

# Distinctive Characteristics

Full face and spot illumination available. Front panel relamping.

Choice of super bright LEDs in white, green, and blue in addition to bright red, amber, and green LEDs.

Compact front panel design with 9mm square or round bezel options.

Rear panel threaded mounting. Behind panel depth of less than one inch. 8mm body diameter fits common size panel cutout.

Latchdown feature gives indication of circuit status. Audible and tactile feedback with smooth and responsive operation.

Dual, sliding contacts with self-cleaning action provide contact stability, high reliability, and increased operating life.

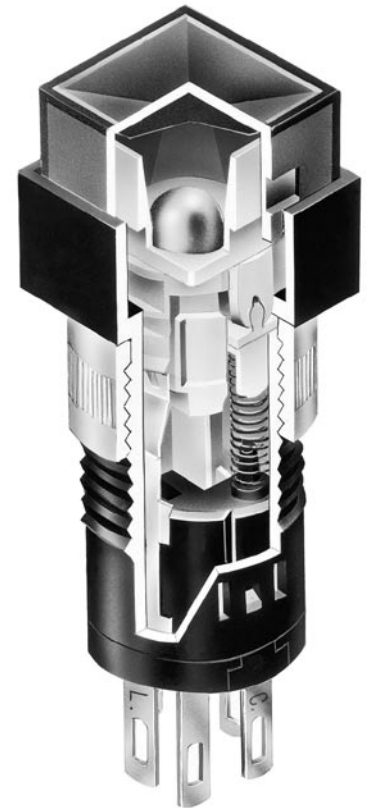
Solder lug terminals have spacing of .100" (2.54mm) for choice of mounting.

Longer normally closed terminal facilitates wiring and soldering.

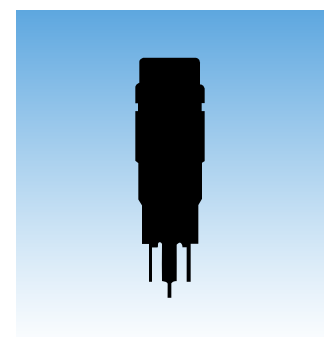
Molded-in terminals lock out flux, dust, and other contaminants.

Nonilluminated models available and shown in the 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):** 0.1A maximum @ 30V AC/DC

### Other Ratings

**Contact Resistance:** 50 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum for 1 minute minimum  
**Mechanical Life:** 100,000 operations minimum  
**Electrical Life:** 50,000 operations minimum  
**Nominal Operating Force:** 3.43N  
**Contact Timing:** Nonshorting (break before make)  
**Travel:** Pretravel .087" (2.2mm); Overtravel .031" (0.8mm); Total Travel .118" (3.0mm)

### Materials & Finishes

**Housing:** Glass fiber reinforced polyamide  
**Base:** Glass fiber reinforced polyamide  
**Movable Contact:** Phosphor bronze with silver plating  
**Stationary Contacts:** Phosphor bronze with silver plating  
**Common Terminal:** Phosphor bronze with silver plating  
**End Terminals:** Phosphor bronze with silver plating  
**Lamp Terminals:** Phosphor bronze with silver plating

### Environmental Data

**Operating Temp Range:** -25°C through +50°C (-13°F through +122°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 (490m/s<sup>2</sup>) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

### Installation

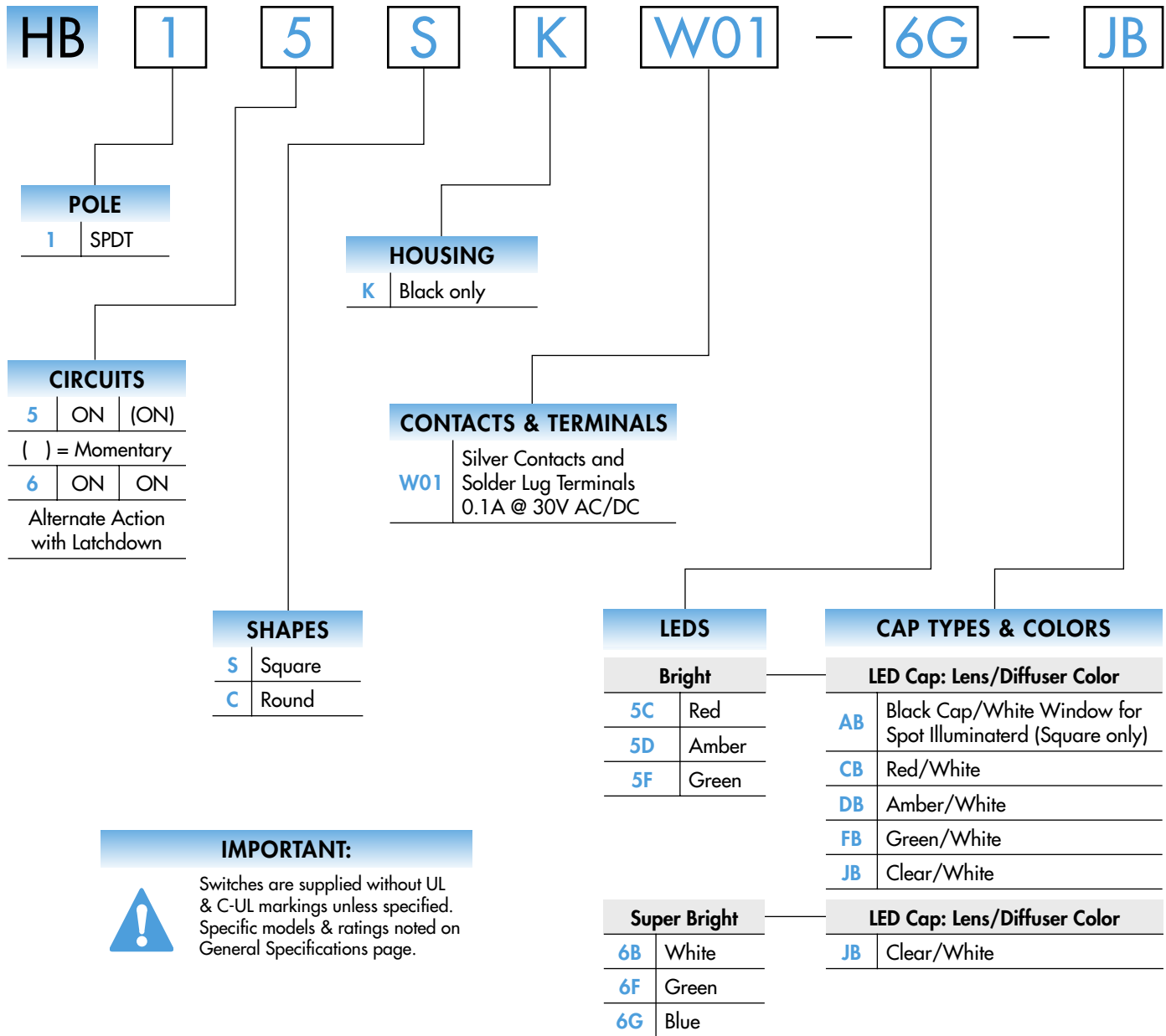
**Mounting Torque:** 0.49Nm (4.34 lb•in) maximum for round mounting nut  
**Cap Installation Force:** 9.8N (2.2 lbf) maximum downward force on cap  
**Soldering Time & Temperature:** Manual Soldering: See Profile A in Supplement section.

### Standards & Certifications



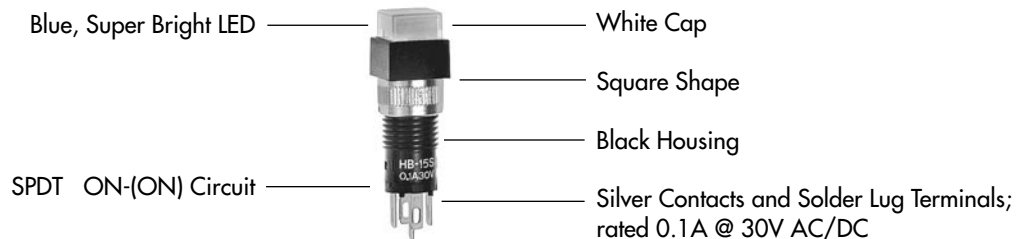
**UL & C-UL Recognized:** All models recognized at 0.1A @ 30V AC/DC;  
 UL File No. WOYR2.E44145;  
 add "/U" to end of part number to order UL mark on switch.  
 C-UL File No. WOYR8.E44145;  
 add "/C-UL" to end of part number to order C-UL mark on switch.

### TYPICAL SWITCH ORDERING EXAMPLE



### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

#### HB15SKW01-6G-JB



## POLES & CIRCUITS

		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch/Lamp Schematics
Pole	Model	Normal	Down	Normal	Down	
						Notes: Switch is marked with NO, NC, C, L. LED circuit is isolated and requires external power source.
SP	HB15 *HB16	ON ON	(ON) ON	1-3	1-2	

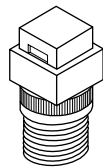
\* When in latchdown position for the alternate circuit, cap position is .051" (1.3mm) above the built-in bezel.

## SHAPES

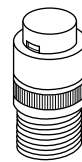
**S** .354" (9.0mm) Square

**C** .354" (9.0mm) Round

The bezel is an integral part of the switch body.

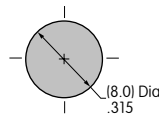


The bezel is an integral part of the switch body.



## Panel Cutout & Mounting

Recommended Panel Thickness:  
.020 ~ .197" (0.5 ~ 5.0mm)



Overtightening the mounting nut AT073 may damage the switch housing.

## HOUSING

**K** Housing available in black only.

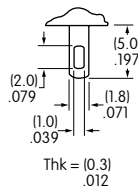
## CONTACT MATERIALS, RATINGS, & TERMINALS

**W01** Silver Contacts

Power Level

0.1A maximum @ 30V AC/DC

Solder Lug






PCB Mounting

Solder lug terminals are spaced .100" x .200" (2.54mm x 5.08mm). This enables PCB mounting which can be accomplished by elongating PC board holes to .080" (2.03mm).

## LED COLORS & SPECIFICATIONS

The electrical specifications shown are determined at a basic temperature of 25°C.  
 LED circuit is isolated and requires external power source. Single element LED is colored in OFF state.  
 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.

Bright AT633		Note for Super Bright: 	Bright			Super Bright			Unit	
			5C	5D	5F	6B	6F	6G		
Super Bright		Color	Red	Amber	Green	White	Green	Blue		
AT624G Blue		Forward Peak Current	$I_{FM}$	30	30	25	30	30	30	mA
		Continuous Forward Current	$I_F$	20	20	20	20	20	20	mA
AT629B White		Forward Voltage	$V_F$	1.85	2.0	2.2	3.6	3.5	3.6	V
AT630F Green		Reverse Peak Voltage	$V_{RM}$	5	5	5	5	5	5	V
		Current Reduction Rate Above 25°C	$\Delta I_F$	0.40	0.42	0.38	0.50	0.50	0.50	mA/°C
T-1 Bi-pin		Ambient Temperature Range		-25° ~ +50°C			-25° ~ +50°C			

## CAP TYPES & COLORS

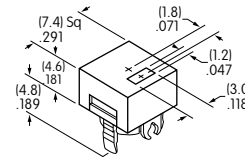
Color Codes:      A Black      B White      C Red      D Amber      F Green      J Clear

### Colored Cap for Bright LEDs

Cap Colors Available:

**AB** Black Cap with Translucent White Window for LED Display

**AT4052**  
Spot Illuminated



Square only

Material: Polycarbonate  
Finish: Matte

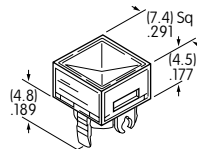
Lens/Diffuser  
Colors Available:

**CB** Red/White

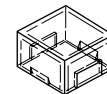
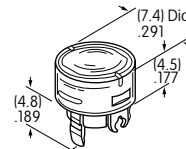
**DB** Amber/White

**FB** Green/White

**AT4166**  
Square



**AT4167**  
Round



Transparent Colored Lens



Translucent White Diffuser



Colored LED  
AT633

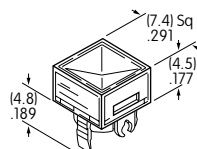
Material: Polycarbonate      Finish: Glossy

### White Cap for Bright & Super Bright LEDs

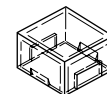
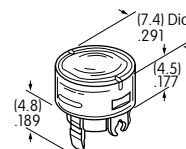
**JB** Clear Lens/  
White Diffuser

Material: Polycarbonate  
Finish: Glossy

**AT4031**  
Square



**AT4032**  
Round



Transparent Clear Lens



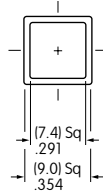
Translucent White Diffuser



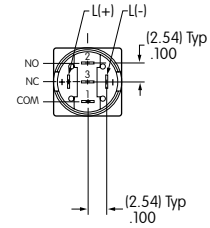
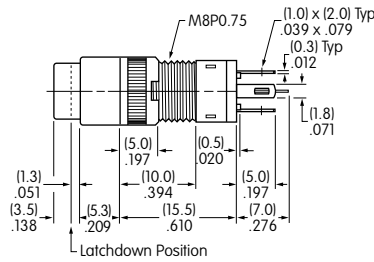
Colored LEDs  
AT624, AT629,  
AT630, or AT633

## TYPICAL SWITCH DIMENSIONS

### Square

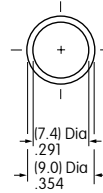


### Single Pole

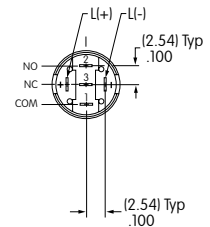
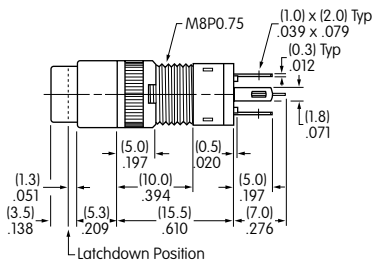


HB15KW01-5C-CB

### Round



### Single Pole

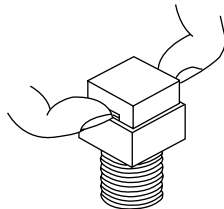


HB16CKW01-5C-CB

## ASSEMBLY INSTRUCTIONS

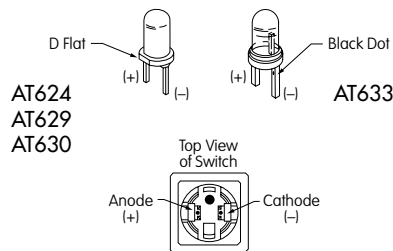
### Cap Removal

1. Have cap in extended position (not latchdown) for alternate action models.
2. Use the grip slots on the sides of the cap and pull it out of the switch.



### LED Polarity & Orientation in Lamp Socket

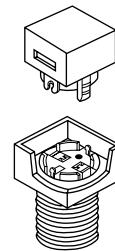
For AT624, AT629, AT630: Insert the LED with the D flat opposite the black dot molded inside the switch lamp socket. For AT633: Insert the LED with the Black Dot on the terminal to the right.



Super Bright LEDs AT624, AT629, & AT630 are electrostatic sensitive.

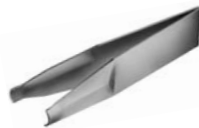
### Cap Replacement

1. Match the prongs on the cap base with the projections in the switch, at the same time aligning the spring clips on the cap with the indentations in the switch.
2. Press firmly in place.



### AT111 Lamping Tool

Lamping Tool AT111 may be used to remove and replace LED.



### AT110 Socket Wrench

Socket Wrench AT110 may be used to tighten the mounting nut.

