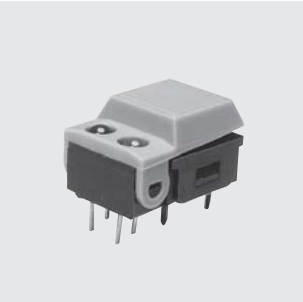
# DP1•2•3

## Directing Switches

FUJISOKU SWITCHES



RoHS Compliant

## ■ Features

**1. PC Board Mount**
Direct mounting to PC board. The terminal pin layout is in inch pitch.

**2. High Contact Reliability**
Self-cleaning, twin contact mechanism provides high contact reliability.

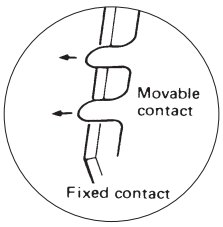
**3. Light Tactile Feel**
Metal contacts provides light tactile feel.

**4. Designed For High Density Mounting**
The height to the top of the cap from the PCB surface is as low as 11 to 11.5 mm, and the case profile is designed to allow side-by-side mounting.

**5. Wide Variations**
The cap style, color, and LED color are available in many variations. A clear cap is available for DP1 and DP3 to insert a label or letter printing inside. (Recommended label size and thickness: 7 x 7 mm and 0.3 mm for DP1-100 and DP3; and 10 x 10 mm and 0.3 mm for DP1-120)

## ■ Specifications

| | | |
|---|---|---|
| Rating | Max. | 50mA 24VDC |
| | Min. | 0.5mA 20mVDC (Silver plated contacts)<br>10μA 20mVDC (Gold plated contacts) |
| Initial Contact Resistance | | 20mΩ max. (1.5mA 200μVAC) |
| Dielectric Strength | | 250VAC 1 minute<br>(Except between terminals of LED) |
| Insulation Resistance | | 100MΩmin. (250VDC) |
| Electrical Life | | 200,000 operations |
| Travel | | **DP1,DP3** : 0.8±0.3mm<br>**DP2** : 1±0.3mm |
| Operating Force | | 0.93±0.29N |
| Operating Temperature Range | | −25～+75℃ |
| Storage Temperature Range | | −25～+85℃ |




●Twin contacts
●Self cleaning mechanism
When the switch is activated, movable contacts slide in the direction of the arrow to clean the contact points.

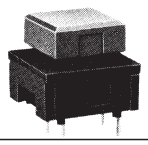
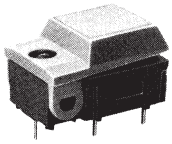
## ■Part Numbering

**DP 2 — 1 0 1 B — R L2 — Z**

- DP: Series Code
- 2: Structure
- 1: Number of Poles
- 0: Cap Shape
- 1: Number of LED
- B: Contact Plating
- R: Cap Color
- L2: LED Color
- Z

| Code | ContactPlating |
|---|---|
| None | Silver Plated |
| B | GoldPlated |

## ■Structure

| 1 | 2 | 3 |
|---|---|---|
|  |  |  |

## ■Cap Shape

| Fig. | Cap shape |
|---|---|
| **0** | Standard |
| **1** | **DP2** Wide cap |
| **2** | **DP1** Wide cap |

## ■Cap Color

| Code | **C** | **G** | **B** | **O** |
|---|---|---|---|---|
| Color | Clear | Gray | Blue | Orange |

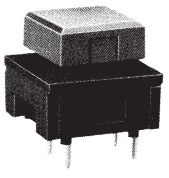
| Code | **R** | **K** | **Y** | **W** |
|---|---|---|---|---|
| Color | Red | Black | Yellow | White |

## ■LED Specifications

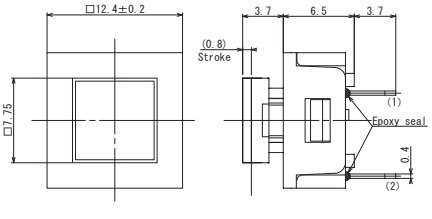
| Color | Code | $I_F$ | $V_F$ | | $V_R$ |
|---|---|---|---|---|---|
| | | | nom. | max. | |
| Red | **L2** | 20mA | 2.1V | 2.8V | DC4V |
| Green | **L5** | 25mA | 2.1V | 2.8V | DC4V |
| Yellow | **L8** | 25mA | 2.1V | 2.8V | DC4V |
| Red & Red | **L22** | 20mA | 2.1V | 2.8V | DC4V |
| Red & Green | **L25** | Red 20mA<br>Green 25mA | 2.1V | 2.8V | DC4V |

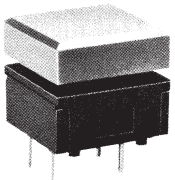
**DP1**

### SPST
### Without LED（Non-illuminated）

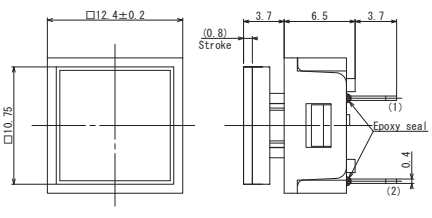


**DP1－100－Z**



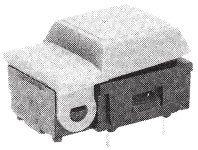
**DP1－120－Z**



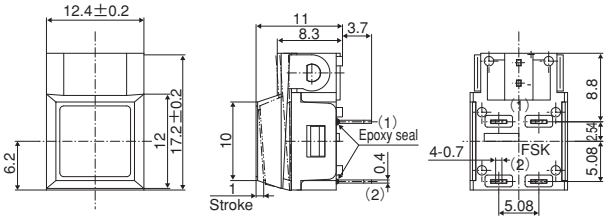

| Part No. | Switching function | |
|---|---|---|
| |  |  |
| **DP1－100－Z**<br>**☆DP1－100B－Z**<br>**DP1－120－Z**<br>**★DP1－120B－Z** | OFF | (ON) |
| Connecting terminals | —— | 1 － 2 |

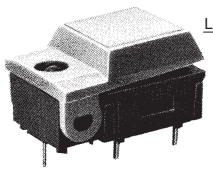
★ : Made to order products.　☆ : Semi-standard products.　(ON) : Momentary

## DP2 SPST

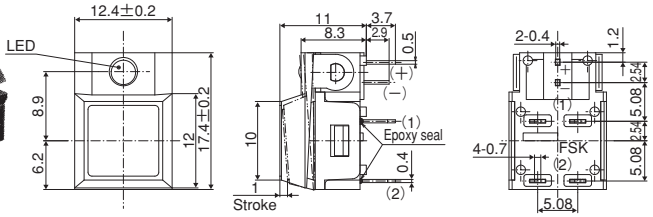


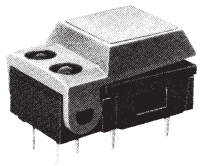
DP2－100－Z



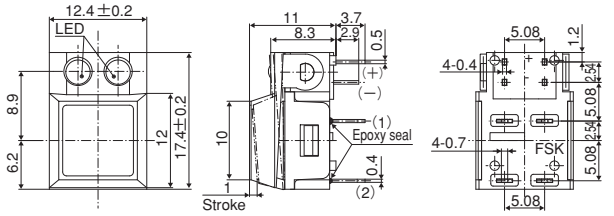



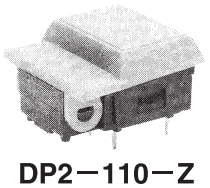
DP2－101－Z



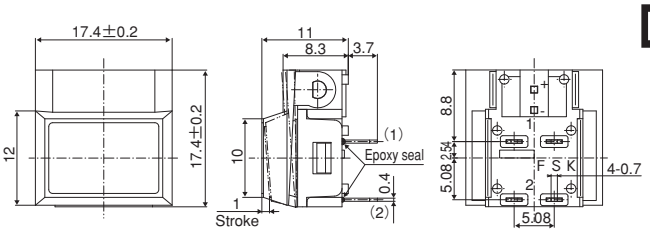



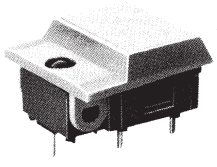
DP2－102－Z



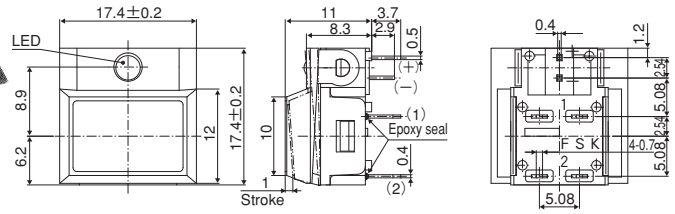



DP2－110－Z



DP2－111－Z




| Part No. | Switching function | |
|---|---|---|
| | ▬ | ▼ |
| DP2－100－□－Z<br>DP2－110－□－Z | OFF | (ON) |
| Connecting terminals | —— | 1 － 2 |
| DP2－101－□L■－Z<br>DP2－111－□L■－Z<br>DP2－101B－□L■－Z<br>DP2－111B－□L■－Z | OFF | (ON) |
| Connecting terminals | —— | 1 － 2 |
| LED circuit | (+)○ ▷\| ○(−) | |
| DP2－101－□L■■－Z<br>DP2－102B－□L■■－Z | OFF | (ON) |
| Connecting terminals | —— | 1 － 2 |
| LED circuit | (+)○ ▷\| ○(−)<br>(+)○ ▷\| ○(−) | |

### ■Part Numbering

**DP2－102－□L■■－Z**

DP2－102

Color

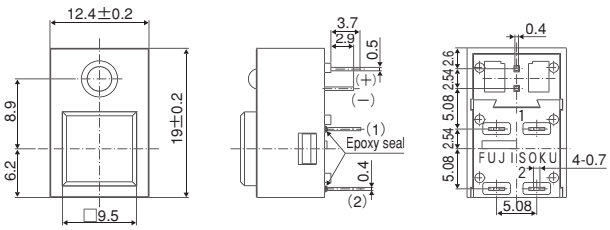
Color

| Fig. | Color |
|---|---|
| 2 | Red |
| 5 | Green |
| 8 | Yellow |

## DP3 SPST



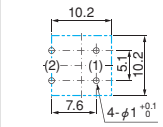
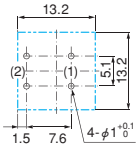
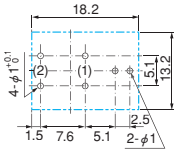
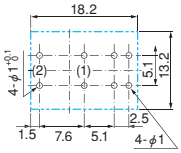
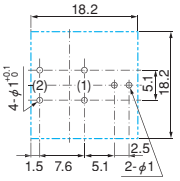
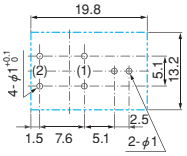
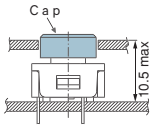
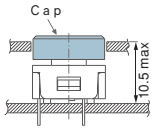
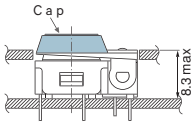
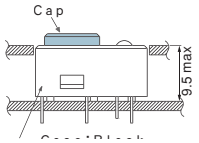
DP3－101－Z



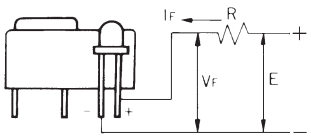

| Part No. | Switching function | |
|---|---|---|
| | ▬ | ▼ |
| DP3－101－□L■－Z<br>DP3－101B－□L■－Z | OFF | (ON) |
| Connecting terminals | —— | 1 － 2 |
| LED circuit | (+)○ ▷\| ○(−) | |

(ON)：Momentary　□：Cap color code.　LED color to be specified in ■.　□■ ：Refer to "Table of Part Numbers" on P.189.

## ■PCB Footprints & Mounting

| Part No. | DP1－100－Z | DP1－120－Z | DP2－100－Z<br>DP2－101－Z | DP2－102－Z | DP2－110－Z<br>DP2－111－Z | DP3－101－Z |
|---|---|---|---|---|---|---|
| Footprint Dimensions |  |  |  |  |  |  |
| |  : panel cut-out dimensions | | | | | |
| Mounting |  Reference |  Reference |  Reference | | |  Reference |

## ■Precautions

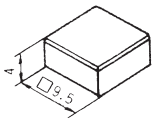
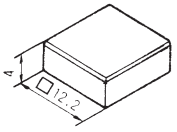
| | |
|---|---|
| Effective operating range | To operate **DP1－120－Z**,depress the center of the cap. |
| LED circuit | Current to be applied to the LED must be lower than the forward current (IF) indicated in the LED Specifications of each switches. Resistance value R should be calculated using the following formula.<br><br>$R=\frac{E-V_F}{I_F}$<br>E=5V、$I_F$=20mA<br>Example :<br>$R=\frac{5-2.1}{0.02}=145\,\Omega$<br>Use VF=2.1V to calculate. |

## ■Notes Upon Ordering

**D**Caps for **DP1** and **DP3** are standard accessories.
Please designate a cap upon ordering the switch.
Clear cap is not available for **DP2**.

## ■Standard Accessories

《Supplied with switch》

| Part Name | Cap | | |
|---|---|---|---|
| Type | **DP1－100－Z**<br>**DP3－101－Z** | **DP1－120－Z** | |
| Dimensions<br>Materials : Polycarbonate resin |  |  | Color code |
| Clear | **140000470157** | **140000470188** | **C** |
| White | **140000470184** | **140000470217** | **W** |
| Red | **140000470158** | **140000470189** | **R** |
| Black | **140000470166** | **140000470216** | **K** |
| Gray | **140000470159** | **140000470190** | **G** |
| Blue | **140000470160** | **140000470191** | **B** |
| Orange | **140000470161** | **140000470192** | **O** |
| Yellow | **140000470186** | **140000470118** | **Y** |

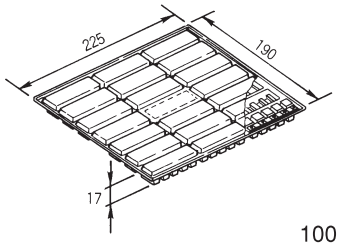
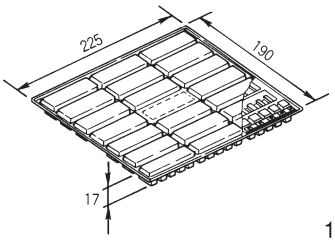
## ■Soldering（DP1 ～ 3）

1. Manual soldering
   Device: Soldering iron
   380˚C, Max. 3 seconds, Max.
2. Auto soldering
   Device: Jet wave or dip type
   275±10˚C 6 sec, Max.
   Preheat time shall be 120 seconds max. at 80～120℃ max.

## ■Flux Cleaning（DP1 ～ 3）

(1) Solvents : Fluorine or Alcohl type
(2) DP1～3 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) After soldering, wait until the temperature of the terminals cool down to 90℃ or below or until the parts are exposed to room temperature for more than 5 min. before washing.

## ■Packaging Specifications

| DP1・DP2−100・DP3 | DP2−110/111 |
|---|---|
| Plastic Pack   100 pcs/pack | Plastic Pack   120 pcs/pack |

## ■Table of Part Numbers

| Series | DP1−100 | | DP1−120 | | DP2−100−□−Z | | DP2−110−□−Z |
|---|---|---|---|---|---|---|---|
| Contact plating | Silver | Gold | Silver | Gold | Silver | Gold | Silver |
| Non-illuminated | DP1−100−Z | ☆DP1−100B−Z | DP1−120−Z | ★DP1−120B−Z | ★ DP2−100−B−Z | —— | ★ DP2−110−B−Z |
| | —— | —— | —— | —— | ★ DP2−100−G−Z | —— | ★ DP2−110−G−Z |
| | —— | —— | —— | —— | ★ DP2−100−K−Z | —— | ★ DP2−110−K−Z |
| | —— | —— | —— | —— | ★ DP2−100−M−Z | —— | ★ DP2−110−R−Z |
| | —— | —— | —— | —— | ★ DP2−100−O−Z | —— | ★ DP2−110−W−Z |
| | —— | —— | —— | —— | ☆ DP2−100−R−Z | —— | ★ DP2−110−O−Z |
| | —— | —— | —— | —— | ☆ DP2−100−W−Z | —— | —— |
| | —— | —— | —— | —— | ★ DP2−100−Y−Z | —— | —— |
| | —— | —— | —— | —— | —— | —— | —— |

| Series | DP2−101−□L■−Z | | DP2−111−□L■−Z | DP2−102−□L■■−Z | DP3−101−L■−Z | |
|---|---|---|---|---|---|---|
| Contact plating | Silver | Gold | Silver | Silver | Silver | Gold |
| illuminated | ★ DP2−101−BL2−Z | ★ DP2−101B−BL2−Z | ★ DP2−111−BL2−Z | ▲ DP2−102−BL22−Z | ★ DP3−101−L2−Z | ★ DP3−101B−L5−Z |
| | ★ DP2−101−BL5−Z | ★ DP2−101B−GL2−Z | ▲ DP2−111−BL5−Z | ★ DP2−102−BL25−Z | ★ DP3−101−L5−Z | —— |
| | ★ DP2−101−BL8−Z | —— | ★ DP2−111−GL2−Z | ▲ DP2−102−GL22−Z | ★ DP3−101−L8−Z | —— |
| | ★ DP2−101−GL2−Z | —— | ★ DP2−111−GL5−Z | ★ DP2−102−GL25−Z | —— | —— |
| | ☆ DP2−101−GL5−Z | —— | ★ DP2−111−GL8−Z | ★ DP2−102−KL25−Z | | |
| | ★ DP2−101−GL8−Z | —— | ★ DP2−111−OL2−Z | ▲ DP2−102−ML25−Z | | |
| | ★ DP2−101−KL2−Z | —— | ★ DP2−111−OL5−Z | ★ DP2−102−OL25−Z | | |
| | ★ DP2−101−KL5−Z | —— | ★ DP2−111−OL8−Z | ★ DP2−102−RL25−Z | | |
| | ★ DP2−101−KL8−Z | —— | ★ DP2−111−KL2−Z | ★ DP2−102−GL55−Z | | |
| | ★ DP2−101−OL2−Z | —— | ★ DP2−111−KL5−Z | ▲ DP2−102−GL88−Z | | |
| | ★ DP2−101−OL5−Z | —— | —— | ▲ DP2−102−WL25−Z | | |
| | ★ DP2−101−OL8−Z | —— | ▲ DP2−111−ML5−Z | —— | | |
| | ★ DP2−101−RL2−Z | —— | ★ DP2−111−RL2−Z | —— | | |
| | ★ DP2−101−RL5−Z | —— | ▲ DP2−111−RL5−Z | —— | | |
| | ★ DP2−101−RL8−Z | —— | —— | —— | | |
| | ★ DP2−101−WL2−Z | —— | ★ DP2−111−YL2−Z | —— | | |
| | ★ DP2−101−WL5−Z | —— | ★ DP2−111−WL2−Z | —— | | |
| | ★ DP2−101−WL8−Z | —— | ★ DP2−111−KL8−Z | —— | | |
| | ★ DP2−101−YL2−Z | —— | —— | —— | | |
| | —— | —— | —— | —— | | |
| | ★ DP2−101−ML2−Z | —— | —— | —— | —— | —— |

□ : **Cap** color code

**W** : White
**R** : Red
**K** : Black
**G** : Gray
**B** : Blue
**O** : Orange
**Y** : Yellow

●Please contact us for configurations which are not shown in the above Table. ▲ : Inquiry products. ☆ : Semi-standard products. ★ : Made to order products.