

TP7/RH7 Series... World's Smallest Potentiometers!



- Compact, lightweight design optimizes customers' space saving requirements
- Industry-proven durability and performance
- Shaft and bushing flexibility for custom design requirements

Features

■ **Compact 7mm design**

■ **Durability**

Stainless shafts are available as an option. Stainless shafts are 1.5 times stronger than conventional brass and aluminum shafts. Stainless shafts are ideal for hand-held, 2-way radios which have a high drop risk.

■ **Variations of switches available**

Rotary and momentary push types are available as options. On-Off switch function and Band Selector function can be combined into one multi-function unit.

■ **Waterproof option meets IP67**

Rubber O-ring installed between the shaft and bushing to prevent water intrusion is available as an option.

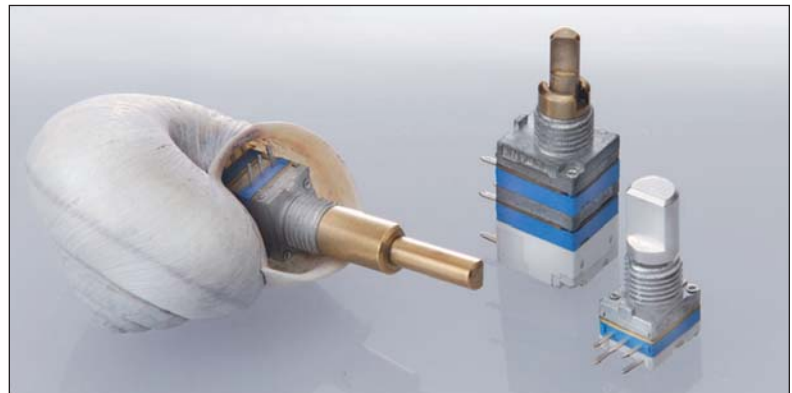
■ **High torque models**

■ **Vertical and horizontal mounts**

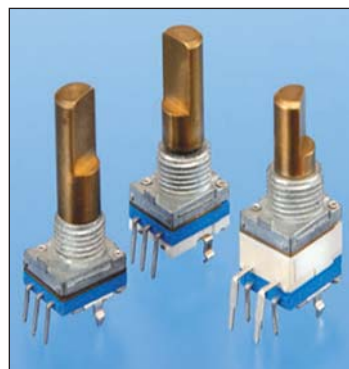
■ **Wide temperature range**

Standard: -20 to +70°C

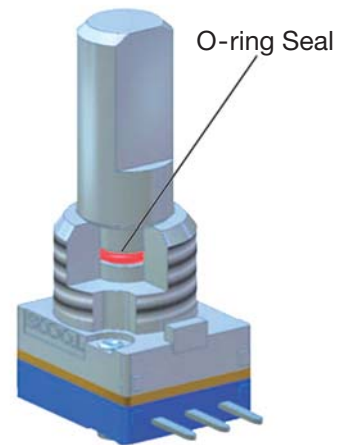
Optional: -30 to +70°C



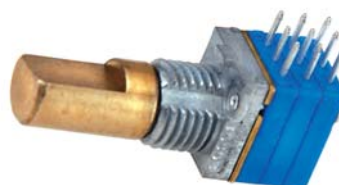
Compact 7mm and 9mm Models



Vertical Mount Models



Waterproof Option



Multi-function Switches



**HUNDREDS OF CUSTOM-BUILT COMBINATIONS!
BUILD YOUR OWN CUSTOM PART NUMBER...**

Part Numbering System

Example: TP76N00N 20 S B 203
 Bushing: M6-5mm length Shaft: 3.5mm diameter

TP 7 6 N 00 N 20 S B 203

Style

TP = PC Pin, Horizontal Mount
 RH = PC Pin, Vertical Mount

Size

7 = 7mm

Type

0 = Non-Element, Encoder or Switch
 6 = 300° Rotation

Structure

N = Single Shaft, Single Unit
 G = Single Shaft, Dual Unit
 T = Single Shaft, Triple Unit
 Q = Single Shaft, Quad Unit
 S = Single Shaft, Five Gang Unit
 P = Single Shaft, Six Gang Unit
 E = Single Shaft, Eight Gang Unit
 D = Dual Shaft, Dual Unit
 F = Dual Shaft, Triple Unit
 H = Dual Shaft, Quad Unit
 C = Dual Shaft, Five Gang Unit
 R = Dual Shaft, Six Gang Unit

Combinations

00 = No Combination
 01 = Center Detent (Outer Shaft)
 10 = Center Detent (Inner Shaft)
 17 = High Torque
 82 = 11-Detent
 97 = Sealed with Shaft O-ring
 239 = 16-Detent

Resistance Code

First and Second Digit = Value
 Third Digit = Multiplier
 Example: 203 = 20,000 Ω

Resistance Taper

A = Audio (CW Log)
 B = Linear
 C = CCW Log

Shaft End Style

R = Round
 F = Flatted
 S = Screw Driver Slot
 H = Deep Slot
 SK = Slotted and Knurled

Standard Shaft Length

Includes Bushing Length
 15 = 15mm (from mounting surface)
 20 = 20mm (from mounting surface)

Switch Type

Blank = No Switch
 N = Rotary Switch
 A = Momentary Push-On
 NA = Rotary + Momentary Push-On
 E20 = Rotary Encoder

**Call TOCOS for more
Options/Combinations.**

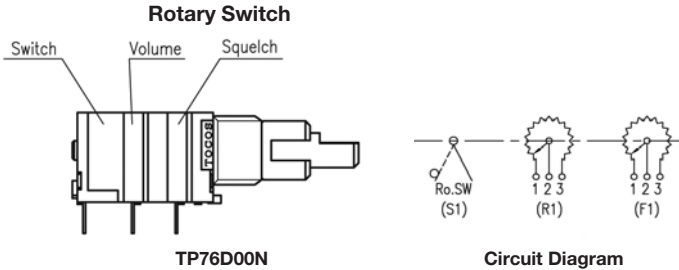
How to Build a Part Number

1. Choose the potentiometer structure.
2. Select a combination, if none use 00.
3. Select switch type, if none leave blank.
4. Select shaft length, including the bushing. Standards are 15 and 20mm.
5. Select shaft end style.
6. Select taper and ohmic value.
7. Determine bushing and shaft sizes.

See Page 35 for Bushing and Shaft Styles.

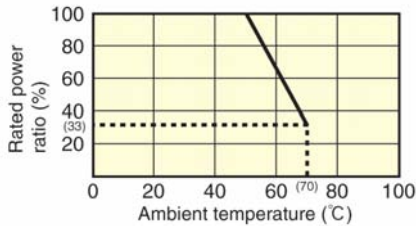
TP7/RH7 SERIES

- 1. For Volume + Power On-Off Switches:
TP76N00N
- 2. For Volume + Squelch + Power On-Off Switches:
TP76D00N



7mm Electrical

- Nominal total resistance 1, 2, 5, 10, 20, 50, 100, 200, 500 (k Ω)
- Resistance tolerance $\pm 20\%$
- Resistance taper A, B, C, D, W
- End resistance 5 Ω max.
- Power rating 0.05W
- Noise 100mV max.
- Insulation resistance 100M Ω min. at 250VDC
- Dielectric strength 1 minute at 300VAC
- Max. operating voltage 10VDC, 50VAC
- Tracking error
Volume cont.: 3dB max. at 0 to -40dB
Tone cont.: 2dB max. at 50% of rotational angle
- Derating curve



Environment

- Soldering heat resistance 350 \pm 5°C at 3 sec.
- Operating temperature range -20°C to +70°C
- Rotational life Permissible resistance change after 15,000 \pm 200 cycles on 600rph without load: $\pm 15\%$ max.
- Shaft Seal (Optional O-ring seal between the bushing and shaft) After mounting to a panel, there shall be no leak between shaft and bushing at 0.1kgf/cm by hydraulic pressure for 30 minutes

7mm Mechanical

- Total rotational angle 300° (Mechanical)
- Tolerance for total rotational angle $\pm 5^\circ$, +10/-5°C: Push-pull drive shaft
- Rotational torque 2~24.5mN • m (20 to 250gf • cm) at +20°C
49.1mN • m (500gf • cm max.) at -20°C
- Shaft wobble and bend Radial direction 0.5mm P-P
tip of the shaft, applied 2.45N (250gf)
Thrust direction 0.5mm max.
- Detent position Center
- Detent torque +2.9~29.4mN • m (30 to 300gf • cm)
- Shaft stopper strength Inner shaft of dual shaft 0.3N • m (3kgf • cm min.)
Others 0.4N • m (4kgf • cm min.)
- Shaft push-pull strength 98.1 N (10kgf min.)
- Nut tightening strength 0.98N • m (10kgf • cm min.)

Switch Specifications

- Rotary switch, N SPST: 16VDC-3A; 50° max.
- Momentary push, A SPST: 12VDC-0.5A; 0.5mm stroke
- Switch life 10,000 cycles without load
- Switch contact resistance Initial 50m Ω max.
After 10,000 cycles-200m Ω max.

◆ All products in this catalog are not for use in life support equipment.

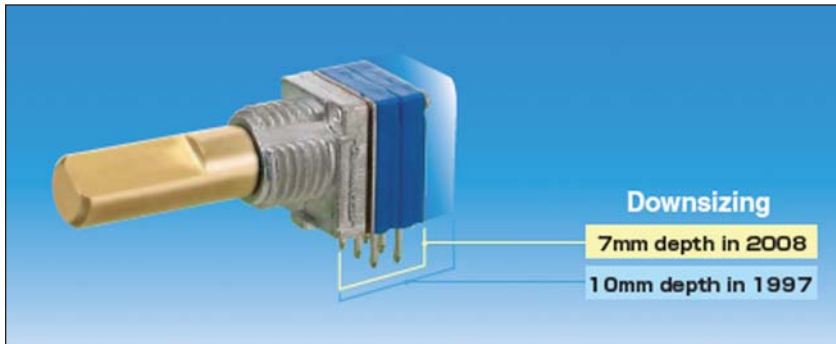
TP76N00B with Low Profile Switch

NEW! Potentiometer with Special, Smaller Rotary On-Off Switch B!

Innovative rotational switch design is an industry breakthrough in downsizing from the conventional 10mm depth to a 7mm depth!

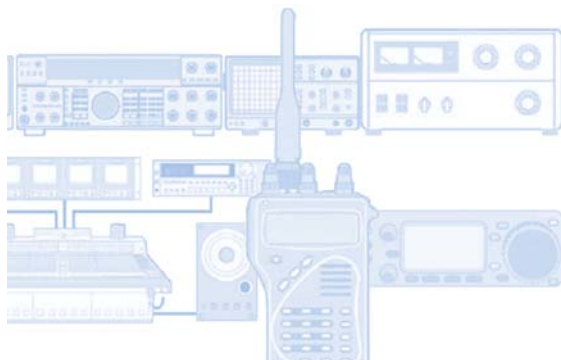
Features

- Compact 7mm depth
- Consistent performance
- Long Life
- Flexible Custom Design Options
- Excellent Linearity



Applications

- 2-way Radios
- Communication Devices
- Measuring Instruments
- Audio/Visual Equipment

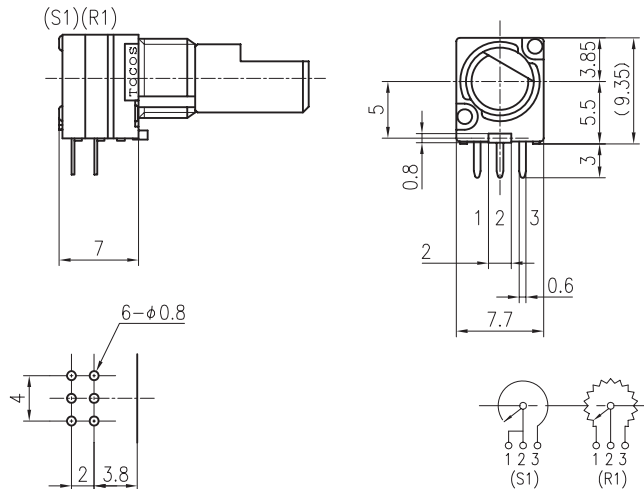
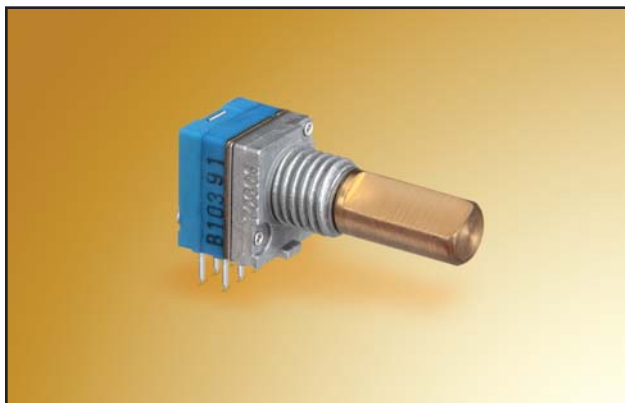


TP76N00B Specifications

- | | |
|---------------------------------|--|
| • Total Resistance | B: 2k to 1MΩ A: 5k to 500kΩ |
| • End Resistance | 50Ω max. |
| • Noise | 100mV max. (JIS method A) |
| • Insulation resistance | 100MΩ min. at 250VDC |
| • Dielectric strength | 1 minute min. at 300VAC |
| • Rotational angle (Mechanical) | 300° ±5° |
| • Rotational torque | 2.0 to 24.5mN • m (20 to 250gf • cm) |
| • Shaft stopper strength | 0.3N • m min. (3kgf • cm min.) |
| • Shaft push-pull strength | 98.1 N (10kgf min.) |
| • Shaft wobble and bend | Thrust: 0.5mm max.
Radial: 0.5 x (shaft/30) mm max. |
| • Rotational life | 15,000 cycles |
| • Switch configuration | SPST |
| • Switch rating | 10VDC 0.1A |
| • Switch angle | 50° max. |
| • Switch torque | 78.4mN • m (800gf • cm) max. |
| • Switch contact resistance | 200mΩ max. |
| • Switch life | 10,000 cycles |

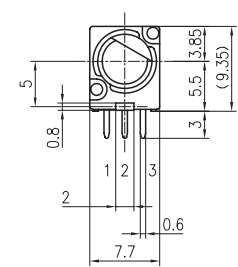
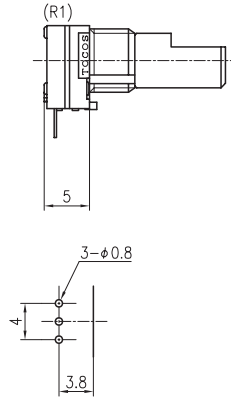
TP76N00B

Single Shaft, Single Unit, Volume Pot, Low Profile Switch

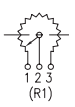


TP76N00

Single Shaft, Single Unit

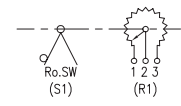
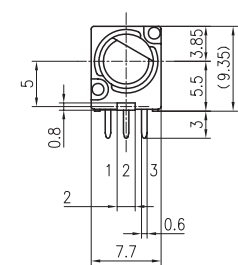
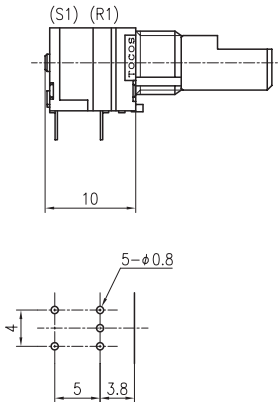


Unit: mm



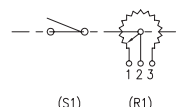
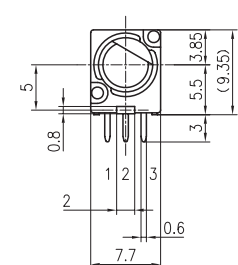
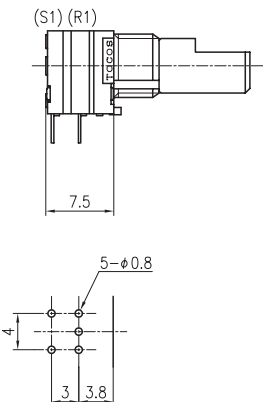
TP76N00N

Single Shaft, Single Unit, Rotary Switch



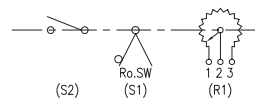
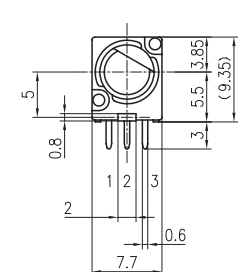
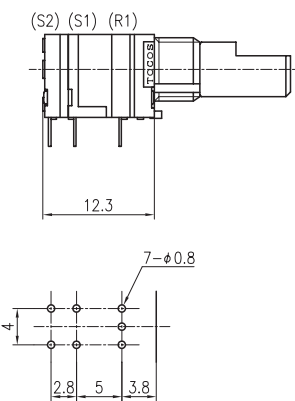
TP76N00A

Single Shaft, Single Unit, Momentary Push-on Switch



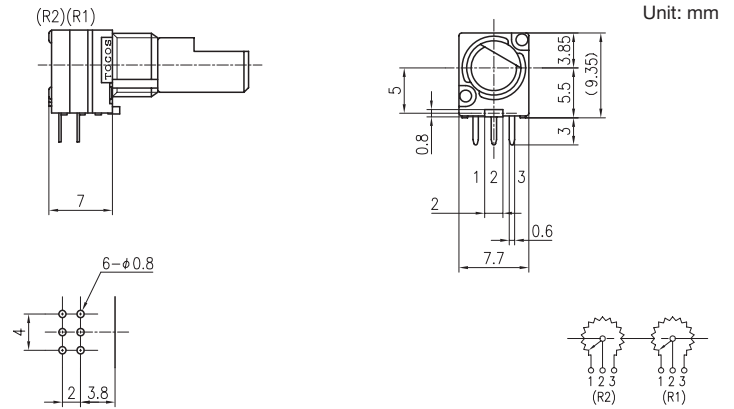
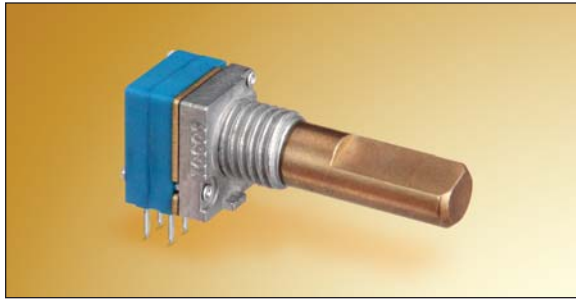
TP76N00NA

Single Shaft, Single Unit, Rotary + Momentary Push-on Switches



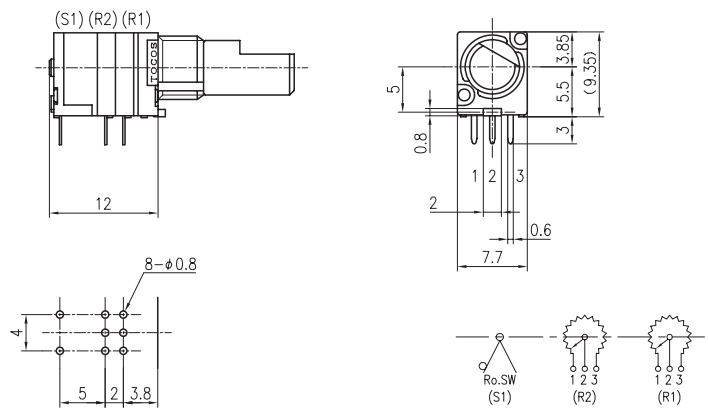
TP76G00

Single Shaft, Dual Unit



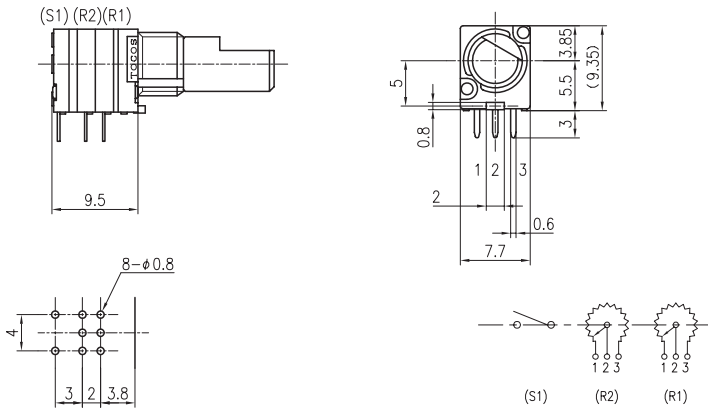
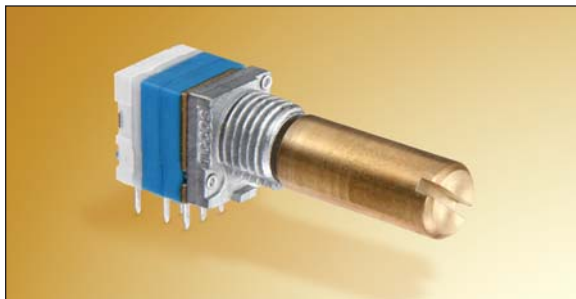
TP76G00N

Single Shaft, Dual Unit, Rotary Switch



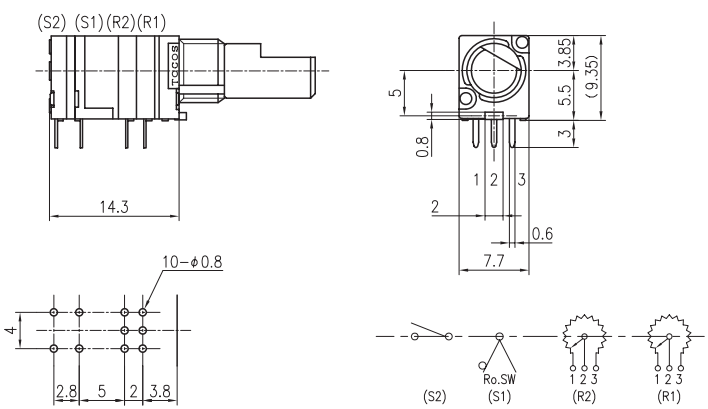
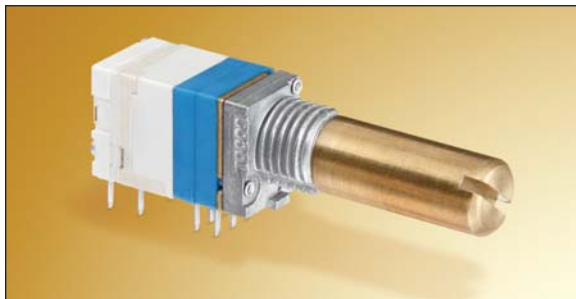
TP76G00A

Single Shaft, Dual Unit, Momentary Push-on Switch



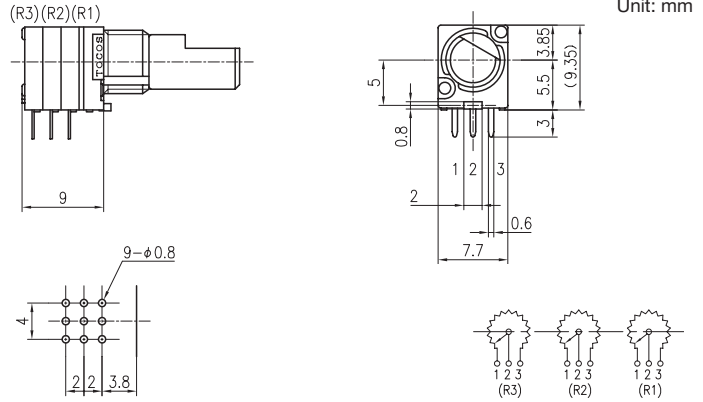
TP76G00NA

Single Shaft, Dual Unit, Rotary + Momentary Push-on Switches



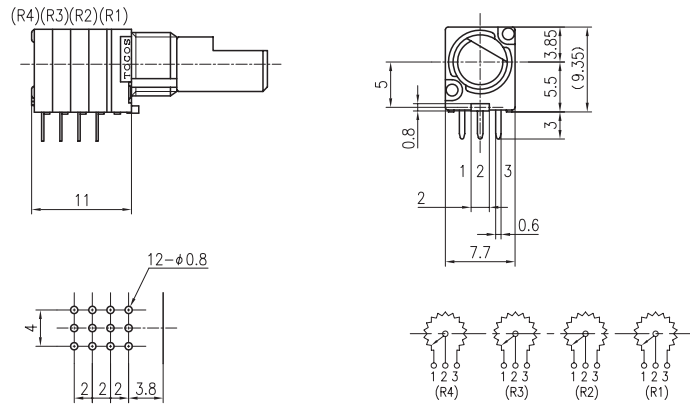
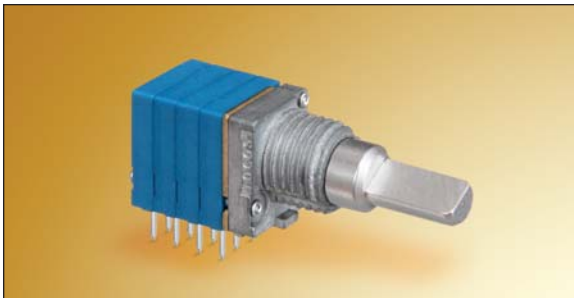
TP76T00

Single Shaft, Triple Unit



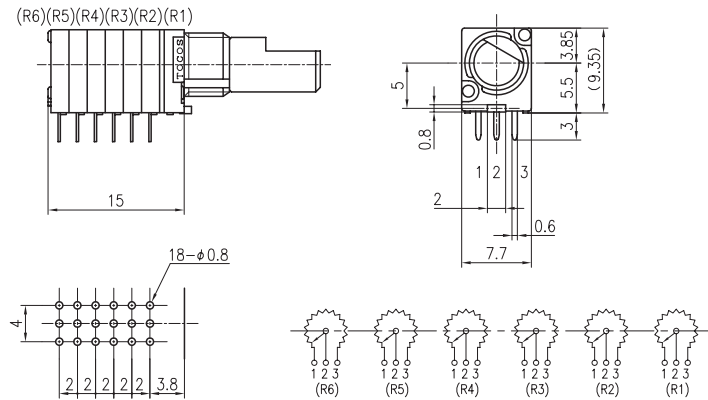
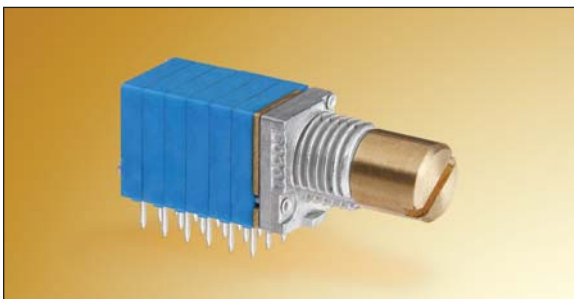
TP76Q00

Single Shaft, Quad Unit



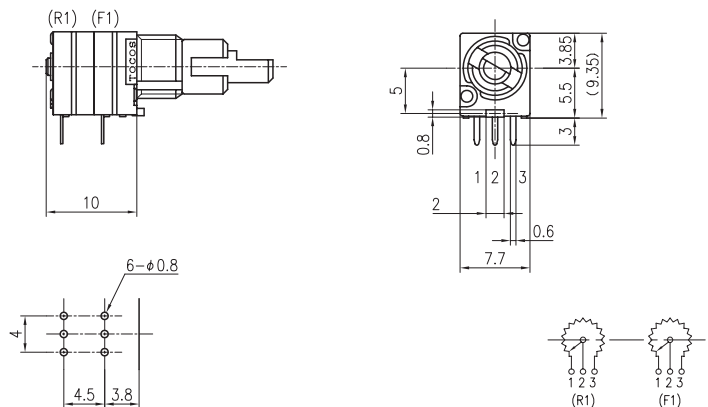
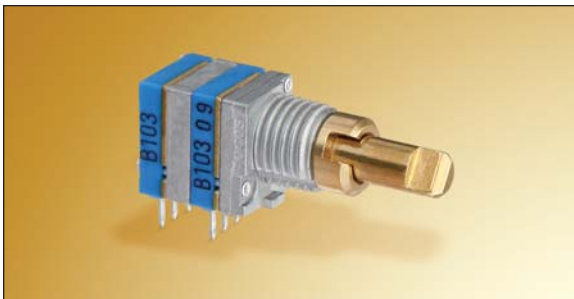
TP76P00

Single Shaft, Six-Gang Unit



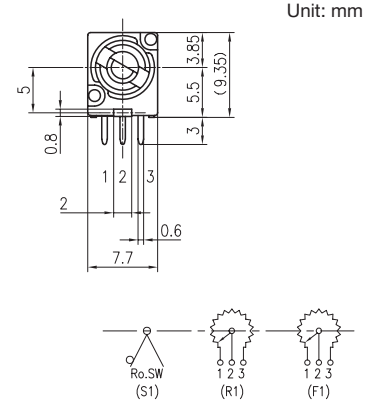
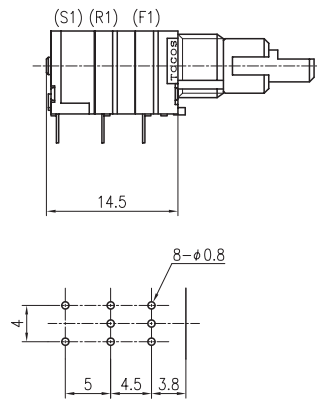
TP76D00

Dual Shaft, Dual Unit



TP76D00N

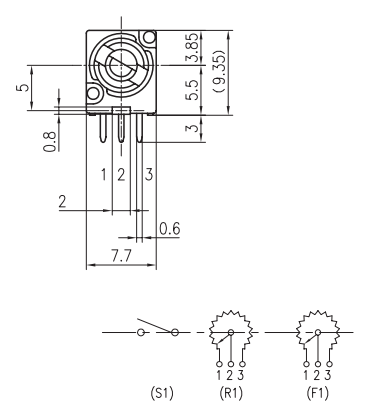
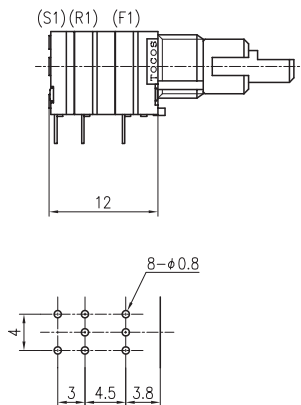
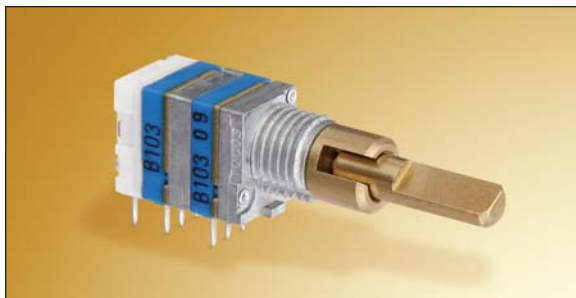
Dual Shaft, Dual Unit, Rotary Switch



Unit: mm

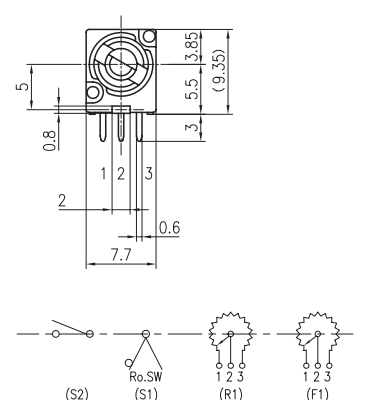
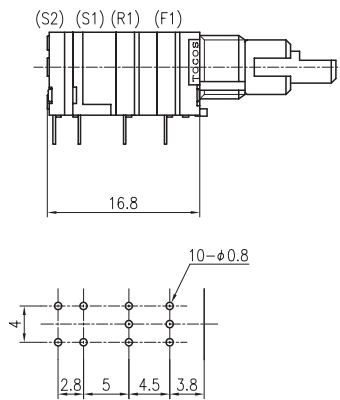
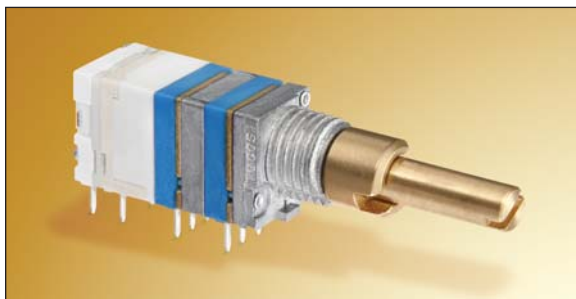
TP76D00A

Dual Shaft, Dual Unit, Momentary Push-on Switch



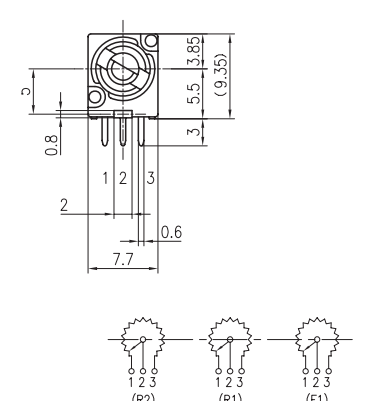
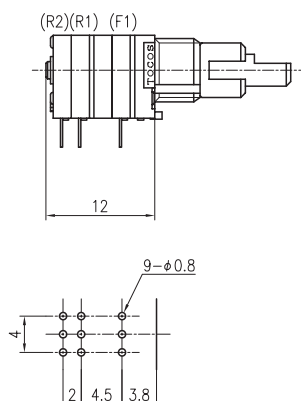
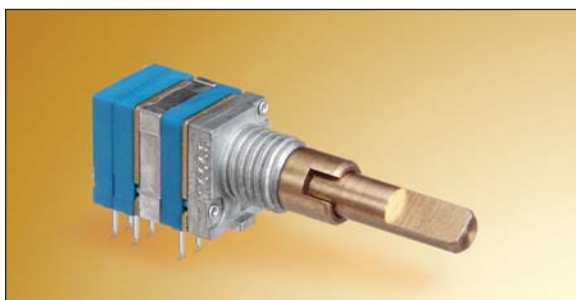
TP76D00NA

Dual Shaft, Dual Unit, Rotary + Momentary Push-on Switches



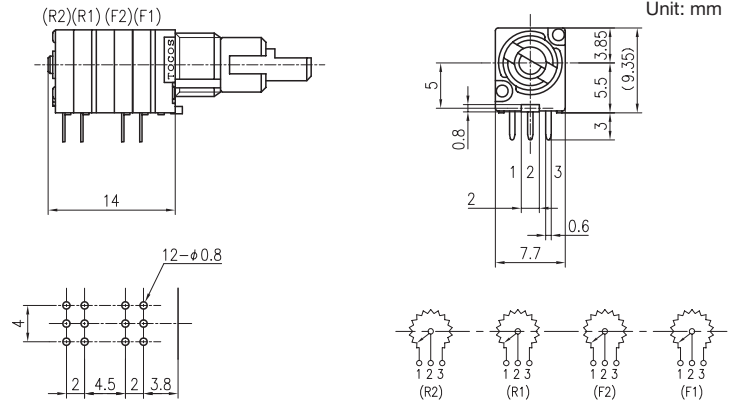
TP76F00

Dual Shaft, Triple Unit



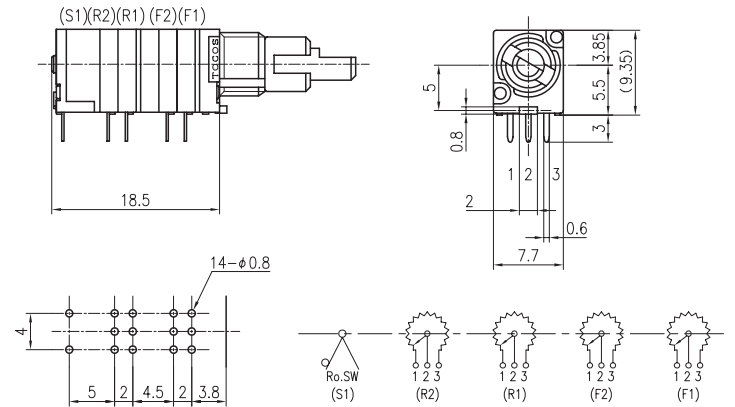
TP76H00

Dual Shaft, Quad Unit



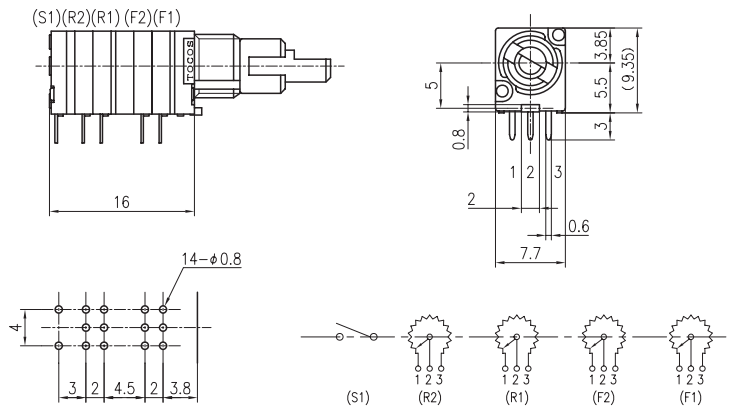
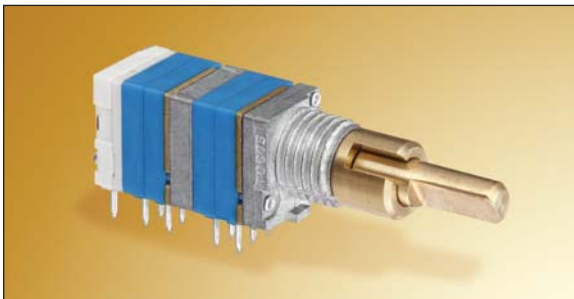
TP76H00N

Dual Shaft, Quad Unit, Rotary Switch



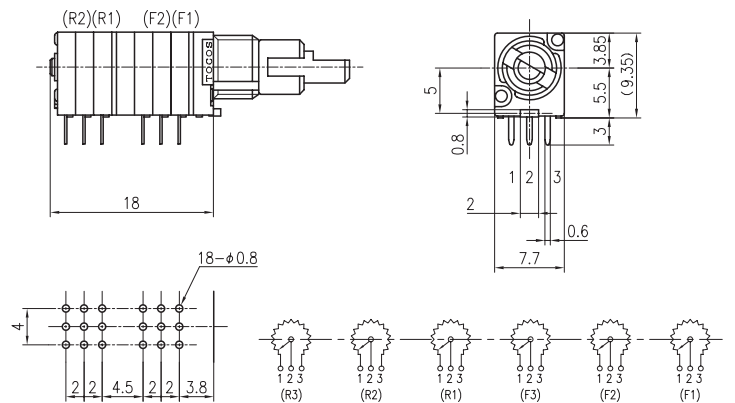
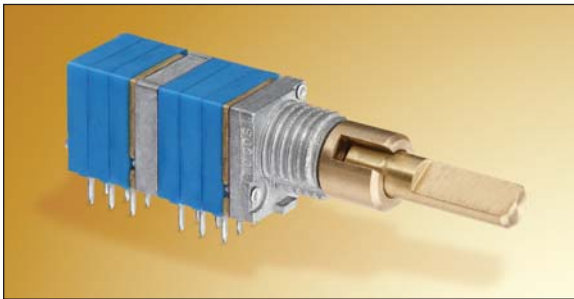
TP76H00A

Dual Shaft, Quad Unit, Momentary Push-on Switch



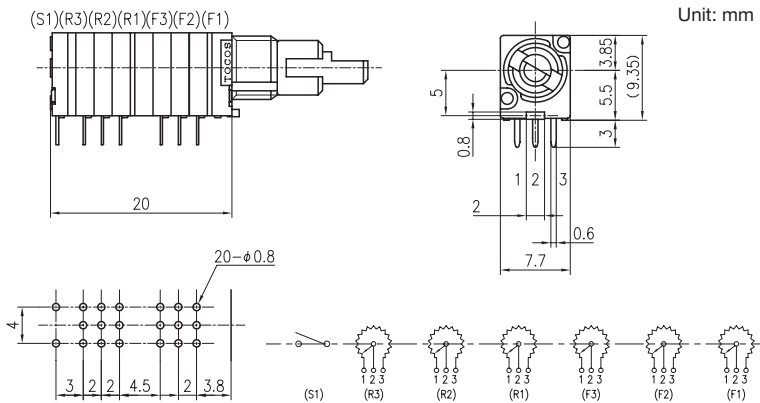
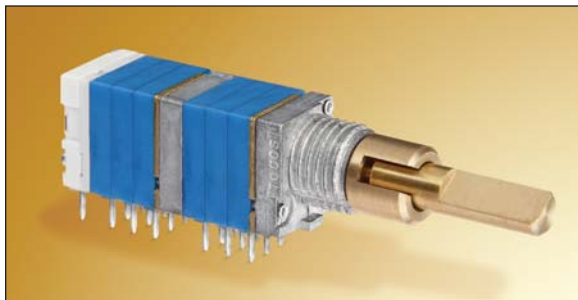
TP76R00

Dual Shaft, Six-Gang Unit



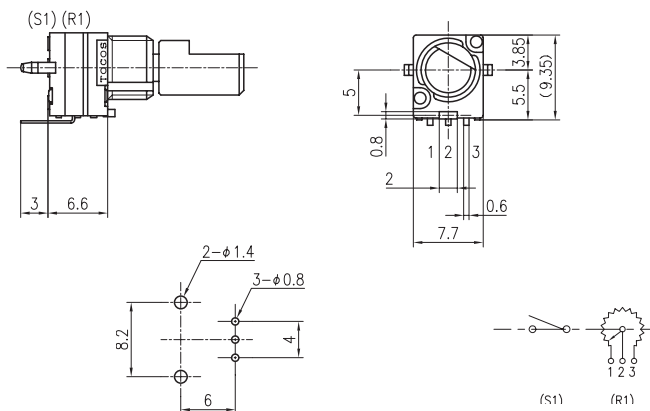
TP76R00A

Dual Shaft, Six-Gang Unit, Momentary Push-on Switch



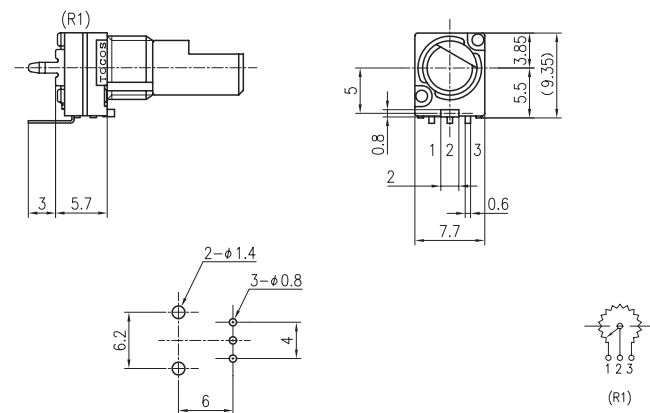
RH76N00A

Vertical Mount, Single Shaft, Single Unit, Momentary Push-on Switch, Snap-in Mounting Pins



RH76N74

Vertical Mount, Single Shaft, Single Unit, Bracket with Snap-in Mounting Pins



RH76N74N

Vertical Mount, Single Shaft, Single Unit, Rotary Switch, Bracket with Snap-in Mounting Pins

