

UB201KW03CF-3JB Datasheet



DiGi Electronics Part Number	UB201KW03CF-3JB-DG
Manufacturer	NKK Switches
Manufacturer Product Number	UB201KW03CF-3JB
Description	INDICATOR PB R/G ILL SQ FLAT CAP
Detailed Description	LED Panel Indicator Green, Red Diffused 3.5V Green , 2.1V Red 25mA Green, 30mA Red

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Purchase and inquiry

Manufacturer Product Number:

UB201KW03CF-3JB

Series:

UB2

Type:

LED

Lens Color:

White

Ratings:

Vf (Typ), If (Max)

Current:

25mA Green, 30mA Red

Panel Cutout Dimensions:

-

Lens Style:

Rectangle with Flat Top

Wavelength - Peak:

-

Termination Style:

-

Features:

-

Manufacturer:

NKK Switches

Product Status:

Obsolete

Lamp Color:

Green, Red

Lens Transparency:

Diffused

Voltage:

3.5V Green, 2.1V Red

Panel Cutout Shape:

-

Lens Size:

15.24mm x 15.00mm

Millicandela Rating:

-

Viewing Angle:

-

Ingress Protection:

-

Environmental & Export classification

RoHS Status:

RoHS non-compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.41.0000

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

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; 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 Contact:	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 tin 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 -25°C through +70°C (-13°F through +158°F) for Nonilluminated
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:	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.

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 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.

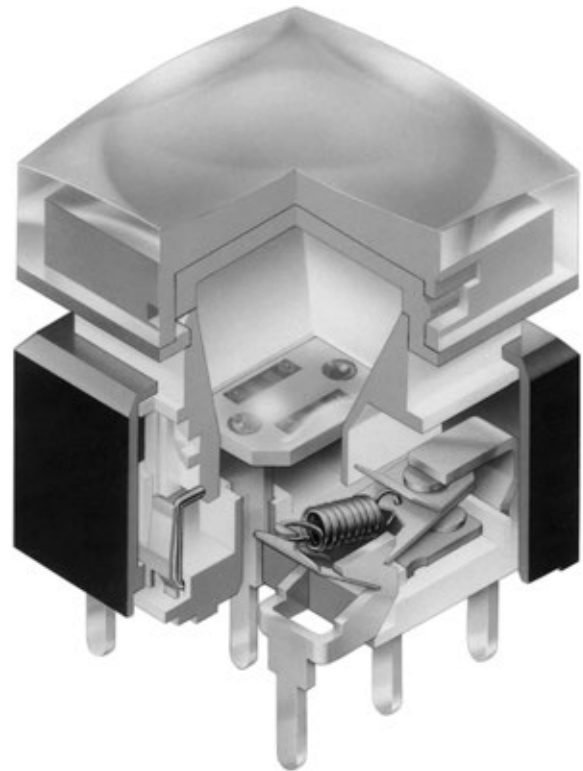
Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break characteristic limits arcing and prolongs electrical life.

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

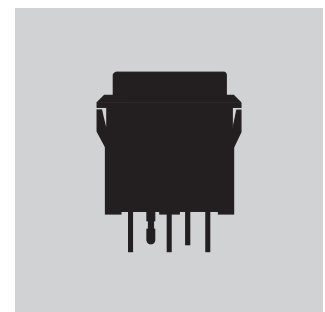
Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

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

Matching indicators available.



Actual Size



Toggles

Rockers

Pushbuttons

D
Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

Series UB2

Low Profile Pushbuttons

TYPICAL SWITCH

UB2

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
* Snap-in Mounting	
KK	Square
* Standard with Solder Lug terminals	

Terminals

01	Solder Lug (for Snap-in Mounting)
03	Straight PC

Contacts & Ratings

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

Part Numbers for Alternating Legends

Color	15mm Square Sculptured Cap	15mm Square Flat Cap
	Part Number	Part Number
Red/Green	AT3069JCF11 ~ AT3069JCF14	AT3070JCF11 ~ AT3070JCF14
Amber/Blue	AT3069JDG11 ~ AT3069JDG14	AT3070JDG11 ~ AT3070JDG14

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

IMPORTANT:



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

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB215SKG035C-1JC



Toggles
Rockers
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

Low Profile Pushbuttons

Series UB2

ORDERING EXAMPLE

5C

1JC

LEDS		Cap Types & Colors	
Bright LED		Sculptured Cap Lens/Diffuser Colors	
5C	Red	1JB	Clear/White
5D	Amber	1JC	Clear/Red
5F	Green	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
Super Bright LED		Sculptured Cap Lens/Diffuser Color	
6B	White	1JB	Clear/White
6F	Green	Beveled Cap & Color	
6G	Blue	2B	White
		Flat Cap Lens/Diffuser Color	
		3JB	Clear/White
Super Bright Bicolor LED		Sculptured Cap Lens/Diffuser Color	
6CF	Red/Green	1JB	Clear/White
6DG	Amber/Blue	Beveled Cap & Color	
		2B	White
		Flat Cap Lens/Diffuser Color	
		3JB	Clear/White
		Sculptured Cap with Alternating Legend	
		4JCF	Clear; Red/Green
		4JDG	Clear; Amber/Blue
		Flat Cap with Alternating Legend	
		5JCF	Clear; Red/Green
		5JDG	Clear; Amber/Blue
Nonilluminated		Sculptured Cap Lens/Insert Colors	
N	Nonilluminated	4JA	Clear/Black
		4JD	Clear/Amber
		4JB	Clear/White
		4JF	Clear/Green
		4JC	Clear/Red
		Beveled Cap & Colors	
		5A	Black
		5D	Amber
		5B	White
		5F	Green
		5C	Red

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

See Part Numbers Table on Previous Page.
Contact factory for custom options.

Toggles

Rockers

Pushbuttons

D Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators



Accessories

Supplement

Series UB2

Low Profile Pushbuttons

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.

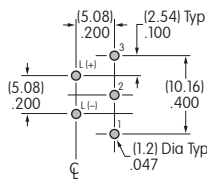
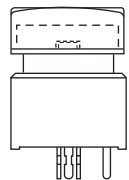
MOUNTING TYPES & SHAPES

PCB Mounting

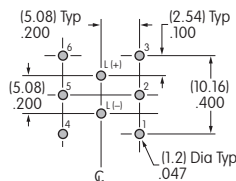


Square

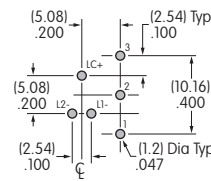
SP, Single Color LED



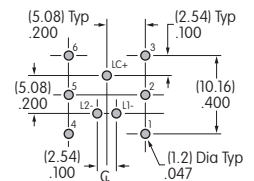
DP, Single Color LED



SP, Bicolor LED



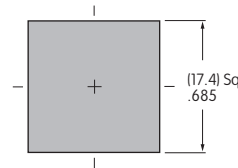
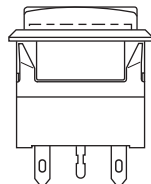
DP, Bicolor LED



Snap-in Mounting (Solder Lug)



Square with Built-in Bezel



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

CONTACT MATERIALS & RATINGS



Silver Contacts

Power Level

5A @ 125V AC & 250V AC



Gold Contacts

Logic Level

0.4VA maximum @ 28V AC/DC maximum

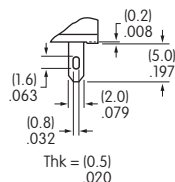
Complete explanation of operating range in Supplement section.

SWITCH & LAMP TERMINALS

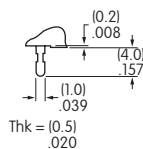


Solder Lug

For Switch & Bright LED

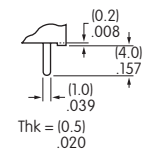


For Super Bright & Bicolor LED

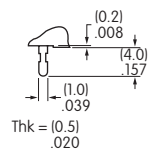


Straight PC

For Switch & Bright LED



For Super Bright & Bicolor LED



Low Profile Pushbuttons

Series UB2

BRIGHT LED & CAPS

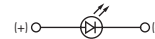
The electrical specifications shown are determined at a basic temperature of 25°C.
 LED circuit is isolated and requires an external power source. Polarity marks are on the bottom of the switch.
 If the source voltage exceeds the rated voltage, a ballast resistor is required.
 The resistor value can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

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

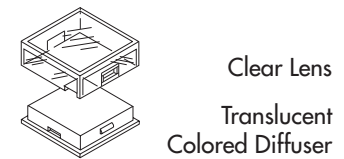
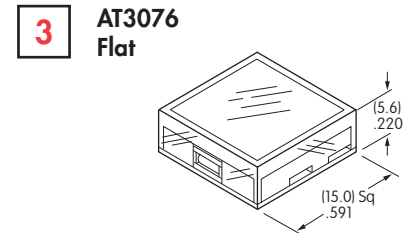
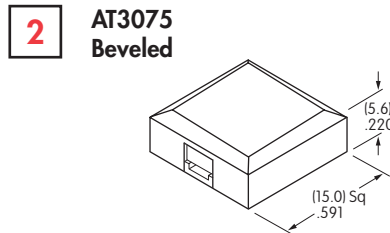
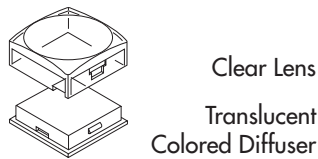
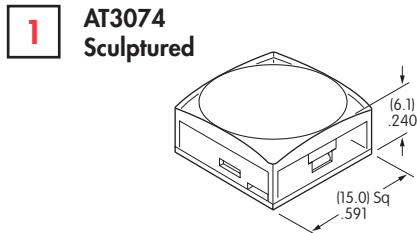
Electrical Specifications for Bright LED

		5C	5D	5F	
	Color	Red	Amber	Green	Unit
Maximum Forward Current	I_{FM}	30	30	25	mA
Typical Forward Current	I_F	20	20	20	mA
Forward Voltage	V_F	1.95	2.0	2.1	V
Maximum Reverse 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



Lens/Diffuser Colors Available:

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

Cap Colors Available:

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

Lens/Diffuser Colors Available:

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

Material: Polycarbonate

Finish: Glossy


Series UB2

Low Profile Pushbuttons

SUPER BRIGHT LEDS & CAPS

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 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 Super Bright LEDs

Super Bright LEDs are Electrostatic Sensitive		Color	6B White	6F Green	6G Blue	Unit
Maximum Forward Current		I_{FM}	20	30	30	mA
Typical Forward Current		I_F	15	10	20	mA
Forward Voltage		V_F	3.3	2.9	2.9	V
Maximum Reverse Voltage		V_{RM}	5	5	5	V
Current Reduction Rate Above 25°C		ΔI_F	0.25	0.33	0.33	mA/°C
Ambient Temperature Range			-25° ~ +50°			°C

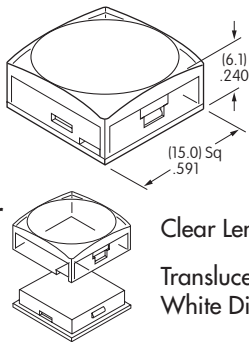
Super Bright Single Color LED with 1 element



Caps for Super Bright LED

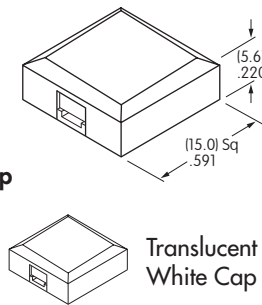
1JB

AT3074JB
Sculptured
Clear Lens/
White Diffuser



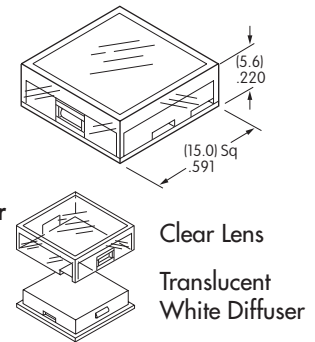
2B

AT3075B
Beveled
White Cap



3JB

AT3076JB
Flat
Clear Lens/
White Diffuser




Material: Polycarbonate Finish: Glossy

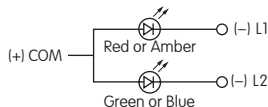
SUPER BRIGHT BICOLOR LEDS & CAPS

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 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 Super Bright Bicolor LEDs

Super Bright LEDs are Electrostatic Sensitive		Color	6CF		6DG		Unit
			Red	Green	Amber	Blue	
Maximum Forward Current		I_{FM}	30 * 25 for Amber	25 * 22 for Amber	30	30	mA
Typical Forward Current		I_F	20	20	15	15	mA
Forward Voltage		V_F	2.1	3.5	2.0	2.8	V
Maximum Reverse Voltage		V_{RM}	4	4	4	4	V
Current Reduction Rate Above 25°C		ΔI_F	0.40	0.33	0.33	0.33	mA/°C
Ambient Temperature Range			-20° ~ +50°		-20° ~ +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.

Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

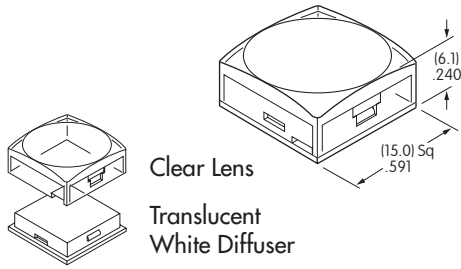
Supplement

Low Profile Pushbuttons

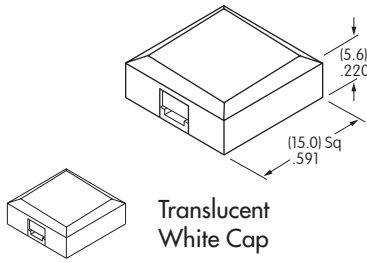
Series UB2

Caps for Super Bright Bicolor LED

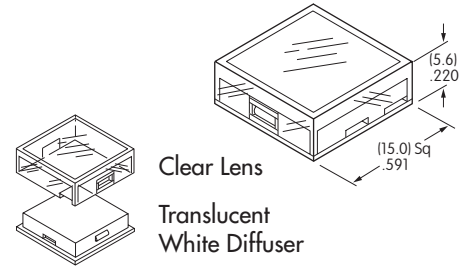
1JB AT3074JB Sculptured Clear Lens/White Diffuser



2B AT3075B Beveled White Cap



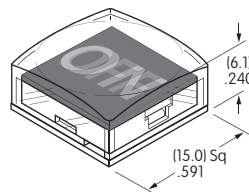
3JB AT3076JB Flat Clear Lens/White Diffuser



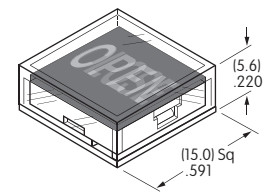
Material: Polycarbonate Finish: Glossy

Alternating Legend Caps for Super Bright Bicolor LED

AT3069J Sculptured Cap with Alternating Legend



AT3070J Flat Cap with Alternating Legend



4JCF Red/Green

5JCF Red/Green

4JDG Amber/Blue

5JDG Amber/Blue

Material: Polycarbonate Finish: Glossy

Standard Alternating Legend Pairs



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.

No Code No Lamp

CAP TYPES & COLOR COMBINATIONS FOR NONILLUMINATED

4 AT3073 Sculptured

Lens/Insert Colors Available:

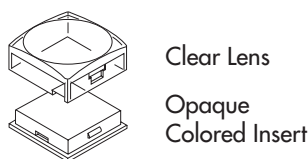
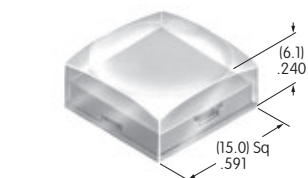
JA Clear/Black

JB Clear/White

JC Clear/Red

JD Clear/Amber

JF Clear/Green



Material: Polycarbonate Finish: Glossy

5 AT3077 Beveled

Cap Colors Available:

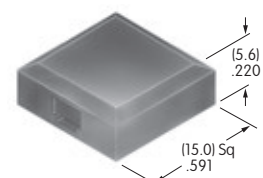
A Black

B White

C Red

D Amber

F Green



Material: Polycarbonate Finish: Glossy

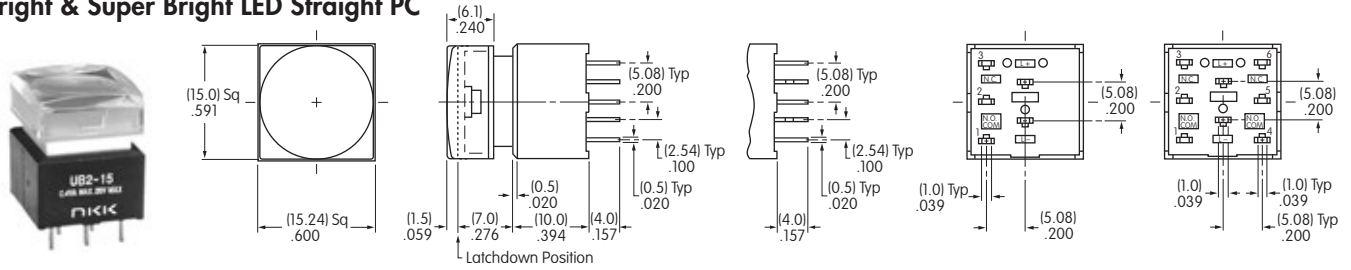
Toggles
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Illuminated PB
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Tilt
Touch
Indicators
Accessories
Supplement

Series UB2

Low Profile Pushbuttons

TYPICAL SWITCH DIMENSIONS

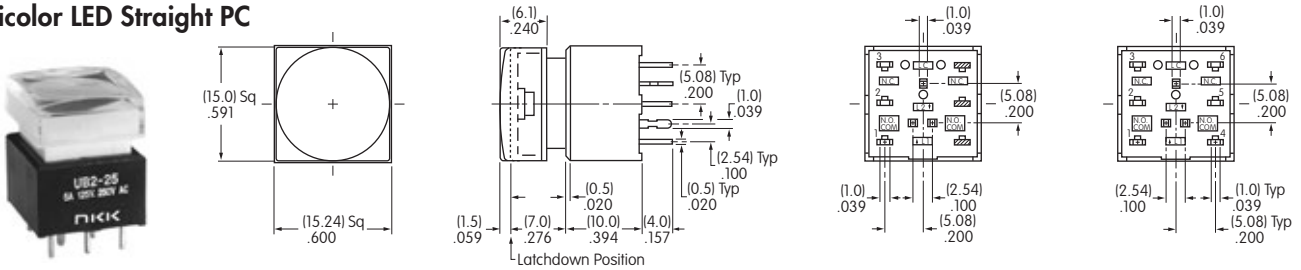
Bright & Super Bright LED Straight PC



UB215SKG035C-1JC

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

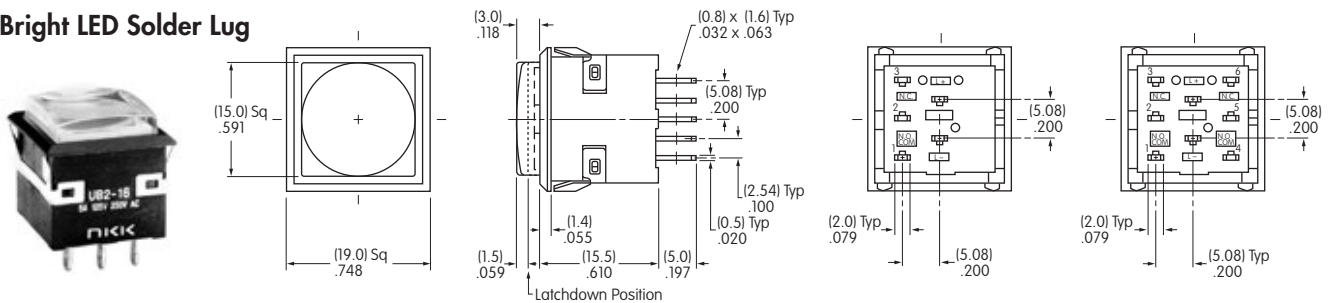
Bicolor LED Straight PC



UB225SKG03CF-1JB

Bicolor LED Side View Single Pole Double Pole

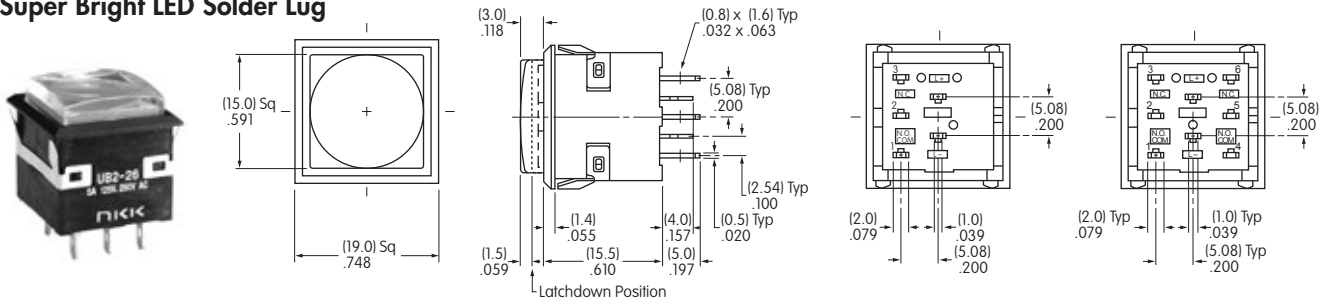
Bright LED Solder Lug



UB216KKW015F-1JF

Single Color LED Side View Single Pole Double Pole

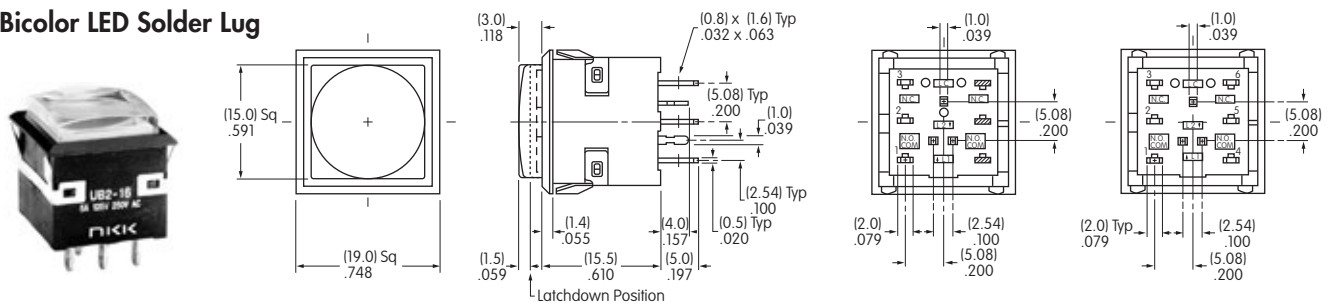
Super Bright LED Solder Lug



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

Toggles
Rockers
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

Low Profile Pushbuttons

Series UB2

OPTIONAL ACCESSORIES

Protective Guard for Snap-in Model

AT4141

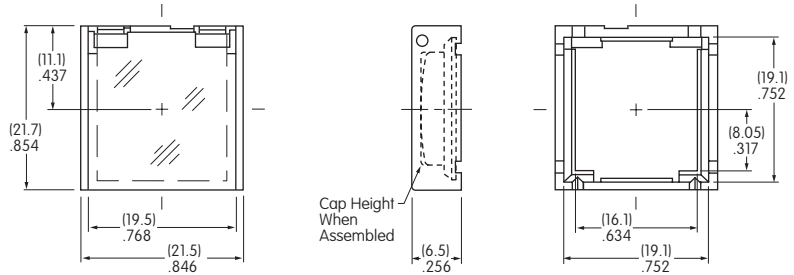
Opens 90°
Closes manually



Materials:

Cover: Clear Polycarbonate
Base: Black GFR Polyamide

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



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

AT4170

Opens 180°
Closes automatically

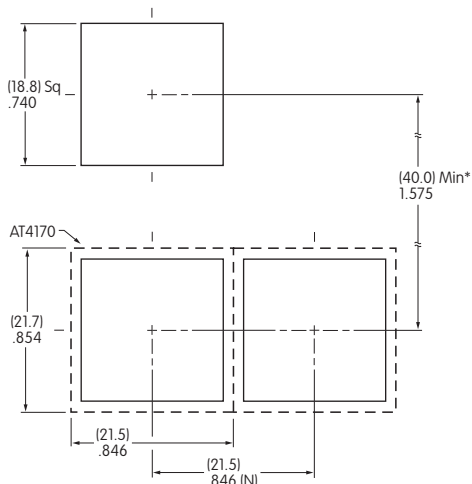
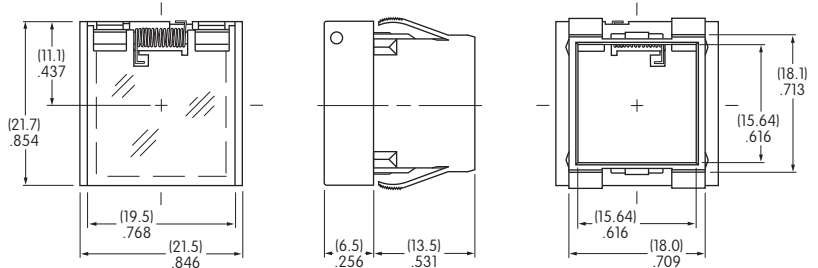


Materials:

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

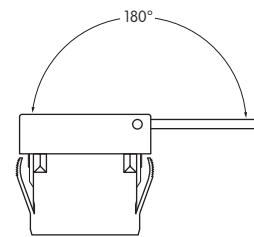
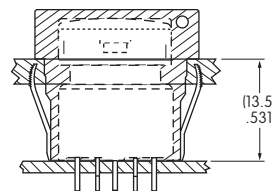
Recommended Panel Thickness:
.039" ~ .126"
(1.0mm ~ 3.2mm)

Recommended Panel-to-PCB Range:
.531" (13.5mm)



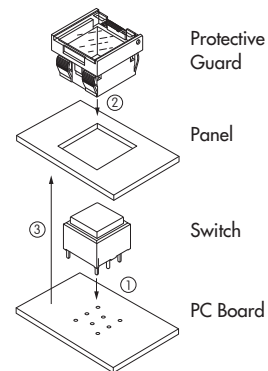
(N) = Number of switches

* 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.



Series UB2

Low Profile Pushbuttons

OPTIONAL ACCESSORIES

Spring Loaded Protective Guard for Snap-in Model

AT4142

Opens 180°
Closes automatically

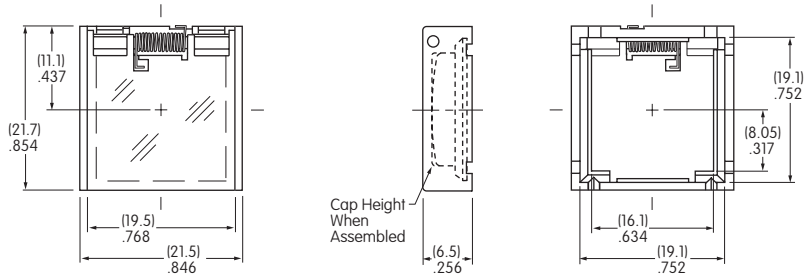


Materials:

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

Recommended Panel Thickness:

.039" ~ .106" (1.0mm ~ 2.7mm)

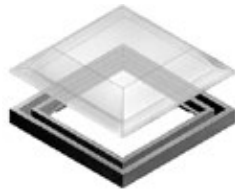


Dust Cover

AT4145 Not for use with barriers.

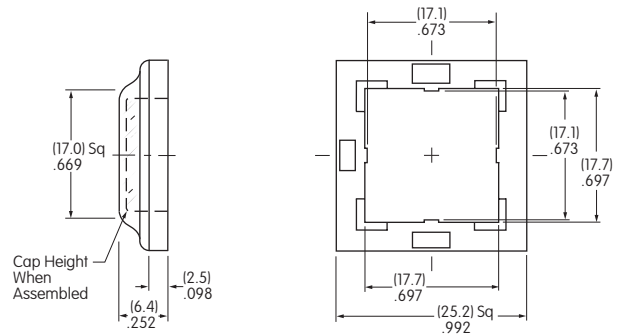
Materials:

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



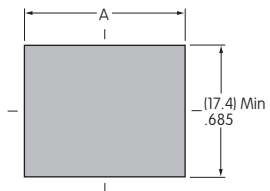
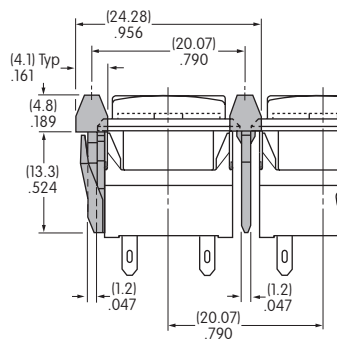
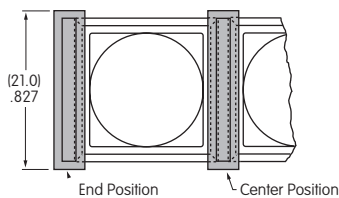
Recommended Panel Thickness

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



Barriers for Snap-in Mount

AT4143 End
AT4144 Center



Cutouts for more than 1 Switch:

$$A = .799" (20.3\text{mm}) \times \text{Number of Switches} + .063" (1.6\text{mm})$$

Material: Polyamide

Toggles
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Tilt
Touch
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Accessories
Supplement

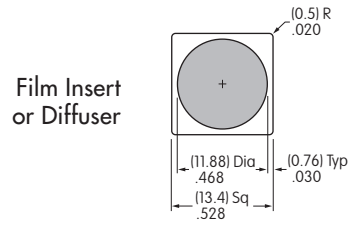
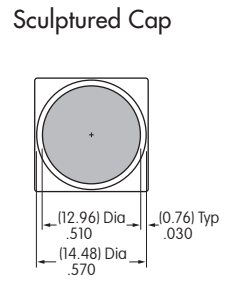
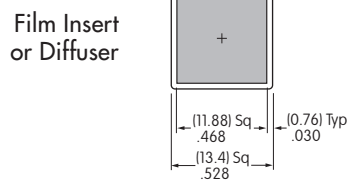
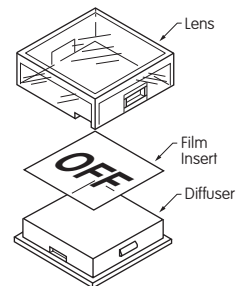
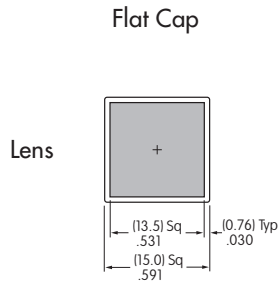
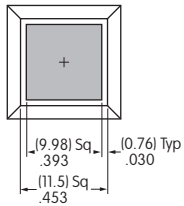
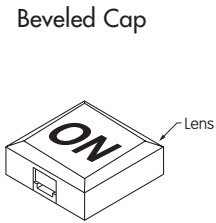
LEGENDS

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

Suggested Printable Area for UB2 Lens, Film Insert or Diffuser

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

Shaded areas are printable areas.



Film Insert: Clear Polyester 4 mil maximum thickness

Toggles
Rocker
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

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