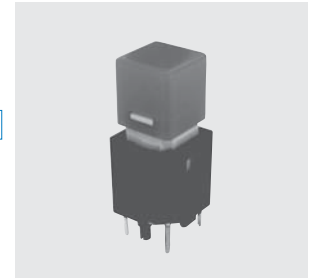


13BL



RoHS Compliant



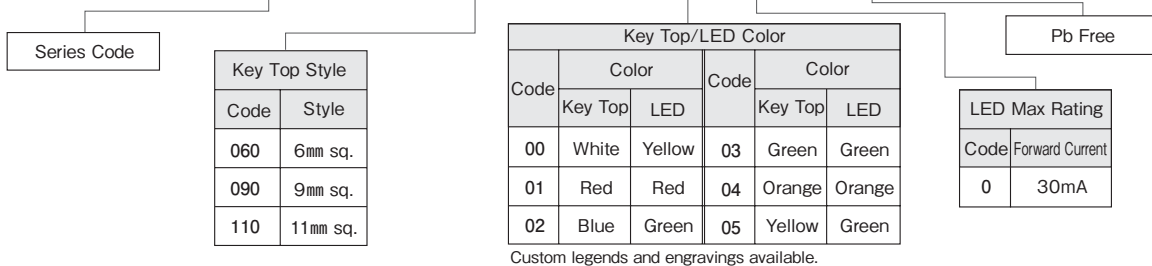
Illuminated Pushbutton Switches

Specification

Rating	Non-switching : 1mA, DC20V Max.or 5mA,DC5V Max. Break current : Same as Non-switching Min. rating : 1mA, DC5V
Contact Resistance	200Ω Max.
Dielectric Strength	100MΩ Min. (DC100V)
Insulation Resistance	AC250Vrms 1minute
Operating Force	060/090 : 0.883~1.57N 110 : 0.981~1.96N
Stroke	060/090 : 1.3mm, 110 : 1.5mm
Operating Temperature Range	-10°C~+60°C
Storage Temperature Range	-25°C~+70°C
Electrical life	060/090operations : 300,000, 110operations : 500,000
Material/Finish	Key top : Polycarbonate Housing : Nylon (Brack) Contact terminals : Brass/Gold over Nickel plating LED terminal : Iron/Silver plated

Part Numbering

13BL - 110 - 0010 - X



Custom legends and engravings available.

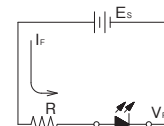
Type and LED Specification

Part No.	Key Top	LED	LED Characteristics					
			Max. Rating (25°C)		Forward Voltage (V _F)		Recommended Forward Current	Ambient Temperature and Allowable Forward Current
			Reverse Voltage(V _R)	Forward Current (I _F)	Standard	Max		
13BL-***-0000-X	White	Yellow	4V	30mA	2.2V	2.8V	20mA	
13BL-***-0010-X	Red	Red			2.0V			
13BL-***-0020-X	Blue	Green			2.1V			
13BL-***-0030-X	Green	Green		2.1V	25mA			
13BL-***-0040-X	Orange	Orange		2.2V				
13BL-***-0050-X	Yellow	Green		2.1V				

(Note 1) *** designate Key Top Style ("060" = 6mm sq., "090" = 9mm sq., "110" = 11mm sq.).
 (Note 2) The LED Characteristics show those across the LED output terminals. (Across Terminals 3 and 4)

Precautions

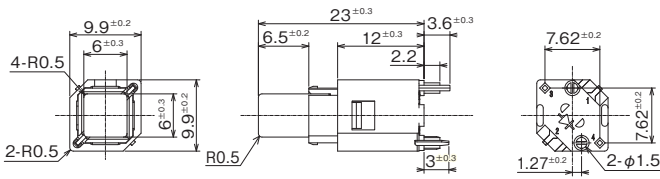
- (a) To prevent overcurrent of LED, connect a protective resistance (R) in series.
- (b) R: Protective resistance ES: Supply voltage
VF: Forward voltage of LED IF: Forward current of LED



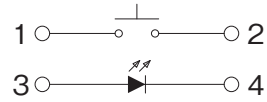
$$R = \frac{E_s - V_F}{I_F}$$

13BL

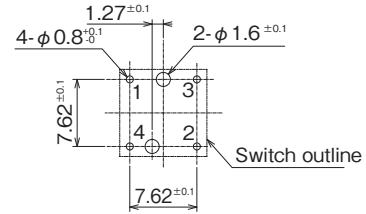
13BL-060 □6 mm Sq. Type



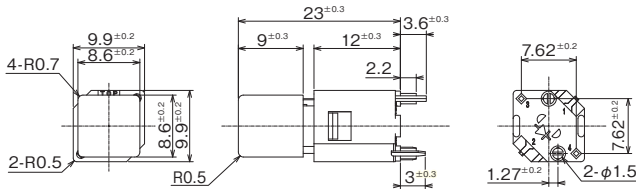
■ Circuit



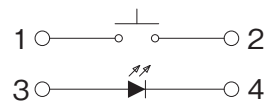
■ PC Hole Layouts



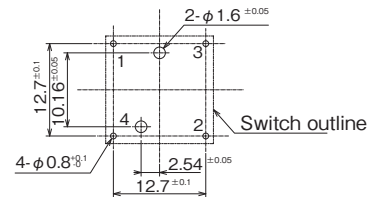
13BL-090 □9mm Sq. Type



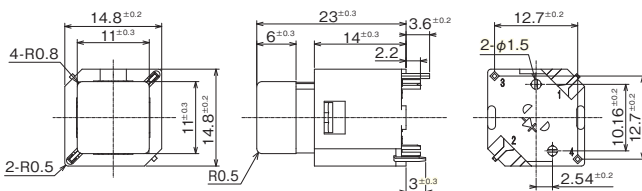
■ Circuit



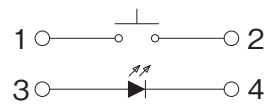
■ PC Hole Layouts



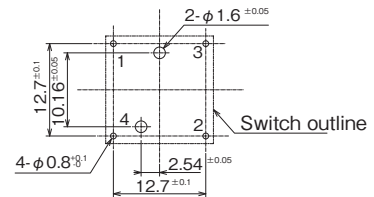
13BL-110 □11 mm Sq. Type



■ Circuit



■ PC Hole Layouts

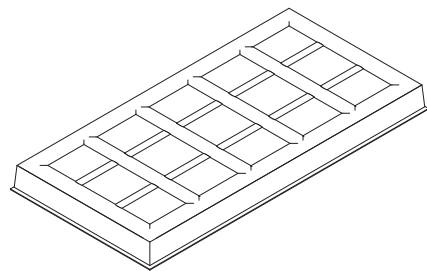


■ Table of Part Numbers

Part No.	Key Top Style	Key Top Color	LED Color	MOQ
13BL-060-0000-X	□6mm sq.	White	Yellow	30
13BL-060-0010-X		Red	Red	
13BL-060-0020-X		Blue	Green	
13BL-060-0030-X		Green	Green	
13BL-060-0040-X		Orange	Orange	
13BL-060-0050-X	Yellow	Green		
13BL-090-0000-X	□9mm sq.	White	Yellow	
13BL-090-0010-X		Red	Red	
13BL-090-0020-X		Blue	Green	
13BL-090-0030-X		Green	Green	
13BL-090-0040-X		Orange	Orange	
13BL-090-0050-X	Yellow	Green		
13BL-110-0000-X	□11mm sq.	White	Yellow	
13BL-110-0010-X		Red	Red	
13BL-110-0020-X		Blue	Green	
13BL-110-0030-X		Green	Green	
13BL-110-0040-X		Orange	Orange	
13BL-110-0050-X	Yellow	Green		

■ Packaging Specifications

30pcs/tray



■ Soldering

- Manual soldering
 Device : Solder iron
 350°C Max. 3sec. Max.
- Auto soldering
 Device : Jet wave or dip type
 260°C Max. 10sec. Max. : Twice