

NEW PRODUCTS

Contact No.122

Issued November 22, 2005

SERIES UB2 PUSHBUTTONS

New Options!

Super Bright Bicolor LEDs
with
Alternating Legends by Color



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Available
December 26, 2005



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)

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

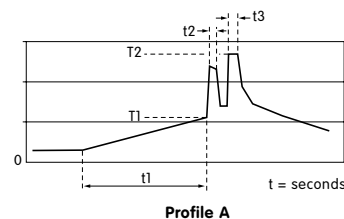
Operating Temp Range:	-25°C through +50°C (-13°F through +122°F)
Humidity:	90 ~ 95% humidity for 240 hours @ 40°C (104°F)
Vibration:	10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
Shock:	50G (490m/s ²) acceleration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

Installation

Cap Installation Force:	15.0N maximum downward force on cap
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Processing

Soldering:	Manual Soldering: 4 seconds maximum @ 410°C maximum Wave Soldering (PC version): See Profile A. Depending on the material and thickness of the PC board, surface temperatures may vary. If the process exceeds the wave soldering limits in this graph, contact factory for further information.
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).



Distinctive Characteristics

Alternating legends in choice of sculptured or flat caps, combined with new super bright bicolor LED. Patent pending.

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

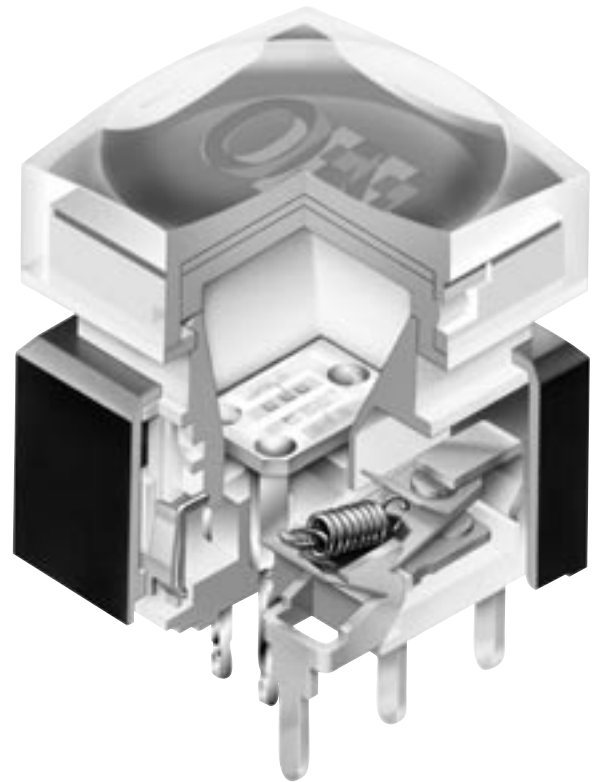
Small behind panel dimension for snap-in mounting in tight spaces.

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

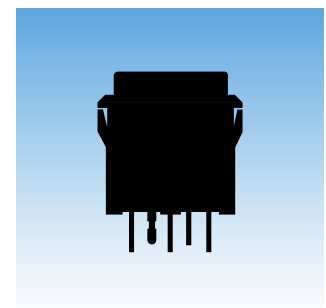
Latchdown mechanism, independent of switching mechanism, gives outstanding stability and reliability plus visible and tactile indication of circuit status.

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

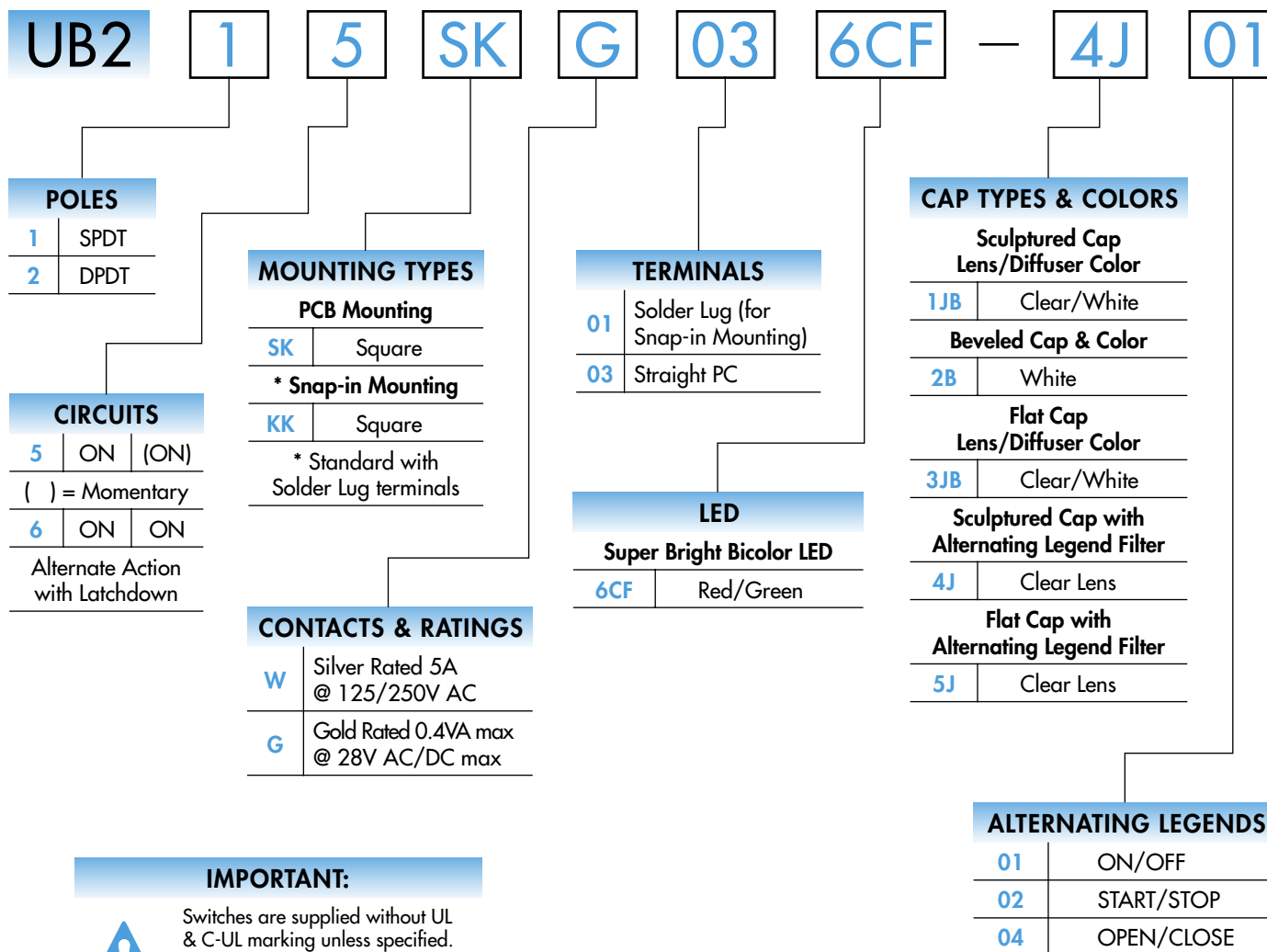
Momentary and alternate action circuits available in the same space-saving body size.



Actual Size

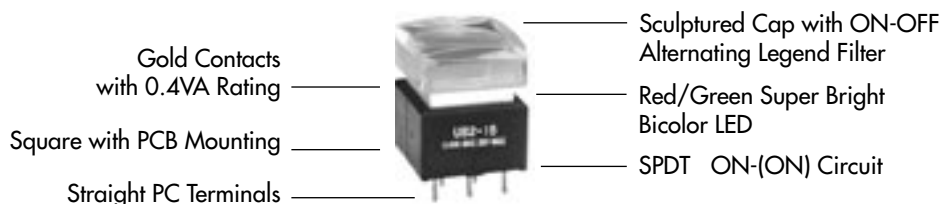


TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB215SKG036CF-4J01



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		

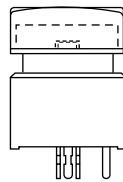
* When in latchdown position for the alternate circuit, cap positions above the housing are:
.059" (1.5mm) for snap-in models & .276" (7.0mm) for PCB models.

MOUNTING TYPES & SHAPES

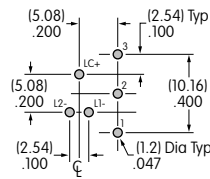
PCB Mounting

SK

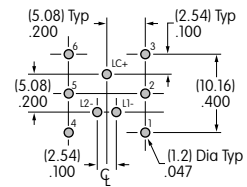
Square



SP, Bicolor LED



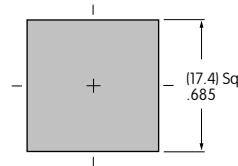
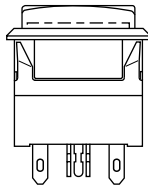
DP, Bicolor LED



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

SWITCH & LAMP TERMINALS

01

Solder Lug

For Switch

For Super Bright Bicolor LED

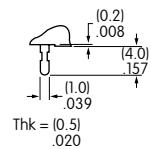
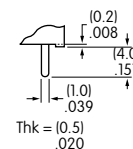
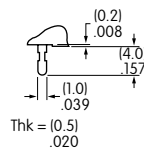
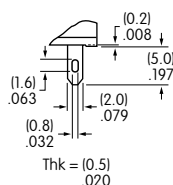
03

Straight PC

For Switch

For Super Bright Bicolor LED

The .032" x .063" (0.8mm x 1.6mm) oblong terminal hole accommodates 2 solid or stranded 24-gauge wires.



LED COLORS & SPECIFICATIONS

The electrical specifications shown are determined at a basic temperature of 25°C.

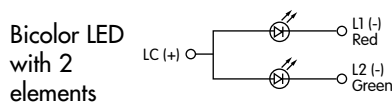
Amber can be achieved by simultaneous illumination of red and green, but is not suitable for Alternating Legends.



LEDs are an integral part of the switch and are not available separately.

LED circuit is isolated and requires an external power source.

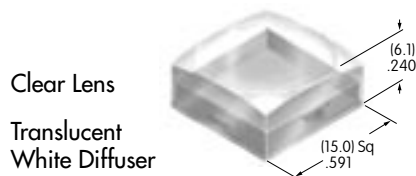
If the source voltage exceeds the rated voltage, a ballast resistor is required.



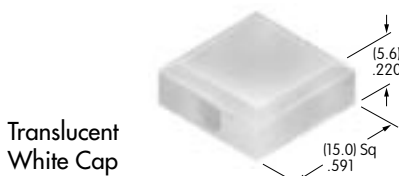
Bicolor LED with 2 elements	Color	Super Bright Bicolor	Unit
		6CF Red/Green	
Forward Peak Current	I_{FM}	30/25 (25/22 for Amber)	mA
Continuous Forward Current	I_F	20/20	mA
Forward Voltage	V_F	2.1/3.5	V
Reverse Peak Voltage	V_{RM}	4/4	V
Current Reduction Rate Above 25°C	ΔI_F	0.40/0.33	mA/°C
Ambient Temperature Range		-25°C ~ +50°C	°C

CAP TYPES & COLOR COMBINATIONS

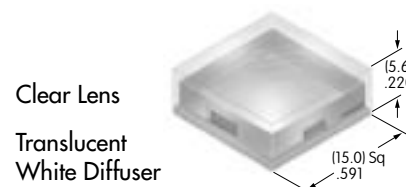
1JB AT3074 Sculptured



2B AT3075 Beveled



3JB AT3076 Flat



4J AT3069 Sculptured with Alternating Legend Filter



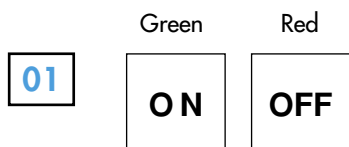
5J AT3070 Flat with Alternating Legend Filter



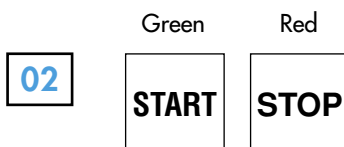
Lens & Diffuser Material: Polycarbonate
Filter Material: Polycarbonate

Lens Finish: Glossy

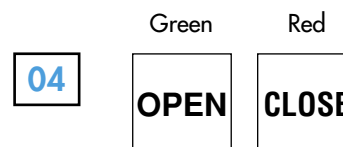
Standard Alternating Legends for Sculptured or Flat Caps



Alternating Legend: ON/OFF



Alternating Legend: START/STOP

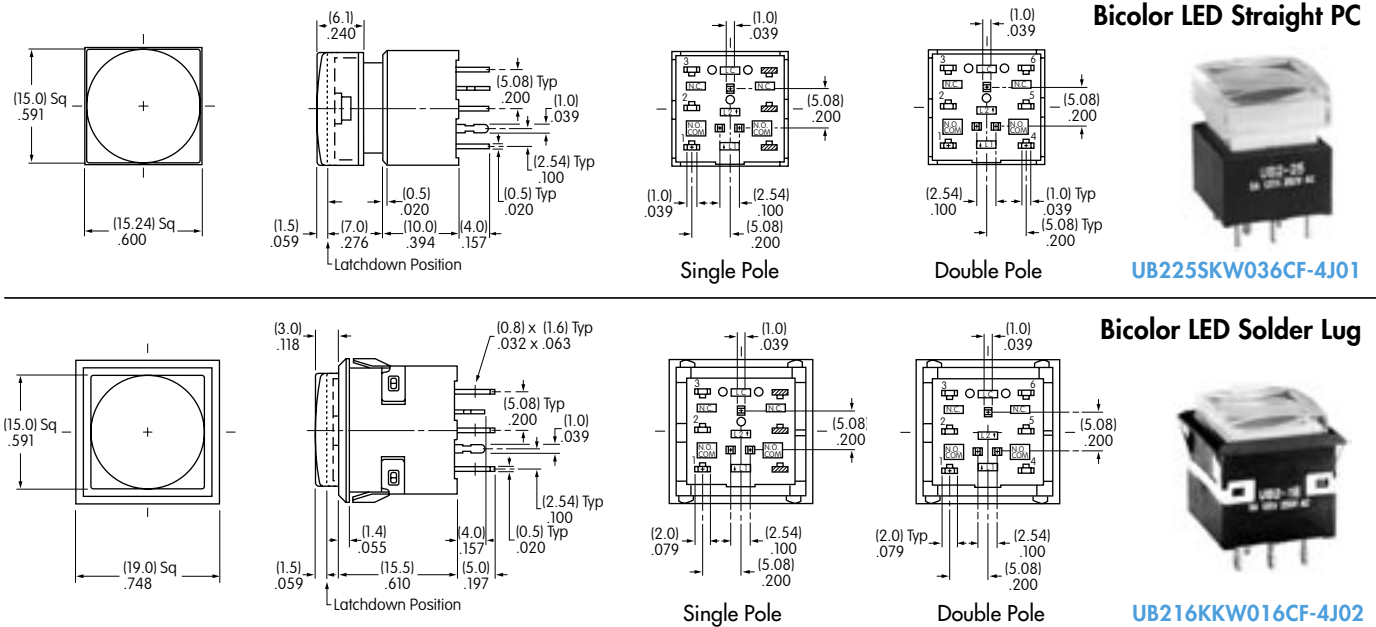


Alternating Legend: OPEN/CLOSE

Contact factory for other Alternating Legends.

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

TYPICAL SWITCH DIMENSIONS



Complement to UB2 Pushbuttons **UB2 Indicators**

TYPICAL INDICATOR ORDERING EXAMPLE

UB2 **01** **K** **W03** **6CF** — **4J** **01**

MOUNTING TYPES		HOUSING		TERMINALS		CAP TYPES & COLORS	
PCB Mounting		K	Black	W03	Silver PC/Turret	Sculptured Cap Lens/Diffuser Color	
01	Square					1JB	Clear/White
Snap-in Mounting						Beveled Cap & Color	
04	Square					2B	White
						Flat Cap Lens/Diffuser Color	
						3JB	Clear/White
						Sculptured Cap with Alternating Legend Filter	
						4J	Clear Lens
						Flat Cap with Alternating Legend Filter	
						5J	Clear Lens

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB201KW036CF-4J01

Sculptured Cap with ON-OFF Alternating Legend Filter
 Red/Green Super Bright Bicolor LED
 Square with PCB Mounting
 Black Housing
 Silver PC/Turret Terminals



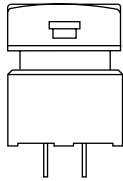
ALTERNATING LEGENDS

01	ON/OFF
02	START/STOP
04	OPEN/CLOSE

MOUNTING TYPES, SHAPES, & TERMINALS

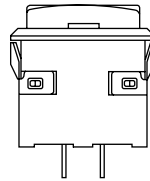
PCB Mounting

01 Square



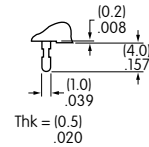
Snap-in Mounting

04 Square with Built-in Bezel



Terminals

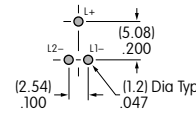
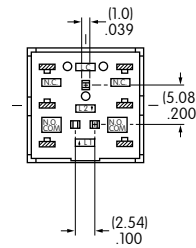
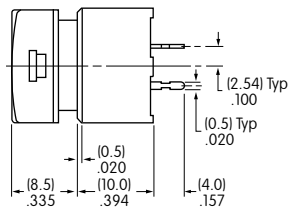
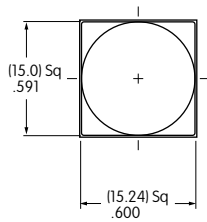
W03 Silver PC/Turret



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

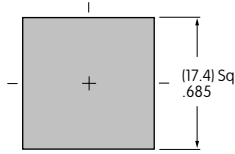
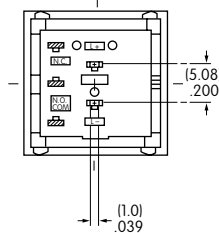
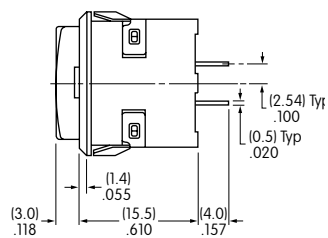
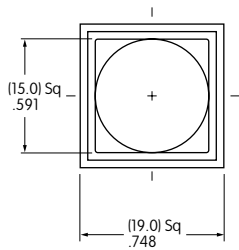
TYPICAL INDICATOR DIMENSIONS

PCB Mount



UB201KW036CF-4JC01

Snap-in Mount



Panel Thickness:
.039 ~ .126" (1.0 ~ 3.2mm) UB204KW016CF-4JC02

LED COLORS & SPECIFICATIONS

LED colors and specifications are the same as for the UB2 switch and appear on page UB2-6.

CAP TYPES & COLOR COMBINATIONS

Cap types and color combinations are the same as for the UB2 switch and appear on page UB2-6.