Sunmulon

RoHS | LED | ▦

RH Super Miniature Lighted Switch

Panel mount type for print board mounting LED full-face illumination type with 9.2-mm depth in the body

The model without a flange for print board mounting is available, so group mounting such as a matrix is possible.
Flux prevention is supported (print board terminal only.)
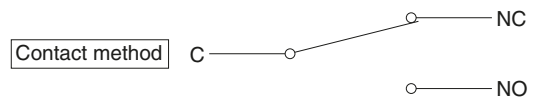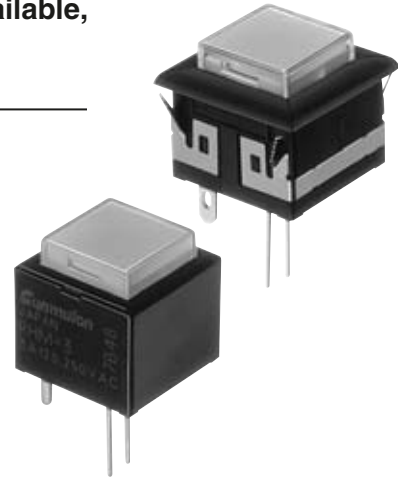
■ Depth of the body

A short trunk structure of 9.2mm

■ Illumination

LED is used for the illumination element.
The full-face mono-color method is adopted for
LED illumination. The button shape is 10 square.

■ Switch

This switch uses the micro switch structure of the
coil spring method.
It provides secure operations and high reliability.

Contact method

C ———○———○——— NC

○——— NO

SPECIFICATIONS

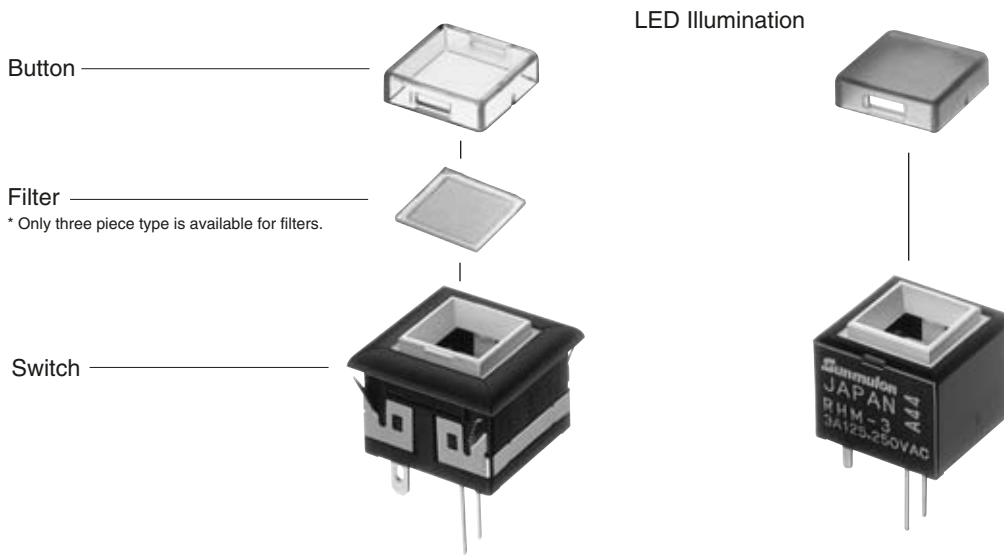| Contact materials	Silver contact (gold plated)
Rating	AC 125V, 250V 3A (resistance load)
Insulation resistance	100MΩ or greater with a DC 500V Megger
Dielectric strength	Between terminals of the same pole: AC600V RMS Between terminals and the ground: AC1500V RMS At 50/60Hz each for 60 sec. and normal temperature and humidity
Contact resistance	50mΩ or less (initial value) With the DC 6V 1A voltage descent method
Mechanical life span	Momentary type: 500,000 times or greater; Alternate type: 200,000 times or greater
Electrical life span	30,000 times or more (with rated load)
Ambient temperature	−15°C ～ 50°C
Ambient humidity	80%RH or less

DC Rating (Silver Contact)

Rated voltage(V)	Resistance load (A) Constantly closed route/ Constantly open route
DC 8	2
14	2
30	1
125	0.3

CHARACTERISTICS

Required power for operations	3.43N	Overall movement (mm Max.)	2.5

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STRUCTURE

LED Illumination

Button

Filter
* Only three piece type is available for filters.

Switch

SHAOES AND DIMENSIONS

10 Square button type

With a flange

15.2
10
2.5
9.2
1.5
4.3
C   NC
NO
(11) 0.5 (12)
2
0.5
13.6

Sunmulon mark
TOP VIEW

Without a flange

13
10
2.5
10.7
C   NC
NO
(11) 0.5 (12)
1
0.5
7.62±0.1
2.54
5.08±0.1 5.08±0.1

Sunmulon mark
TOP VIEW

INTERNAL CONNECTION

● **LED Illumination**

LED full-face (square)	Voltage	Mono-Color	
	Common for all voltage	BOTTOM VIEW	TOP VIEW
		L + L −	▶ Sunmulon mark

Tolerance : ±0.4mm

TERMIINAL LAYOUT/ LAYOUT DIMENSIONS

● Terminal Layout

	SPDT (Single Pole Double Throw)	DPDT (Double Pole Double Throw)	Indicator
LED full-face mono-color	BOTTOM VIEW COM NO L− NC L+	COM L− COM NO L+ NO NC NC	L− L+
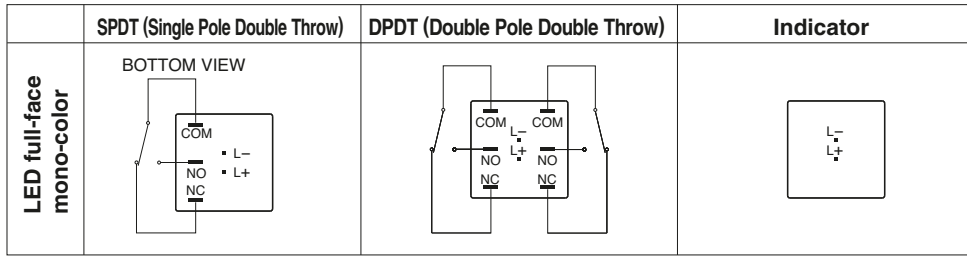
● Layout Dimensions
(BOTTOM VIEW)

Sunmulon mark

COM COM
L−
NO NO
L+
NC NC

2.54 5.08 5.08 7.62
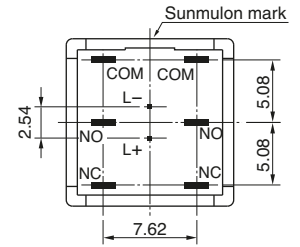
TERMIINAL SHAPE / PRINT BOARD HOLE DIMENSIONS

● Terminal Shape

2.5 1.6 4.5 0.8 2.0 0.5

Soldering terminal
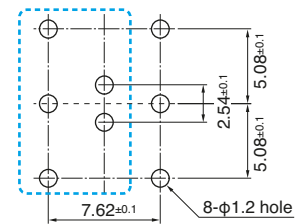
3.5 1 0.5

Print board mount terminal
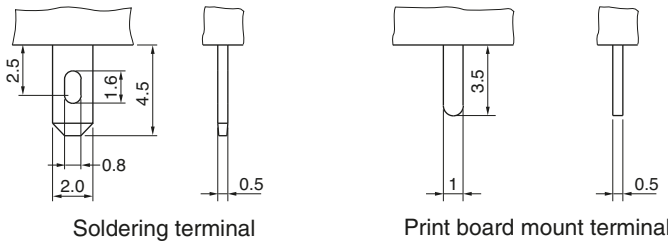
● Print Board Hole Dimensions   (BOTTOM VIEW)
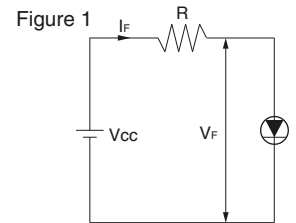
* The area within blue dotted lines indicates single pole.

5.08 ± 0.1 2.54 ± 0.1 5.08 ± 0.1 7.62 ± 0.1 8-φ1.2 hole

LED RATING AND PROTECTION RESISTANCE

● LED Rating

Item	Red/Yellow	Green
Max. operation current I_{FM} (mA)	30	30
DC reverse voltage V_R (V)	5	5
Voltage in regular direction V_F (V) (I_F = mA)	2.0	2.0
Recommended operating current (mA)	7	12

● LED Protectionresistance

Internal LED protective resistor is not incorporated.

Refer to the following valued series connection.

Voltage(V)	Red/Yellow	Green
5($\pm$5%)	510Ω 1/4W	270Ω 1/4W
12($\pm$5%)	1600Ω 1/4W	910Ω 1/4W
24($\pm$5%)	3600Ω 1/2W	1800Ω 1/2W

*Please turn on the light under the following conditions when pulse lighting is used for LED (common for all colors.)

Figure 1

I_{FM}=100mA with Pulse width Pw=100μS, Duty ratio D_R=10^{-1}

I_F R Vcc V_F

Please use the following formula when using at other voltages

$$R = \frac{Vcc - V_F}{I_F}$$

Vcc ： Power supply voltage
V_F ： Voltage in regular direction
I_F ： Recommended operating current

MOUNT DESIGNS / PANEL CUT DIMENSIONS

● 10 Square Button Type

Thickness of the board that can be used for mounting: 1mm-3.2mm

		Mount designs	Panel cut dimensions	Remarks
Standard mount	Single mount	15.2 15.2	$14^{+0.15}_{-0.1}$	30 or greater 30 or greater Interval of mount holes in each line when multiple blocks are arranged.
	Consecutive mount	15.2 15.2n$\pm$0.5	13.8+15.2 (n−1) $^{+0.15}_{-0.1}$	

n: Number of switches

*When exterior processing such as coating is performed for the panel, please be sure that dimensions after the exterior process are the same as the panel cut dimensions. If the panel cut dimensions are smaller, it will cause an operational problem.
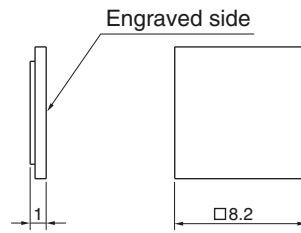
ACCESSORIES

Button removal jig

Enables easy removal and exchange of the button

Part No.	SJ-0001

FILTER DIMENSIONS

Engraved side

1

□8.2

RH-1653

REPLACEMENT PARTS

To order parts only, please advise the Part No.

● **Buttons / Filters**

One-Piece Type

Color		Part No.
		Button
Illumination display	Red	RH-1651-LR
	Green	RH-1651-LG
	Yellow	RH-1651-LY
Illumination color display	Milk white	RH-1651-LM
No illumination	Black	RH-1651-KK
	Blue	RH-1651-BB

Three-Piece Type

Color		Part No.	
		Button	Filter
Illumination display	Red		RH-1653-LR
	Green		RH-1653-LG
	Yellow		RH-1653-LY
Illumination color display	Milk white	RH-1651-CC	RH-1653-LM
No illumination	Black		RH-1653-KK
	Blue		RH-1653-BB

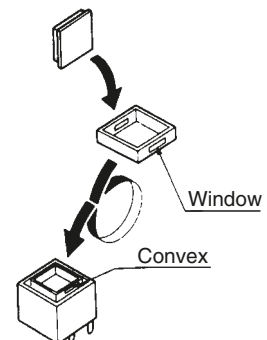## DIRECTIONS (How to Use Properly)

1. Removal of the Button

   Put the nail of your finger in the window (dent) on both sides of the button, and pull it off.
   A jig to facilitate removal of the button/illumination is available (Part No.: SJ-0001.)
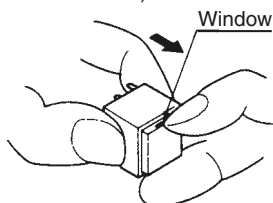
   Window

2. Mounting the Filter

   Turn the sand blast face up, and put it into the button (make the glossy face on the button side.)

   Window

   Convex

3. Mounting the Button

   Fix the window or the concave inside the button in the convex of the operation button until it clicks.

ORDERING CODE

LED Full-Face Illumination

RH☐ **—** ☐☐☐☐☐☐☐☐

● Circuit Characteristics

M	Momentary
A	Alternate
☆ L	Indicator

● Number of Circuits

0	Indicator
3	SPDT
4	DPDT

● Case Shapes

S0	With a flange
SN	Without a flange

● LED Colors

70	Red
80	Green
90	Yellow
X	Without LED

* Orange yellow is used for
the yellow LED/button/filter.

● Case Colors

K	Black
H	Gray

● Button Colors

	R	Red
	G	Green
*	Y	Yellow
	M	Milk white
*1)	B	Blue
*1)	K	Black
	C	Clear
	X	No button

● Flux Prevention support

*2)	P	Exist
	N	Does not exist

● Terminal Shapes

	S	Soldering terminal
	C	Print board mount terminal
☆	0	Indicator

☆Specify "0" for indicators.

● Filter Colors

	1	Red
	2	Green
*	3	Yellow
	4	Milk white
*1)	6	Blue
*1)	7	Black
★	X	No filter

★ No filter (X) is usually used
for color buttons except Clear.

Notes
*1) It can be selected for without LED only.
*2) It can be selected for the print board
mount terminal only.

HANDLING PRECAUTIONS

1. Perform soldering for terminals at 350ºC for three seconds or less.
2. Do not apply the soldering iron to the switch. It deforms the terminal and produces a fault.
3. Do not move the terminal during soldering and for one minute after soldering.
4. The character film is not included in the package.
5. To use the character film, use heat resistant film of a thickness 0.1mm or less.
   Please see the figure at right for reference dimensions.

For 10 square buttons

☐8.2 $_{-0.2}^{0}$