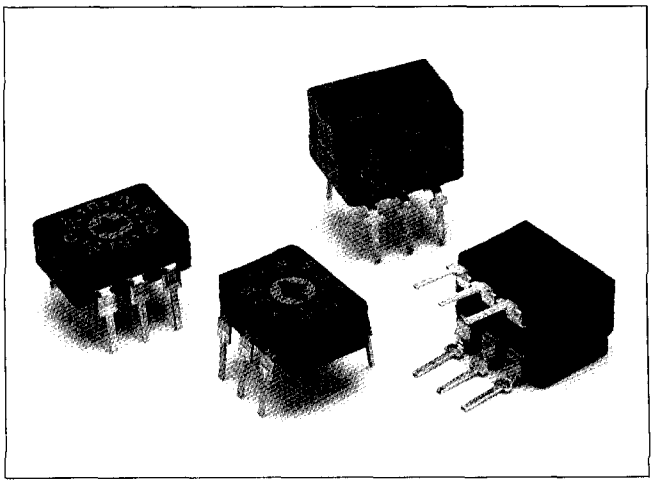
OMRON

Rotary DIP Switch

A6C

Internally Sealed DIL-IC Type Rotary DIP Switches

- Precision rotary cam/contact mechanism provides high reliability.
- Insert-moulded terminals and O-ring sealed rotor make sealing with tape unnecessary.
- Offset between terminal pins and side of case allows simple circuit inspection.



DIP Switches

Ordering Information

No. of positions	10	16
Type/Output code	Binary-coded decimal code	Binary-coded hexadecimal code
Top actuated	A6C–10R (N) *	A6C–16R (N) *
Side actuated	A6CV–10R **	A6CV–16R **

* Supplied in tubes of 55
** Supplied in boxes of 100

Specifications

■ Ratings/Characteristics

Switching capacity	1 to 100 mA, 5 to 30VDC
Min. permissible load	10 μA, 3.5VDC
Carry current	100 mA
Contact resistance	200 mΩ max.
Insulation resistance	100 MΩ min. (at 250 VDC)
Dielectric strength	250 VAC for 1 minute between terminals of the same pole
Operating torque	100 gf–cm max. (0.98N–cm)
Vibration	Malfunction durability: 10 to 55 Hz, 1.5 mm double amplitude
Shock	Malfunction durability: Approx. 300 m/s^2 (30G)
Materials	Base/cover: PBT (Polybutylene sulfide) Rotor: PBT (Polybutylene terephthalate) O-ring: Acryl nitril butadiene rubber Movable contact: SUS plate, gold-plated Terminal: Copper alloy plate
Ambient temperature	Operating: –20°C to 70°C (with no icing)
Ambient humidity	35% to 95%
Materials	Mechanical: 10,000 operations min. Electrical: 2,000 operations min.
Weight	A6C–10R(N), –16R(N): approx 0.4g A6CV–10R, –16R: approx. 0.9g

■ Binary-coded Decimal Code

Type	A6C −10R(N)			
Position\ Terminal No.	1	2	4	8
0				
1	◆			
2		◆		
3	◆	◆		
4			◆	
5	◆		◆	
6		◆	◆	
7	◆	◆	◆	
8				◆
9	◆			◆

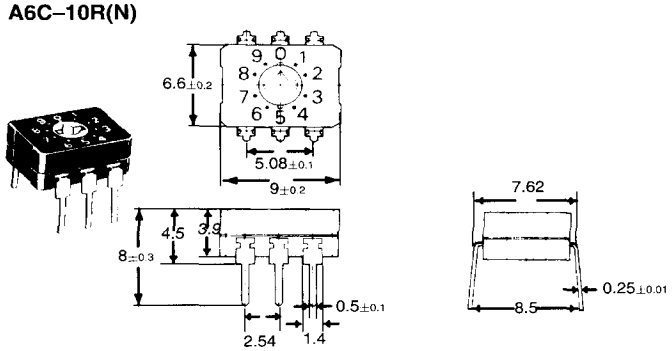
■ Binary-coded Hexadecimal Code

Type	A6C −16R(N)			
Position\ Terminal No.	1	2	4	8
0				
1	◆			
2		◆		
3	◆	◆		
4			◆	
5	◆		◆	
6		◆	◆	
7	◆	◆	◆	
8				◆
9	◆			◆
A		◆		◆
B	◆	◆		◆
C			◆	◆
D	◆		◆	◆
E		◆	◆	◆
F	◆	◆	◆	◆

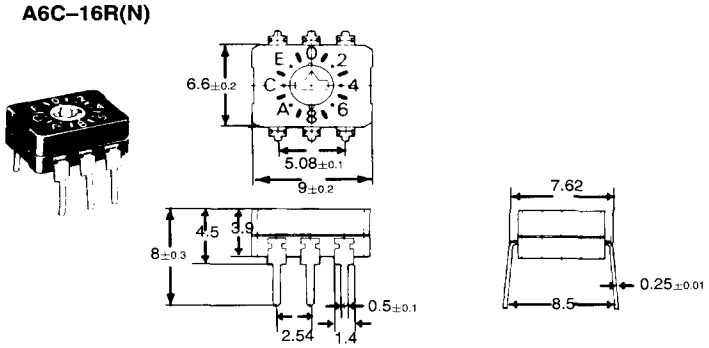
Note: '◆' in the above tables shows the output terminal no. that has continuity with the common terminal (C).

Dimensions

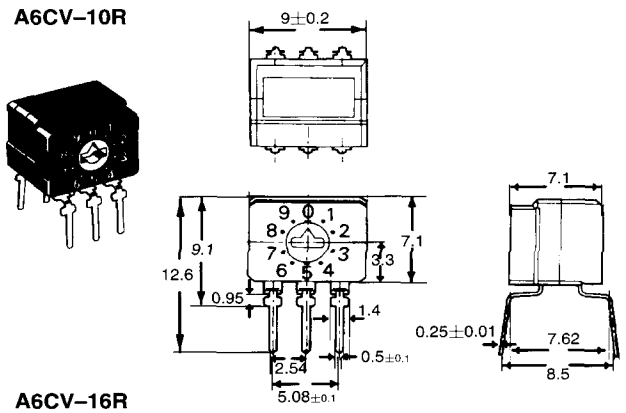
A6C–10R(N)



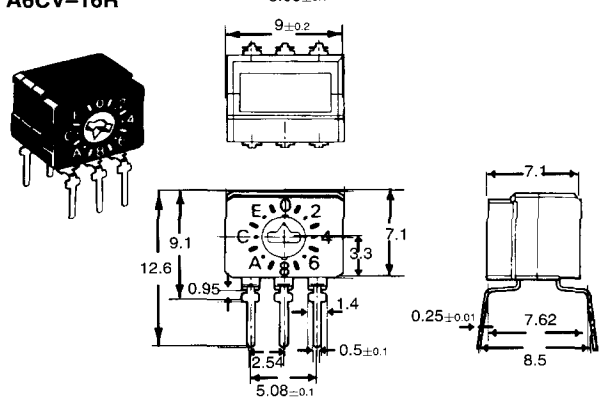
A6C–16R(N)



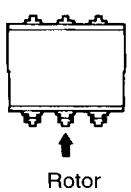
A6CV–10R



A6CV–16R

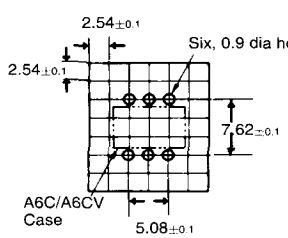


Terminal arrangement (Top view)

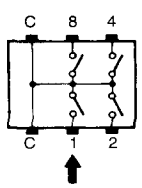


Rotor (A6CV–□R

Mounting holes



Internal connections (Top view)



Rotor (A6CV–□R)

Precautions for A6C and A6D

The terminal pitch of all OMRON DIP switches is the same as a digital IC chip, which has a 2.54mm pitch. Moreover, Models A6C and A6D DIP switches are also identical to an DIL-IC chip in shape, so that they can be mounted on a PC board in exactly the same manner as ordinary IC chips.
When using these OMRON DIP switches, pay attention to the following points:

Circuit Design

Design the circuit for the DIP switch so that the switch can be used within the rated voltage and current ranges. The rated maximum voltage and current must not be exceeded (even momentarily) when the switch breaks or makes contact. The rated minimum current is 10μA (at 3.5 VDC). When CMOS iCs are used on the same PC board as the DIP switch, the momentary current applied to the DIP switch can be increased to improve the contact reliability on some occasions. At this time, however, the peak value of the current must not exceed the rated maximum value.

Mounting

The rotor is set to position 0 at the factory. Do not move the rotor to any other position, until after the switch has been mounted on a PC board, soldered, cleaned and dried.

1.Automatic mounting

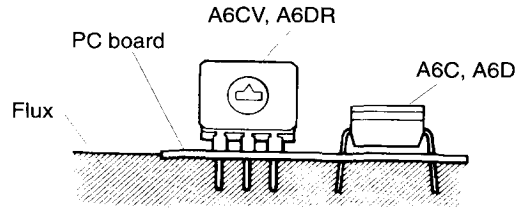
The top actuated types of models A6C and A6D are in the same shape as DIL-IC packages. Therefore, an automatic IC chip mounter can be used to mount these DIP switches without modification or, at worst, by slightly modifying the stopper. (A body stopper is recommended as the stopper for the shoot. Do not use a half-lead stopper. However, this depends on the automatic chip mounter to be used. Check the specifications of the chip mounter in advance.)
Use a PC board 1.2 to 1.6mm thick.
The mounting holes on the PC board should be 0.9mm or larger in diameter.

2.Manual mounting or use of IC socket

Use a commercially available IC chip inserting tool.
IC sockets (such as OMRON model XR) can be used to mount the DIP switch on a PC board as the terminal size and pitch of the switch are the same as ordinary IC chips.
When manually inserting the DIP switch terminal into the mounting holes on a PC board, position the Dip switch so that the terminals can be inserted into the respective mounting holes on the PC board (or on an IC socket) all at once. Then push down the switch as far as it will go. Apply the force at right angles to the PC board. When removing the DIP switch from the PC board or IC socket, do not twist the tip of a screwdriver or similar object inserted between the switch and the PC board or IC socket. Convenient pullout tools are commercially available.

Soldering

Before soldering, confirm that all the terminals of the DIP switch have been deeply inserted into the mounting holes on the PC board. Dip the PC board on which the DIP switch(es) are mounted in the solder flux. The flux must not come over the surface of the PC board.



Both hand and automatic soldering are possible, under the following conditions:

	Max. solder temperature	Max. solder time
Hand soldering	350°C	3 seconds
Automatic soldering	260°C	5 seconds

Cleaning

Use freon TES to remove the solder flux. Dip the switch in an ultrasonic oven, a solution oven and a vapophase oven to a depth of 5cm, for 60 seconds each.
Ethyl acohol or isopropyl alcohol can also be used. If used, however, finish the cleaning process within 5 minutes.
Do not use cleaning solvents other than these, as the switch materials may degrade.

Operation

1 Use the tip of a standard screwdriver or similar object to operate the rotary DIP switch.
Use an appropriately sized screwdriver. If the tip is too large or small, the groove of the actuator may be damaged or deformed.

2. The actuators of a slide type DIP switch can be moved by a stick or ball-point pen having a round tip. Do not use sharp edged objects such as tweezers.

3. The top actuated types and side actuated types of the slide DIP switches can also be operated with the fingers.