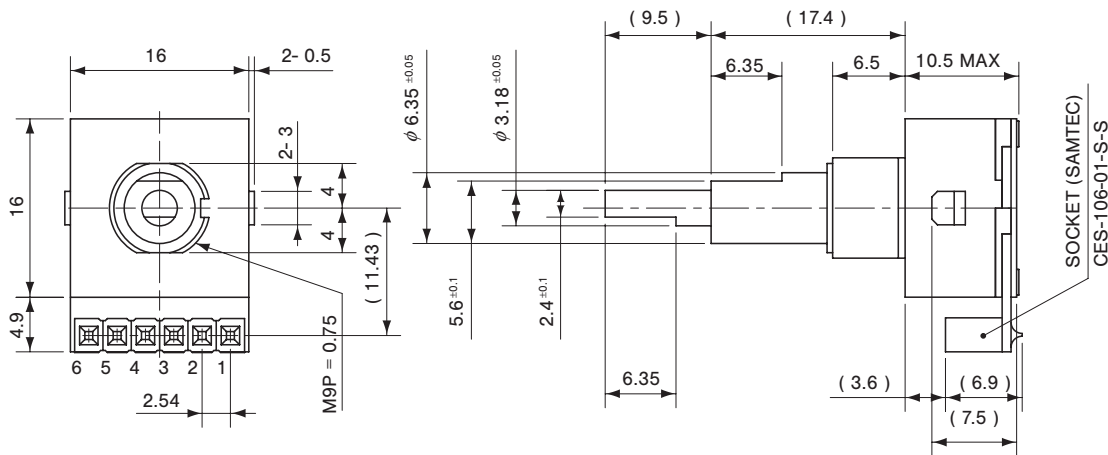
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)



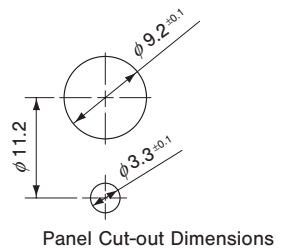
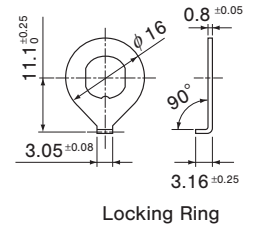
Accessories



Double shaft and SOCKET



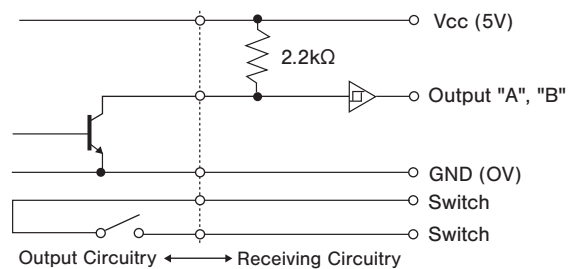
Option



OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY

PIN ASSIGNMENT

| Pin No. | Function |
|---------|-------------|
| 1 | Power 0 (V) |
| 2 | For switch |
| 3 | For switch |
| 4 | Output "B" |
| 5 | Output "A" |
| 6 | Power +5 V |



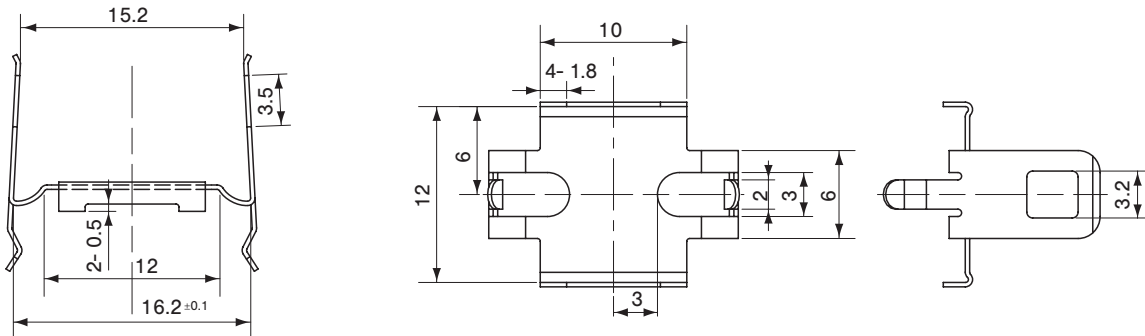
Transistor / RN1707JE equivalent
Schmitt IC / TC7W14FK equivalent

REC16K/REC16L/REC16M

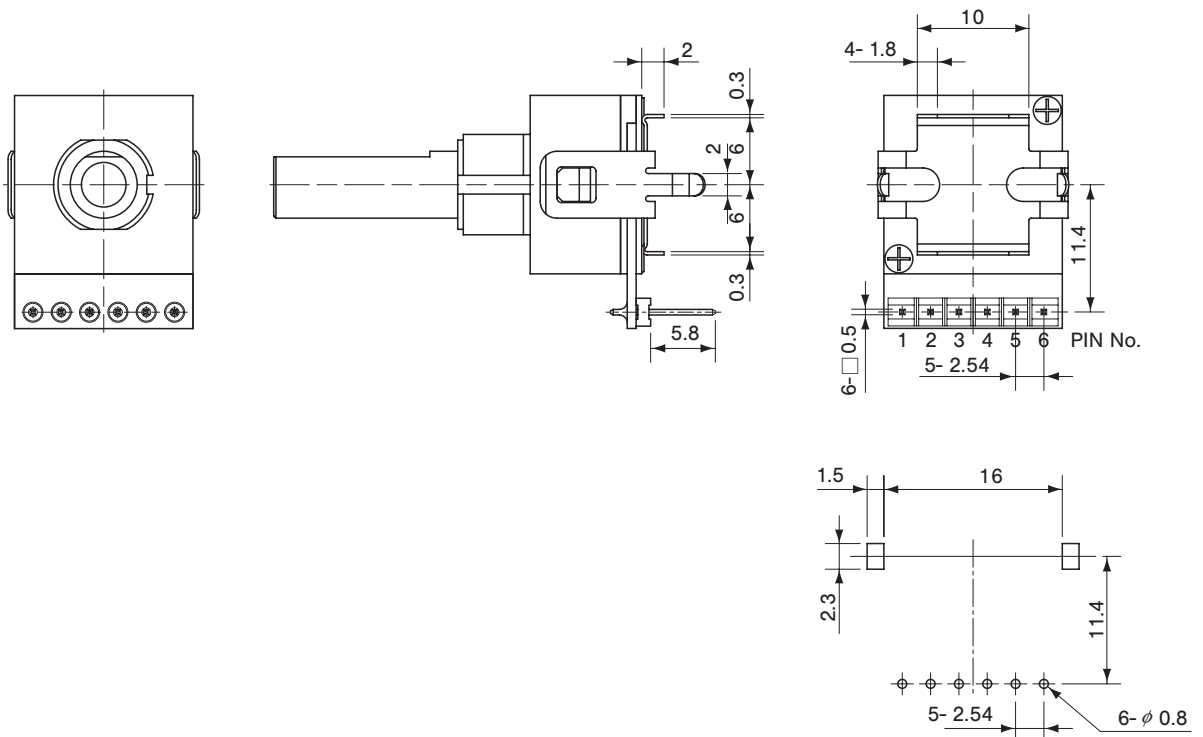
OPTICAL ENCODERS

■ Option (Snap-in Holder)

● Available mounting on PC board with Snap-in Holder as an optional item separately.



● With Snap-in Holder



Mounting hole dimensions
(Tolerance : ± 0.1)
(Thickness : $t = 1.6$)