8 Series

Toggle Switches

■Introduction

The 8 Series Toggles is our high-reliability miniature switch product offering. This product line meets and exceeds all basic international switch standards.

With 8 toggle options, PC and solder lug terminals, power and logic level current ratings, 1-4 pole and many circuit offerings these switches can be used in many industries and various applications within these industries.

Four of the 8 Series lines are washable. Specifically designed for PC applications with automated solder and cleaning methods.

The 8 Series is available with UL Recognition and CSA Certification upon request from the customer.

■Features of 8 Series Toggles
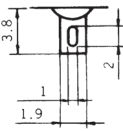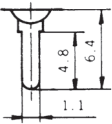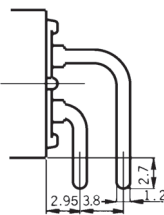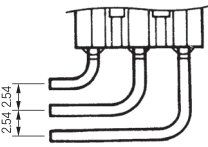
1. **Terminal style :**
   Solder, Straight, Right angle and vertical mount PC terminals.
2. **Contacts :**
   Silver or gold.
3. **Epoxy resin case :**
   UL94V-0 self-extinguishing epoxy.
4. **Actuator styles :**
   Over 30 actuator variations.
5. **Insulation between terminal and ground :**
   4 mm minimum.
6. **Prevention of flux entry**
   The epoxy resin seal on bottom of the switch helps prevent the entry of solder and flux.
7. **Insulation barrier :**
   Insulation barrier design between poles helps prevent short-circuiting between poles ensuring high reliability.
8. **UL Recognized product   File No.E43275**
9. **CSA Certified product   File No.LR38341**
10. **For the UL Recognized and CSA Certified products please see page 358.**

■Applications

● Communication equipment
● Computer peripheral equipment
● Measuring instruments
● Medical equipment
● Automotive diagnosis

The switches can be used in a wide range of fields from industrial to consumer equipment.

8 Series Toggles Selection Table

Part No.		Name	Actuator shape	Number of poles	Switching function	Terminals		Page
8A		Standard toggle		1·2·3·4		Solder Lug	Straight PC	341 〜 343
8B		Mustang Toggle		1·2·3·4	ON – ON ON – OFF – ON ※1/2 Poles	Solder Lug	Straight PC	344 〜 345
8C		Flatted Toggle		1·2·3		Solder Lug	Straight PC	346 〜 347
8E		Lever Lock Toggle		1·2·3·4	ON – ON ON – OFF – ON ※3/4 Poles	Solder Lug	Straight PC	348 〜 349
8F		Splash Proof Toggle		1·2·4	ON – ON – ON ※8A Type 4 Poles only	Solder Lug	Straight PC	350 〜 351
8J		Short Toggle		1·2·3·4		Solder Lug	Straight PC	352 〜 353
Washable	8G	Short Toggle Washable		1·2	ON – ON ON – OFF – ON (ON) – OFF – (ON) ON – (ON)	Straight PC Right Angle Vertical		354 〜 355
	8GA	Standard Toggle Washable		1·2		Straight PC Right Angle Vertical		356

( ) indicates momentary actuation

■Terminals

Solder Lug (Style:1)	PC Straight (Style:2)	Right Angle (Style:4)	Vertical Mounting (Style:6)
t=0.8	t=0.8 PC	t=0.8 R/A	t=0.8 V/M w=1.2

■Part Numbering

| 8 | A | 1 | 01 | 1 | C | − | Z |

Series code — Actuator shape — Number of poles — Switching function — Terminals — Contact material and plating

(※1)

Actuator shape

Code	Type
A	Standard Toggle
B	Mustang Toggle
C	Flatted Toggle
E	Lever−lock Toggle
F	Splash Proof Toggle
J	Short Toggle
G	Washable

Number of poles

Fig.	Number of poles
1	1 pole
2	2 poles
3	3 poles
4	4 poles

Switching function

Code	Switching function
01	ON — ON
02	ON — OFF — ON
06	ON — (ON)
※10	ON — ON — ON

※8A Type only.

Terminals

Fig.	Terminals
1	Solder Lug
2	PC Straight
4	Right Angle
6	Vertical Mounting

Contact material and plating

Code	Contact material	Plating
None	Bs+Ag or Cu+Ag	Ag
C	Bs+Ag or Cu+Ag	Ni+Au

Bs=Brass
Cu=Copper
Ag=Silver
Ni=Nickel
Au=Gold

(※1)：Switches with gold-plated contacts ("C") are made-to order products. MOQ is 25 pcs.

Note : Some combinations may not be available. Please check the "Table of Part Numbers" for each series.

■8 Series Toggles Common Specifications

Contact specs.		Silver	Gold
Rating	Max.	AC125 V 6 A AC250 V 3 A DC30 V 4 A	AC125 V 6 A AC250 V 3 A DC30 V 4 A DC20V 25mA
Initial contact resistance		10 mΩ Max. (DC2〜4 V 1 A)	20 mΩ Max. (AC200 µV 1.5 mA)
Initial dielectric strength		AC1500 V /1 minute	
Initial insulation resistance		1000 MΩ Min.	(DC500 V)
Electrical life	Alternate type	50,000/cycles	
	Momentary type	25,000/cycles	
Operating temperature range		−30〜+85℃	
Storage temperature range		−40〜+85℃	

8J

Short Toggle Switches

■Features

The 8J series has a shorter actuator (6.8 mm) than the 8A series. Suitable for applications where space is limited.

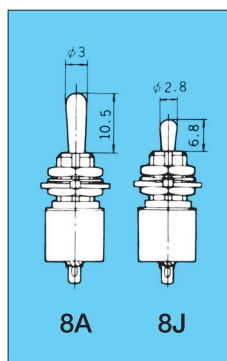### ■Table of Part Numbers

Terminal Style	Switching Function / Number of poles		1 pole	2 poles	3 poles	4 poles
Solder Lug	ON	– ON	8J1011–Z	★ 8J2011–Z	——	★ 8J4011–Z
	ON – OFF –	ON	8J1021–Z	★ 8J2021–Z	★ 8J3021–Z	——
PC Straight	ON	– ON	8J1012–Z ▲ 8J1012C–Z	8J2012–Z	★ 8J3012–Z	——
	ON – OFF –	ON	★ 8J1022–Z	——	——	——

■ Standard Accessories

《Supplied with switch》

Part Name	Hex Nut	Lockwasher	Locking Ring
Part No.	140008010241	140008030051	140008020062
Dimensions	1/4"–40 THD 8 1.5	6.6 t=0.5 10.2 1	6.4 1 12 2.1
Finish	Nickel plated	Zinc plated	Zinc plated

▲ : Inquiry products   ★ : Made to order products.

SPDT
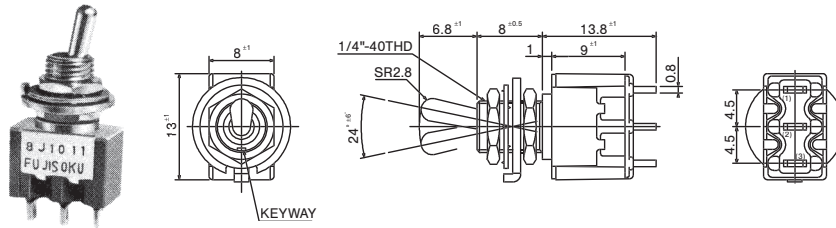
Switching function / Part No.	Key way	Key way	Key way
8J101■-Z	ON	–	ON
8J102■-Z	ON	OFF	ON
Connecting terminals	2-3	–	2-1

■ : Please refer to "Table of Part Numbers" for a list of full part numbers.
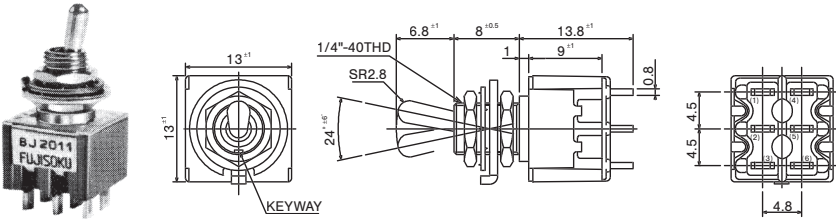
Terminal numbers are not shown on the switch.

DPDT

Switching function / Part No.	Key way	Key way	Key way
8J201■-Z	ON	–	ON
8J202■-Z	ON	OFF	ON
Connecting terminals	2-3 5-6	–	2-1 5-4

■ : Please refer to "Table of Part Numbers" for a list of full part numbers.
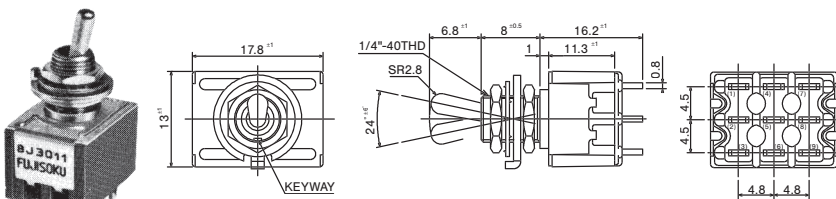
Terminal numbers are not shown on the switch.

3PDT

Switching function / Part No.	Key way	Key way	Key way
8J301■-Z	ON	–	ON
8J302■-Z	ON	OFF	ON
Connecting terminals	2-3 5-6 8-9	–	2-1 5-4 8-7

■ : Please refer to "Table of Part Numbers" for a list of full part numbers.
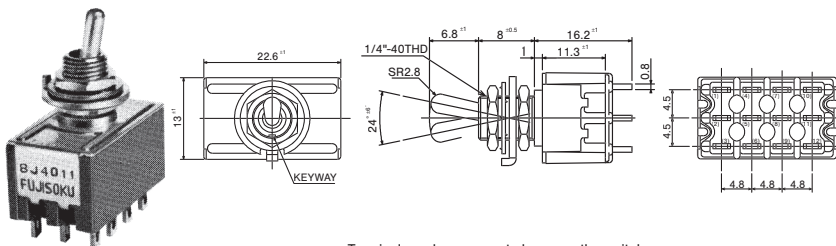
Terminal numbers are not shown on the switch.

4PDT

Switching function / Part No.	Key way	Key way	Key way
8J401■-Z	ON	–	ON
Connecting terminals	2-3 5-6 8-9 11-12	–	2-1 5-4 8-7 11-10

■ : Please refer to "Table of Part Numbers" for a list of full part numbers.

Terminal numbers are not shown on the switch.

■8 Series Toggles

Poles	Switching Function			℞UL (※1.)						℞CSA (※2.)					
				8A	8B	8C	8E	8F	8J	8A	8B	8C	8E	8F	8J
1 pole	101□	ON	– ON	○	○	○	○	○	○	○	○	○	○	○	○
	102□	ON – OFF –	ON	○		○	○		○	○		○	○		○
2 poles	201□	ON	– ON	○	○	○	○	○	○	○	○	○	○	○	○
	202□	ON – OFF –	ON	○	○	○	○		○	○	○	○	○		○
3 poles	301□	ON	– ON	○	○	○	○			○	○	○	○		○
4 poles	401□	ON	– ON	○	○		○	○	○	○	○		○	○	○
	410□	ON – ON –	ON	○						○					

(1) Terminal types: 1 Solder terminal; 2 Straight terminal

(2) Even if the products are of UL-or CSA-approved ones. The products in stock do not carry the UL mark of the CSA mark. When placing an order,be sure to specify " With UL/CSA Mark." For the products with the UL mark or the CSA mark,extra costs will be added.

(3) (※1.) UL File No.E43275
　　(※2.) CSA File No.LR38341

(4) As shown in the above chart, not all products are UL-recognized or CSA-certified. Please check with your local sales representative if you have any questions.

■Precautions（8A·8B·8C·8E·8F·8J）

1. Soldering Specifications

（1）Manual soldering

Device：Solder iron

①420℃ Max. 3 sec. Max.

（2）Auto soldering

②275℃ Max. 6 sec. Max.

The above-stated soldering conditions shall apply only to switches with straight terminals. Auto soldering is not possible with right-angle terminals. Switches with right-angle terminals should be soldered manually according to the conditions specified in (1) above.

（3）When soldering two or more terminals to the common land, use the solder resist to isolate the terminals.

3. Mounting

●Do not bend the terminals before mounting the switch on the PC board.

●After mounting the switch, do not place the device in such a way that the device weight will be applied on to the actuator of the switch.

●For switches with straight terminals, solder the switch on the PC board after fixing the switch on the panel with a nut.
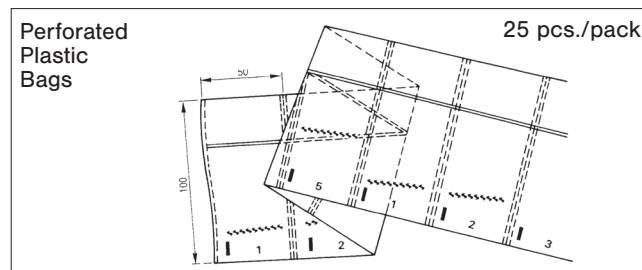
2. Flux Cleaning

（1）Solvent : Fluorine or Alcohol type.

（2）8A/B/C/E/F/J series are not washable. To wash the PC board, clean the soldering surface of the PC board with a brush so that the switch is not exposed to the cleaning solution.
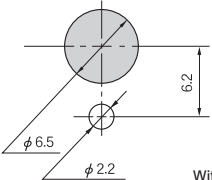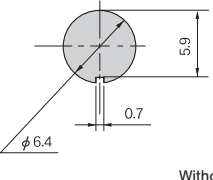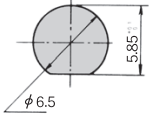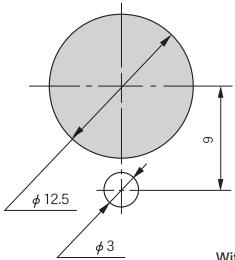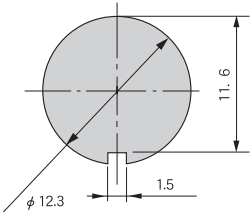
（3）Cleaning after soldering should be done after the terminal temperature falls to 90℃ or below, or after leaving the switch for five minutes or longer at room temperature.
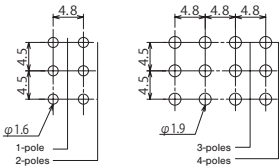
■Packaging Specification

Perforated Plastic Bags

25 pcs./pack

■Panel Cut-Out Dimensions
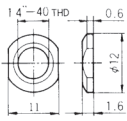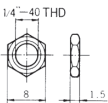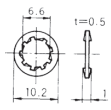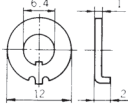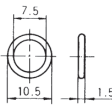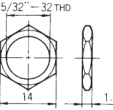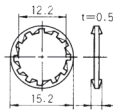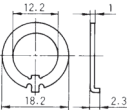
Series	8A·8J	8C	8E	8A·8J	8C	8E	8F
Panel thickness	2.5 mm Max.	2.4 mm Max.	1.5 mm Max.	3.5 mm Max.	3.4 mm Max.	2.5 mm Max.	5 mm Max.
Dimensions							

With Locking Ring — φ6.5, 6.2, φ2.2
Without Locking Ring — φ6.4, 5.9, 0.7
8F — φ6.5, 5.85

Series	8B	
Panel thickness	5.9 mm Max.	6.9 mm Max.
Dimensions		

With Locking Ring — φ12.5, 9, φ3
Without Locking Ring — φ12.3, 11.6, 1.5

■PC Hole Layouts

Series	8A · 8B · 8C · 8E · 8F · 8J
Dimensions	

4.8, 4.5, 4.5, φ1.6, 1-pole, 2-poles
4.8, 4.8, 4.8, 4.5, 4.5, φ1.9, 3-poles, 4-poles

■Standard Accessories
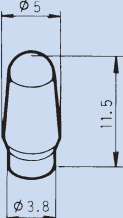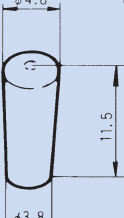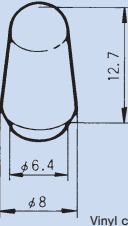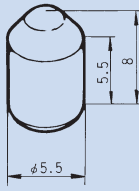
《Q'ty／switch》
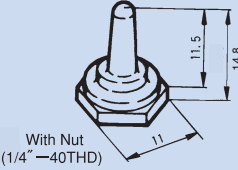
Part Name	Dress Nut	Hex Nut	Lockwasher	Locking Ring	O-Ring	Hex Nut	Lockwasher	Locking Ring
Part No.	140008010253	140008010241	140008030051	140008020062	140000610076	140008010243	140008030055	140008020065
Dimensions								
Finish	Nickel plated		Zinc plated		Nitrile rubber (Black)	Nickel plated	Zinc plated	
8A		2	1	1				
8B						2	1	1
8C	1	1	1	1				
8D		2	1	1				
8E		2	1	1				
8F		1	1		1			
8J		2	1	1				

● Numbers in the above chart show the quantities of each accessories enclosed with the switch.

■ Optional Accessories 《Sold separately》

Type	8A・8F・8GA・8KA	8A・8F・8GA・8KA	8B	8E
Part Name	Color Cap			
Dimensions	Gloss finish, ø5, 11.5, ø3.8, Vinyl chloride resin	Gloss finish, ø4.8, 11.5, ø3.8, Vinyl chloride resin	Gloss finish, 12.7, ø6.4, ø8, Vinyl chloride resin	Alumite finish, 5.5, 8, ø5.5, Aluminum alloy
Silver	–	–	–	140000470058
White	140000470030	140000470038	140000470063	–
Red	140000470098	140000470100	140000470108	140000470060
Black	140000470031	–	140000470064	140000470059
Gray	140000470037	140000470077	–	–

Type	8A
Part Name	Waterproof boot
Part No.	140000470422
Dimensions	11.5, 14.8, With Nut (1/4″—40THD), 11

：Optional Accessories.