

# 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.

### ■ 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.

### ■ Features of 8 Series Toggles

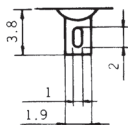
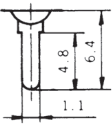
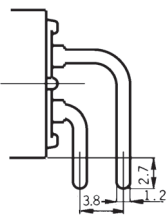
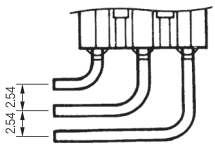
- 1. Terminal style :**  
Solder, Straight, Right angle and vertical mount PC terminals.
- 2. Contacts :**  
Silver or gold.
- 3. Epoxy resin case :**  
UL94V-0 self-extinguishing epoxy.
- 4. Actuator styles :**  
Over 30 actuator variations.
- 5. Insulation between terminal and ground :**  
4 mm minimum.
- 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.**

## 8 Series Toggles Selection Table

| Part No.                       | Name                | Actuator shape                                                                     | Number of poles | Switching function                                                                                                               | Terminals                                                                                                                                                                                                                                                                                             | Page            |
|--------------------------------|---------------------|------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>8A</b>                      | 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 |  <br>Solder Lug Straight PC                                                                                                     | 341<br>~<br>343 |
| <b>8B</b>                      | Mustang Toggle      |   | 1•2•3•4         |                                                                                                                                  |  <br>Solder Lug Straight PC                                                                                                     | 344<br>~<br>345 |
| <b>8C</b>                      | Flatted Toggle      |   | 1•2•3           |                                                                                                                                  |  <br>Solder Lug Straight PC                                                                                                     | 346<br>~<br>347 |
| <b>8E</b>                      | Lever Lock Toggle   |   | 1•2•3•4         |                                                                                                                                  |  <br>Solder Lug Straight PC                                                                                                     | 348<br>~<br>349 |
| <b>8F</b>                      | Splash Proof Toggle |   | 1•2•4           |                                                                                                                                  |  <br>Solder Lug Straight PC                                                                                                     | 350<br>~<br>351 |
| <b>8J</b>                      | Short Toggle        |  | 1•2•3•4         |                                                                                                                                  |  <br>Solder Lug Straight PC                                                                                                     | 352<br>~<br>353 |
| <b>Board mounting washable</b> | <b>8G</b>           | Short Toggle Washable                                                              | 1•2             | ON - - ON<br>ON - OFF - ON<br>(ON) - OFF - (ON)<br>ON - - (ON)                                                                   |   <br>Straight PC Right Angle Vertical | 354<br>~<br>355 |
|                                | <b>8GA</b>          | Standard Toggle Washable                                                           | 1•2             |                                                                                                                                  |   <br>Straight PC Right Angle Vertical | 356             |
| <b>Board mounting</b>          | <b>8K</b>           | Short Toggle                                                                       | 1•2             | ON - - ON                                                                                                                        |   <br>Straight PC Right Angle Vertical | 357<br>~<br>358 |
|                                | <b>8KA</b>          | Standard Toggle                                                                    | 1•2             |                                                                                                                                  |   <br>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<br> | t=0.8<br>PC<br> | t=0.8<br>R/A<br> | t=0.8<br>w=1.2<br>V/M<br> |

8 Series Toggles

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 |

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

(※1)

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                                |                                                        |

# 8C

## Flatted Toggle Switches

RoHS Compliant



### Features

The 8C series has a flatted actuator and is anti-rotation.

The dress nut is standard with the flatted toggle.

### Table of Part Numbers

| Terminal Style | Number of poles    |            | 1 pole     | 2 poles    | 3 poles    |
|----------------|--------------------|------------|------------|------------|------------|
|                | Switching Function |            |            |            |            |
| Solder Lug     | ON                 | – ON       | 8C1011-Z   | 8C2011-Z   | ☆ 8C3011-Z |
|                | ON                 | – OFF – ON | ★ 8C1021-Z | ★ 8C2021-Z | —          |
| PC Straight    | ON                 | – ON       | ☆ 8C1012-Z | —          | —          |

### Standard Accessories

《Supplied with switch》

| Part Name  | Dress Nut           | Hex Nut             | Lockwasher          | Locking Ring        |
|------------|---------------------|---------------------|---------------------|---------------------|
| Part No.   | <b>140008010253</b> | <b>140008010241</b> | <b>140008030051</b> | <b>140008020062</b> |
| Dimensions |                     |                     |                     |                     |
| Finish     | Nickel plated       | Nickel plated       | Zinc plated         |                     |

■ **PC Hole Layouts** Page 360.

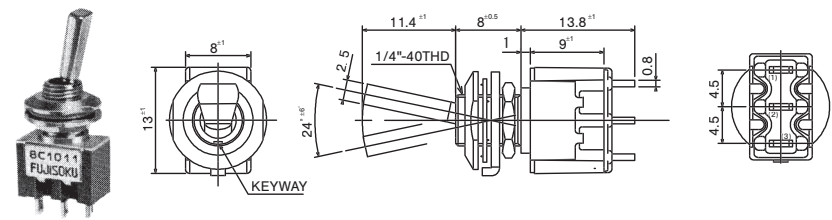
■ **Panel Cut-Out Dimensions** Page 360.

■ **Terminal Styles** Page 339.

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

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

SPDT

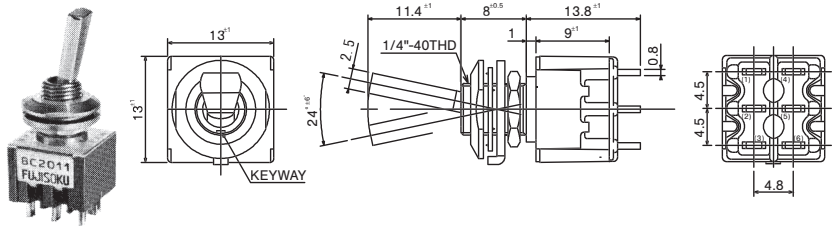


Terminal numbers are not shown on the switch.

| Switching function   | Key way | Key way | Key way |
|----------------------|---------|---------|---------|
| Part No.             |         |         |         |
| 8C101■-Z             | ON      | —       | ON      |
| 8C102■-Z             | ON      | OFF     | ON      |
| Connecting terminals | 2-3     | —       | 2-1     |

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

DPDT

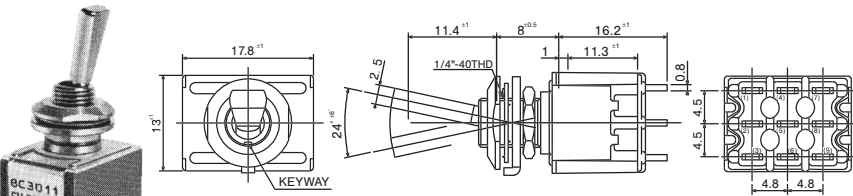


Terminal numbers are not shown on the switch.

| Switching function   | Key way    | Key way | Key way    |
|----------------------|------------|---------|------------|
| Part No.             |            |         |            |
| 8C201■-Z             | ON         | —       | ON         |
| 8C202■-Z             | ON         | OFF     | 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.

3PDT



Terminal numbers are not shown on the switch.

| Switching function   | Key way        | Key way | Key way        |
|----------------------|----------------|---------|----------------|
| Part No.             |                |         |                |
| 8C301■-Z             | ON             | —       | ON             |
| Connecting terminals | 2-3 5-6<br>8-9 | —       | 2-1 5-4<br>8-7 |

■ : 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 |    |   | UL (※1.) |    |    |    |    |    | CSA (※2.) |    |    |    |    |    |
|---------|--------------------|----|---|----------|----|----|----|----|----|-----------|----|----|----|----|----|
|         |                    |    |   | 8A       | 8B | 8C | 8E | 8F | 8J | 8A        | 8B | 8C | 8E | 8F | 8J |
| 1 pole  | 101□               | ON | – | ON       | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
|         | 102□               | ON | – | OFF      | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
| 2 poles | 201□               | ON | – | ON       | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
|         | 202□               | ON | – | OFF      | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
| 3 poles | 301□               | ON | – | ON       | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
| 4 poles | 401□               | ON | – | ON       | ○  | ○  | ○  | ○  | ○  | ○         | ○  | ○  | ○  | ○  | ○  |
|         | 410□               | 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

① 420°C Max. 3 sec. Max.

#### (2) Auto soldering

② 275°C 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.

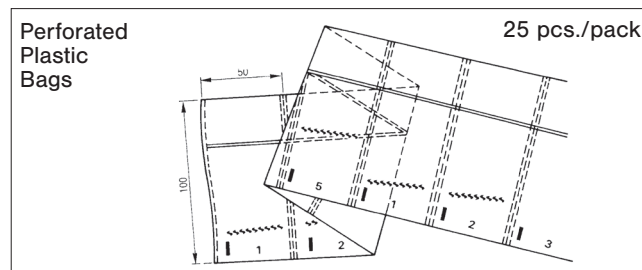
### 2. Flux Cleaning

(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.

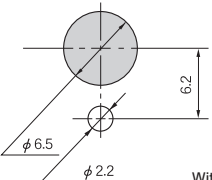
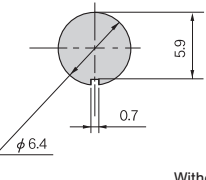
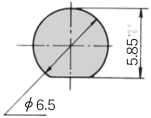
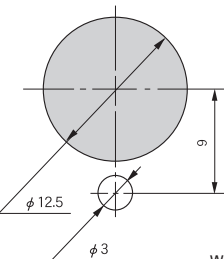
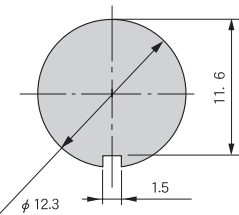
(3) Cleaning after soldering should be done after the terminal temperature falls to 90°C or below, or after leaving the switch for five minutes or longer at room temperature.

## ■ Packaging Specification

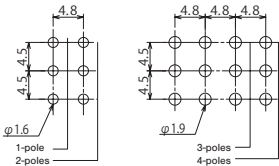


## 8 Series Toggles

### Panel Cut-Out Dimensions

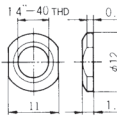
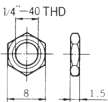
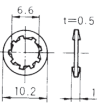
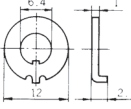
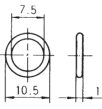
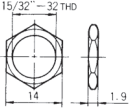
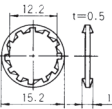
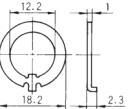
| Series          | 8A·8J                                                                                                  | 8C          | 8E          | 8A·8J                                                                                                      | 8C          | 8E          | 8F                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------|-------------|-------------|------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------------------------------------------------------------------------------------------------------|
| 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      | <br>With Locking Ring |             |             | <br>Without Locking Ring  |             |             | <br>Without Locking Ring |
| Series          | 8B                                                                                                     |             |             |                                                                                                            |             |             |                                                                                                             |
| Panel thickness | 5.9 mm Max.                                                                                            |             |             | 6.9 mm Max.                                                                                                |             |             |                                                                                                             |
| Dimensions      | <br>With Locking Ring |             |             | <br>Without Locking Ring |             |             |                                                                                                             |

### PC Hole Layouts

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

### Standard Accessories

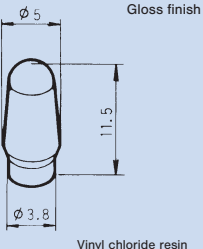
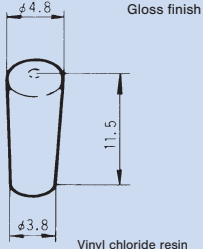
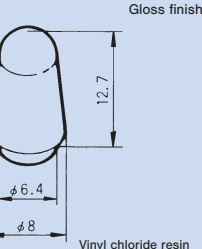
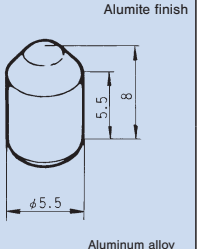
《Q'ty / switch》

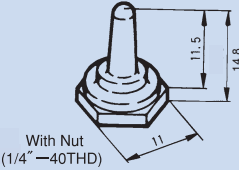
| Part Name  | Dress Nut                                                                           | Hex Nut                                                                             | Lockwasher                                                                          | Locking Ring                                                                        | O-Ring                                                                              | Hex Nut                                                                               | Lockwasher                                                                            | Locking Ring                                                                          |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Part No.   | 140008010253                                                                        | 140008010241                                                                        | 140008030051                                                                        | 140008020062                                                                        | 14000610076                                                                         | 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 |  <p>Gloss finish<br/>Vinyl chloride resin</p> |  <p>Gloss finish<br/>Vinyl chloride resin</p> |  <p>Gloss finish<br/>Vinyl chloride resin</p> |  <p>Alumite finish<br/>Aluminum alloy</p> |
| Silver     | —                                                                                                                              | —                                                                                                                              | —                                                                                                                               | <b>140000470058</b>                                                                                                          |
| White      | <b>140000470030</b>                                                                                                            | <b>140000470038</b>                                                                                                            | <b>140000470063</b>                                                                                                             | —                                                                                                                            |
| Red        | <b>140000470098</b>                                                                                                            | <b>140000470100</b>                                                                                                            | <b>140000470108</b>                                                                                                             | <b>140000470060</b>                                                                                                          |
| Black      | <b>140000470031</b>                                                                                                            | —                                                                                                                              | <b>140000470064</b>                                                                                                             | <b>140000470059</b>                                                                                                          |
| Gray       | <b>140000470037</b>                                                                                                            | <b>140000470077</b>                                                                                                            | —                                                                                                                               | —                                                                                                                            |

| Type       | 8A                                                                                                                   |
|------------|----------------------------------------------------------------------------------------------------------------------|
| Part Name  | Waterproof boot                                                                                                      |
| Part No.   | 140000470422                                                                                                         |
| Dimensions |  <p>With Nut<br/>(1/4" —40THD)</p> |

Optional Accessories.