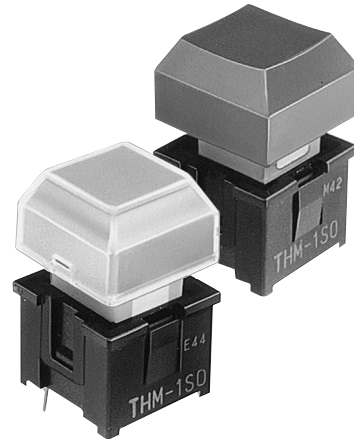


TH Illuminated pushbutton switch

Keyboard type, Reed switch built-in, Dual-color

FEATURES

- LED Full-face, Dual-Color illumination available.
- Reed switch built-in, Mechanical Life 10 million operations
- Button Size : 18 mm square



Switch Connection



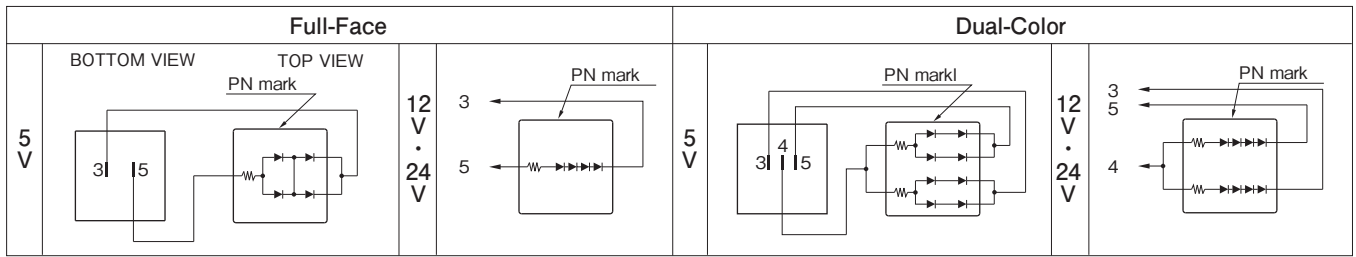
SPECIFICATIONS

Contact Ratings	Operating Power	5W
	Operating Voltage	DC100V
	Operating Current	0.3A
	Rated Thermal Current	0.5A
Insulation Resistance		More than 100MΩ at DC100V
Dielectric Strength		DC200V between NC and NO terminal for 1 sec.
		AC1500V RMS between terminals and ground for 60 sec.
Contact Resistance		Less than 150mΩ (Initial)
Mechanical Life		More than 10,000,000 operations
Electrical Life		More than 10,000,000 operations at max. rated load DC 5V 10mA
Operating Temperature		-15°C~50°C
Operating Humidity		80%RH (max.)

OPERATING CHARACTERISTICS

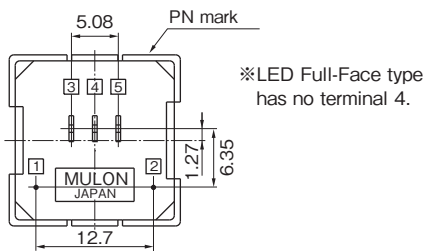
Operating Force (MAX.)	2.0 N	Total Travel (MAX.)	4.5 mm
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INTERNAL CONNECTION ARRANGEMENTS



TERMINALS

●TERMINALS DIMENSIONS



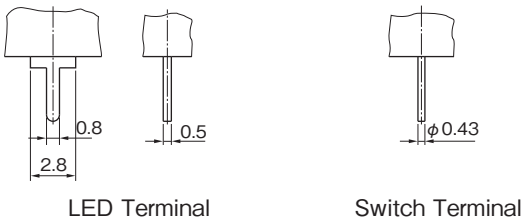
※LED Full-Face type has no terminal 4.
 ※Non-illuminated type attached the terminal 3 and 5 for reinforcement.

Terminal TYPE	1	2	3	4	5
Full-Face	Switch		LED Cathode (-)	-	LED Anode (+)
Dual-Color	Switch		Red LED Cathode	LED Anode	Green LED Cathode

※Simultaneous lighting 3 color of Dual-Color type, please use as follows.
 (1) Simultaneous lighting available for DC5V.
 (2) For DC12V and DC24V type, refer to the following and connect with the correct external resistor.

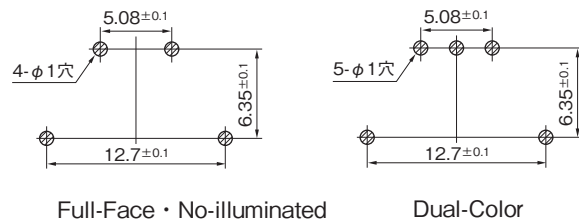
TERMINAL SHAPE / PCB HOLE CUT-OUT

●TERMINAL SHAPE



●PCB hole cut-out

(BOTTOM VIEW)



LED DATA

●LED RATINGS

DC Voltage (V)	Current Rating (mA)	
	Full-Face	Dual-Color
5 (±5%)	40	37
12 (±5%)	20	17
24 (±5%)	17	17

Refer to the following formula to calculate external resistance values.

$$R = \frac{V_{CC} - V_F}{I_F}$$

V_{CC} : Power Supply voltage
 V_F : forward voltage
 I_F : Recommended operating current

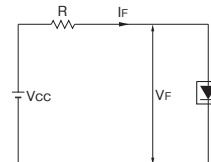


Figure 1

●EXTERNAL RESISTOR

Non-resistor type, suitable external current limiting resistors must be installed as shown by the table and formula.

ITEM		Forward Voltage V _F (V)	Recommended operating current I _F (mA)	Max. operating current I _{FM} (mA)	DC Reverse voltage V _R (V)	Wiring diagram
Full-Face	5V	Red	3.6	40	10	Fig. 1
		Green, Yellow	4.2			
	12·24V	Red	7.2	20	20	
		Green, Yellow	8.4			
Dual-Color	5V	Red	4.2	37	5	Fig. 2
		Green	4.4			
	12·24V	Red	8.4	17	10	
		Green	8.8			

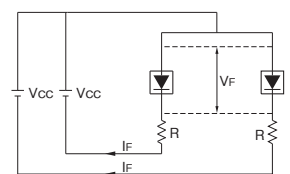
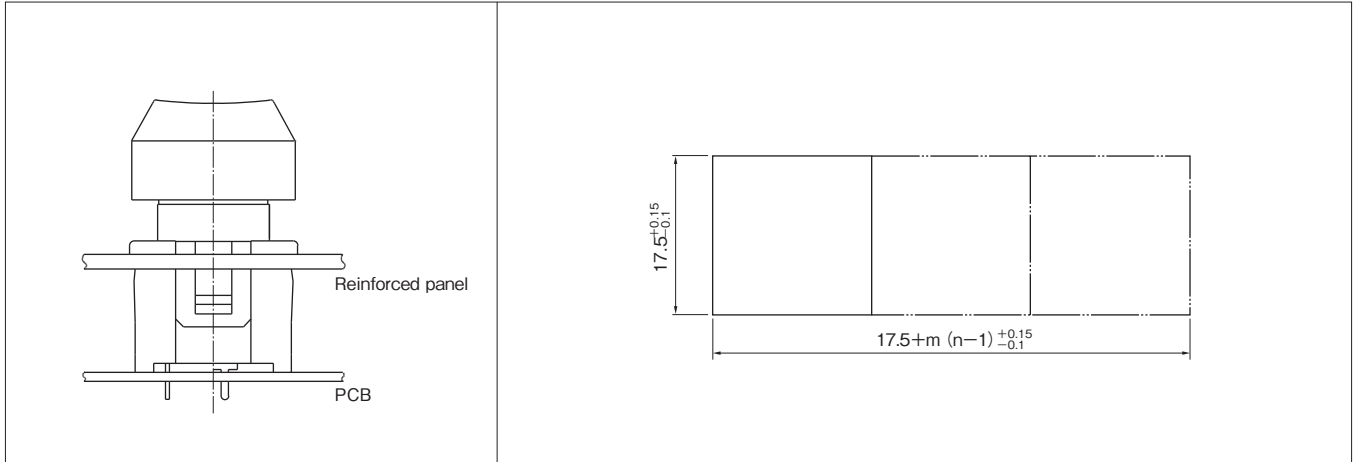


Figure 2

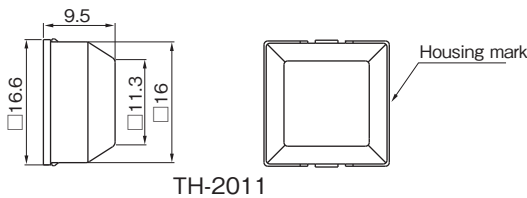
PANEL CUT DIMENSIONS (REINFORCED PANEL)

By using the reinforcement panel it is possible to prevent direct application of force to the printed circuit board. Please use reinforced panel thickness 1-2 mm.



n: number of switches m: pitch between each switches (m ≥ 19)

FILTER DIMENSION



ACCESSORIES

● Button / Filter

Type \ Color	Red	Green	Yellow	Milk-white	Clear
A type Button	TH-2009-LR	TH-2009-LG	TH-2009-LY	TH-2009-LM	
B type Button					TH-2010-CC
B type Filter	TH-2011-LR	TH-2011-LG	TH-2011-LY	TH-2011-LM	

ASSEMBLY & DISASSEMBLY

<p>1. Removing Button</p> <p>Hang the button and pull out straight.</p>	<p>2. Fitting Button for A type & Fitting Filter for B type</p> <p>Be sure to mount the button with the correct orientation. Align the projections in the button, the groove on the switch, and depress the button onto the switch.</p>
<p>3. Fitting Button for B type</p> <p>Align the groove on the button, the projection on the filter and fit the button.</p>	<p>4. LED voltage supply rating</p> <p>supply voltage mark</p>

Tolerance : ±0.4mm

ORDERING CODE

LED Illumination



●OPERATION

M	Momentary
L	Indicator

●CONTACT

0	Indicator
1	SPST

●ILLUMINATION TYPE

1)

S0	Full-Face
S3	Dual-Color

●LED COLOR

7	Red
8	Green
※ 9	Yellow
2) ※ 78	Red/Green (Dual-Color)
1) X	Without LED

●Supply Voltage to LED

1	5V
2	12V
3	24V
4	5V Non-resistor
5	12V Non-resistor
6	24V Non-resistor
X	Without LED

●FILTER COLOR

A type

X	Without Filter
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B type

1	Red
2	Green
※ 3	Yellow
2) 4	Milk-white
X	Without Filter

★Filter is necessary for B type (Clear button) .

●BUTTON COLOR

A type (without filter)

R	Red
G	Green
※ Y	Yellow
2) M	Milk-white
X	Without button

B type (with filter)

C	Clear
3) X	Without button

※The color of Yellow for LED, Button, Filter is actually "Orange Yellow" not Lemon Yellow.

- 1) Non-illumination type specify illumination type (S0) and LED color without LED (X).
- 2) A type for Dual-Color, the button color should be Milk-White. B type for Dual-Color, the filter color should be Milk-white.
- 3) In case of ordering without Button, the filter must be ordered separately. Please specify the filter color as X (Without Filter).