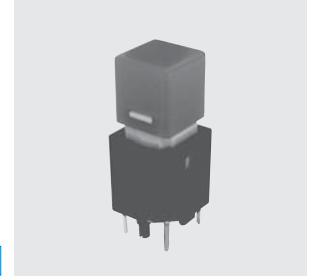


13BL

Illuminated Pushbutton Switches



RoHS Compliant

■ 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

Series Code	Key Top Style	Key Top/LED Color						Pb Free
	Code Style	Code Color	Code Color	Code Color	Code Color	Code Color	LED Max Rating	
	060 6mm sq.	00 White Yellow	03 Green Green	01 Red Red	04 Orange Orange	02 Blue Green	05 Yellow Green	Code Forward Current
	090 9mm sq.							0 30mA
	110 11mm sq.							

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.).

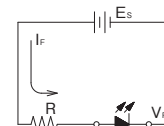
(Note 2) The LED Characteristics show those across the LED output terminals. (Across Terminals 3 and 4)

■ Precautions

(a) To prevent overcurrent of LED, connect a protective resistance (R) in series.

(b) R: Protective resistance ES: Supply voltage

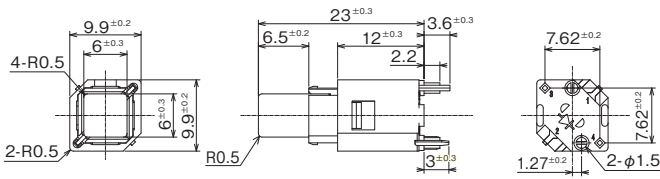
VF: Forward voltage of LED IF: Forward current of LED



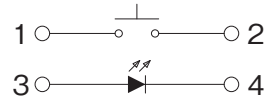
$$R = \frac{E_s - V_F}{I_F}$$

13BL

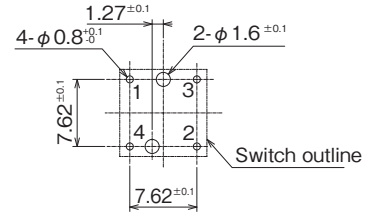
13BL-060 □6 mm Sq. Type



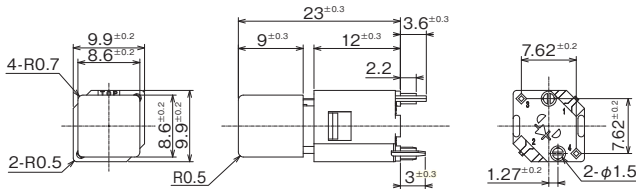
■ Circuit



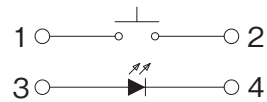
■ PC Hole Layouts



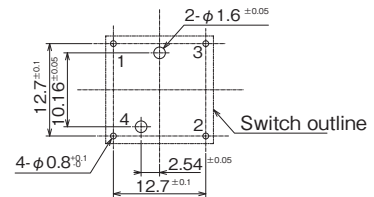
13BL-090 □9mm Sq. Type



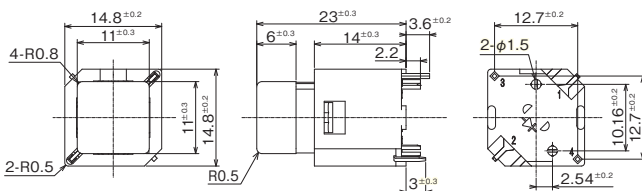
■ Circuit



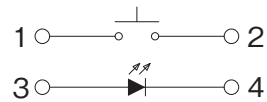
■ PC Hole Layouts



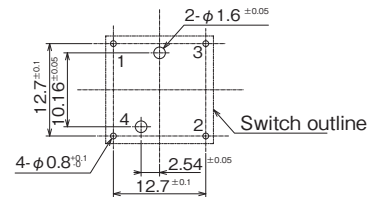
13BL-110 □11 mm Sq. Type



■ Circuit



■ PC Hole Layouts

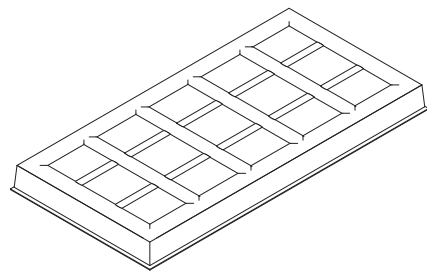


■ Table of Part Numbers

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-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-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