

Distinctive Characteristics

Wide selection of illumination effects is achieved with single and bicolor, 1- or 6-element LEDs in flat, beveled, or sculptured caps.

Alternating legends (patent pending) in choice of sculptured or flat caps, combined with super bright bicolor LED.

Combination of PCB mountability and short body allows use in compact applications.

Small behind panel dimension for snap-in mounting in tight spaces.

Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break characteristic limits arcing and prolongs electrical life.

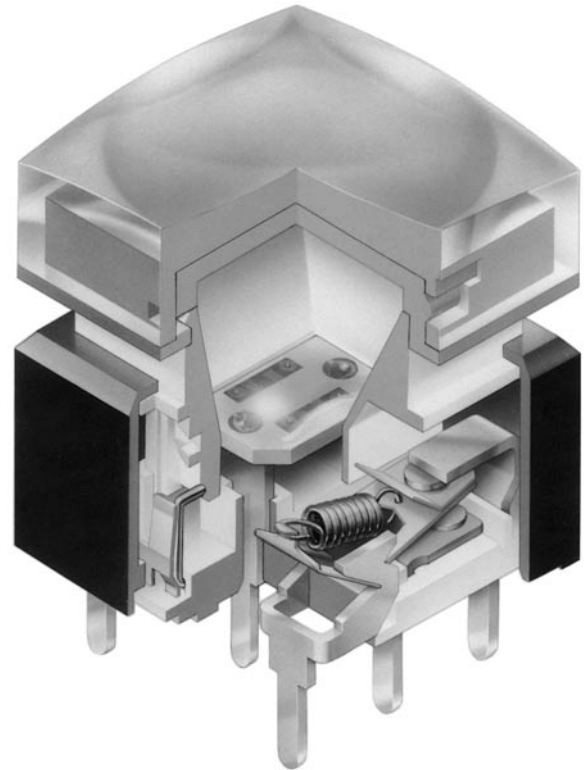
Latchdown mechanism, independent of switching mechanism, gives outstanding stability and reliability plus visible and tactile indication of circuit status.

Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

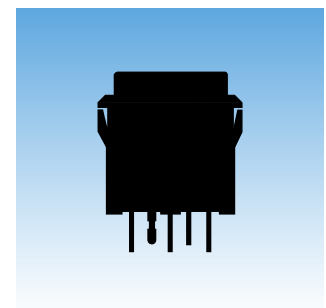
Momentary and alternate action circuits available in the same space-saving body size.

Nonilluminated models available and shown in Pushbutton section.

Matching indicators available and shown at the end of Section M.



Actual Size



General Specifications

Electrical Capacity (Resistive Load)

Power Level (code W): 5A @ 125/250V AC or 5A @ 30V DC
Logic Level (code G): 0.4VA maximum @ 28V AC/DC maximum
 (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
 Note: Find additional explanation of operating range in Supplement section.

Other Ratings

Contact Resistance: 50 milliohms maximum for silver; 100 milliohms maximum for gold
Insulation Resistance: 200 megohms minimum @ 500V DC
Dielectric Strength: 1,000V AC minimum between contacts for 1 minute minimum;
 1,500V AC minimum between contacts & case for 1 minute minimum
Mechanical Life: 1,000,000 operations minimum for momentary;
 200,000 operations minimum for alternate action
Electrical Life: 10,000 operations minimum for silver;
 200,000 operations minimum for gold
Nominal Operating Force: Single Pole: 1.90N
 Double Pole: 2.55N
Contact Timing: Break before make
Travel: Pretravel .067" (1.7mm); Overtravel .024" (0.6mm); Total Travel .091" (2.3mm)

Materials & Finishes

Housing/Bezel: Glass fiber reinforced polyamide (UL94V-0)
Snap-in Frame: Stainless steel
Movable Contactor: Phosphor bronze
Movable Contacts: Silver alloy or copper with gold plating
Stationary Contacts: Silver alloy or copper with gold plating
Switch Terminals: Phosphor bronze with silver or gold plating
Lamp Terminals: Brass with silver plating
Base: Glass fiber reinforced liquid crystal polymer (UL94V-0)

Environmental Data

Operating Temp Range: -25°C through +50°C (-13°F through +122°F)
Humidity: 90 ~ 95% humidity for 240 hours @ 40°C (104°F)
Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation

Cap Installation Force: 15.0N maximum downward force on cap

Processing

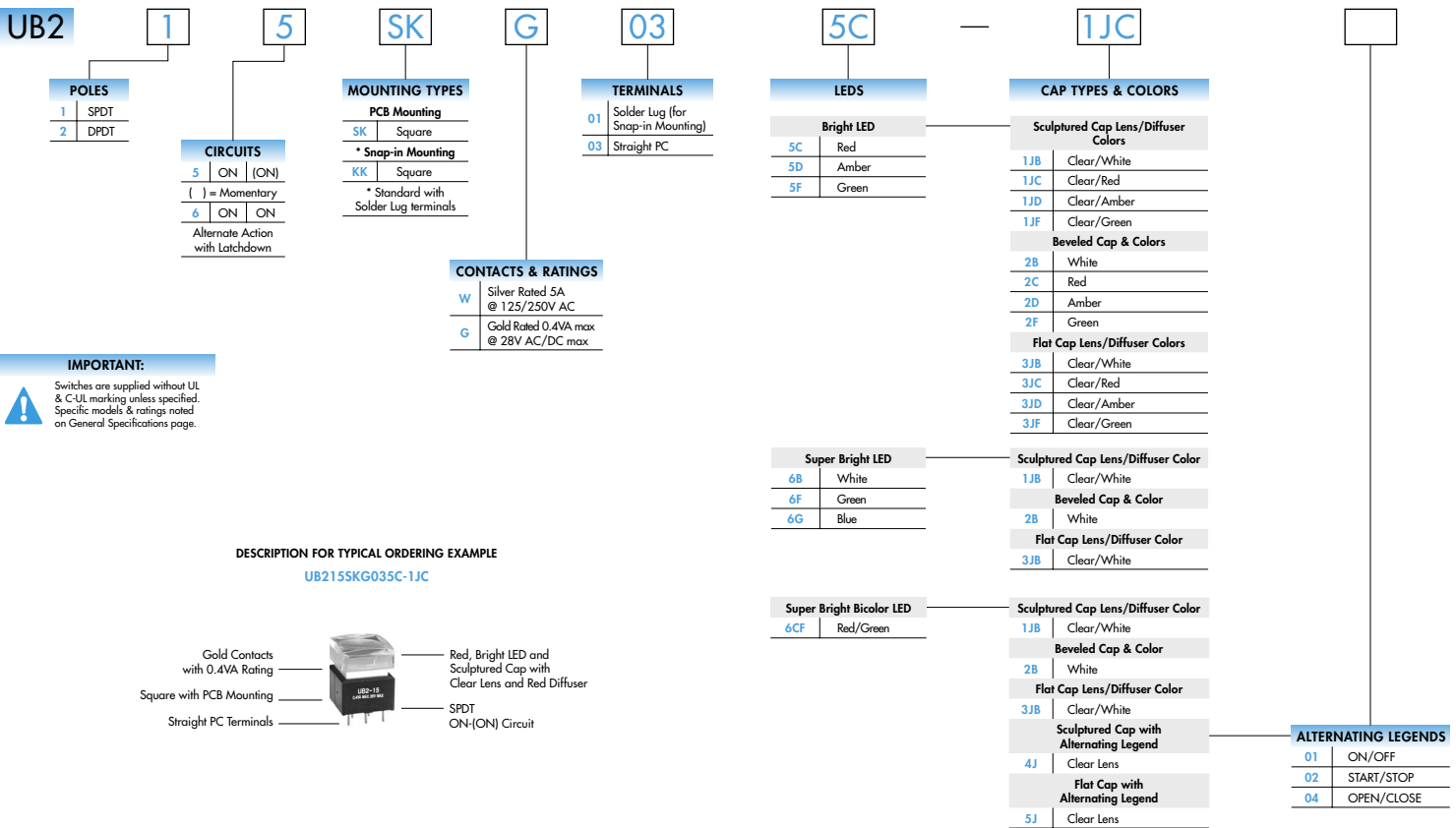
Soldering: Wave Soldering (PC version): See Profile A in Supplement section.
 Manual Soldering: See Profile A in Supplement section.
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications

Flammability Standards: UL94V-0 housing/bezel & base
UL & C-UL Recognized: All single & double pole models recognized at 5A @ 125/250V AC or 0.014A @ 28V DC;
 UL File No. WOYR2.E44145 & C-UL File No. WOYR8.E44145;
 add "/U" to end of part number to order UL mark on switch & add "/C-UL" to end of part number to order C-UL mark on switch (equivalent to CSA certification).



TYPICAL SWITCH ORDERING EXAMPLE



POLES & CIRCUITS

Pole	Model	Plunger Position () = Momentary		Connected Terminals		Throw & Switch/Lamp Schematics
		Normal	Down	Normal	Down	
SP	UB215 *UB216	ON ON	(ON) ON	1-3 1-2		Notes: Switch is marked with NC, NO, COM, L+ & L-. Lamp circuit is isolated and requires an external power source.
DP	UB225 *UB226	ON ON	(ON) ON	1-3 4-6 1-2 4-5		

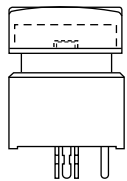
* When in latchdown position for the alternate circuit, cap positions above the housing are: .059" (1.5mm) for snap-in models & .276" (7.0mm) for PCB models.

MOUNTING TYPES & SHAPES

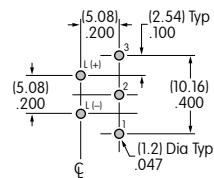
PCB Mounting

SK

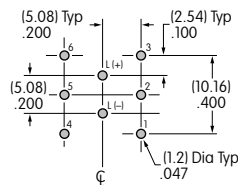
Square



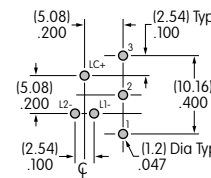
SP, Single Color LED



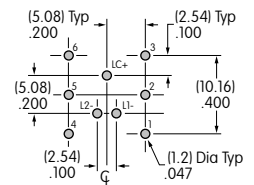
DP, Single Color LED



SP, Bicolor LED



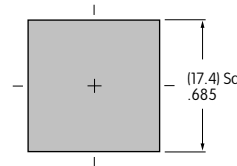
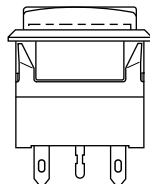
DP, Bicolor LED



Snap-in Mounting (Solder Lug)

KK

Square with Built-in Bezel



Panel Thickness:
.039 ~ .126"
(1.0 ~ 3.2mm)

CONTACT MATERIALS & RATINGS

W

Silver Contacts

Power Level

5A @ 125V AC & 250V AC

G

Gold Contacts

Logic Level

0.4VA maximum @ 28V AC/DC maximum

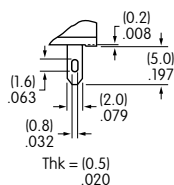
Complete explanation of operating range in Supplement section.

SWITCH & LAMP TERMINALS

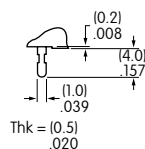
01

Solder Lug

For Switch & Bright LED



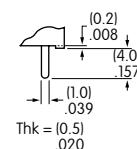
For Super Bright & Bicolor LED



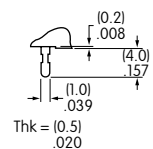
03

Straight PC

For Switch & Bright LED



For Super Bright & Bicolor LED



BRIGHT LED & CAPS

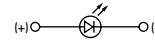
The electrical specifications shown are determined at a basic temperature of 25°C.
 LED circuit is isolated and requires external power source. Polarity marks are on the bottom of the switch.
 If the source voltage exceeds the rated voltage, a ballast resistor is required.
 The resistor value can be calculated by using the formula in the Supplement section.

The LED is an integral part of the switch and not available separately.

Electrical Specifications for Bright LED

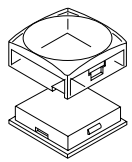
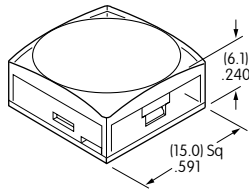
		5C	5D	5F	
	Color	Red	Amber	Green	Unit
Forward Peak Current	I_{FM}	30	30	25	mA
Continuous Forward Current	I_F	20	20	20	mA
Forward Voltage	V_F	1.85	2.0	2.1	V
Reverse Peak Voltage	V_{RM}	5	5	5	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.42	0.46	mA/°C
Ambient Temperature Range		-25° ~ +50°			°C

Bright Single Color LED with 1 element



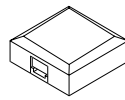
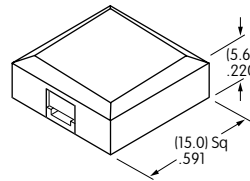
Caps for Bright LED

1 AT3074
Sculptured



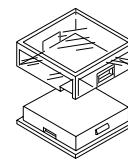
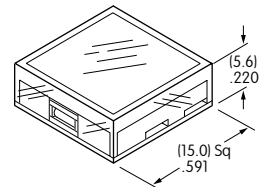
Clear Lens
 Translucent
 Colored Diffuser

2 AT3075
Beveled



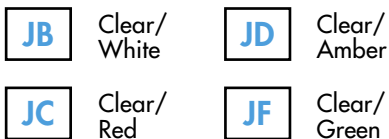
Translucent
 Colored Cap

3 AT3076
Flat



Clear Lens
 Translucent
 Colored Diffuser

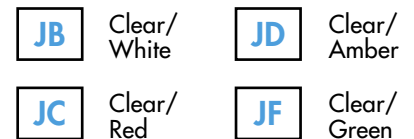
Lens/Diffuser Colors Available:



Cap Colors Available:



Lens/Diffuser Colors Available:



Material: Polycarbonate


Finish: Glossy

SUPER BRIGHT LEDs & CAPS

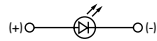
The electrical specifications shown are determined at a basic temperature of 25°C.
 LED circuit is isolated and requires external power source. Polarity marks are on the bottom of the switch.
 If the source voltage exceeds the rated voltage, a ballast resistor is required.
 The resistor value can be calculated by using the formula in the Supplement section.

The LED is an integral part of the switch and not available separately.

Electrical Specifications for LEDs

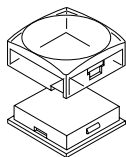
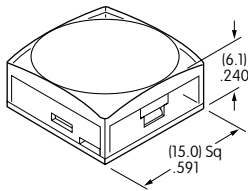
		Super Bright			
		6B	6F	6G	
Super Bright LEDs are Electrostatic Sensitive		White	Green	Blue	Unit
					
Forward Peak Current	I_{FM}	25	25	25	mA
Continuous Forward Current	I_F	20	20	20	mA
Forward Voltage	V_F	3.6	3.5	3.6	V
Reverse Peak Voltage	V_{RM}	5	5	5	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.40	0.40	mA/°C
Ambient Temperature Range		-25° ~ +50°			°C

Super Bright Single Color LED with 1 element



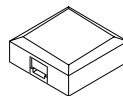
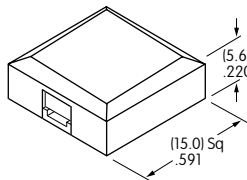
Caps for Super Bright LED

1JB AT3074JB Sculptured Clear Lens/White Diffuser



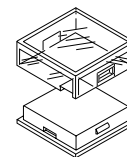
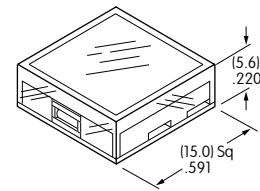
Clear Lens
Translucent White Diffuser

2B AT3075B Beveled White Cap



Translucent White Cap

3JB AT3076JB Flat Clear Lens/White Diffuser



Clear Lens
Translucent White Diffuser

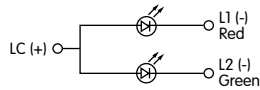
Material: Polycarbonate Finish: Glossy

SUPER BRIGHT BICOLOR LED & CAPS

Electrical Specifications for Super Bright Bicolor LED

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires an external power source. Polarity marks are on bottom of switch. If the source voltage exceeds the rated voltage, a ballast resistor is required. The resistor value can be calculated by using the formula in Supplement Section. The LED is an integral part of the switch and not available separately.

Color	6CF		Unit
	Red	Green	
Forward Peak Current	I_{FM}	30/25 (25/22 for Amber)	mA
Continuous Forward Current	I_F	20/20	mA
Forward Voltage	V_F	2.1/3.5	V
Reverse Peak Voltage	V_{RM}	4/4	V
Current Reduction Rate Above 25°C	ΔI_F	0.40/0.33	mA/°C
Ambient Temperature Range		-25° ~ +50°	°C

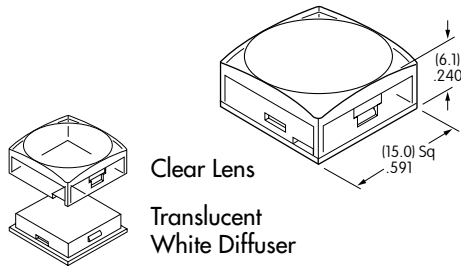


Super Bright Bicolor LED with 2 elements

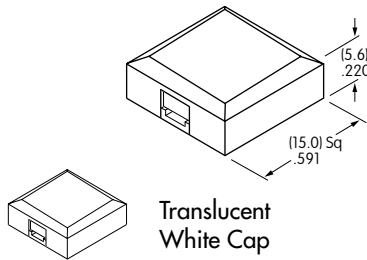
Amber color is achieved by lighting red and green simultaneously, but is not suitable for Alternating Legends.

Caps for Super Bright Bicolor LED

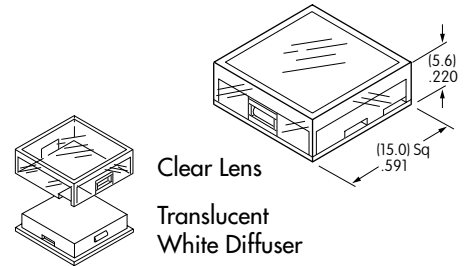
1JB AT3074JB Sculptured Clear Lens/White Diffuser



2B AT3075B Beveled White Cap



3JB AT3076JB Flat Clear Lens/White Diffuser

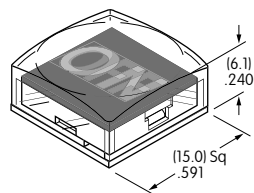


Material: Polycarbonate Finish: Glossy

Alternating Legend Caps for Super Bright Bicolor LED

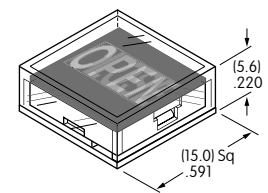
4J AT3069J Sculptured Cap with Alternating Legend

Clear Lens
Alternating Legend Filter



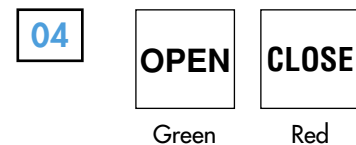
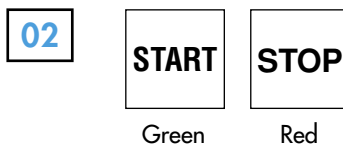
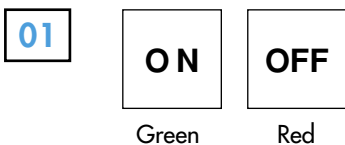
5J AT3070J Flat Cap with Alternating Legend

Clear Lens
Alternating Legend Filter



Material: Polycarbonate Finish: Glossy

Standard Alternating Legend Pairs



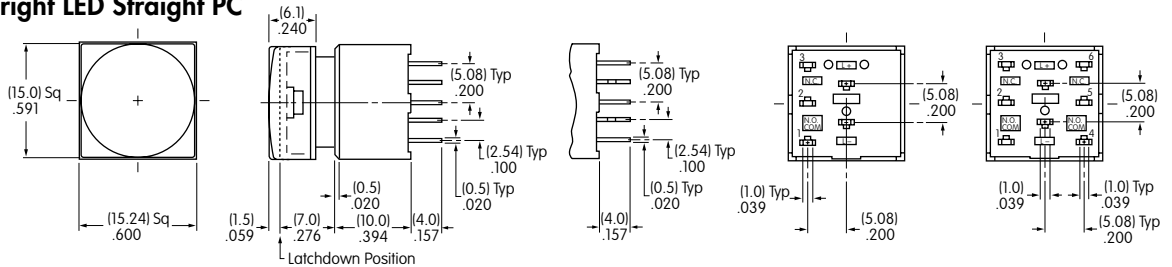
Cap illumination is alternating green/red; legend text is black.

Contact factory for other Alternating Legends.

Legend illustrations are approximate representations of the actual characters on the filters.

TYPICAL SWITCH DIMENSIONS

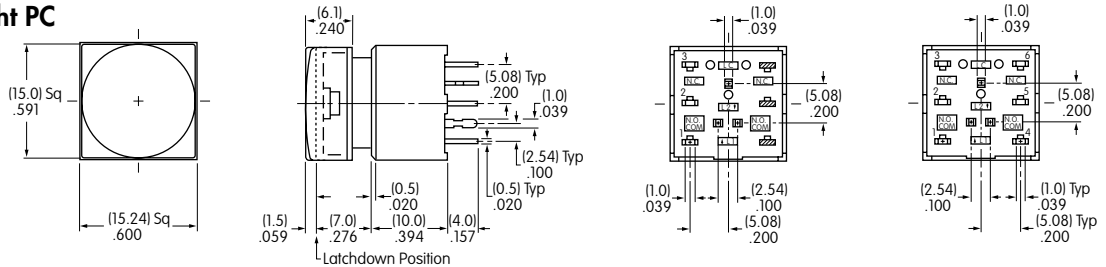
Bright & Super Bright LED Straight PC



UB215SKG035C-1JC

Bright Single Color LED Super Bright Single Color LED Single Pole Double Pole

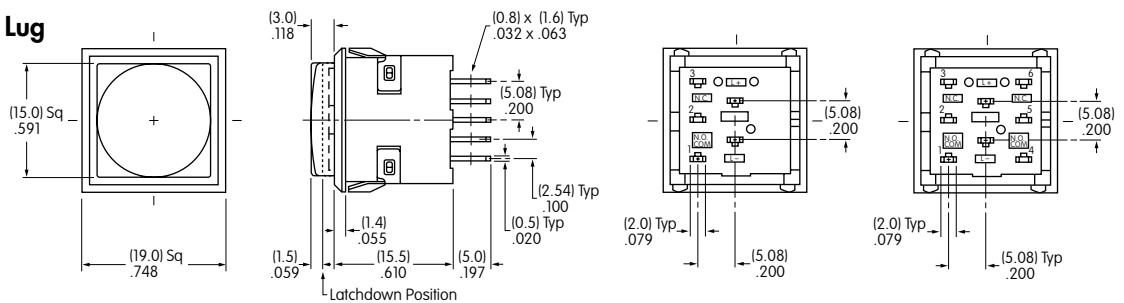
Bicolor LED Straight PC



UB225SKG03CF-1JB

Bicolor LED Side View Single Pole Double Pole

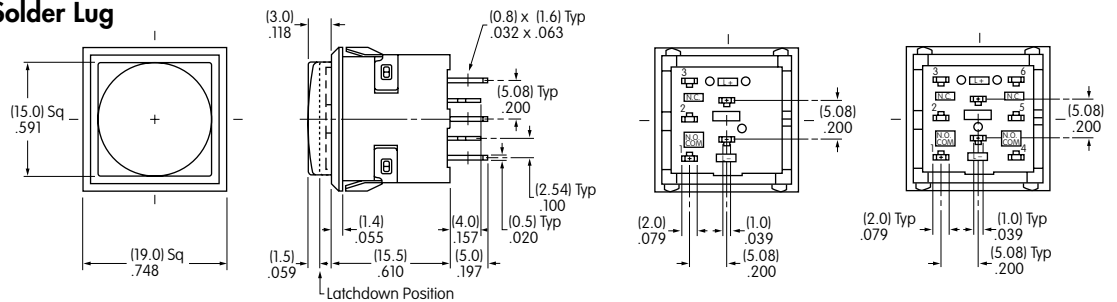
Bright LED Solder Lug



UB216KKW015F-1JF

Single Color LED Side View Single Pole Double Pole

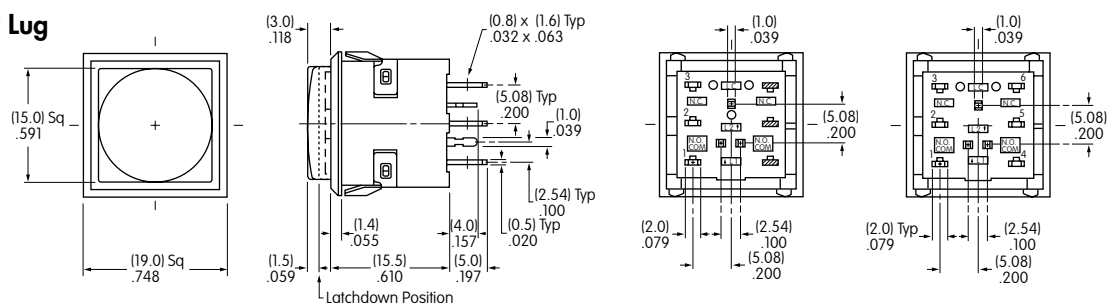
Super Bright LED Solder Lug



UB226KKW016F-1JF

Single Color LED Side View Single Pole Double Pole

Bicolor LED Solder Lug



UB216KKW01CF-1JB

Bicolor LED Side View Single Pole Double Pole