



**THE DATASHEET OF
8A2011C-Z**



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.

■ 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 :

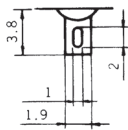
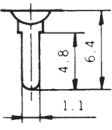
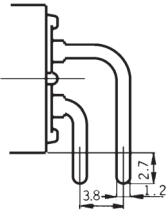
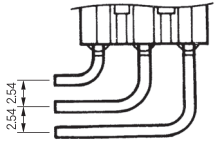
Insulation barrier design between poles helps prevent short-circuiting between poles ensuring high reliability.

8 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 - ON ON - OFF - ON ※1/2 Poles ON - ON - ON ON - OFF - ON ※3/4 Poles ON - ON - ON ※8A Type 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 - 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 |
| Board mounting | 8K | Short Toggle | 1•2 | ON - ON - ON |    Straight PC Right Angle Vertical | 357 } 358 |
| | 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  |

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 | Fig. | Number of poles | Code | Switching function | Fig. | Terminals | Code | Contact material | Plating |
|------|-------------------------|------|-----------------|------|--------------------|------|-------------------|------|------------------|---------|
| A | Standard Toggle | 1 | 1 pole | 01 | ON — ON | 1 | Solder Lug | None | Bs+Ag or Cu+Ag | Ag |
| B | Mustang Toggle | 2 | 2 poles | 02 | ON — OFF — ON | 2 | PC Straight | C | Bs+Ag or Cu+Ag | Ni+Au |
| C | Flatted Toggle | 3 | 3 poles | 04 | (ON) — OFF — (ON) | 4 | Right Angle | | | |
| E | Lever-lock Toggle | 4 | 4 poles | 06 | ON — (ON) | 6 | Vertical Mounting | | | |
| F | Splash Proof Toggle | | | ※10 | ON — ON — ON | | | | | |
| J | Short Toggle | | | | | | | | | |
| G | Board mounting washable | | | | | | | | | |
| K | Board mounting | | | | | | | | | |

※ 8A Type only.

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

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

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°C | |
| Storage temperature range | | -40~+85°C | |

8A

Standard Bat Toggle Switches



RoHS Compliant

■ Features

The 8A series has a 10.5mm bat toggle.

■ Table of Part Numbers

| Terminal Style | Switching Function | Number of poles | | | |
|----------------|--------------------|---------------------------|---------------------------|------------|------------|
| | | 1 pole | 2 poles | 3 poles | 4 poles |
| Solder Lug | ON - ON | ☆ 8A1011-Z ☆ 8A1011C-Z | ☆ 8A2011-Z ☆ 8A2011C-Z | ☆ 8A3011-Z | ☆ 8A4011-Z |
| | ON - OFF - ON | 8A1021-Z | ☆ 8A2021-Z | — | — |
| | ON - ON - ON | — | — | — | ★ 8A4101-Z |
| PC Straight | ON - ON | ☆ 8A1012-Z ☆ 8A1012C-Z | 8A2012-Z | 8A3012-Z | — |
| | ON - OFF - ON | ☆ 8A1022-Z ☆ 8A1022C-Z | ☆ 8A2022-Z | — | — |

■ Optional Accessories Page 361.

| Color Cap | | | | | |
|------------|-------|--------------|------------|-------|--------------|
| Dimensions | Color | Part. No. | Dimensions | Color | Part. No. |
| | White | 140000470030 | | White | 140000470038 |
| | Red | 140000470098 | | Red | 140000470100 |
| | Black | 140000470031 | | Gray | 140000470077 |
| | Gray | 140000470037 | | | |

■ PC Hole Layouts Page 360.

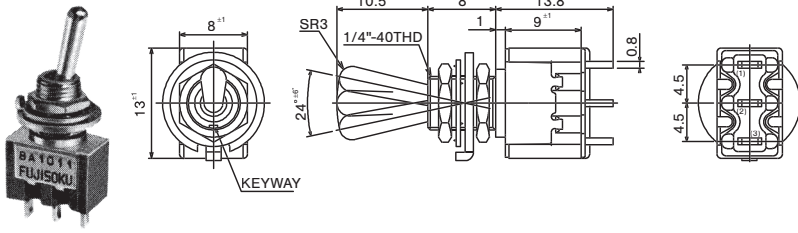
■ Panel Cut-Out Dimensions Page 360.

■ Terminal Styles Page 339.

■ Standard accessories Page 360.

■ Soldering, Flux Cleaning and Packing Spec. Page 359.

SPDT



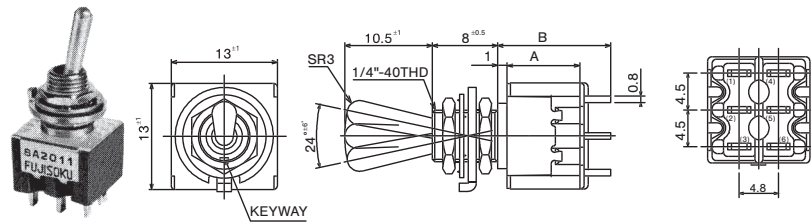
Terminal numbers are not shown on the switch.

| Switching function | Key way | Key way | Key way |
|----------------------|---------|---------|---------|
| Part No. | | | |
| 8A101■-Z | ON | - | ON |
| 8A102■-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

| Dimensions | A | B |
|--------------------|-----|--------|
| Part No. | | |
| 8A2011~2022 | 9±1 | 13.8±1 |

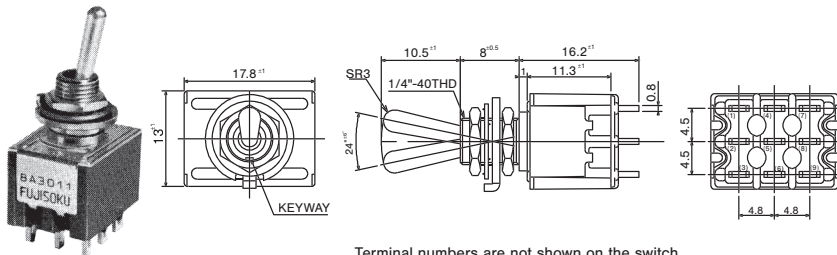


Terminal numbers are not shown on the switch.

| Switching function | Key way | Key way | Key way |
|----------------------|------------|---------|------------|
| Part No. | | | |
| 8A201■-Z | ON | - | ON |
| 8A202■-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.

3PDT

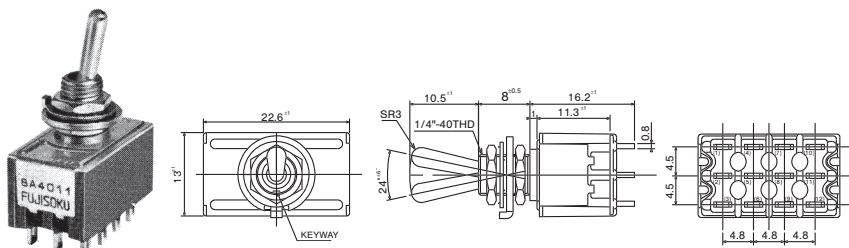


Terminal numbers are not shown on the switch.

| Switching function | Key way | Key way | Key way |
|----------------------|----------------|---------|----------------|
| Part No. | | | |
| 8A301■-Z | ON | - | 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.

4PDT



Terminal numbers are not shown on the switch.

| Switching function | Key way | Key way | Key way |
|----------------------|----------------------|----------------------|----------------------|
| Part No. | | | |
| 8A401■-Z | ON | - | ON |
| Connecting terminals | 2-3 5-6 8-9 11-12 | - | 2-1 5-4 8-7 11-10 |
| 8A410■-Z | ON | ON | ON |
| Connecting terminals | 2-3 5-6 8-9 11-12 | 2-3 5-4 8-9 11-10 | 2-1 5-4 8-7 11-10 |

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




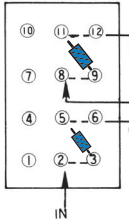
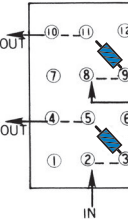
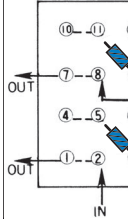
Three ON Switches


These switches are designed so that the Switching Function will be ON in all three positions. Extra wiring is required by the customer to get the three ON options. Please see below.

8A4101-Z

2 Circuit 3 Contacts

Function

| | | | |
|--------------------|--|--|--|
| Actuator position |  |  |  |
| Circuit diagram |  |  |  |
| Switching function | ON | ON | ON |
| Connecting terms. | 2-6 8-12 | 2-4 8-10 | 2-1 8-7 |

 External wiring (to be wired by the customer)

■ 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.

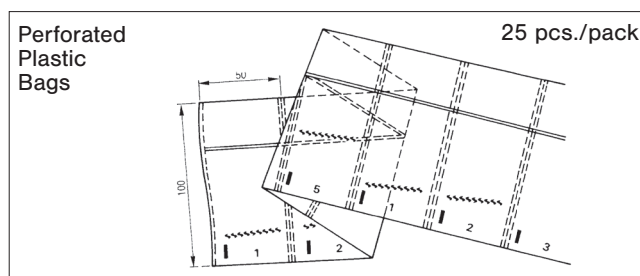
2. Flux Cleaning

(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 | <p style="text-align: center;">With Locking Ring</p> | | | <p style="text-align: center;">Without Locking Ring</p> | | | |
| Series | 8B | | | | | | |
| Panel thickness | 5.9 mm Max. | | | 6.9 mm Max. | | | |
| Dimensions | <p style="text-align: center;">With Locking Ring</p> | | | <p style="text-align: center;">Without Locking Ring</p> | | | |

■ PC Hole Layouts

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

■ Standard Accessories

| Part Name | 《Q'ty / switch》 | | | | | | | |
|------------|-----------------|--------------|--------------|--------------|------------------------|---------------|--------------|--------------|
| | 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 style="text-align: center;">Gloss finish Vinyl chloride resin</p> | <p style="text-align: center;">Gloss finish Vinyl chloride resin</p> | <p style="text-align: center;">Gloss finish Vinyl chloride resin</p> | <p style="text-align: center;">Alumite finish Aluminum alloy</p> |
| 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 | <p style="text-align: center;">With Nut (1/4" - 40THD)</p> |

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