Series UB2

Low Profile Pushbutton Switches

TYPICAL SWITCH ORDERING EXAMPLE

UB2 1 5 SK G 03 5C – 1JC

POLES

1	SPDT
2	DPDT

CIRCUITS

5	ON	(ON)
( ) = Momentary		
6	ON	ON
Alternate Action with Latchdown		

MOUNTING TYPES

PCB Mounting	
SK	Square
Snap-in Mounting *	
KK	Square
* Standard with solder lug terminals.	

CONTACTS & RATINGS

W	Silver Rated 5A @ 125/250V AC
G	Gold Rated 0.4VA max @ 28V AC/DC max

TERMINALS

01	Solder Lug (for Snap-in Mounting)
03	Straight PC
Note: Lamp terminals are PC/Turret	

LEDS

Bright LED	
5C	Red
5D	Amber
5F	Green
Super Bright LED (Combine Only with Cap Color Codes 1JB, 2B, 3JB)	
6B	White
6F	Green
6G	Blue
Bicolor LED (Combine Only with Cap Color Codes 1JB, 2B, 3JB)	
CF	Bicolor

CAP TYPES & COLORS

Sculptured Cap Lens/Diffuser Colors	
1JB	Clear/White
1JC	Clear/Red
1JD	Clear/Amber
1JF	Clear/Green
Beveled Cap & Colors	
2B	White
2C	Red
2D	Amber
2F	Green
Flat Cap Lens/Diffuser Colors	
3JB	Clear/White
3JC	Clear/Red
3JD	Clear/Amber
3JF	Clear/Green

Nonilluminated

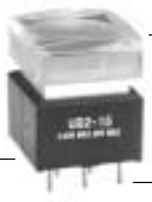
N	No Lamp

Sculptured Cap Lens/Insert Colors

4JA	Clear/Black
4JB	Clear/White
4JC	Clear/Red
4JD	Clear/Amber
4JF	Clear/Green
Beveled Cap & Colors	
5A	Black
5B	White
5C	Red
5E	Yellow
5F	Green

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB215SKG035C-1JC



Gold Contacts with 0.4VA Rating

Square with PCB Mounting

Bright Red LED and Sculptured Cap with Clear Lens and Red Diffuser

SPDT ON-(ON) Circuit

Straight PC Terminals

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
Note: See Supplement Index (page Z1) to find explanation of operating range.

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;
1,500V AC minimum between contacts & case
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: 194 grams
Double Pole: 260 grams
Contact Timing: Break before make
Travel: 1.0mm (.039") pretravel; 1.3mm (.051") overtravel; 2.3mm (.091") total travel

Materials & Finishes

Housing/Bezel: Glass fiber reinforced polyamide
Snap-in Frame: Stainless steel
Movable Contactor: Phosphor bronze
Movable Contacts: Silver alloy with silver plating or copper with gold plating over nickel
Stationary Contacts: Silver alloy with silver plating or copper with gold plating over nickel
Switch Terminals: Phosphor bronze with silver or gold plating
Lamp Terminals: Brass with silver plating for bright LED models; brass with tin-lead plating for other models
Base: Glass fiber reinforced liquid crystal polymer

Environmental Data

Operating Temp Range: Illuminated: -25°C through +50°C (-13°F through +122°F) for Bright & Bicolor LEDs
-20°C through +50°C (-4°F through +122°F) for Super Bright LEDs
Nonilluminated: -20°C through +70°C (-4°F through +158°F)
Humidity: 90 ~ 95% humidity for 96 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 acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation

Cap Installation Force: 1.53 kg (3.37 lb)
Soldering Time & Temperature: 3 seconds @ 350°C or 5 seconds @ 270°C
Process Seal: Not available

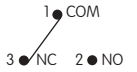
Standards & Certifications

Flammability Standards: UL94V-0 rated base
UL Recognized: All single & double pole models recognized at 5A @ 125/250V AC or
0.014A @ 28V DC; UL File No. E44145

Series UB2

Low Profile Pushbutton Switches

POLES & CIRCUITS

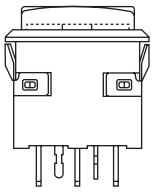
		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Schematics
Pole	Model	Normal	Down	Normal	Down	Notes: Switch is marked with NC, NO, COM, L+ & L-. Lamp circuit is isolated and requires external power source (schematics on following page).
SP	UB215 UB216*	ON ON	(ON) ON	1-3	1-2	SPDT 
DP	UB225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

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

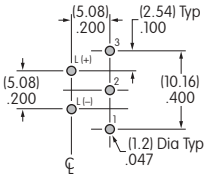
SHAPES & MOUNTING TYPES

PCB Mounting

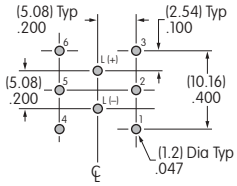
SK **Square**



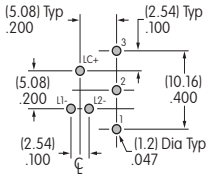
SP, Single Color LED



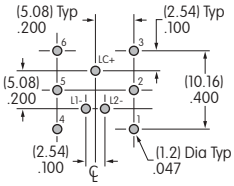
DP, Single Color LED



SP, Bicolor LED



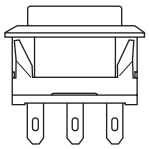
DP, Bicolor LED

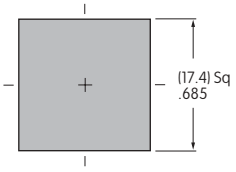


Nonilluminated models have no lamp terminals.

Snap-In Mounting (Solder Lug)

KK **Square with Bezel**





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

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**

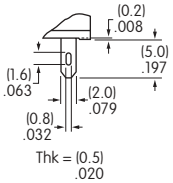
See Supplement Index (page Z1) for complete explanation of operating range.

TERMINALS

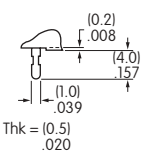
01 **Solder Lug**

.032" x .063" oblong hole accommodates two solid or stranded 24-gauge wires.

Switch

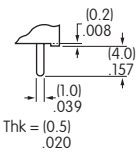


Lamp

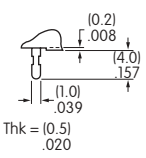


03 **Straight PC**

Switch



Lamp



LED COLORS & SPECIFICATIONS

Electrical specifications are determined at a basic temperature of 25°C. LED circuit is independent of switch operation.
If the source voltage is greater than rated voltage, a ballast resistor is required.
The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement Index (page Z1).

Bright, Super Bright, & Bicolor LEDs

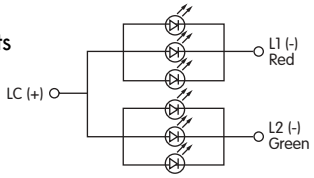
Super Bright LED is Electrostatic Sensitive — Attention Electrostatic Sensitive Devices		Bright				Super Bright			Bicolor	
Color		5C Red	5D Amber	5F Green	Units	6B White	6F Green	6G Blue	CF Red/Green	Units
Forward Peak Current	I_{FM}	30	30	25	mA	25	25	25	60/60	mA
Continuous Forward Current	I_F	20	20	20	mA	20	20	20	48/48	mA
Forward Voltage	V_F	1.85	2.0	2.25	V	3.6	3.5	3.6	1.8/2.0	V
Reverse Peak Voltage	V_{RM}	5	5	5	V	5	5	5	5/5	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.42	0.46	mA/°C	0.40	0.40	0.40	1.0/1.0	mA/°C

Bright
Single Color LED
with 1 element

Super Bright
Single Color LED
with 1 element

Super Bright and Bicolor LEDs combine only with cap color codes 1JB, 2B, and 3JB.

Bicolor LED
with 6 elements

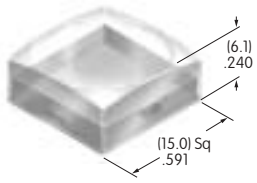


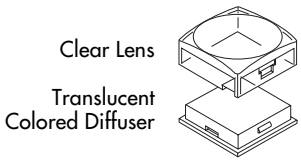
Orange color can be achieved by lighting red and green simultaneously on the bicolor LED.

N **Nonilluminated** Code N indicates that no lamp is used.

CAP TYPES & COLOR COMBINATIONS FOR ILLUMINATED

1 AT3074 Sculptured



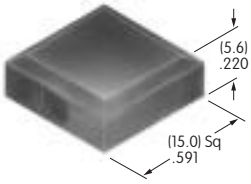


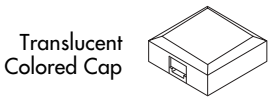
Lens/Diffuser Colors Available:

- JB Clear/White
- JD Clear/Amber
- JC Clear/Red
- JF Clear/Green

Material: Polycarbonate
Finish: Glossy

2 AT3075 Beveled



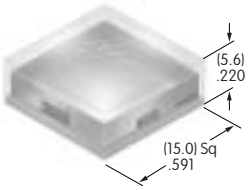


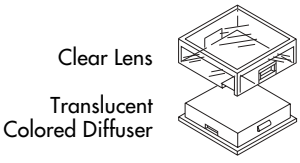
Cap Colors Available:

- B White
- D Amber
- C Red
- F Green

Material: Polycarbonate
Finish: Glossy

3 AT3076 Flat





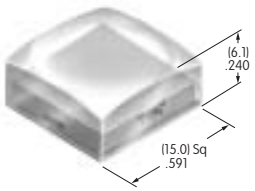
Lens/Diffuser Colors Available:

- JB Clear/White
- JD Clear/Amber
- JC Clear/Red
- JF Clear/Green

Material: Polycarbonate
Finish: Glossy

CAP TYPES & COLOR COMBINATIONS FOR NONILLUMINATED

4 **AT3073 Sculptured**

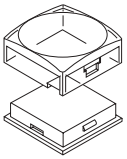


Lens/Insert Colors Available:

- **JA** Clear/Black
- **JB** Clear/White
- **JE** Clear/Yellow
- **JC** Clear/Red
- **JF** Clear/Green

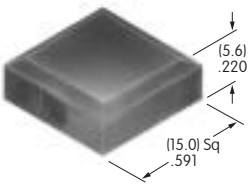
Clear Lens

Opaque Colored Insert



Material: Polycarbonate Finish: Glossy

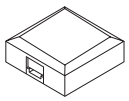
5 **AT3077 Beveled**



Cap Colors Available:

- **A** Black
- **B** White
- **E** Yellow
- **C** Red
- **F** Green

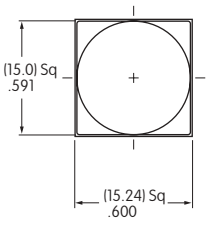
Opaque Colored Cap

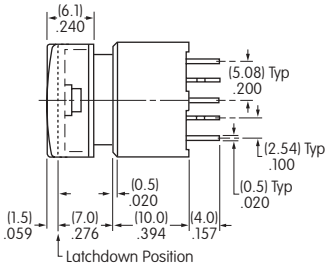


Material: Polycarbonate Finish: Glossy

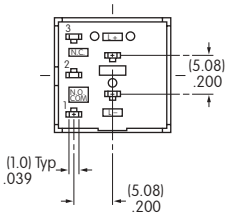
TYPICAL SWITCH DIMENSIONS

Single Pole • PCB Mount

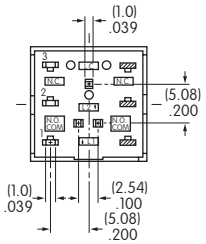




Single Color LED



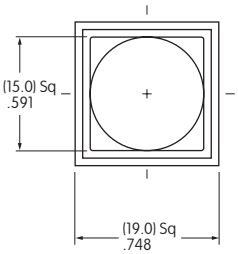
Bicolor LED

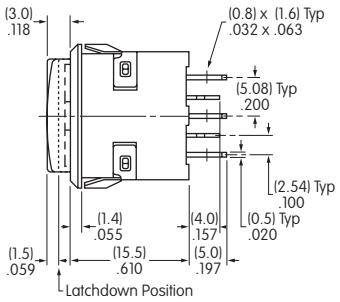


UB215SKG035C-1JC

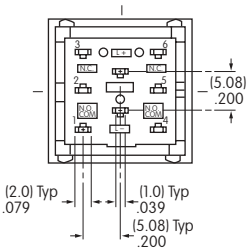
Single Color LED Side View

Double Pole • Snap-in Mount • Solder Lug

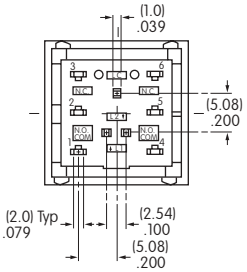




Single Color LED



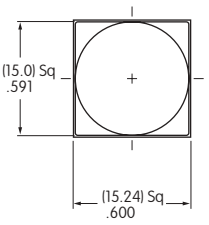
Bicolor LED

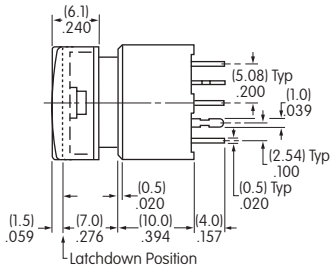


UB226KKW016F-1JF

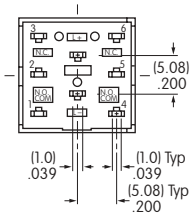
Single Color LED Side View

Double Pole • PCB Mount

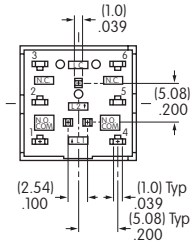




Single Color LED



Bicolor LED

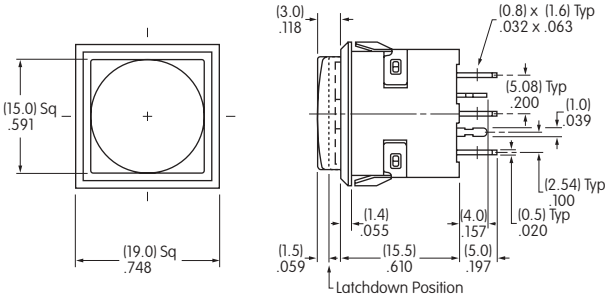


UB225SKG03CF-1JB

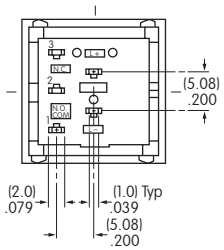
Bicolor LED Side View

TYPICAL SWITCH DIMENSIONS

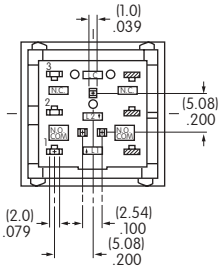
Single Pole
Snap-in Mount
Solder Lug



Single Color LED



Bicolor LED



UB216KKW01CF-1JB

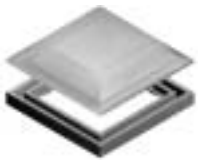
Bicolor LED Side View

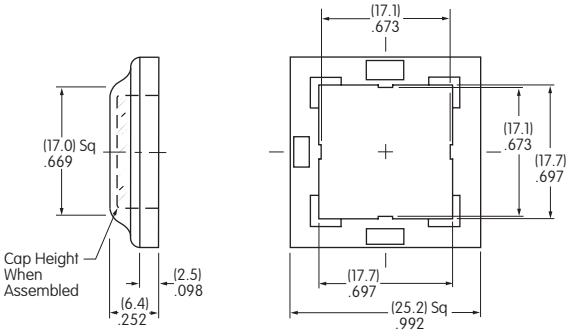
OPTIONAL ACCESSORIES

Splash Cover

AT4145 Square

Not for use with barrier type models.



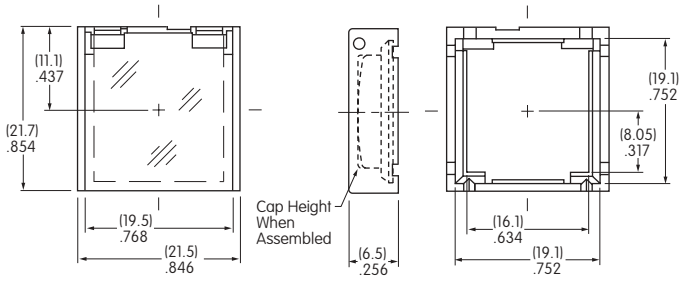


Materials
Lid: Clear PVC
Operating temperature range: 0°C ~ +70°C (32°F ~ 158°C).
Gasket: Polyethylene

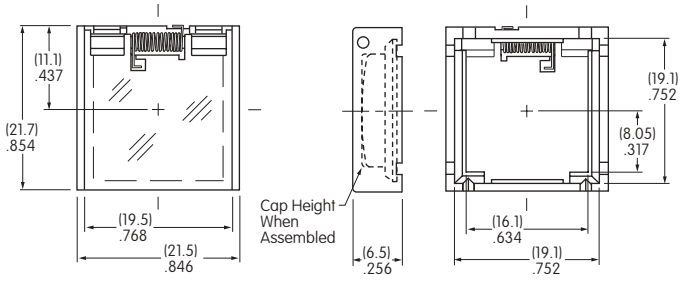
Panel Thickness
1.0mm ~ 2.5mm
(.039" ~ .098")

Protective Guards for Snap-in Mount

AT4141 Opens 90°



AT4142 Opens 180° (spring loaded for automatic closing)

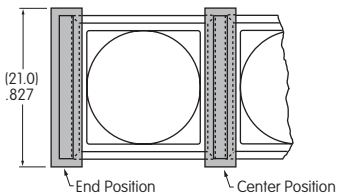


Materials: Clear Polycarbonate Cover & Black GFR Polyamide Base; Recommended Panel Thickness: 1.0 ~ 2.7mm (.039" ~ .106")

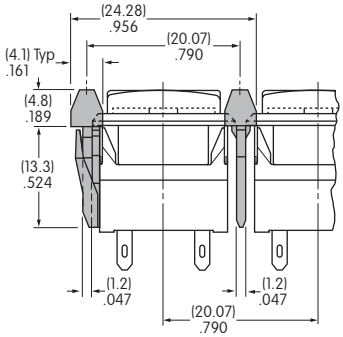
Barriers for Snap-in Mount

AT4143
End

AT4144
Center

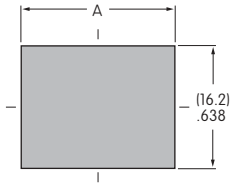


Material: Polyamide



Cutouts for More Than 1 Switch

A = .786" x Number of Switches + .051"



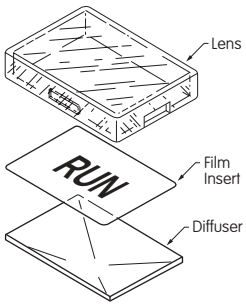
LEGENDS

General information and basic specifications are presented here for customers who want to do their own legends.

Suggested Printable Area for UB Lens & Film Insert

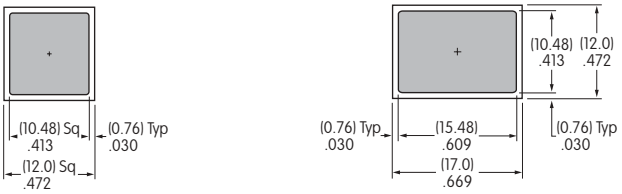
Square Cap

Rectangular Cap

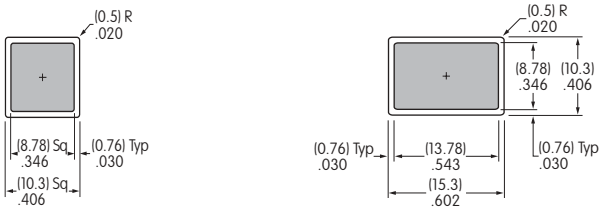


Shaded areas are printable areas.

Lens



Film Insert



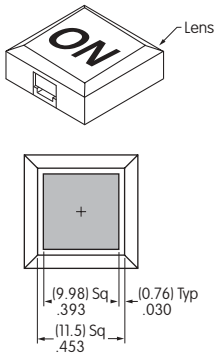
Recommended Print Methods:
Screen Print on Lens or Film Insert; Pad Print on Lens. Epoxy based ink is recommended.

Film Insert: Clear Polyester
4 mil max. thickness

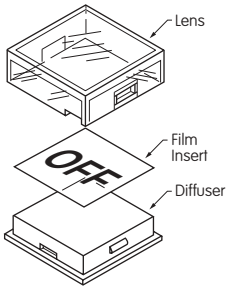
Suggested Printable Area for UB2 Lens & Film Insert

Shaded areas are printable areas.

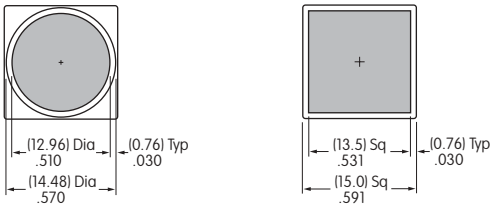
Beveled Cap



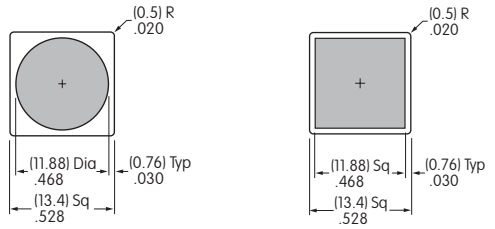
Flat Cap



Lens



Film Insert



Recommended Print Methods:
Screen Print on Lens or Film Insert; Pad Print on Lens. Epoxy based ink is recommended.

Film Insert: Clear Polyester
4 mil max. thickness

LEGEND PACKET FOR ORDERING CAPS WITH LEGENDS

1. To order caps with legends contact the factory and request the UB/UB2 Legend Packet.
2. Once you determine your desired legend, fill out the ordering work sheet included in the packet.
3. Return the completed work sheet to receive a quotation.