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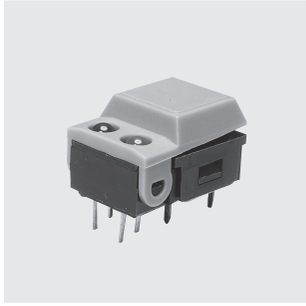
DP1•2•3

Directing 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.

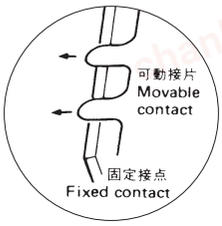
3. Light Tactile Feel
Metal contacts provides light tactile feel.

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） 10μA 20mVDC（Gold plated contacts）
Initial Contact Resistance		20mΩ max.（1.5mA 200μVAC）
Dielectric Strength		250VAC 1 minute （Except between terminals of LED）
Insulation Resistance		100MΩmin.（250VDC）
Electrical Life		200,000 operations
Travel		**DP1,DP3** : 0.8±0.3mm **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.

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DP1～3

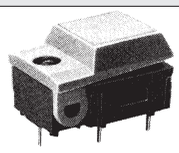
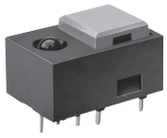
■Part Numbering

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

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

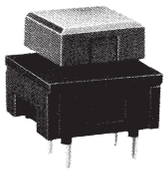
Code	R	K	Y	W
Color	Red	Black	Yellow	White

■LED Specifications

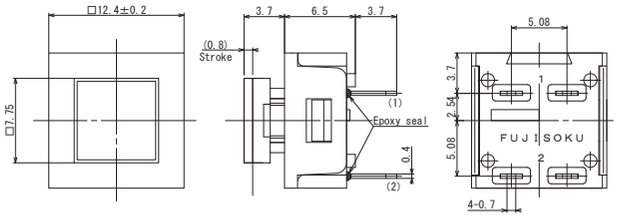
Color	Code	I_F	V_F		V_R
			nom.	max.	
Red	**L2**	20mA	2.1V	2.8V	DC4V
Green	**L5**	25mA	2.1V	2.8V	DC4V
Yellow	**L8**	25mA	2.1V	2.8V	DC4V
Red & Red	**L22**	20mA	2.1V	2.8V	DC4V
Red & Green	**L25**	Red 20mA Green 25mA	2.1V	2.8V	DC4V

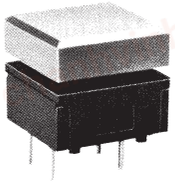
DP1

SPST
Without LED（Non-illuminated）

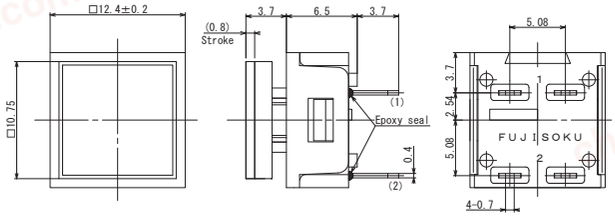


DP1－100－Z





DP1－120－Z



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

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

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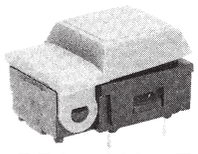
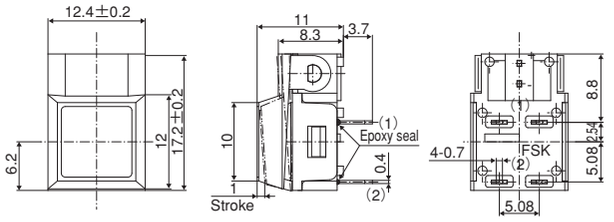
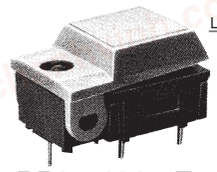
DP2 SPST

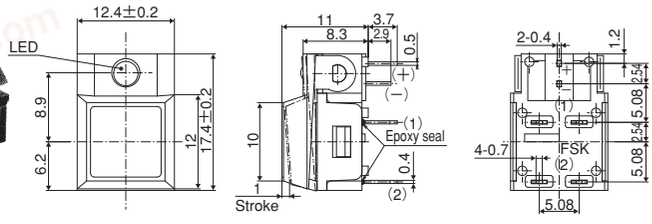


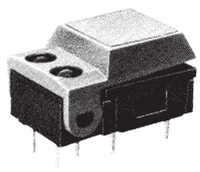
DP2－100－Z



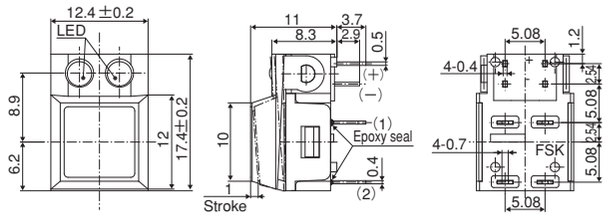


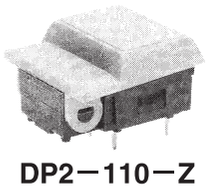
DP2－101－Z



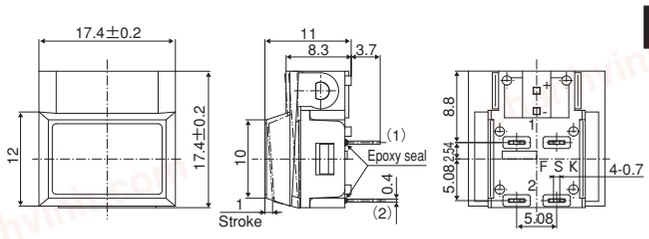


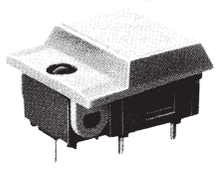
DP2－102－Z



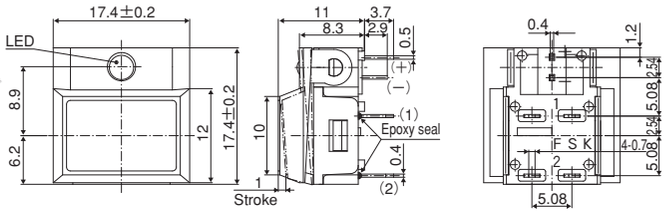


DP2－110－Z





DP2－111－Z



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

■Part Numbering

DP2－102－□L■■－Z

DP2－102

LED1/Color

LED2/Color

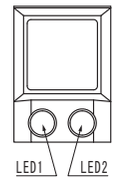
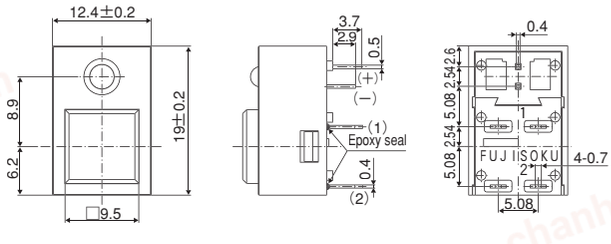


Fig.	Color
2	Red
5	Green
8	Yellow

DP3 SPST



DP3－101－Z



Part No.	Switching function	
DP3－101－□L■－Z 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.

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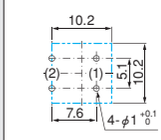
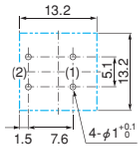
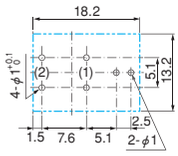
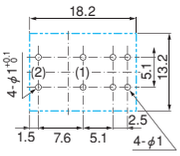
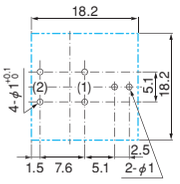
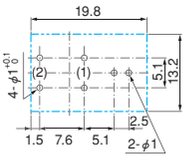
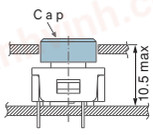
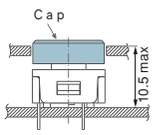
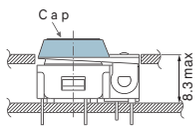
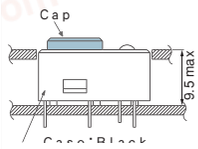
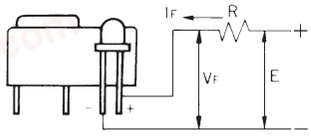
DP1～3

■PCB Footprints & Mounting

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

■Precautions

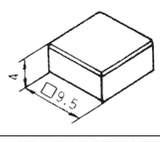
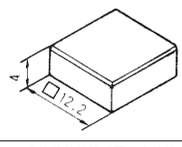
Effective operating range	To operate **DP1−120−Z**,depress the center of the cap.
LED circuit	Current to be applied to the LED must be lower than the forward current (IF) indicated in the LED Specifications of each switches. Resistance value R should be calculated using the following formula.  $R=\frac{E-V_F}{I_F}$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

■Notes Upon Ordering

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** **DP3−101−Z**	**DP1−120−Z**	
Dimensions 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**	**140000470218**	**Y**

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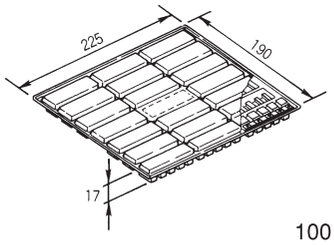
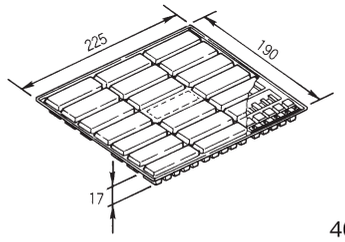
■Soldering (DP1 ～ 3)

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°C 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°C or below or until the parts are exposed to room temperature for more than 5 min. before washing.

■Packaging Specifications

DP1・DP2-100/101/102・DP3	DP2−110/111
DP Plastic Pack  100 pcs./pack	DP Plastic Pack  40 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.