

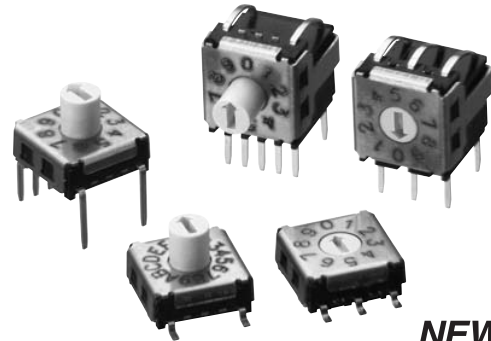
## Miniature Rotary DIP Switch

## A6K/A6KS

### Miniature (7.2 × 7.2mm size) Rotary DIP Switch

- Mounting space reduced by 50%.  
(compared with conventional models)
- SMT and through hole type Available.  
Side-actuated type available.
- Gold-plated contacts ensure high reliability.


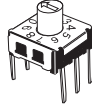
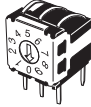
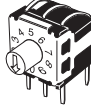
**RoHS Compliant** (Refer to page 6 for details)




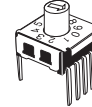
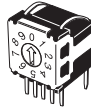
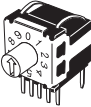
**NEW**

## Ordering Information


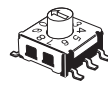
### ■Through hole type (3 × 3 Terminal)

Type (rotor color)			Top-actuated, flat (White)	Top-actuated, extended shaft (White)	Side-actuated, flat (White)	Side-actuated, extended shaft (White)
No. of switching positions	Quantity per stick	Output code				
10	Top :63	BCD/ hexadecimal	<b>A6K-102RF</b>	<b>A6K-102RS</b>	<b>A6KV-102RF</b>	<b>A6KV-102RS</b>
16	Side:60	1-2-4-8 code	<b>A6K-162RF</b>	<b>A6K-162RS</b>	<b>A6KV-162RF</b>	<b>A6KV-162RS</b>


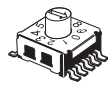


### ■Through hole type (5 × 2 Terminal)

Type (rotor color)			Top-actuated, flat (White)	Top-actuated, extended shaft (White)	Side-actuated, flat (White)	Side-actuated, extended shaft (White)
No. of switching positions	Quantity per stick	Output code				
10	Top :63	BCD/ hexadecimal	<b>A6K-104RF</b>	<b>A6K-104RS</b>	<b>A6KV-104RF</b>	<b>A6KV-104RS</b>
16	Side:60	1-2-4-8 code	<b>A6K-164RF</b>	<b>A6K-164RS</b>	<b>A6KV-164RF</b>	<b>A6KV-164RS</b>

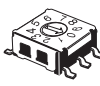

### ■SMT type (3 × 3 Terminal, Stick)

Type (rotor color)			Top-actuated, flat (White)	Top-actuated, extended shaft (White)
No. of switching positions	Quantity per stick	Output code		
10	63	BCD/ hexadecimal	<b>A6KS-102RF</b>	<b>A6KS-102RS</b>
16		1-2-4-8 code	<b>A6KS-162RF</b>	<b>A6KS-162RS</b>

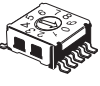



### ■SMT type (5 × 2 Terminal, Stick)

Type (rotor color)			Top-actuated, flat (White)	Top-actuated, extended shaft (White)	Side-actuated, flat (White)	Side-actuated, extended shaft (White)
No. of switching positions	Quantity per stick	Output code				
10	63	BCD/ hexadecimal	<b>A6KS-104RF</b>	<b>A6KS-104RS</b>	<b>A6KSV-104RF</b>	<b>A6KSV-104RS</b>
16		1-2-4-8 code	<b>A6KS-164RF</b>	<b>A6KS-164RS</b>	<b>A6KSV-164RF</b>	<b>A6KSV-164RS</b>

### ■SMT type (3 × 3 Terminal, Embossed tape)

Type (rotor color)		Top-actuated, flat (White)		Top-actuated, extended shaft (White)	
No. of switching positions	Output code	Quantity per embossed tape		Quantity per embossed tape	
10	BCD/hexadecimal	1450	A6KS-102RF-P	850	A6KS-102RS-P
16	1-2-4-8 code		A6KS-162RF-P		A6KS-162RS-P

### ■SMT type (5 × 2 Terminal, Embossed tape)

Type (rotor color)		Top-actuated, flat (White)		Top-actuated, extended shaft (White)		Side-actuated, flat (White)		Side-actuated, extended shaft (White)	
No. of switching positions	Output code	Quantity per embossed tape		Quantity per embossed tape		Quantity per embossed tape		Quantity per embossed tape	
10	BCD/hexadecimal	1450	A6KS-104RF-P	850	A6KS-104RS-P	1450	A6KSV-104RF-P	750	A6KSV-104RS-P
16	1-2-4-8 code		A6KS-164RF-P		A6KS-164RS-P		A6KSV-164RF-P		A6KSV-164RS-P

**Note:** Orders must be made in multiples of pack quantity. Switch are not sold individually.

## Specifications

<b>Rating</b>	24 VDC 25 mA, 3.5 VDC 10 μA (minimum current)		
<b>Ambient operating temperature</b>	- 30 °C to 80 °C 60 %RH max. (with no icing or dewing)		
<b>Ambient operating humidity</b>	35 to 95 %RH (for 5 to 35 °C)		
<b>Insulation resistance</b>	100 MΩ min.		
<b>Contact resistance</b>	200 mΩ max. (initial value)		
<b>Dielectric strength</b>	250 VAC for 1 minute between terminals of the same polarity, and between terminals of different polarity		
<b>Vibration resistance</b>	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude		
<b>Shock resistance</b>	Malfunction: 300 m/s <sup>2</sup> min.		
<b>Electrical life expectancy</b>	20,000 steps (24 VDC 25 mA)		
<b>Operating torque</b>	1.96 × 10 <sup>-2</sup> N•m max.		
<b>Weight</b>	<b>Through hole terminal</b>	Top-actuated, flat: 0.38 g, Side-actuated, flat: 0.71 g	
	<b>SMT terminal</b>	Top-actuated, flat: 0.36 g, Side-actuated, flat: 0.39 g	

\*Add 0.03 g for the extended-shaft version of each model

## Output Codes

### 10-position Models

Position	Code	BCD/hexadecimal 1-2-4-8 code			
		1	2	4	8
0					
1	●				
2			●		
3	●		●		
4				●	
5	●			●	
6			●	●	
7	●		●	●	
8					●
9	●				●

**Note:** "●" indicates that the internal switch is ON.

### 16-position Models

Position	Code	BCD/hexadecimal 1-2-4-8 code			
		1	2	4	8
0					
1	●				
2			●		
3	●		●		
4				●	
5	●			●	
6			●	●	
7	●		●	●	
8					●
9	●				●
A			●		●
B	●		●		●
C				●	●
D	●			●	●
E			●	●	●
F	●		●	●	●

# Dimensions

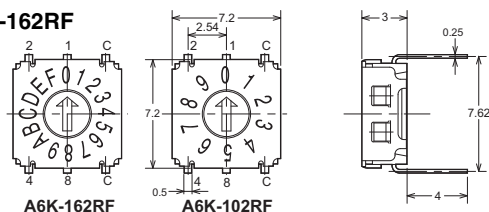
(unit: mm)

## Through hole type

### Top-actuated Flat Models with 3×3 Terminal Arrangement

A6K-102RF

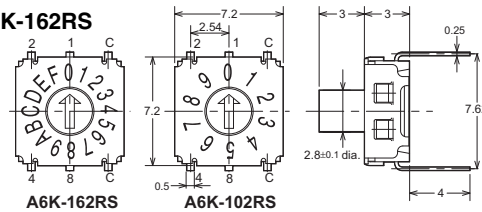
A6K-162RF



### Top-actuated Extended shaft Models with 3×3 Terminal Arrangement

A6K-102RS

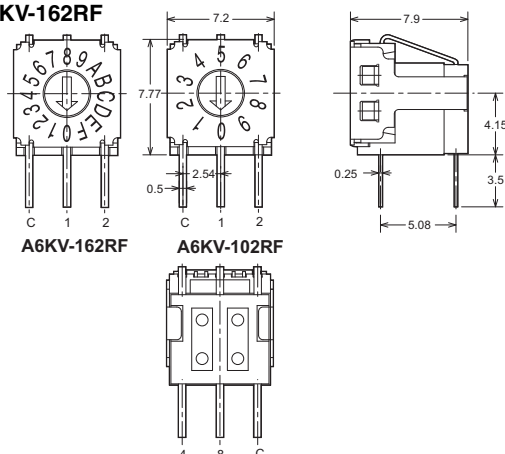
A6K-162RS



### Side-actuated Flat Models with 3×3 Terminal Arrangement

A6KV-102RF

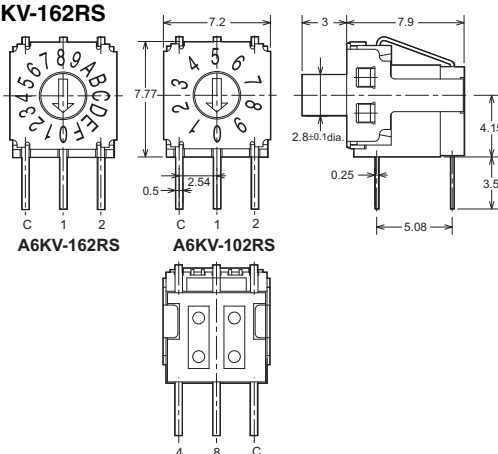
A6KV-162RF



### Side-actuated Extended-shaft Models with 3×3 Terminal Arrangement

A6KV-102RS

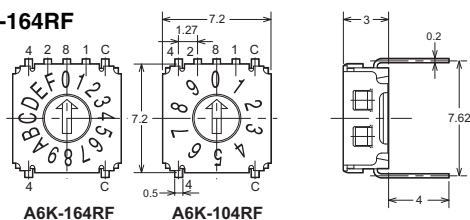
A6KV-162RS



### Top-actuated Flat Models with 5×2 Terminal Arrangement

A6K-104RF

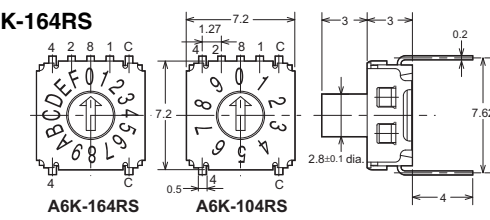
A6K-164RF



### Top-actuated Extended shaft Models with 5×2 Terminal Arrangement

A6K-104RS

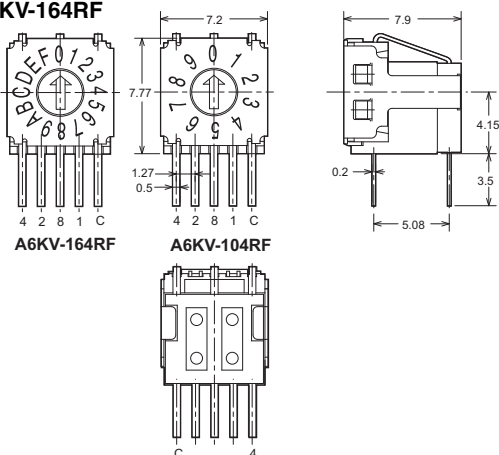
A6K-164RS



### Side-actuated Flat Models with 5×2 Terminal Arrangement

A6KV-104RF

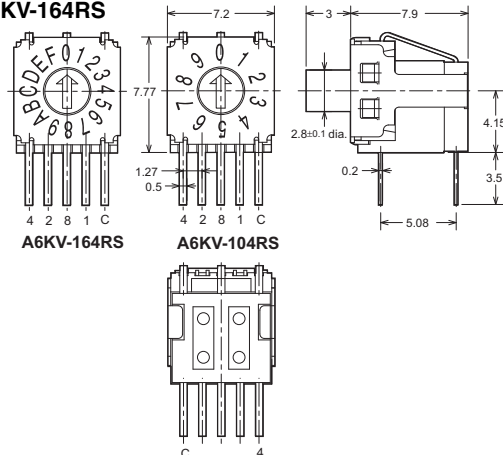
A6KV-164RF



### Side-actuated Extended-shaft Models with 5×2 Terminal Arrangement

A6KV-104RS

A6KV-164RS

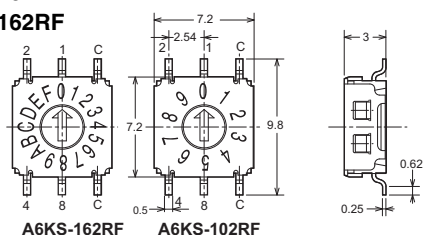


### ■ SMT type

#### ● Top-actuated Flat Models with 3×3 Terminal Arrangement

A6KS-102RF

A6KS-162RF



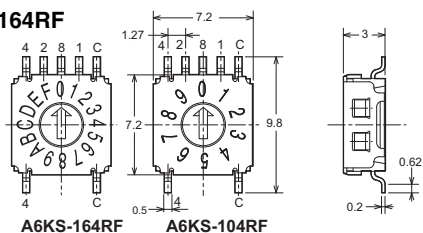
A6KS-162RF

A6KS-102RF

#### ● Top-actuated Flat Models with 5×2 Terminal Arrangement

A6KS-104RF

A6KS-164RF



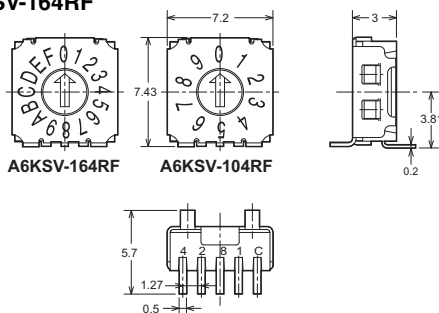
A6KS-164RF

A6KS-104RF

#### ● Side-actuated Flat Models with 5×2 Terminal Arrangement

A6KSV-104RF

A6KSV-164RF



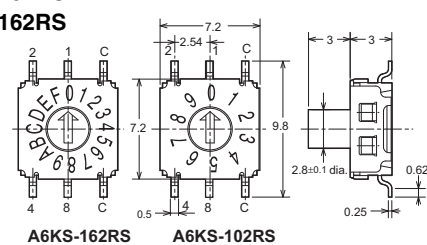
A6KSV-164RF

A6KSV-104RF

#### ● Top-actuated Extended shaft Models with 3×3 Terminal Arrangement

A6KS-102RS

A6KS-162RS



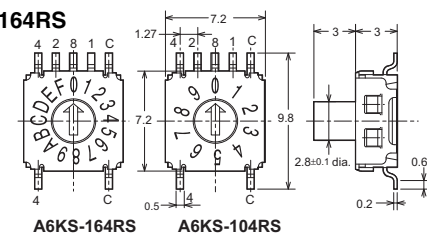
A6KS-162RS

A6KS-102RS

#### ● Top-actuated Extended shaft Models with 5×2 Terminal Arrangement

A6KS-104RS

A6KS-164RS



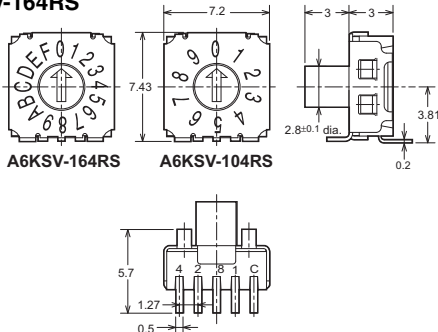
A6KS-164RS

A6KS-104RS

#### ● Side-actuated Extended-shaft Models with 5×2 Terminal Arrangement

A6KSV-104RS

A6KSV-164RS



A6KSV-164RS

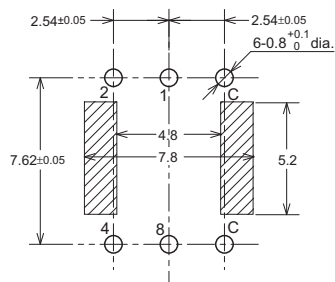
A6KSV-104RS

## PCB Cutout Dimensions (TOP VIEW)

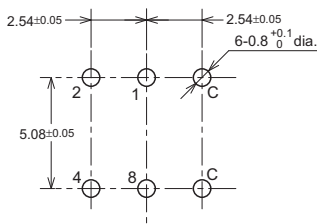
(Unit: mm)

## ● 3×3 Terminal Arrangement

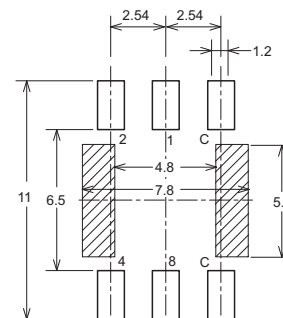
Through hole (Top-actuated Models)



Through hole (Side-actuated Models)

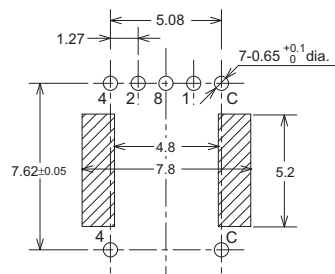


SMT (Top-actuated Models)

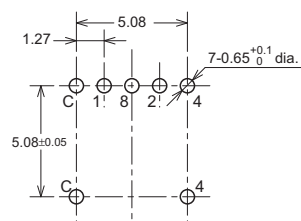


## ● 5×2 Terminal Arrangement

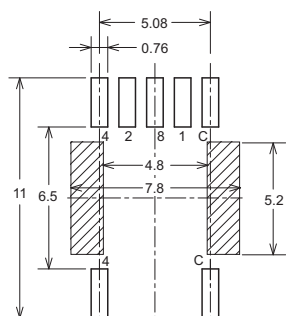
Through hole (Top-actuated Models)



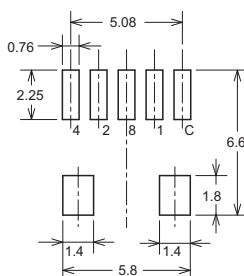
Through hole (Side-actuated Models)



SMT (Top-actuated Models)



SMT (Side-actuated Models)



: Through hole:Pattern prohibited area

# Safety Precautions

**Note:** Refer to Safety Precautions in the DIP Switches (Cat. No. X040) for details on general safety precautions.

## Correct Use

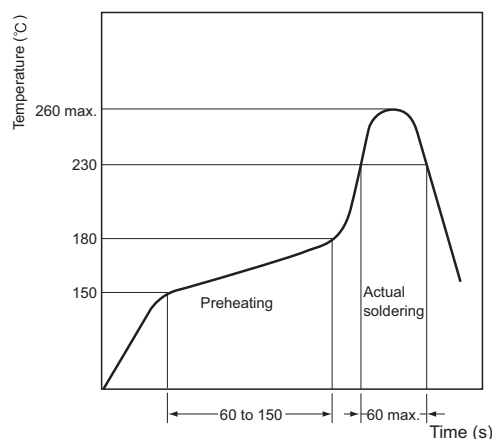
### Soldering

#### General Precautions for Soldering.

Make sure that Rotary DIP Switches are set to 0 before soldering. Misalignment may result in reduced sensitivity due to the soldering heat.

#### Reflow Soldering

Observe the following conditions for reflow soldering.  
(Measurement location: Top of Switch)



#### Automatic Soldering Bath

Soldering temperature: 260 °C max.  
(Preheating: 150 °C · 120s max.)  
Soldering time: 5s max.

#### Manual Soldering

Soldering temperature: 350 °C max. at the tip of the soldering iron  
Soldering time: 3s max.  
Do not solder the Switch more than twice including any rectification soldering. An interval of five minutes is required between the first and second soldering.

### Washing

The A6K/A6KS cannot be washed. Attempting to wash it may result in malfunction due to flux and foreign matter from the PCB flowing into the A6K/A6KS together with the cleaning fluid.

### Using Flux

The type of flux or the amount or method in which it is applied, including its use in reflow soldering, can have adverse effects on Switch performance. Assess the proper flux, conditions, and methods prior to using it.

### RoHS Compliant

The "RoHS Compliant" designation indicates that the listed models do not contain the six hazardous substances covered by the RoHS Directive.

Reference: The following standards are used to determine compliance for the six substances.

Lead	: 1,000 ppm max.
Mercury	: 1,000 ppm max.
Cadmium	: 100 ppm max.
Hexavalent chromium	: 1,000 ppm max.
PBB	: 1,000 ppm max.
PBDE	: 1,000 ppm max.

### Environment for Storage and Use

To prevent discoloration of the terminals and other problems during storage, do not store the A6K/A6KS in locations subject to the following conditions.

- (1) High temperatures or humidity
- (2) Corrosive gases
- (3) Direct sunlight

Also, the A6K/A6KS is not waterproof or splash-resistant. Do not install or use the A6K/A6KS in locations that are subject to contact with water.

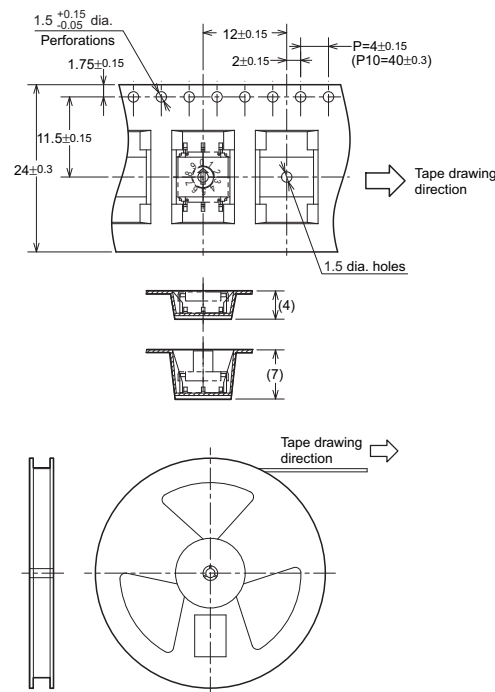
Do not subject the A6K/A6KS to freezing or condensation.

### Handling

Do not apply excessive operating force to the Switch. Otherwise the Switch may be damaged or deformed, and the switch mechanism may malfunction as a result.

Set rotary-type DIP Switches with a flat-blade screwdriver that fits into the screwdriver groove. Using a screwdriver of inappropriate dimensions, or using a tool other than a flat-blade screwdriver may cause damage to the groove that may make the Switch impossible to operate. Extended-shaft models can also be manually set, but be sure not to apply an excessive amount of force to the Switch when setting it.

### Packing Specifications





ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. A174-E1-01 In the interest of product improvement, specifications are subject to change without notice.

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## OMRON Corporation

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**Switch Division**

**Manual Switch Department**

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