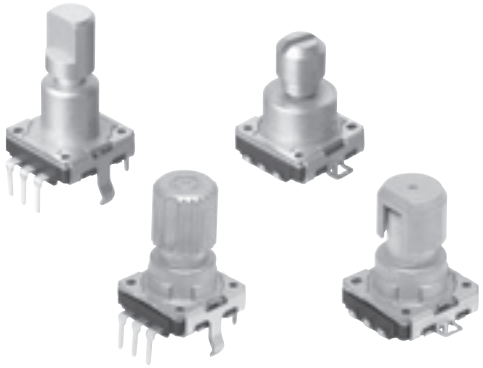
# 11 mm Square GS Encoders

## Type: EVER/EVEU/EVEV/EVEY



### ■ Features

- Low Profile : Reflow Type 3.5 mm,
  Wave Soldering Type 4 mm
- Minimized shaft wobble type is also available
- The reflow type allows the product to be automatically mounted and reflow-soldered

### ■ Recommended Applications

- Car audio, car navigation, car air conditioners

### ■ Explanation of Part Numbers

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | V | E | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Product Code | | | | Specifications | | Shaft Trims & Dimensions | | | Output(Pulses) | | |

| 4 th | Type |
|---|---|
| R | Reflow Type |
| U | Minimized Shaft Wobble Reflow Type |
| V | Wave Soldering Type |
| Y | Minimized Shaft Wobble Wave Soldering Type |

### ■ Specifications

| | | EVER (Reflow Type) | EVEV (Wave Soldering Type) | EVEU (Minimized Shaft Wobble Reflow Type) | EVEY (Minimized Shaft Wobble Wave Soldering Type) |
|---|---|---|---|---|---|
| Mechanical | Rotation Angle | 360 ° (Endless) | | | |
| | Shaft Pull/Push Strength | 100 N min. | | | |
| | Shaft Wobble | 0.6×L/30 (mm) max. | | 0.35×L/30 (mm) max. | |
| | Rotation Torque | 8 mN·m, 10 mN·m, 12 mN·m, 14 mN·m | | | |
| | Detents | 16 points, 24 points, 30 points, 32 points | | | |
| | Shaft Length Range | $L_1$=15 to 20 mm | $L_1$=15 to 30 mm | $L_1$=16 to 20 mm | |
| Electrical | Output Signals | Phase A and B | | | |
| | Resolution | 8, 12, 15, 16 pulses/360 ° | | | |
| | Rating | 1 mA 10 V DC (at each bit) | | | |
| | Contact Resistance | 1 Ω max. | | | |
| | Chattering | 3 ms max. | | | |
| | Insulation Resistance | 50 MΩ min. (at 250 V DC) | | | |
| | Dielectric Withstanding Voltage | 300 V AC for 1 minute | | | |
| | Bouncing | 5 ms max. | | | |
| Switch Part | Type | SPST Push-on | | | |
| | Rating | 20 mA 16 V DC | | | |
| | Contact Resistance | 100 mΩ max. | | | |
| | Operating Force | 0.4 mm travel type : 3 N, 4 N , 6 N<br>1.5 mm travel type : 2.5 N, 4 N , 5 N | | | |
| | Travel | 0.4 mm, 1.5 mm | | | |
| Endurance | Rotation Life (Encoder) | 30,000 cycles min. | | | |
| | Operating Life (Switch) | 30,000 cycles min. | | | |
| Minimum Quantity/Packing Unit | | 50 pcs. (Tray Pack) | 100 pcs. (Tray Pack) | 50 pcs. (Tray Pack) | 100 pcs. (Tray Pack) |
| Quantity/Carton | | 250 pcs. or 300 pcs. | 500 pcs. | 250 pcs. or 300 pcs. | 500 pcs. |

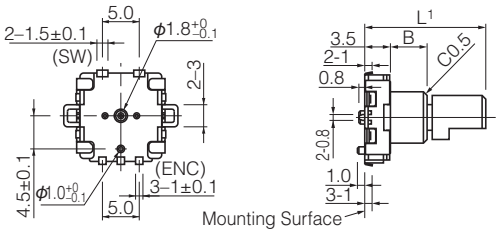
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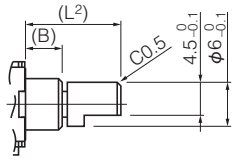

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■ Dimensions in mm (not to scale)

No. 1

EVER
(Reflow Type)



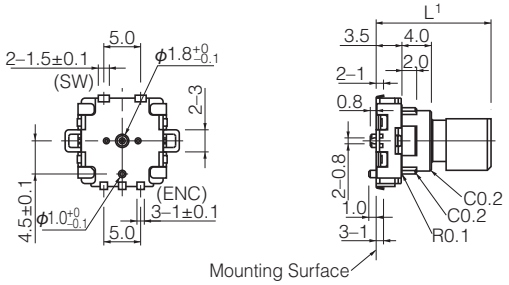
Shaft shape and dimension

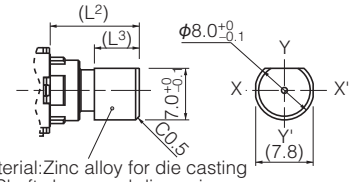
General dimension tolerance : ± 0.5
( )dimensions are reference dimensions.

| Bushing length | | L1 | (L2) |
|---|---|---|---|
| B | 5.0 mm | 15.0 mm to 17.0 mm | 11.5 mm to 13.5 mm |
| | 7.0 mm | 17.0 mm to 20.0 mm | 13.5 mm to 16.5 mm |

No. 2

EVEU
(Minimized Shaft Wobble
Reflow Type)



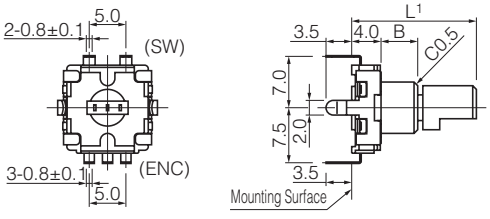
Material:Zinc alloy for die casting
Shaft shape and dimension

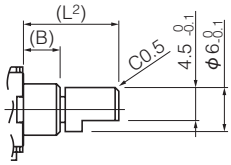
General dimension tolerance : ± 0.5
( )dimensions are reference dimensions.

| L1 | (L2) | (L3) |
|---|---|---|
| 16.0 mm to 20.0 mm | 12.5 mm to 16.5 mm | 6.5 mm to 10.5 mm |

No. 3

EVEV
(Wave Soldering Type)



Shaft shape and dimension

General dimension tolerance : ± 0.5
( )dimensions are reference dimensions.

| Bushing length | | L1 | (L2) |
|---|---|---|---|
| B | 5.0 mm | 15.0 mm to 17.0 mm | 11.0 mm to 13.0 mm |
| | 7.0 mm | 17.0 mm to 30.0 mm | 13.0 mm to 26.0 mm |

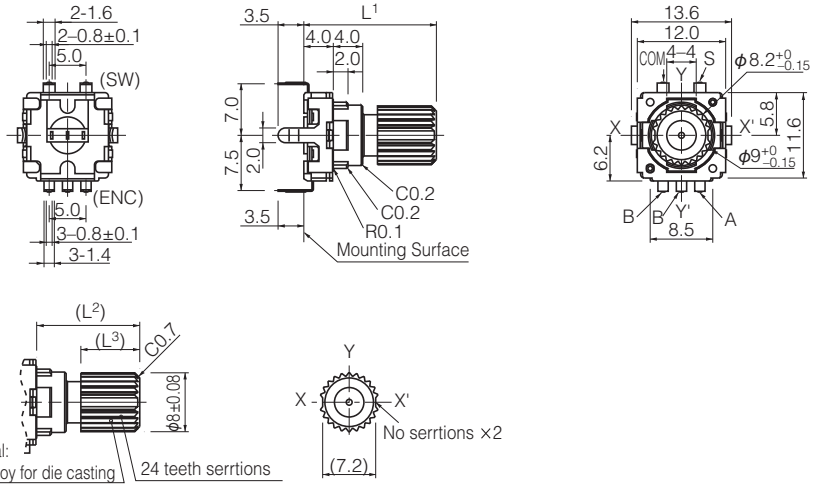
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## ■ Dimensions in mm (not to scale)

No. 4

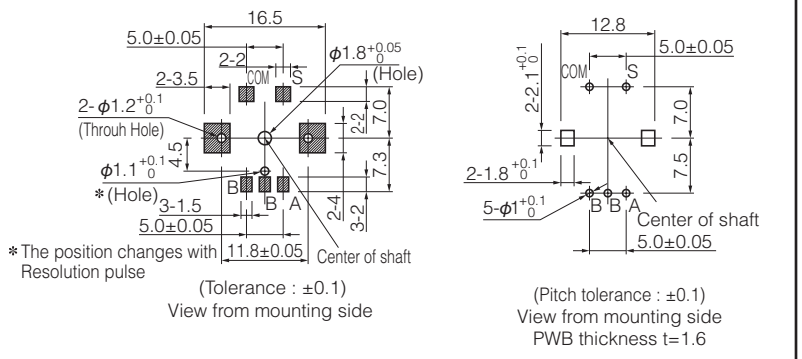
EVEY
(Minimized Shaft Wobble
Wave Soldering Type)



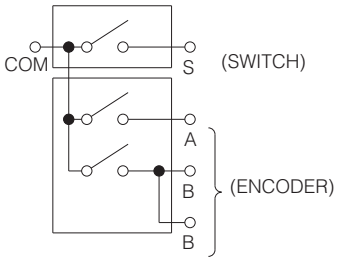

General dimension tolerance : ± 0.5
( )dimensions are reference dimensions.

| $L^1$ | $(L^2)$ | $(L^3)$ |
|---|---|---|
| 16.0 mm to 20.0 mm | 12.0 mm to 16.0 mm | 6.0 mm to 10.0 mm |

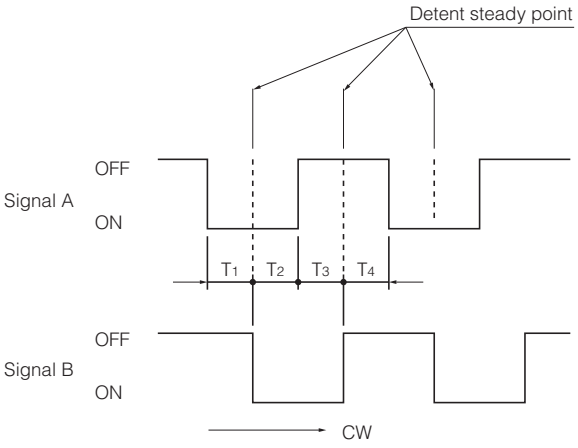
## ■ PWB mounting hole for reference




## ■ Encoder / Switch Circuit

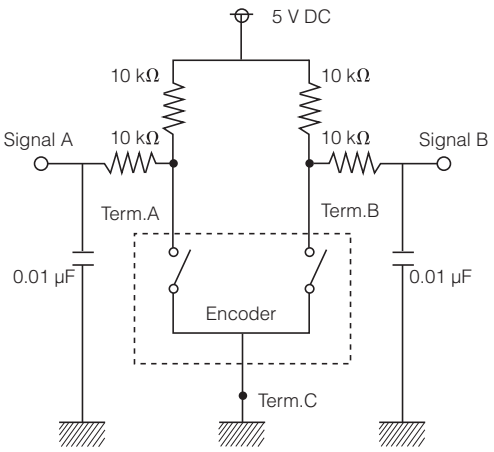



## ■ Phase Difference




Phase difference $T_1$, $T_2$, $T_3$ , $T_4$
(At rotational speed 60 r/min.)
Initial····· 4 m sec. min.
After life····· 2.5 m sec. min.

## ■ Test Circuit Diagram




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