# 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

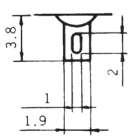
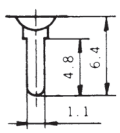
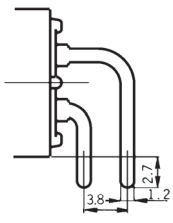
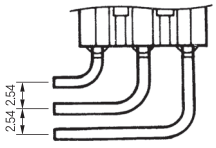
The switches can be used in a wide range of fields from industrial to consumer equipment.

# 8 Series Toggles Selection Table

| Part No. | Name | Actuator shape | Number of poles | Switching function | Terminals | Page |
|---|---|---|---|---|---|---|
| **8A** | Standard toggle | | 1・2・3・4 | ON – ON<br>ON – OFF – ON<br>※1/2 Poles<br>ON – ON<br>ON – OFF – ON<br>※3/4 Poles<br>ON – ON – ON<br>※8A Type<br>4 Poles only | Solder Lug Straight PC | 341 ≀ 343 |
| **8B** | Mustang Toggle | | 1・2・3・4 | | 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 | | Solder Lug Straight PC | 348 ≀ 349 |
| **8F** | Splash Proof Toggle | | 1・2・4 | | Solder Lug Straight PC | 350 ≀ 351 |
| **8J** | Short Toggle | | 1・2・3・4 | | Solder Lug Straight PC | 352 ≀ 353 |
| Board mounting washable **8G** | Short Toggle Washable | | 1・2 | ON – ON<br>ON – OFF – ON<br>(ON) – OFF – (ON)<br>ON – (ON) | Straight PC Right Angle Vertical | 354 ≀ 355 |
| Board mounting washable **8GA** | Standard Toggle Washable | | 1・2 | | Straight PC Right Angle Vertical | 356 |
| Board mounting **8K** | Short Toggle | | 1・2 | ON – ON | Straight PC Right Angle Vertical | 357 ≀ 358 |
| Board mounting **8KA** | Standard Toggle | | 1・2 | | Straight PC Right Angle Vertical | 359 |

( ) 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 w=1.2 V/M   |

## ■Part Numbering

**8 A 1 01 1 C – Z**

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

| Code | Type |
|---|---|
| A | Standard Toggle |
| B | Mustang Toggle |
| C | Flatted Toggle |
| E | Lever-lock Toggle |
| F | Splash Proof Toggle |
| J | Short Toggle |
| G | Board mounting washable |
| K | Board mounting |

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

| Code | Switching function |
|---|---|
| 01 | ON — ON |
| 02 | ON — OFF — ON |
| 04 | (ON) — OFF — (ON) |
| 06 | ON — (ON) |
| ※10 | ON — ON — ON |

※ 8A Type only.

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

(※1)

| 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.

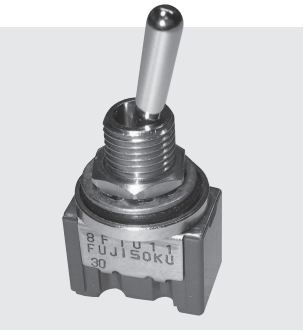
## ■8 Series Toggles Common Specifications

| Contact specs. | | Silver | Gold |
|---|---|---|---|
| Rating | Max. | AC125 V 6 A<br>AC250 V 3 A<br>DC30 V 4 A | AC125 V 6 A<br>AC250 V 3 A<br>DC30 V 4 A<br>DC20V 25mA |
| Initial contact resistance | | 10 mΩ Max.<br>(DC2～4 V 1 A) | 20 mΩ Max.<br>(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°C | |
| Storage temperature range | | −40～+85°C | |

# 8F

## Splash Proof Toggle Switches

**Panel Seal**

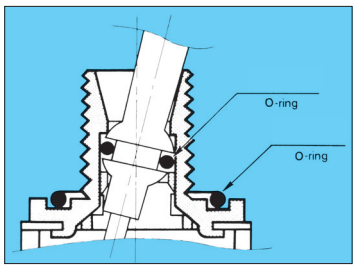


RoHS Compliant

## ■Features

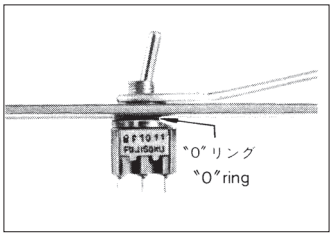
The 8F series is a panel seal toggle switch with an O-ring to provide drip-proof and dust proof effect (corresponding to IP67 rating). Since a locking ring cannot be used because the panel seal is required, “D-cutting” is provided to the sleeve to prevent the switch from rotating. Note that the switch itself is not waterproof.

●The 8F series is intended for panel seal and is not designed for use in water.




## ■Mounting Method

The 8F series should be mounted so that the O-ring has directly contact with the panel.




## ■Table of Part Numbers

| Terminal Style | Switching Function / Number of poles | 1 pole | 2 poles | 4 poles |
|---|---|---|---|---|
| Solder Lug | ON – ON | **8F1011-Z**<br>★ **8F1011C-Z** | ☆ **8F2011-Z** | ★ **8F4011-Z** |
| PC Straight | ON – ON | ★ **8F1012-Z** | ★ **8F2012-Z** | —— |

■**PC Hole Layouts** Page 360.

■**Panel Cut-Out Dimensions** Page 360.

■**Terminal Styles** Page 339.

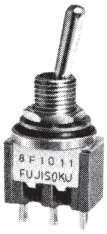
■**Standard Accessories** Page 360.

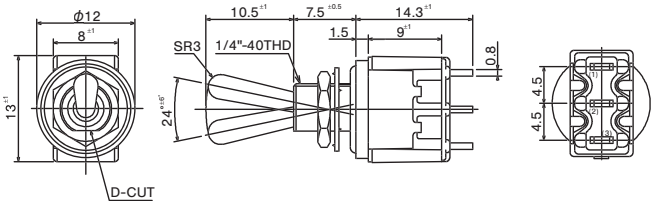
■**Optional Accessories** Page 361.

■**Soldering,Flux Cleaning and Packaging Spec.** Page 359.

★ : Made to order products. ☆ : Semi-standard products.

## SPDT



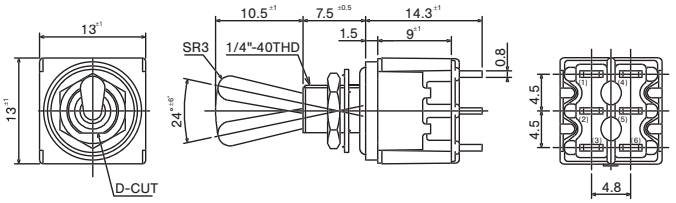




Terminal numbers are not shown on the switch.

| Switching function / Part No. | D cut | D cut | D cut |
|---|---|---|---|
| **8F101■-Z** | ON | – | ON |
| Connecting terminals | 2–3 | – | 2–1 |

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

## DPDT

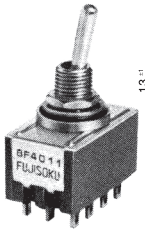


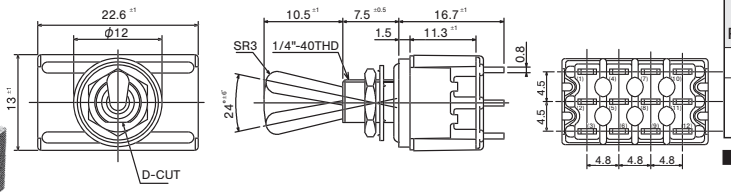

Terminal numbers are not shown on the switch.

| Switching function / Part No. | D cut | D cut | D cut |
|---|---|---|---|
| **8F201■-Z** | ON | – | ON |
| Connecting terminals | 2–3<br>5–6 | – | 2–1<br>5–4 |

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

## 4PDT




Terminal numbers are not shown on the switch.

| Switching function / Part No. | D cut | D cut | D cut |
|---|---|---|---|
| **8F401■-Z** | ON | – | ON |
| Connecting terminals | 2–3 5–6<br>8–9 11–12 | – | 2–1 5–4<br>8–7 11–10 |

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

# UL、CSA
(Toggle Switches)

## Table of 8 Series Toggles
## UL and CSA Listed

### ■8 Series Toggles

| Poles | Switching Function | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | (※1.) | | | | | | (※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.

### 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.

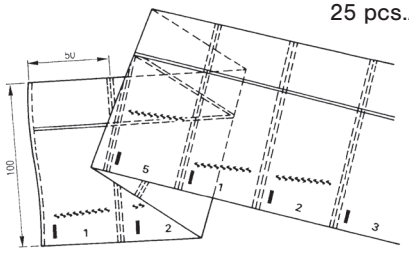
### 3. Mounting

- 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.

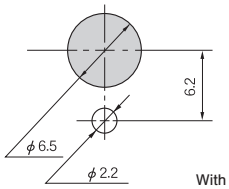
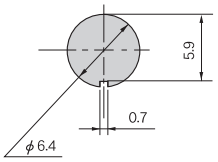
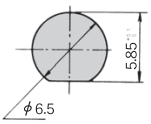
## ■Packaging Specification

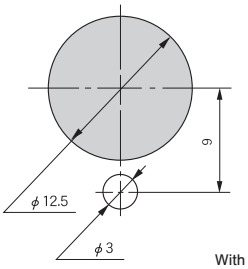
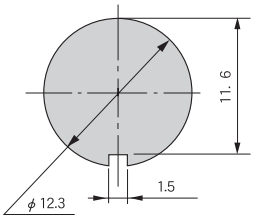
Perforated Plastic Bags

25 pcs./pack

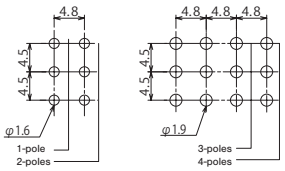


## ■Panel Cut-Out Dimensions

| 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 |  Without Locking Ring | | | | |  |

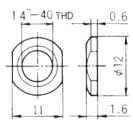
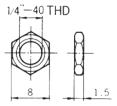
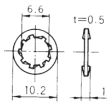
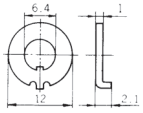
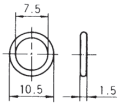
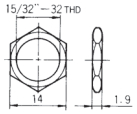
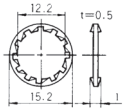
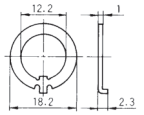
| Series | 8B | |
|---|---|---|
| Panel thickness | 5.9 mm Max. | 6.9 mm Max. |
| Dimensions |  With Locking Ring |  Without Locking Ring |

## ■PC Hole Layouts

| Series | 8A・8B・8C・8E・8F・8J |
|---|---|
| Dimensions |  |

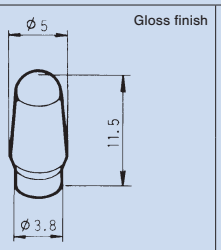
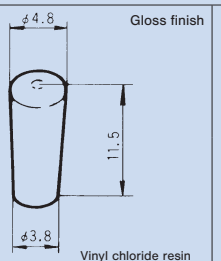
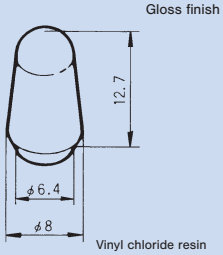
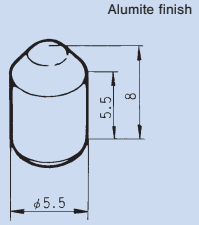
## ■Standard Accessories

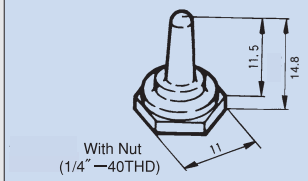
《Q'ty／switch》

| 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 |  |  |  |  |
| 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 |  |

: Optional Accessories.