General Specifications

Electrical Capacity (Resistive Load)

Power Level (silver): 5A @ 125/250V AC or 5A @ 30V DC
Logic Level (gold): 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;
100,000 operations minimum for silver with resistive load of 3A @ 125V AC
200,000 operations minimum for gold
Nominal Operating Force: Single Pole: 1.9N for Square & 1.9N for Rectangular
Double Pole: 2.55N for Square & 3.1N for Rectangular
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 Temperature Range: –25°C through +50°C (–13°F through +122°F) for Illuminated
–20°C through +70°C (–4°F through +158°F) for Nonilluminated
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^2) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation

Cap Installation Force: 7.55N (1.70 lbf) maximum downward force on cap
Soldering Time & Temp: 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

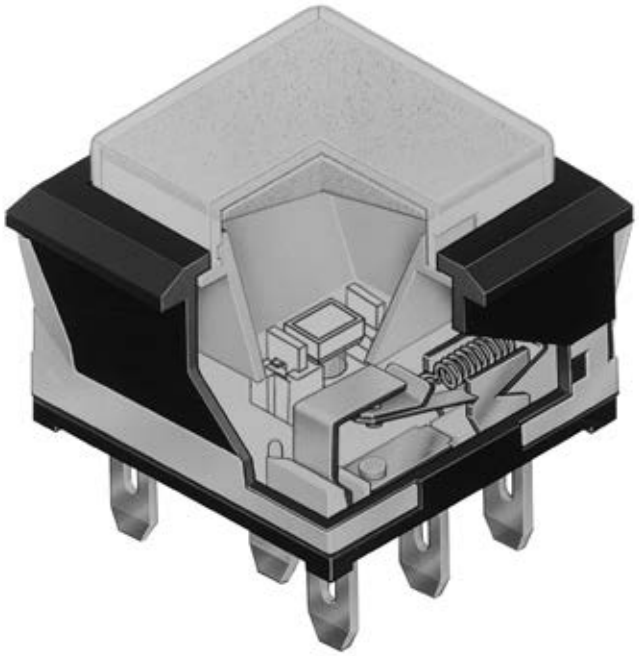
Flammability Standards: UL94V-0 housing/bezel & base
UL: **File No. E44145 - Recognized only when ordered with marking on switch.**
Add "/U" or "/CUL" before dash in part number to order UL recognized switch.
UL recognized only when ordered switch body with cap assembled.
All single & double pole models recognized at 5A @ 125/250V AC or 0.014A @ 28V DC.
CSA: **File No. 023535_0_000 - Certified only when ordered with marking on switch.**
Add "/C" before dash in part number to order CSA certified switch.
All single & double pole models certified at 5A @ 125/250V AC or 5A @ 30V DC or 0.4VA maximum @ 28V AC/DC maximum.

Distinctive Characteristics

Red/green and amber/blue bicolors with alternating standard or custom legends. Super bright LED provides brilliant uniform illumination.

Bright or super bright LEDs (an integral part of the switch) of red, amber, green, blue, or white, in full face or spot illumination plus square or rectangular models.

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.

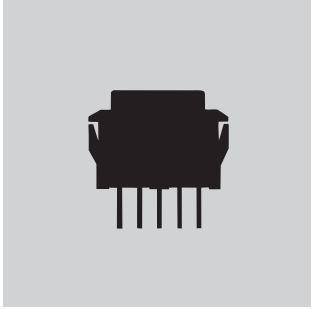
Latchdown mechanism, independent of switching mechanism, gives visible and tactile indication of circuit status.

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.

Matching indicators available.

Actual Size



TYPICAL SWITCH

UB 1 5 SK G 03

Poles

1	SPDT
2	DPDT

Circuits

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

Mounting Types

PCB Mounting	
SK	Square
RK	Rectangular
*** Snap-in Mounting**	
KK	Square
NK	Rectangular
NBK	Rectangular with Side Barriers

* 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

IMPORTANT:

Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB15SKG035C-CC

Gold Contacts with 0.4VA Rating

Square with PCB Mounting

Red, Bright LED & Red Lens with Red Diffuser

SPDT ON-(ON) Circuit

Straight PC Terminals

ORDERING EXAMPLE

5C — CC —

LEDS

Bright LED

5C	Red
5D	Amber
5F	Green

Super Bright LED

6B	White
6F	Green
6G	Blue

Super Bright Bicolor LED

6CF	Red/Green
6DG	Amber/Blue

Nonilluminated

N	Nonilluminated

Cap Types & Colors

Full Face Illuminated Cap for Bright LED

Lens/Diffuser Colors

CB	Red/White	**FF**	Green/Green
CC	Red/Red	***FJ**	Green/Clear
***CJ**	Red/Clear	**JB**	Clear/White
DB	Amber/White	**JC**	Clear/Red
DD	Amber/Amber	**JD**	Clear/Amber
***DJ**	Amber/Clear	**JF**	Clear/Green
FB	Green/White	***JJ**	Clear/Clear
AB	Square & Rectangular Spot Illuminated Black Cap with White Window		

* Not available with Rectangular cap

Full Face Illuminated Cap for Super Bright LED

JB	Clear Lens/White Diffuser
AB	Spot Illuminated Black Cap with White Window

Alternating Legend Cap/Diffuser

JCF	Red/Green
JDG	Amber/Blue

Nonilluminated Cap Colors

A	Black	**E**	Yellow
B	White	**F**	Green
C	Red	**G**	Blue

— ____

Alternating Legends

11	ON (pos)	OFF (pos)
12	ON (neg)	OFF (neg)
13	START	STOP
14	OPEN	CLOSE

Part Numbers for Alternating Legends

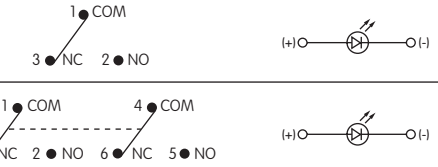
Square Alternating Legends				Rectangular Alternating Legends			
Color	Part Number	Color	Part Number	Color	Part Number	Color	Part Number
Red/Green	AT9450CF11	Amber/Blue	AT9450DG11	Red/Green	AT9451CF11	Amber/Blue	AT9451DG11
	AT9450CF12		AT9450DG12		AT9451CF12		AT9451DG12
	AT9450CF13		AT9450DG13		AT9451CF13		AT9451DG13
	AT9450CF14		AT9450DG14		AT9451CF14		AT9451DG14

Refer to Ordering Table for Alternating Legend that corresponds with last 2 digits of part number.

POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary: Normal	Plunger Position: Down	Connected Terminals: Normal	Connected Terminals: Down	Throw & Switch/Lamp Schematics
SP	**UB15** ***UB16**	ON ON	(ON) ON	1-3	1-2	SPDT
DP	**UB25** ***UB26**	ON ON	(ON) ON	1-3 4-6	1-2 4-5	DPDT

Notes: Switch is marked with NC, NO, COM, L+ & L–. Lamp circuit is isolated and requires an external power source.

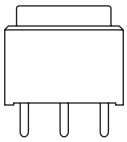


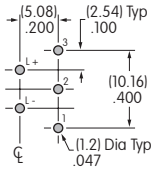
* When in latchdown position for the alternate circuit, cap position is .039" (1.0mm) above the housing.

MOUNTING TYPES & SHAPES

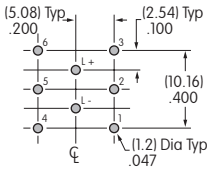
PCB Mounting

SK Square



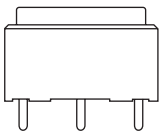


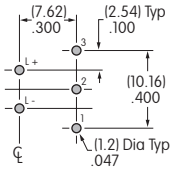
Single Pole



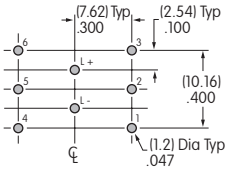
Double Pole

RK Rectangular





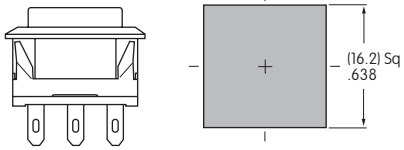
Single Pole



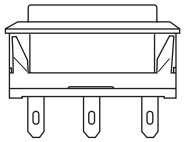
Double Pole

Snap-in Mounting (Solder Lug)

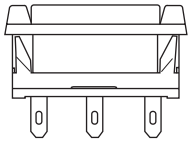
KK Square with Built-in Bezel

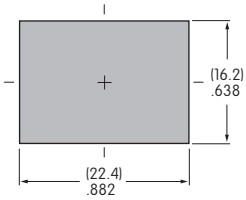


NK Rectangular with Built-in Bezel



NBK Rectangular with Built-in Side Barriers





Snap-in Mounting with Solder Lug terminals is the standard combination. Panel Thickness: .039 ~ .126" (1.0 ~ 3.2mm)

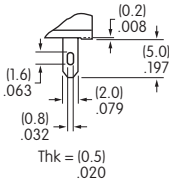
CONTACT MATERIALS & RATINGS

W	**Silver Contacts**	**Power Level**	**5A @ 125V AC & 250V AC**
G	**Gold Contacts**	**Logic Level**	**0.4VA maximum @ 28V AC/DC maximum**

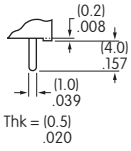
Complete explanation of operating range in Supplement section.

TERMINALS

01 Solder Lug



03 Straight PC



BRIGHT & SUPER BRIGHT 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. Polarity marks are on bottom of switch. If the source voltage exceeds the rated voltage, a ballast resistor is required. Resistor value can be calculated by using the formula in the Supplement section. LED is an integral part of switch and not available separately.

Super Bright LEDs are Electrostatic Sensitive

ATTENTION ELECTROSTATIC SENSITIVE DEVICES

(+) (-)

		Bright			Super Bright			
		5C	5D	5F	6B	6F	6G	
	Color	Red	Amber	Green	White	Green	Blue	Unit
Maximum Forward Current	I_{FM}	30	30	25	30	30	30	mA
Typical Forward Current	I_F	20	20	20	15	20	20	mA
Forward Voltage	V_F	1.85	2.0	2.1	2.9	3.2	2.9	V
Maximum Reverse Voltage	V_{RM}	5	5	5	5	5	5	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.42	0.46	* 0.38	0.40	0.33	mA/°C
Ambient Temperature Range		−25° ~ +50°C			−25° ~ +50°C			

* Specification determined at a basic temperature of 35°C

N **No Lamp**

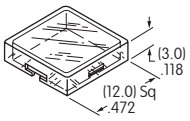
CAP TYPES & COLOR COMBINATIONS

Full Face Illuminated Cap for Bright LED & Super Bright Single Color LED

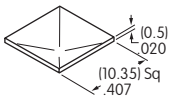
Lens/Diffuser Colors Available for Square Cap:

CB DD FJ JF
CC DJ JB JJ
CJ FB JC
DB FF JD

AT4074 Lens



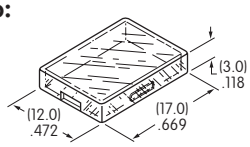
AT4075 Diffuser



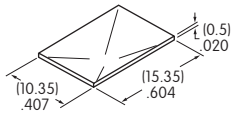
Lens/Diffuser Colors Available for Rectangular Cap:

CB FB JD
CC FF JF
DB JB
DD JC

AT4117 Lens



AT4118 Diffuser



Lens & Diffuser Material: Polycarbonate Lens Finish: Glossy Diffuser Finish: Textured

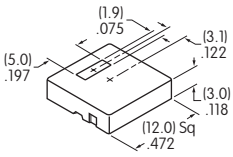
Spot Illuminated Caps for Bright & Super Bright LEDs

Cap/Window Colors Available:

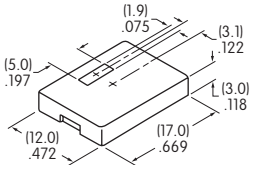
AB **Black Cap with Translucent White Window for LED Display**

Material: Polycarbonate Finish: Matte

AT4119 Square for Bright and Super Bright LED



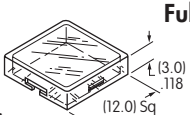
AT4120 Rectangular for Bright and Super Bright LED



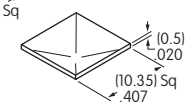
Full Face Illuminated Caps for Super Bright Bicolor LED

JB

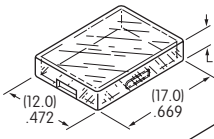
AT4074 Square Lens



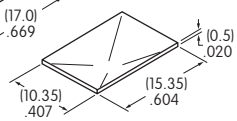
AT4188 Square Diffuser



AT4117 Rectangular Lens



AT4189 Rectangular Diffuser



Lens & Diffuser Material: Polycarbonate Lens Finish: Glossy Diffuser Finish: Textured

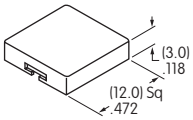
Opaque Caps for Nonilluminated

Cap Colors Available:

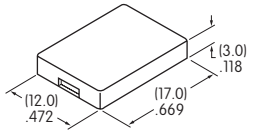
A C F
B E G

Material: Polycarbonate
Finish: Glossy

AT4073 Square



AT4116 Rectangular



Color Codes: **A** Black **B** White **C** Red **D** Amber **E** Yellow **F** Green **G** Blue **J** Clear

SUPER BRIGHT BICOLOR LEDS FOR ALTERNATING LEGENDS

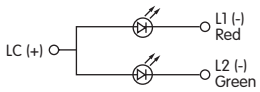
The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires external power source. Polarity marks are on bottom of switch. If the source voltage exceeds the rated voltage, a ballast resistor is required. Resistor value can be calculated by using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

Electrical Specifications for Super Bright Bicolor LEDs

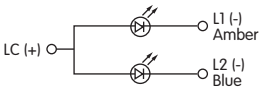
Super Bright LEDs are Electrostatic Sensitive — ATTENTION ELECTROSTATIC SENSITIVE DEVICES	Color	6CF Red/Green		6DG Amber/Blue		Unit
		Red	Green	Amber	Blue	
Maximum Forward Current	I_{FM}	* 30	* 30	* 30	* 30	mA
Typical Forward Current	I_F	20	20	20	20	mA
Forward Voltage	V_F	2.3	3.2	2.1	3.0	V
Maximum Reverse Voltage	V_{RM}	4	4	4	4	V
Current Reduction Rate Above 25°C	ΔI_F	0.33	0.33	0.33	0.33	mA/°C
Ambient Temperature Range		–25° ~ +50°		–25° ~ +50°		°C

* Value applies to single color illumination for either Red or Green or Amber or Blue. When both colors are illuminated simultaneously, the sum of the currents should not exceed the smallest value of the maximum forward current.

Super Bright Bicolor Red/Green LED with 2 elements



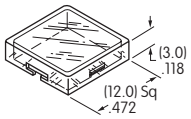
Super Bright Bicolor Amber/Blue LED with 2 elements



Alternating Legend Caps for Super Bright Bicolor LED

JCF JDG

AT4074 12.0mm Square Flat Cap

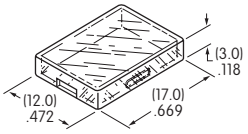


AT9450 Square Legend Insert

AT4188 Square Diffuser

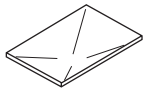
JCF JDG

AT4117 12.0mm x 17.0mm Rectangular Flat Cap



AT9451 Rectangular Legend Insert

AT4189 Rectangular Diffuser



Lens & Diffuser Material: Polycarbonate Legend Insert Material: Polyethylene Terephthalate (PET)
Lens Finish: Glossy Diffuser Finish: Textured

Standard Alternating Legend Pairs

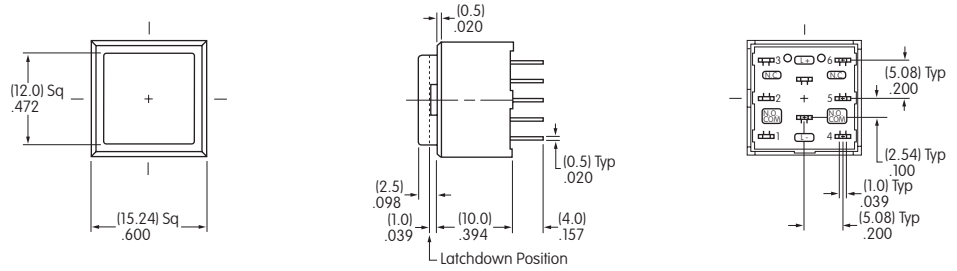
11	12	13	14
ON / OFF	ON / OFF	START / STOP	OPEN / CLOSE
Green/Red or Blue/Amber	Green/Red or Blue/Amber	Green/Red or Blue/Amber	Green/Red or Blue/Amber

Cap illumination is alternating Green/Red or Blue/Amber; 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

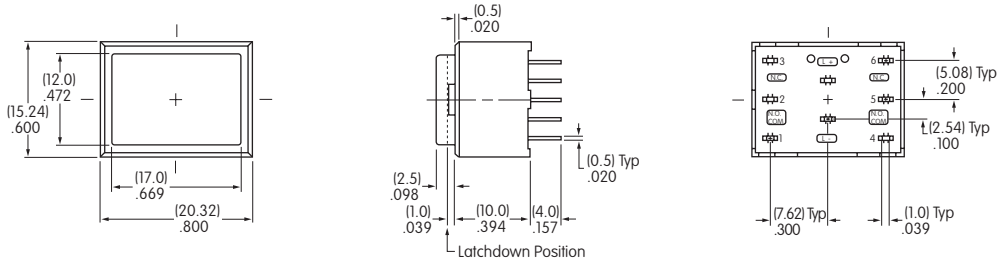
Single & Double Pole — Square • PCB Mount



Single pole models do not have terminals 4, 5, & 6.

UB15SKG035C-CB

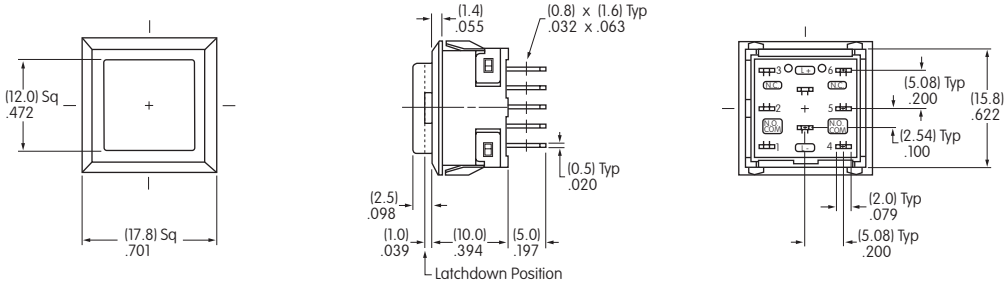
Single & Double Pole — Rectangular • PCB Mount



Single pole models do not have terminals 4, 5, & 6.

UB26RKG035D-DD

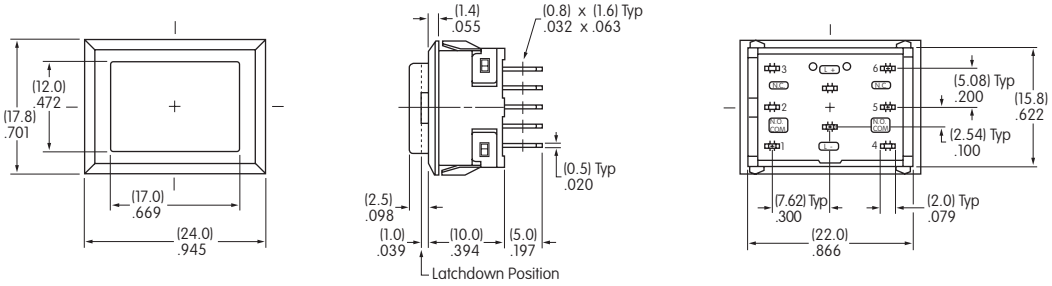
Single & Double Pole — Square • Snap-in Mount • Built-in Bezel



Single pole models do not have terminals 4, 5, & 6.

UB25KKW015C-CB

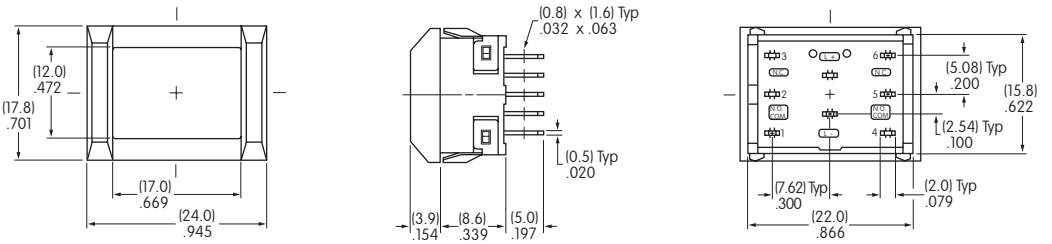
Single & Double Pole — Rectangular • Snap-in Mount • Built-in Bezel



Single pole models do not have terminals 4, 5, & 6.

UB26NKW015F-FF

Single & Double Pole — Rectangular • Snap-in Mount • Built-in Side Barriers

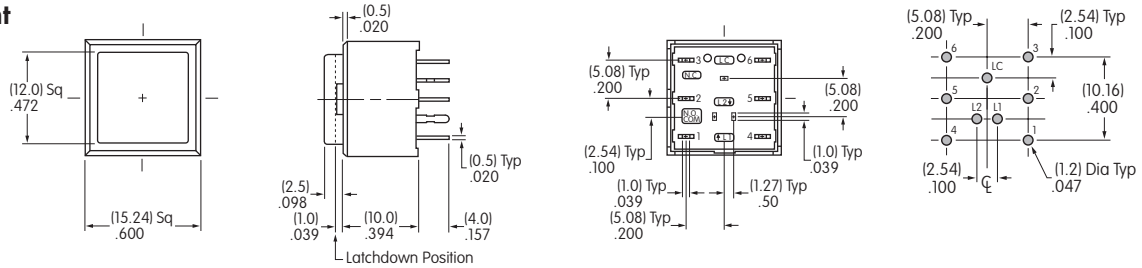


Single pole models do not have terminals 4, 5, & 6.

UB25NBKW015F-FB

TYPICAL SWITCH DIMENSIONS

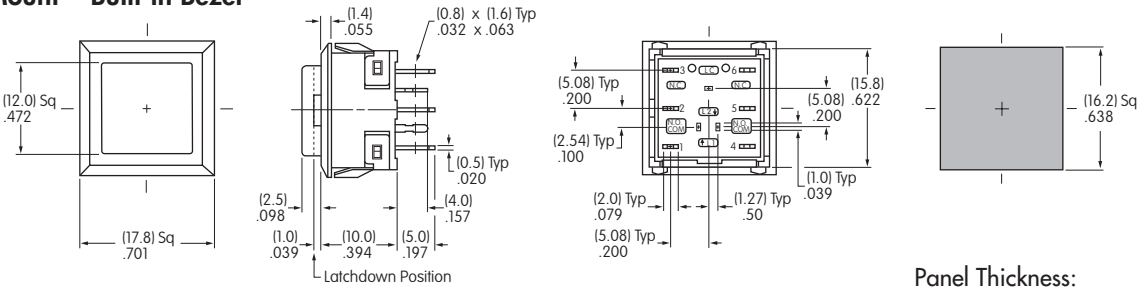
Square • PCB Mount



UB25SKG036DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

Square • Snap-in Mount • Built-in Bezel

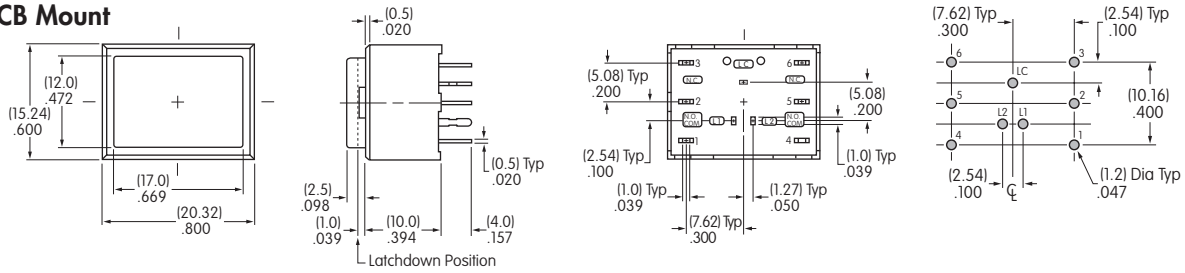


UB25KKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

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

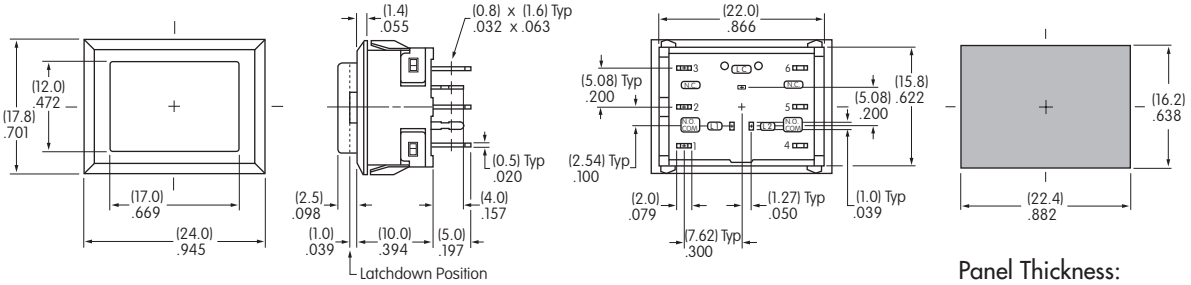
Rectangular • PCB Mount



UB25RKG036DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

Rectangular • Snap-in Mount • Built-in Bezel

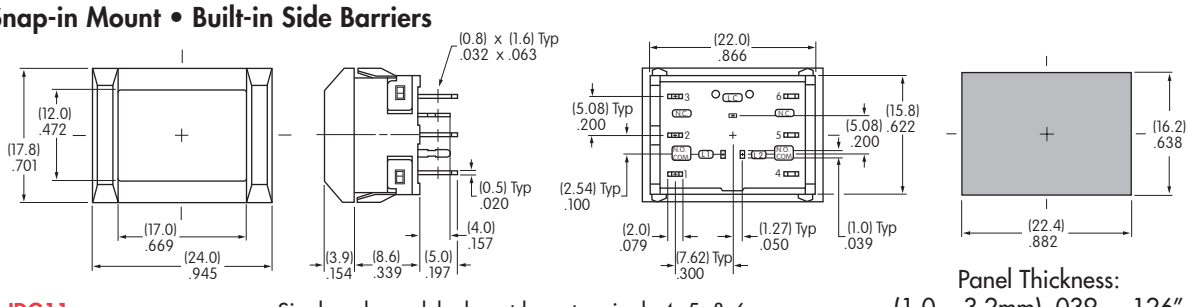


UB26NKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

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

Rectangular • Snap-in Mount • Built-in Side Barriers



UB26NBKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

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

OPTIONAL ACCESSORIES

Spring Loaded Protective Guard for Snap-in Mounting of Square PCB Model

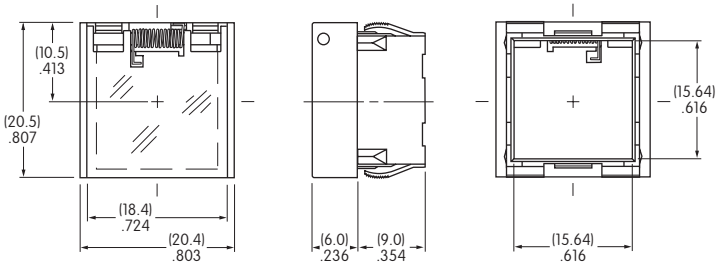
AT4173
Square Protective Guard/ Snap-in Frame

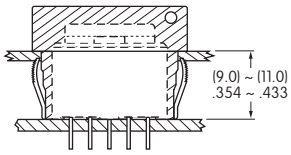
Opens 180°
Closes automatically

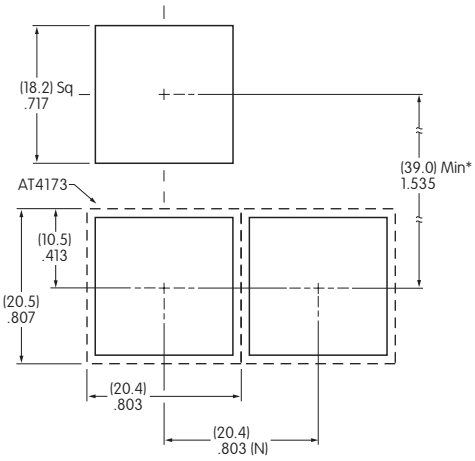
Materials:
Cover: Clear Polycarbonate
Base: Black Polyamide
Coil Spring: Stainless Steel

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

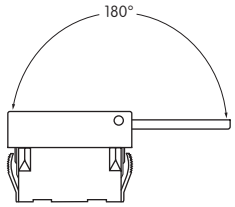
Recommended Panel-to-PCB Range:
.354" ~ .433"
(9.0mm ~ 11.0mm)





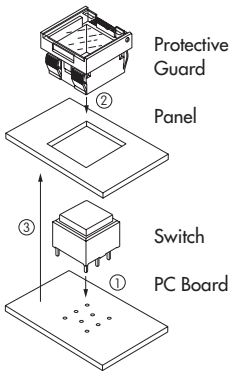


(N) = Number of switches
* Minimum dimension allows opening of cover to 180°



Installation

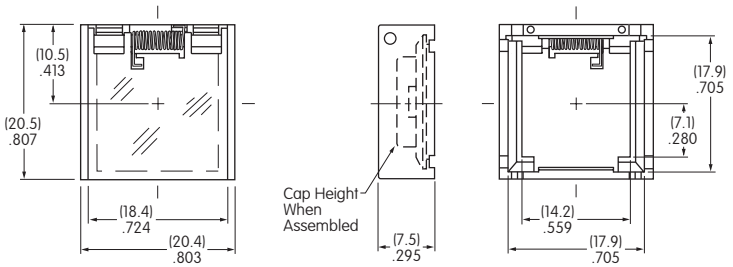
1. Install switch onto PC board.
2. Snap protective guard into panel.
3. Join the two assemblies.

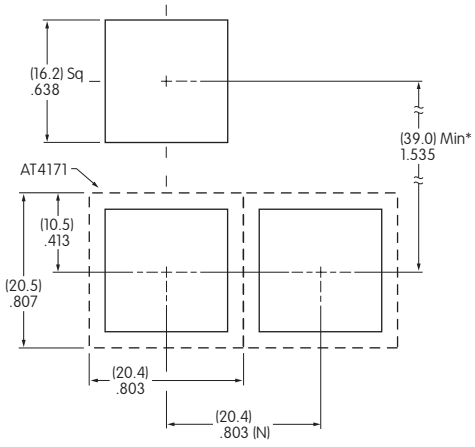


Spring Loaded Protective Guard for Square Snap-in Model

AT4171
Square Protective Guard

Opens 180°
Closes automatically

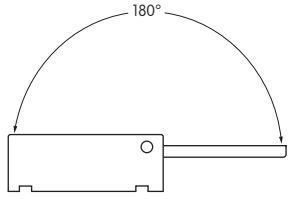




(N) = Number of switches * Minimum dimension allows opening of cover to 180°

Materials:
Cover: Clear Polycarbonate
Base: Black GFR Polyamide
Coil Spring: Stainless Steel

Recommended Panel Thickness:
.039" ~ .106" (1.0mm ~ 2.7mm)

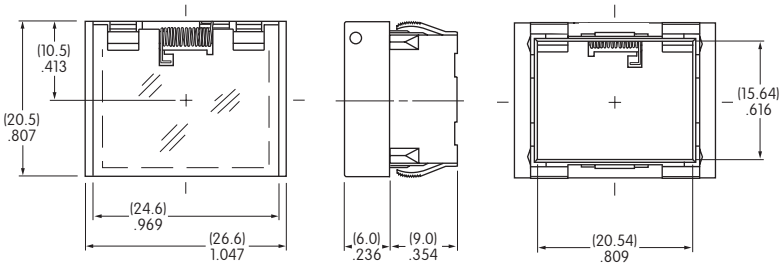


OPTIONAL ACCESSORIES

Spring Loaded Protective Guard for Snap-in Mounting of Rectangular PCB Model

AT4174
Rectangular Protective Guard/ Snap-in Frame

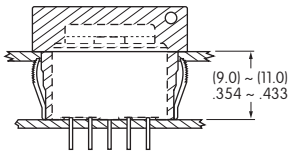
Opens 180°
Closes automatically

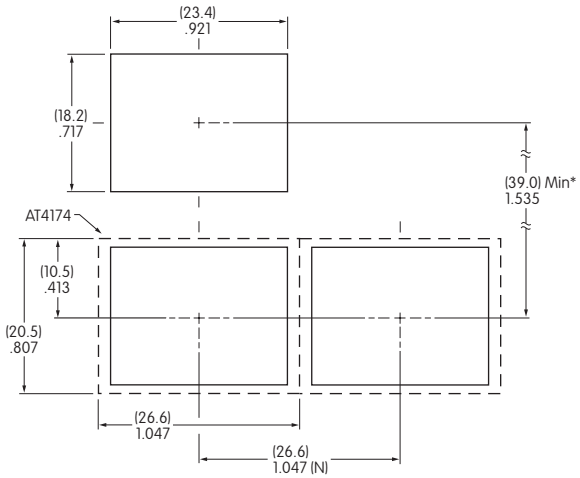


Materials:
Cover: Clear Polycarbonate
Base: Black Polyamide
Coil Spring: Stainless Steel

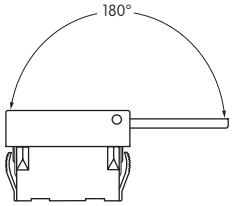
Recommended Panel Thickness:
.039" ~ .126"
(1.0mm ~ 3.2mm)

Recommended Panel-to-PCB Range:
.354" ~ .433"
(9.0mm ~ 11.0mm)



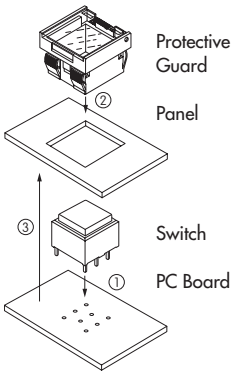


(N) = Number of switches * Minimum dimension allows opening of cover to 180°



Installation

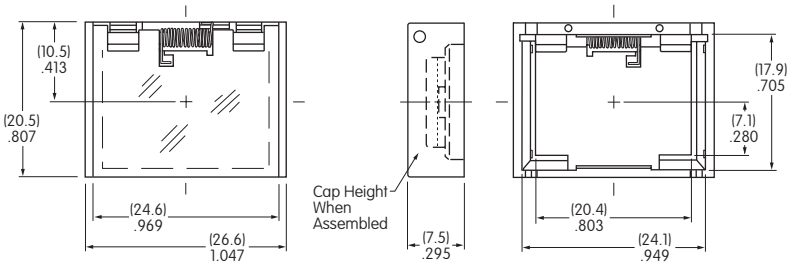
1. Install switch onto PC board.
2. Snap protective guard into panel.
3. Join the two assemblies.

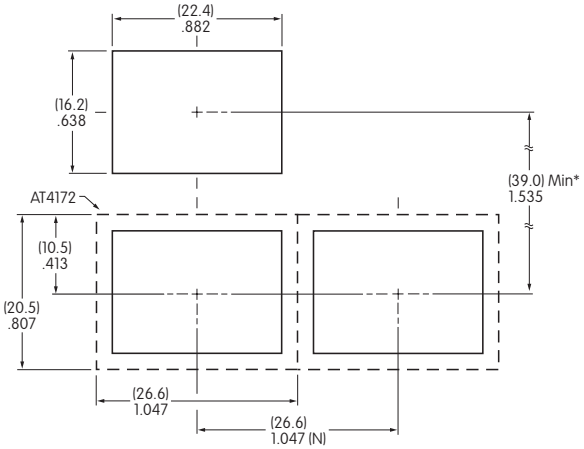


Spring Loaded Protective Guard for Rectangular Snap-in Model

AT4172
Rectangular Protective Guard

Opens 180°
Closes automatically

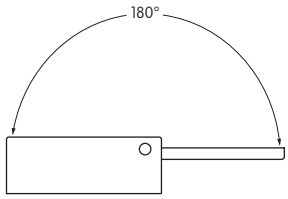




(N) = Number of switches * Minimum dimension allows opening of cover to 180°

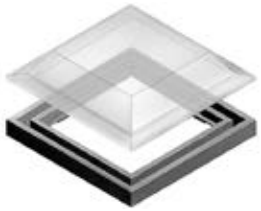
Materials:
Cover: Clear Polycarbonate
Base: Black GFR Polyamide
Coil Spring: Stainless Steel

Recommended Panel Thickness:
.039" ~ .106" (1.0mm ~ 2.7mm)



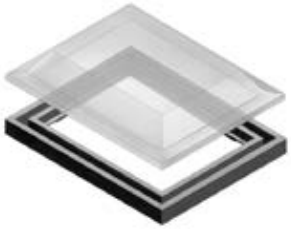
OPTIONAL ACCESSORIES

AT4001
Square



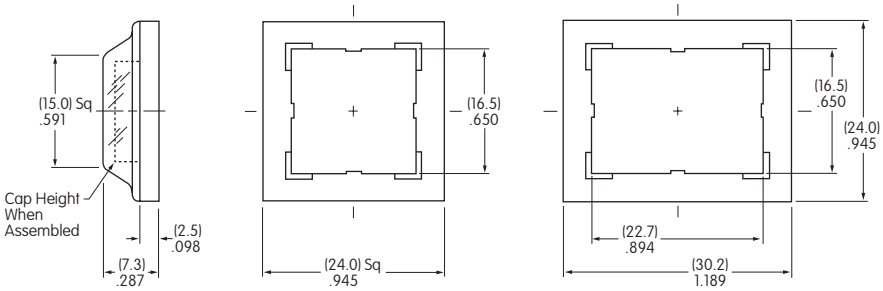
Only for use with KK mounting type

AT4011
Rectangular



Only for use with NK mounting type

Dust Covers



Materials:
PVC with polyethylene gasket
(PVC loses pliability below 0°C (32°F).)

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

LEGENDS

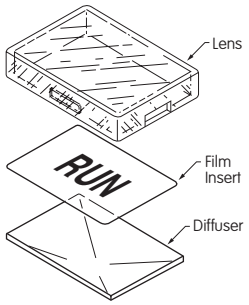
NKK Switches can provide custom legends for caps. Contact factory for more information.

Suggested Printable Area for UB Lens & Film Insert

Recommended Methods: Laser Etch on clear lens, Screen Print or Pad Print on lens;
Laser Print on film insert.

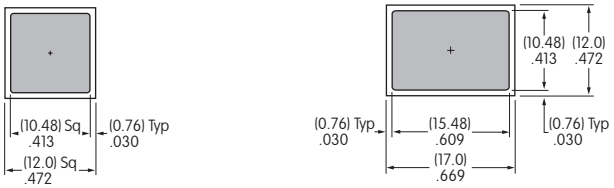
Square Cap

Rectangular Cap

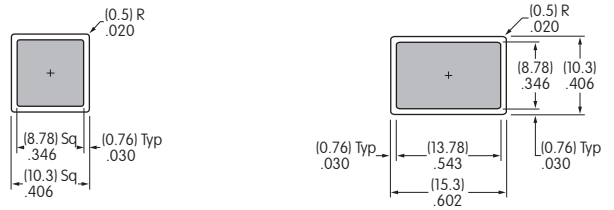


Shaded areas are printable areas.

Lens



Film Insert



Film Insert: Clear Polyester 0.15mm max. thickness