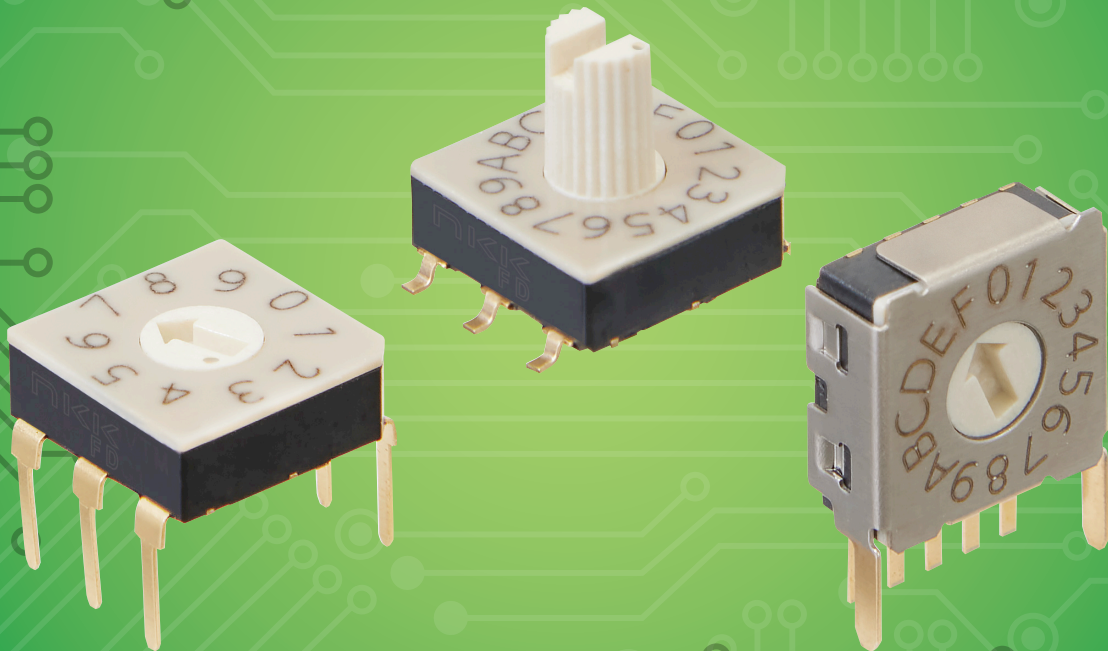


**New Products**

**CONTACT** No. 408

**NKK**  
SWITCHES  
*Innovation Driving Quality*

# 7.2 and 7.7 mm Square Rotary Switches with 3.1 to 3.3 mm Height for High-Density Mounting



**FD01 Series / FD02 Series**

**Straight PC / SMT**

## Ultra-Thin DIP Rotary Switches

NKK SWITCHES CO., LTD.

# 7.2 and 7.7 mm Square Rotary Switches with 3.1 to 3.3 mm Height for High-Density Mounting

**Inch Terminal Pitch**

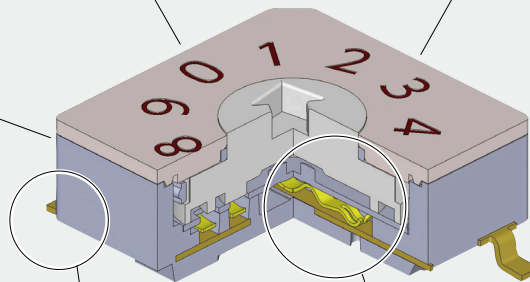
For PCBs with inch terminal spacing (FD01)

**Heat-Resistant Resin**

Heat-resistant resin, suitable for reflow soldering (FD02)

**Gull-Wing Configuration**

Gull-wing configuration for post-soldering inspections (FD02)



**Space-Saving Design**

Compact dimensions (7.2 and 7.7 mm square, 3.1 to 3.3 mm height) allow high-density mounting and provide space-saving benefits.

**Smooth and Crisp Operation**

The incorporated metal springs guarantee smooth and crisp operation.

**High-Reliability Contacts**

Movable contact components distribute the reaction force evenly to ensure consistent connection. High contact-reliability is achieved through gold-plated contacts.

**General Specifications**

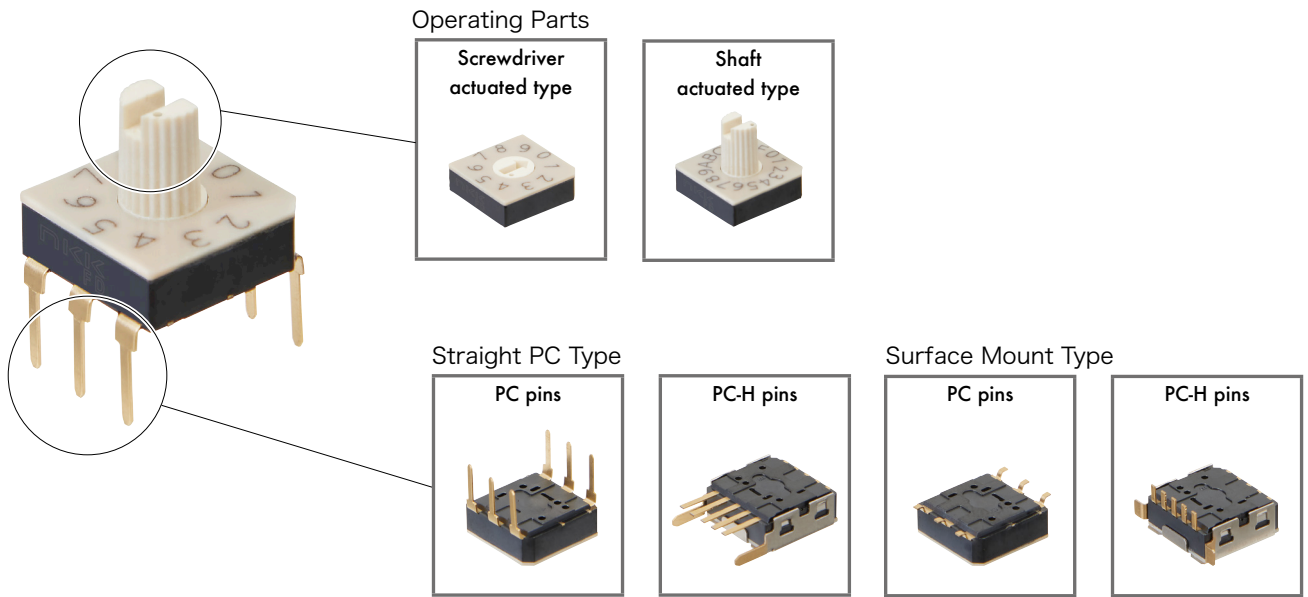
General Specifications			
Rating (Resistive Load)	0.4 VA maximum, 20 V maximum, AC/DC	Operating Temperature Range	-25°C to +85°C
Contact Resistance	100 mΩ maximum (at 20 mV, 10 mA)	Solder Heat Resistance	FD01 Series ▶ When using soldering iron: Rank B ▶ When using solder bath: Rank B FD02 Series ▶ When using soldering iron: Rank B ▶ When using reflow: Rank A Refer to instructions in the full-line catalog.
Insulation Resistance	250 V DC, 1 GΩ minimum		
Dielectric Strength	250 V AC for 1 minute minimum		
Mechanical Life	10,000 operations minimum		
Electrical Life	10,000 operations minimum		

**!** Each rated value/performance value is obtained through independent testing. Therefore, the same results are not guaranteed under complex conditions. For testing conditions and judgment criteria, please refer to the full-line catalog.

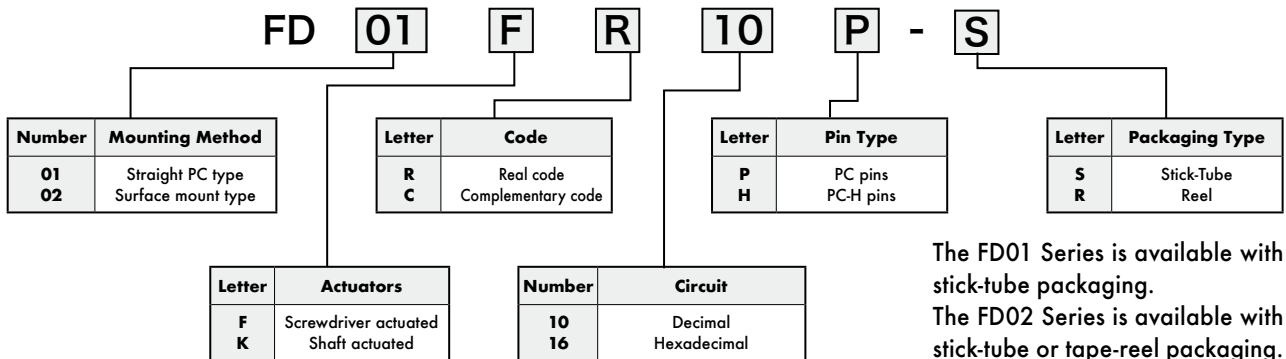
Truth Tables (Circuits & Positions) ● indicates connection to C (common).

Model	FD01FR16P		FD01FR16H		FD01KR16P		FD01FC16P		FD01FC16H							
	FD02FR16P		FD02FR16H		FD02KR16P		FD02FC16P		FD02FC16H							
Position	FD01FR10P		FD01FR10H		FD01KR10P		FD01FC10P		FD01FC10H							
	FD02FR10P		FD02FR10H		FD02KR10P		FD02FC10P		FD02FC10H							
Code	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1		●		●		●		●		●		●		●		●
2			●	●		●	●				●	●		●	●	
4					●	●	●	●			●	●	●	●		
8									●	●	●	●	●	●	●	●
	R: Front (real) code								C: Rear (complementary) code							

## ► Variations



## ► Typical Ordering Example



►The Shaft actuated type is only available for models with "Real code" and "PC pins."

## ► Sales Start Date

**February 8, 2024**

## ► Screwdriver Actuated Type

### PC Pin Type

► When ordering, please include the packaging type code indicated in the product code suffix.

<b>FD01FR10P</b> (Real code)	<b>FD01FC10P</b> (Complementary code)	<p>Model marking side</p> <table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code				<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type										
Real code	Complementary code									
<b>FD01FR16P</b> (Real code)	<b>FD01FC16P</b> (Complementary code)	<p>Model marking side</p> <table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code				<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type										
Real code	Complementary code									

### PC-H Pin Type

► When ordering, please include the packaging type code indicated in the product code suffix.

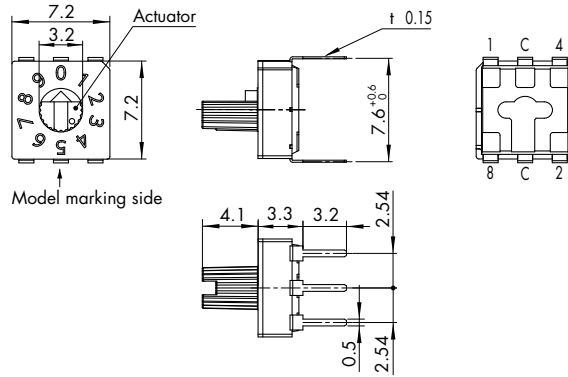
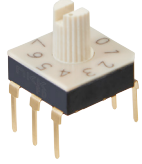
<b>FD01FR10H</b> (Real code)	<b>FD01FC10H</b> (Complementary code)	<p>Model marking side</p> <table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code				<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type										
Real code	Complementary code									
<b>FD01FR16H</b> (Real code)	<b>FD01FC16H</b> (Complementary code)	<p>Model marking side</p> <table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code				<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type										
Real code	Complementary code									

## ▶ Shaft Actuated Type

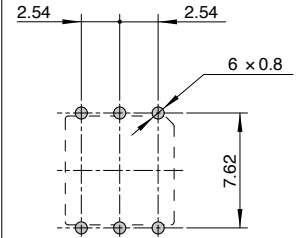
▶ When ordering, please include the packaging type code indicated in the product code suffix.

### PC Pin Type

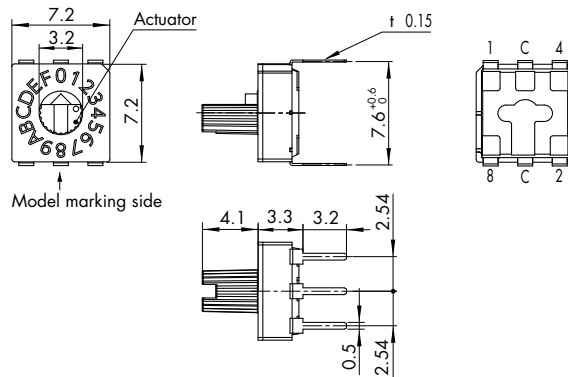
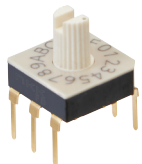
#### FD01KR10P (Real code)



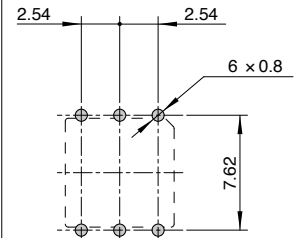
#### PCB mounting hole dimensions drawing (View from switch mounting side)



#### FD01KR16P (Real code)



#### PCB mounting hole dimensions drawing (View from switch mounting side)



## ▶ Handling Instructions

### Soldering

Make sure the positions are set as follows when soldering.  
Note that the positions are set this way when shipped.

- FD01FR10P, FD01FR16P, FD01FR10H,**
- FD01FR16H, FD01KR10P, FD01KR16P:** Position 0
- FD01FC10P, FD01FC10H:** Position 7
- FD01FC16P, FD01FC16H:** Position F

### Mounting

Work carefully to avoid applying mechanical stress to the contacts (e.g., due to PCB warping after soldering).

### Do not wash the entire switch

Use alcohol-based cleaning fluid to remove flux on the PCB side after soldering.

## ► Screwdriver Actuated Type

### PC Pin Type

► When ordering, please include the packaging type code indicated in the product code suffix.

<b>FD02FR10P</b> (Real code)	<b>FD02FC10P</b> (Complementary code)	<table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code					<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type											
Real code	Complementary code										
<b>FD02FR16P</b> (Real code)	<b>FD02FC16P</b> (Complementary code)	<table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code					<b>Pin flatness</b>
Actuator type											
Real code	Complementary code										

### PC-H Pin Type

► When ordering, please include the packaging type code indicated in the product code suffix.

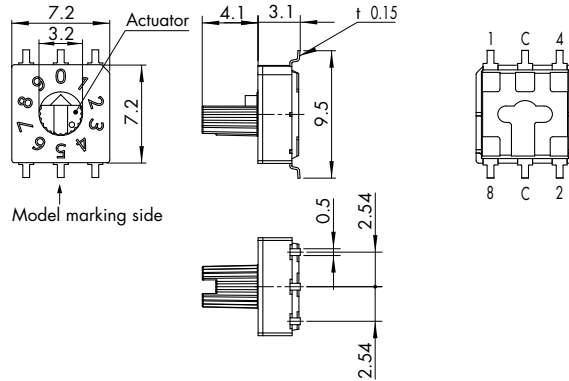
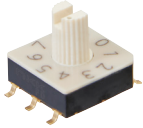
<b>FD02FR10H</b> (Real code)	<b>FD02FC10H</b> (Complementary code)	<table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code					<b>PCB mounting hole dimensions drawing</b> (View from switch mounting side)
Actuator type											
Real code	Complementary code										
<b>FD02FR16H</b> (Real code)	<b>FD02FC16H</b> (Complementary code)	<table border="1"> <thead> <tr> <th colspan="2">Actuator type</th> </tr> <tr> <th>Real code</th> <th>Complementary code</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Actuator type		Real code	Complementary code					<b>Pin flatness</b>
Actuator type											
Real code	Complementary code										

## ▶ Shaft Actuated Type

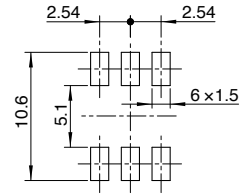
▶ When ordering, please include the packaging type code indicated in the product code suffix.

### PC Pin Type

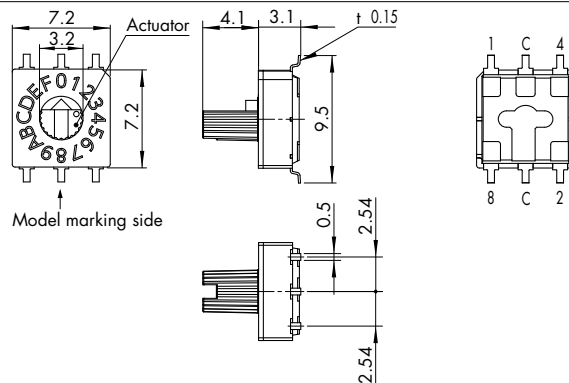
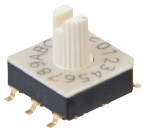
**FD02KR10P**  
(Real code)



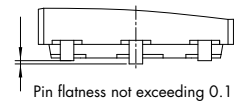
**PCB mounting hole dimensions drawing**  
(View from switch mounting side)



**FD02KR16P**  
(Real code)



**Pin flatness**



## ▶ Handling Instructions

### Soldering

Make sure the positions are set as follows when soldering.  
Note that the positions are set this way when shipped.

**FD02FR10P, FD02FR16P, FD02FR10H, FD02FR16H,**  
**FD02KR10P, FD02KR16P:** Position 0  
**FFD02FC10P, FD02FC10H:** Position 7  
**FD02FC16P, FD02FC16H:** Position F

### Mounting

Work carefully to avoid applying mechanical stress to the contacts (e.g., due to PCB warping after soldering).

### Do not wash the entire switch.

Use alcohol-based cleaning fluid to remove flux on the PCB side after soldering.

## ► Packaging Types

The **FD01** Series is available with stick-tube packaging.  
The **FD02** Series is available with stick-tube or tape-reel packaging.

Packaging type suffix codes

Stick-tube: **-S**

Tape-reel: **-R**

Stick-tube packaging

**FD01:** 60 units per tube for PC and PC-H pin types

**FD02:** 60 units per tube for PC pin types, 45 units per tube for PC-H pin types

Tape-reel packaging

**FD02:** 1,000 units per reel for F type PC pin types

500 units per reel for F type PC-H pin types

500 units per reel for K type PC pin types

Stick-tube Specifications	
<b>FD01FR10P-S, FD01FC10P-S, FD01FR16P-S, FD01FC16P-S</b> 	<b>FD01FR10H-S, FD01FC10H-S, FD01FR16H-S, FD01FC16H-S</b> 
<b>FD01KR10P-S, FD01KR16P-S</b> 	<b>FD02FR10P-S, FD02FC10P-S, FD02FR16P-S, FD02FC16P-S</b> 
<b>FD02FR16H-S, FD02FC10H-S, FD02FR16H-S, FD02FC16H-S</b> 	<b>FD02KR10P-S, FD02KR16P-S</b> 

Tape-reel Specifications	
<b>FD02FR10P-R, FD02FC10P-R, FD02FR16P-R, FD02FC16P-R</b> 	<b>FD02FR10H-R, FD02FC10H-R, FD02FR16H-R, FD02FC16H-R</b> 
<b>FD02KR10P-R, FD02KR16P-R</b> 	

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