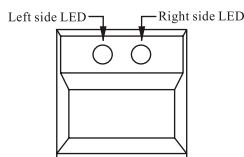


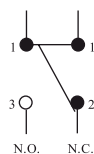
# Pushbutton Switches

## Momentary Pushbutton Switches with LED

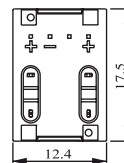
## PB9 Series



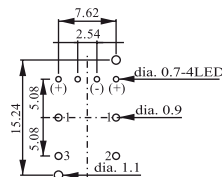
LED Positions



SPDT Contact Configuration



Bottom View

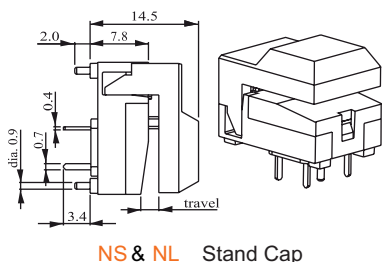


P.C.B. Mounting Holes

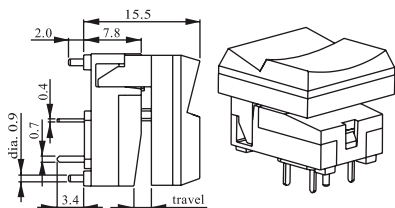
### CAP TYPES

### CAP STYLE

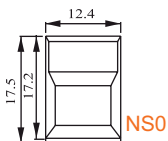
### PAPERBOARD



NS & NL Stand Cap



TS & TL Transparent Cap



NS0



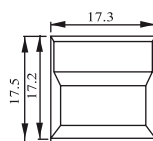
NS1



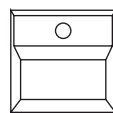
NS2



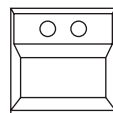
TS\_



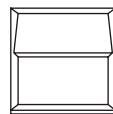
NL0



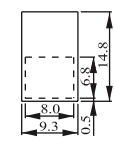
NL1



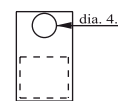
NL2



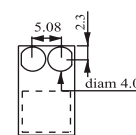
TL\_



Non LED



One-LED



Two-LED

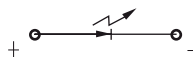
Note: [ ] write area (Paperboard only for cap type TS & TL)

### LED CHARACTERISTICS

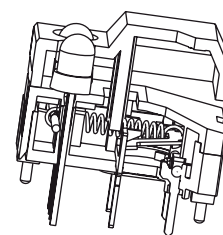
Parameters	Symbol (Unit)	Red	Yellow	Green	Blue
Forward Voltage	$V_F(V)$	2.0	2.1	2.2	3.5
Forward Current	$I_F(mA)$	20	20	20	20
Permissible Loss	$P_b(mW)$	80	80	80	120
Luminous Intensity	$I_v(mcd)$	60	50	60	600
Peak Wave Length	$\lambda_P(nm)$	635	585	568	470
Reverse Voltage	$V_R(V)$	5			
Reverse Current $V_R=5V$	( $\mu A$ )	100			
Soldering Temperature	( $^{\circ}C$ )	260 for 5 seconds			

The electrical specifications shown are determined at a basic temperature of 25°C. If the source voltage exceeds the rated of LED, a ballast resistor has to be connected in series with the LED.

Attention: LED are electrostatic sensitive devices



### CUTAWAY



### How to order:



- 1 CAP TYPE & STYLE:**
- NS0 Small Cap without LED
  - NS1 Small Cap with One-LED
  - NS2 Small Cap with Two-LED
  - NL0 Large Cap without LED
  - NL1 Large Cap with One-LED
  - NL2 Large Cap with Two-LED
  - TS0 Transparent Small Cap without LED
  - TS1 Transparent Small Cap with One-LED
  - TS2 Transparent Small Cap with Two-LED
  - TL0 Transparent Large Cap without LED
  - TL1 Transparent Large Cap with One-LED
  - TL2 Transparent Large Cap with Two-LED

- 2 CAP COLORS(Only for NS & NL Cap):**
- C Red
  - E Yellow
  - F Green
  - B White
  - A Black
  - D Orange
  - G Blue
  - H Grey

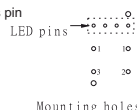
- 3 LED COLORS:**
- 00 Without LED
  - 0C One-LED: Red
  - 0E Yellow
  - 0F Green
  - 0G Blue

- Two-LED (Left / Right):**
- CC Red / Red
  - CE Red / Yellow
  - CF Red / Green
  - CG Red / Blue
  - EC Yellow / Red
  - EE Yellow / Yellow
  - EF Yellow / Green
  - EG Yellow / Blue
  - FC Green / Red
  - FE Green / Yellow
  - FF Green / Green
  - FG Green / Blue
  - GC Blue / Red

- GE Blue / Yellow**  
**GF Blue / Green**  
**GG Blue / Blue**

- 4 LED TERMINAL & ELECTRODE DIRECTION:**
- 0 + o - Bend (One-LED)
  - 1 o + - Standard (One-LED)
  - 2 o - + o (One-LED)
  - 3 + - + Standard (Two-LED)
  - 4 - - - (Two-LED)
  - 5 - - + (Two-LED)
  - 6 + - - (Two-LED)

- Standard: No Code  
 + : anode  
 - : cathode  
 o : none this pin



### General Specifications:

#### ELECTRICAL & MECHANICAL SPECIFICATIONS:

- » Circuit: SPDT
- » Current Rating: 12 mA
- » Voltage Rating: 24 VDC
- » Contact Resistance: 50 mΩ max. (initial)
- » Insulation Resistance: 100M Ω min.
- » Operating Force: 170 ±50 gf
- » Total Travel: 2.5 ±0.5 mm
- » Operating Life: 1,000,000 cycles min.
- » Soldering: 260 °C for 3 seconds
- » Operating Temperature: -10 °C ~ +60 °C
- » Function: Momentary

#### MATERIALS

- » Cap: Acrylonitrile Butadiene Styrene (ABS)
- » Case: Polyamide (PA)
- » Fixed Support: Stainless steel wire
- » Terminals: Phosphor bronze (PBS) with gold plating
- » Moving Contact: Phosphor bronze (PBS) with gold plating
- » Spring: Piano wire
- » LED: 3mm Diameter LED lamp