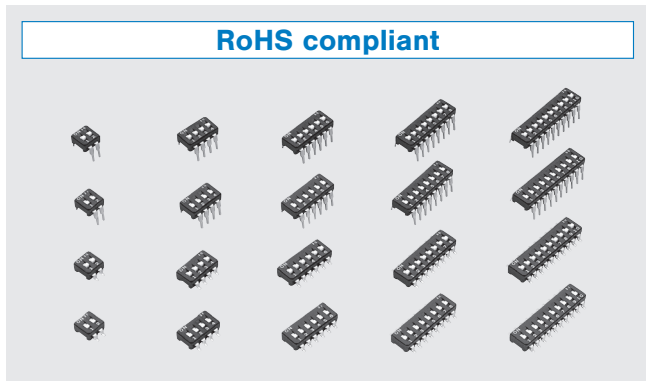




# THE DATASHEET OF CFS-1002MB



# SLIDE SWITCHES (FULL PITCH)



RoHS compliant

## FEATURES

- RoHS compliant
- Excellent contact stability by twin Gold-plated contact
- Resin material is UL Recognized 94V-0

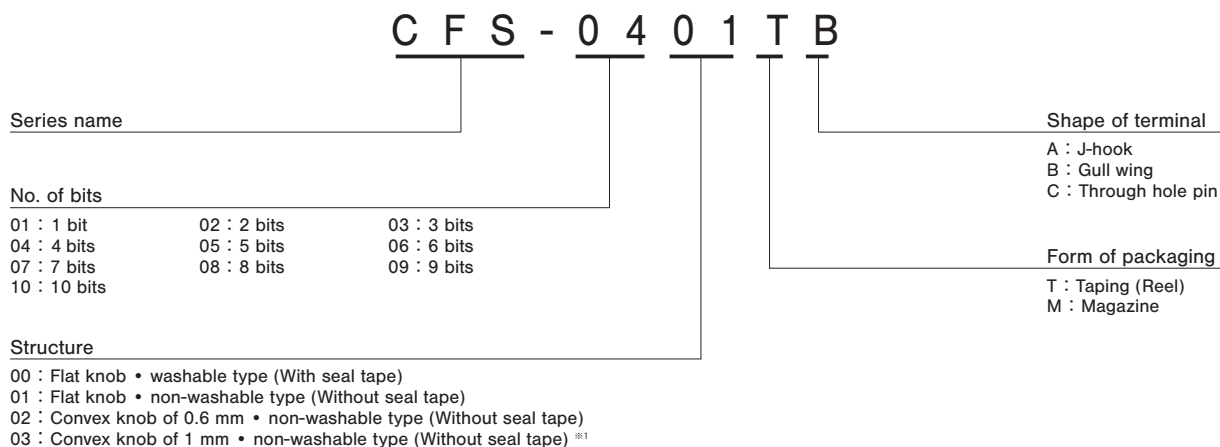
**INTERNAL STRUCTURE**

Part name	Material
① Cover	Polyphenylenesulfide
② Slider	Polyamide
③ Housing	Polyphenylenesulfide
④ Slider contact	Copper alloy, Gold-plated
⑤ Fixed contact	
⑥ Terminal pin	

## APPLICATIONS

- Communication devices, Air-conditioning equipment, Vending machines and various control equipment

## PART NUMBER DESIGNATION



\*1 : J-hook type is not available

※ Please refer to the LIST OF PART NUMBERS when placing orders.

### LIST OF PART NUMBERS

No. of bits	Form of packaging	Structure										Packaging quantity		
		Flat knob · non-washable type (Without seal tape)					Flat knob · washable type (With seal tape)							
		A	J-hook	B	Gull wing	C	Through hole pin	A	J-hook	B	Gull wing		C	Through hole pin
1	Taping	CFS-0101TA	CFS-0101TB					CFS-0100TA	CFS-0100TB					1000 pcs./reel
	Magazine	CFS-0101MA	CFS-0101MB	CFS-0101MC				CFS-0100MA	CFS-0100MB	CFS-0100MC				118 pcs./stick
2	Taping	CFS-0201TA	CFS-0201TB					CFS-0200TA	CFS-0200TB					1000 pcs./reel
	Magazine	CFS-0201MA	CFS-0201MB	CFS-0201MC				CFS-0200MA	CFS-0200MB	CFS-0200MC				72 pcs./stick
3	Taping	CFS-0301TA	CFS-0301TB					CFS-0300TA	CFS-0300TB					1000 pcs./reel
	Magazine	CFS-0301MA	CFS-0301MB	CFS-0301MC				CFS-0300MA	CFS-0300MB	CFS-0300MC				52 pcs./stick
4	Taping	CFS-0401TA	CFS-0401TB					CFS-0400TA	CFS-0400TB					1000 pcs./reel
	Magazine	CFS-0401MA	CFS-0401MB	CFS-0401MC				CFS-0400MA	CFS-0400MB	CFS-0400MC				40 pcs./stick
5	Taping	CFS-0501TA	CFS-0501TB					CFS-0500TA	CFS-0500TB					1000 pcs./reel
	Magazine	CFS-0501MA	CFS-0501MB	CFS-0501MC				CFS-0500MA	CFS-0500MB	CFS-0500MC				32 pcs./stick
6	Taping	CFS-0601TA	CFS-0601TB					CFS-0600TA	CFS-0600TB					1000 pcs./reel
	Magazine	CFS-0601MA	CFS-0601MB	CFS-0601MC				CFS-0600MA	CFS-0600MB	CFS-0600MC				28 pcs./stick
7	Taping	CFS-0701TA	CFS-0701TB					CFS-0700TA	CFS-0700TB					1000 pcs./reel
	Magazine	CFS-0701MA	CFS-0701MB	CFS-0701MC				CFS-0700MA	CFS-0700MB	CFS-0700MC				24 pcs./stick
8	Taping	CFS-0801TA	CFS-0801TB					CFS-0800TA	CFS-0800TB					1000 pcs./reel
	Magazine	CFS-0801MA	CFS-0801MB	CFS-0801MC				CFS-0800MA	CFS-0800MB	CFS-0800MC				20 pcs./stick
9	Taping	CFS-0901TA	CFS-0901TB					CFS-0900TA	CFS-0900TB					1000 pcs./reel
	Magazine	CFS-0901MA	CFS-0901MB	CFS-0901MC				CFS-0900MA	CFS-0900MB	CFS-0900MC				18 pcs./stick
10	Taping	CFS-1001TA	CFS-1001TB					CFS-1000TA	CFS-1000TB					1000 pcs./reel
	Magazine	CFS-1001MA	CFS-1001MB	CFS-1001MC				CFS-1000MA	CFS-1000MB	CFS-1000MC				16 pcs./stick

No. of bits	Form of packaging	Structure										Packaging quantity		
		Convex knob of 0.6 mm · non-washable type (Without seal tape)					Convex knob of 1 mm · non-washable type (Without seal tape)							
		A	J-hook	B	Gull wing	C	Through hole pin	B	Gull wing	C	Through hole pin			
1	Taping	CFS-0102TA	CFS-0102TB					CFS-0103TB						800 pcs./reel
	Magazine	CFS-0102MA	CFS-0102MB	CFS-0102MC				CFS-0103MB	CFS-0103MC					118 pcs./stick
2	Taping	CFS-0202TA	CFS-0202TB					CFS-0203TB						800 pcs./reel
	Magazine	CFS-0202MA	CFS-0202MB	CFS-0202MC				CFS-0203MB	CFS-0203MC					72 pcs./stick
3	Taping	CFS-0302TA	CFS-0302TB					CFS-0303TB						800 pcs./reel
	Magazine	CFS-0302MA	CFS-0302MB	CFS-0302MC				CFS-0303MB	CFS-0303MC					52 pcs./stick
4	Taping	CFS-0402TA	CFS-0402TB					CFS-0403TB						800 pcs./reel
	Magazine	CFS-0402MA	CFS-0402MB	CFS-0402MC				CFS-0403MB	CFS-0403MC					40 pcs./stick
5	Taping	CFS-0502TA	CFS-0502TB					CFS-0503TB						800 pcs./reel
	Magazine	CFS-0502MA	CFS-0502MB	CFS-0502MC				CFS-0503MB	CFS-0503MC					32 pcs./stick
6	Taping	CFS-0602TA	CFS-0602TB					CFS-0603TB						800 pcs./reel
	Magazine	CFS-0602MA	CFS-0602MB	CFS-0602MC				CFS-0603MB	CFS-0603MC					28 pcs./stick
7	Taping	CFS-0702TA	CFS-0702TB					CFS-0703TB						800 pcs./reel
	Magazine	CFS-0702MA	CFS-0702MB	CFS-0702MC				CFS-0703MB	CFS-0703MC					24 pcs./stick
8	Taping	CFS-0802TA	CFS-0802TB					CFS-0803TB						800 pcs./reel
	Magazine	CFS-0802MA	CFS-0802MB	CFS-0802MC				CFS-0803MB	CFS-0803MC					20 pcs./stick
9	Taping	CFS-0902TA	CFS-0902TB					CFS-0903TB						800 pcs./reel
	Magazine	CFS-0902MA	CFS-0902MB	CFS-0902MC				CFS-0903MB	CFS-0903MC					18 pcs./stick
10	Taping	CFS-1002TA	CFS-1002TB					CFS-1003TB						800 pcs./reel
	Magazine	CFS-1002MA	CFS-1002MB	CFS-1002MC				CFS-1003MB	CFS-1003MC					16 pcs./stick

☐ : Not manufactured

※ Verify the above part numbers when placing orders.

Taping and magazine version can be supplied only in reel or stick units.

### STANDARD SPECIFICATIONS

Operating temp. range	- 40 ~ 85 °C
Storage temp. range	
Sealing	Washable type available with seal tape
Net weight	Approx. 0.15 g (CFS-01), Approx. 0.24 g (CFS-02), Approx. 0.33 g (CFS-03), Approx. 0.42 g (CFS-04), Approx. 0.51 g (CFS-05), Approx. 0.61 g (CFS-06), Approx. 0.70 g (CFS-07), Approx. 0.82 g (CFS-08), Approx. 0.90 g (CFS-09), Approx. 0.98 g (CFS-10)

### ELECTRICAL CHARACTERISTICS

Contact rating Non-switching Switching Minimum	DC50 V 100 mA DC6 V, 100 mA DC24 V, 25 mA DC20 mV 1 μA
Contact resistance	50 mΩ maximum
Insulation resistance	1000 MΩ (DC100 V) minimum
Dielectric strength	AC500 V, 60 s

### MECHANICAL CHARACTERISTICS

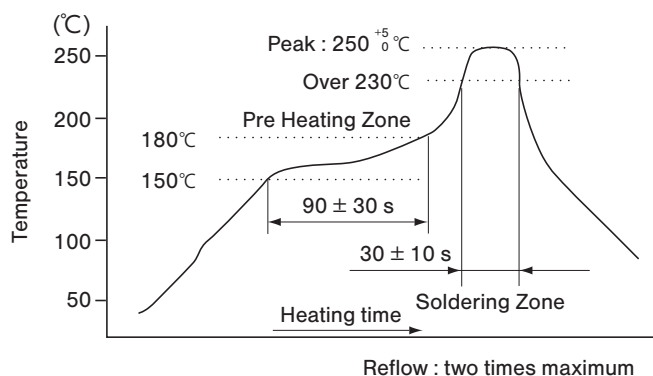
Stroke	1 mm
Operating force	0.5 ~ 7 N {0.05 ~ 0.71 kgf}
Stop strength	10 N {1.02 kgf} 60 s
Solderability	245 ± 3 °C, 2 ~ 3 s
Soldering heat	Reflow : 255 °C (Peak temperature) Flow : 260 ± 3 °C, 5 ~ 6 s, two times maximum (Please refer to the profile below)
	Manual soldering : 350 ± 10 °C, 3 ~ 4 s
Shear (Adhesion)	5 N {0.51 kgf} 10 s
Substrate bending	Width 90 mm, bend 3 mm, 5 s, 1 time
Pull-off strength	5 N {0.51 kgf} 10 s

{ } : Reference only

### ENVIRONMENTAL CHARACTERISTICS

Vibration	(Amplitude) 1.5 mm or (Acceleration) 98 m/s <sup>2</sup> , 10-500 Hz, 3 directions for 10 cycles each
Shock	490 m/s <sup>2</sup> , 11 ms, 6 directions for 3 times each
Load life	Continuous load 1000 cycles, DC6 ± 0.5 V, 100 ± 10 mA
Humidity	-10 ~ 65 °C, Relative humidity 0 ~ 96 %, 24 h for 10 cycles
High temp. exposure	85 °C, 96 h
Low temp. exposure	-40 °C, 96 h
Thermal shock	-40 (0.5 h) ~ 85 °C (0.5 h), 5 cycles

### <Reflow profile for soldering heat evaluation>



# CFS

## SLIDE SWITCHES (FULL PITCH)

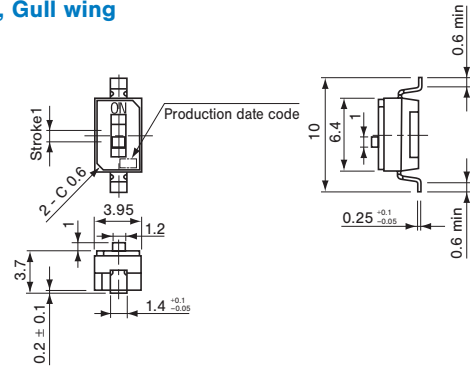
### OUTLINE DIMENSIONS

Unless otherwise specified, tolerance :  $\pm 0.3$  (Unit : mm)

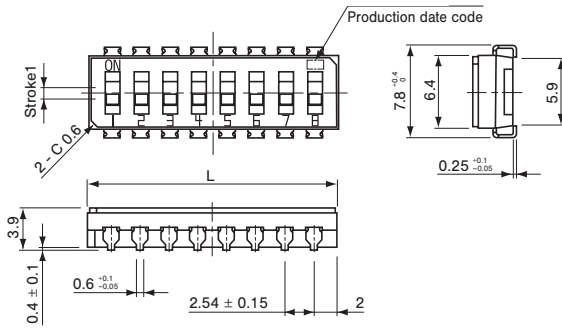
#### 1 bit, J-hook



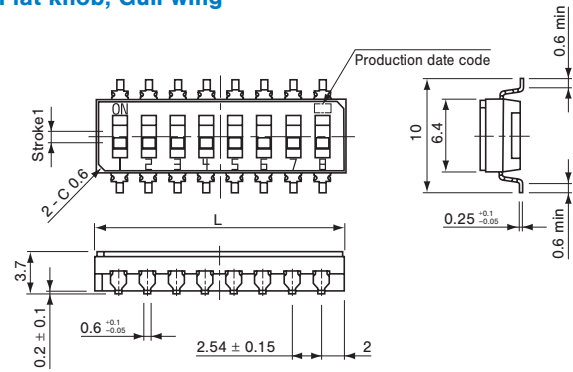
#### 1 bit, Gull wing



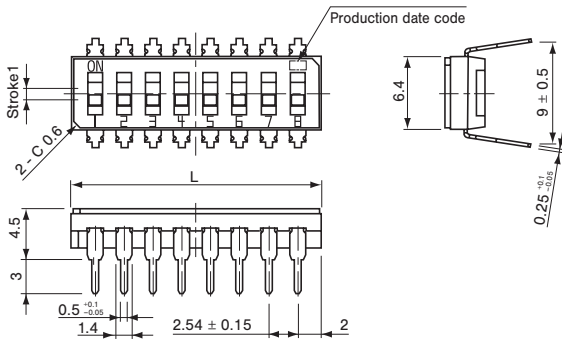
#### Flat knob, J-hook



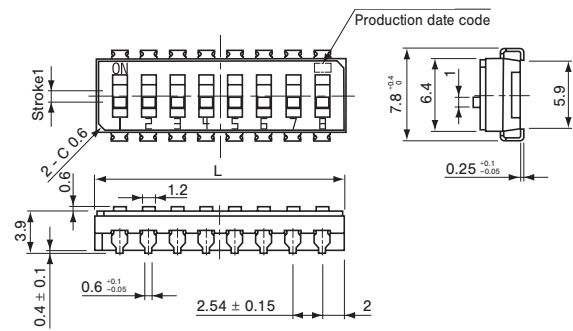
#### Flat knob, Gull wing



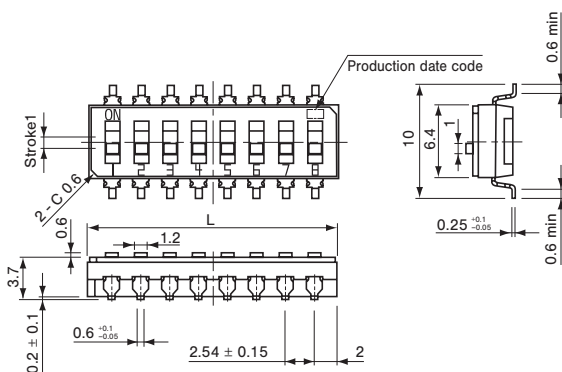
#### Flat knob, Through hole pin



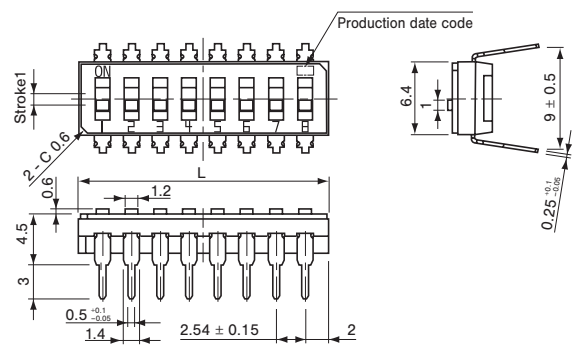
#### Convex knob of 0.6 mm, J-hook



#### Convex knob of 0.6 mm, Gull wing

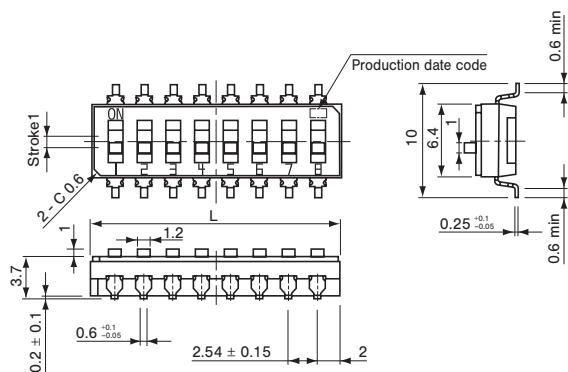


#### Convex knob of 0.6 mm, Through hole pin

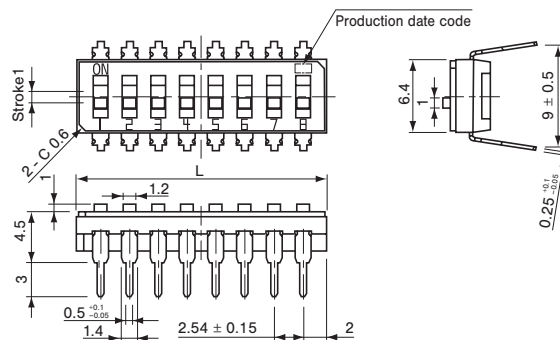


## SLIDE SWITCHES (FULL PITCH)

### ● Convex knob of 1 mm , Gull wing



### ● Convex knob of 1 mm , Through hole pin



Part number	Schematic	No. of bits.	L dimension
CFS-01		1	3.95
CFS-02		2	6.5
CFS-03		3	9.05
CFS-04		4	11.6
CFS-05		5	14.15

Part number	Schematic	No. of bits.	L dimension
CFS-06		6	16.7
CFS-07		7	19.25
CFS-08		8	21.8
CFS-09		9	24.35
CFS-10		10	26.9

## RECOMMENDED P.C.B. PAD DIMENSIONS

(Unit : mm)

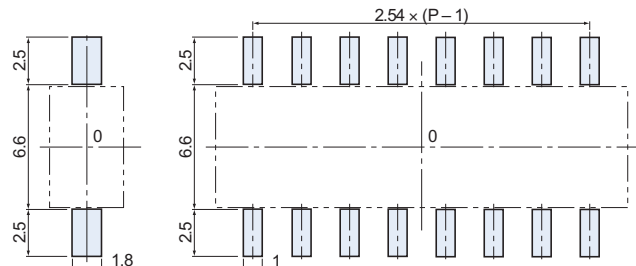
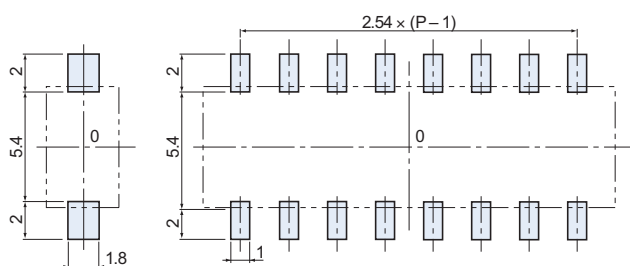
### ● CFS-01□□A

### ● CFS-□□□□A

### ● CFS-01□□B

### ● CFS-□□□□B

P : No. of bits

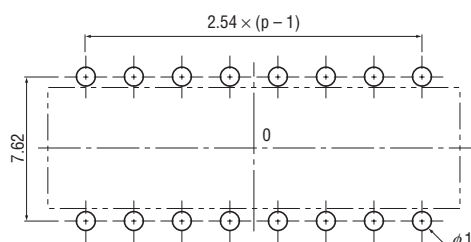


## SIZE OF P.C.B. PROCESSING

(Unit : mm)

### ● CFS-□□□□C

P : No. of bits



# CFS

## SLIDE SWITCHES (FULL PITCH)

### PACKAGING SPECIFICATIONS

#### <Taping packaging specifications>

- Taping version is packaged in 1000 pcs. (Flat knob) or 800 pcs. (Convex knob) per reel. Orders will be accepted for units of 1000 or 800 pcs., i.e., 1000, 2000, 3000 pcs., or 800, 1600, 2400 pcs., etc.
- Taping version is boxed with 1 reel.

Maximum number of consecutive missing pieces = 2  
 Leader length and reel dimension are shown in the diagrams below:

#### Embossed tape dimensions



#### Reel dimensions

(Unit: mm)

(Conforms to JIS C 0806-3)

(In accordance with EIAJ ET-7200A)



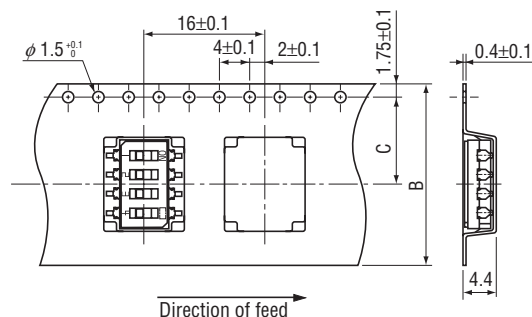
Flat knob				
No. of bits	A	W1	W2	N
1, 2, 3, 4, 5, 6	$\varnothing 330 \pm 2$	$25.4 \pm 1$	$29.4 \pm 1$	$\varnothing 80 \pm 1$
7, 8		$33.4 \pm 1$	$37.4 \pm 1$	
9, 10		$45.4 \pm 1$	$49.4 \pm 1$	

Convex knob				
No. of bits	A	W1	W2	N
1, 2, 3, 4, 5, 6	$\varnothing 330 \pm 2$	$25.4 \pm 1$	$29.4 \pm 1$	$\varnothing 80 \pm 1$
7		$33.4 \pm 1$	$37.4 \pm 1$	
8, 9, 10		$45.4 \pm 1$	$49.4 \pm 1$	

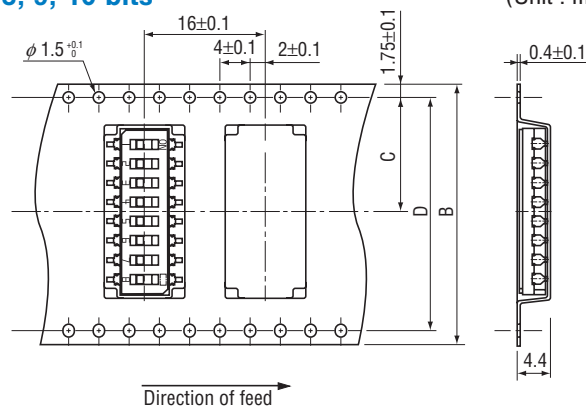
## SLIDE SWITCHES (FULL PITCH)

### ● Flat knob

1, 2, 3, 4, 5, 6 bits



7, 8, 9, 10 bits

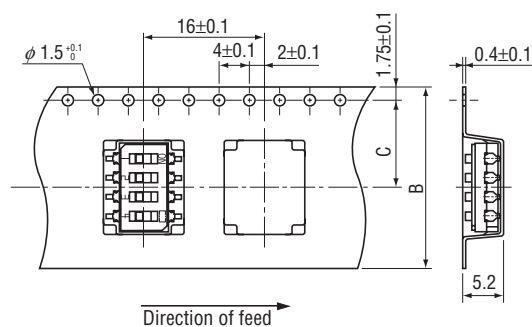


(Unit : mm)

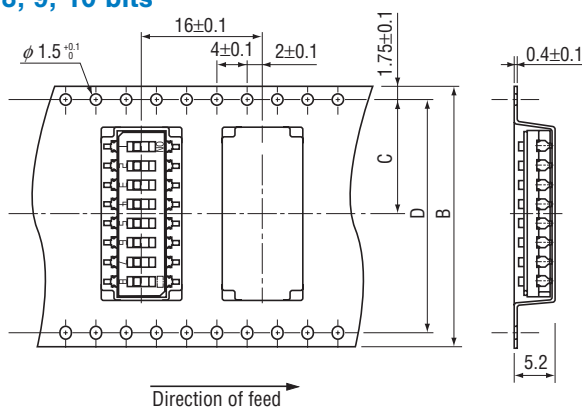
No. of bits	B	C	D
1, 2, 3, 4, 5, 6	24	$11.5 \pm 0.1$	—
7, 8	32	$14.2 \pm 0.1$	$28.4 \pm 0.1$
9, 10	44	$20.2 \pm 0.1$	$40.4 \pm 0.1$

### ● Convex knob

1, 2, 3, 4, 5, 6 bits



7, 8, 9, 10 bits



No. of bits	B	C	D
1, 2, 3, 4, 5, 6	24	$11.5 \pm 0.1$	—
7	32	$14.2 \pm 0.1$	$28.4 \pm 0.1$
8, 9, 10	44	$20.2 \pm 0.1$	$40.4 \pm 0.1$

### <Magazine packaging specifications>

- Packing quantities of magazines are different depending on the bit number of the switches.

Please order the multiple numbers of the specific packing quantities. (e.g. 40 pcs., 80 pcs., 120 pcs., etc., in case of 4 bits version)

Pieces in package :

- 1 bit, 118 pcs./stick
- 2 bits, 72 pcs./stick
- 3 bits, 52 pcs./stick
- 4 bits, 40 pcs./stick
- 5 bits, 32 pcs./stick
- 6 bits, 28 pcs./stick
- 7 bits, 24 pcs./stick
- 8 bits, 20 pcs./stick
- 9 bits, 18 pcs./stick
- 10 bits, 16 pcs./stick

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View CFS-1002MB on WIN SOURCE](#)
- ⊖ [Nidec Copal Electronics Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management