

# NKK® SERIES UB PUSHBUTTON SWITCHES

SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

## TYPICAL SWITCH ORDERING EXAMPLE

**UB 1 5 SK G 03 C - CC**

POLES	
1	SPDT
2	DPDT

CIRCUITS		
5	ON	(ON)
6	ON	ON
( ) = Momentary		

MOUNTING TYPES	
PCB Mount	
SK	Square
RK	Rectangular
Snap-in (solder lug only)	
KK	Square
NK	Rectangular
NBK	Rectangular with Side Barriers

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

TERMINALS	
01	Solder Lug
03	Straight PC

LEDS	
C	Red
E	Yellow
F	Green

**N** Nonilluminated

### CAP TYPES & COLORS

Diffuser Cap Cap/Diffuser Colors	
CC	Red/Red
EE	Yellow/Yellow
FF	Green/Green
JB	Clear/White
CB	Red/White
EB	Yellow/White
FB	Green/White
JC	Clear/Red
JE	Clear/Yellow
JF	Clear/Green

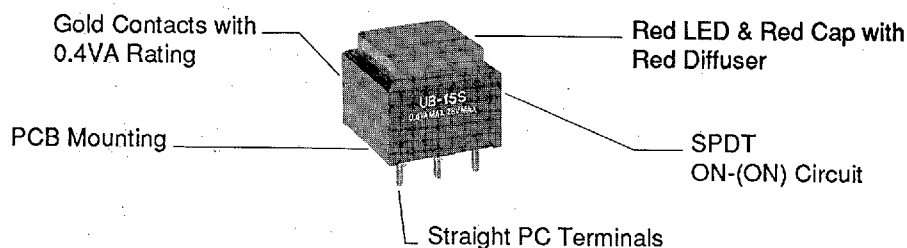
Spot Illuminated Cap	
A	Black with white translucent window

Nonilluminated	
B	White
C	Red
E	Yellow
F	Green
G	Blue

**IMPORTANT:** Switches are supplied without UL & CSA markings unless specified. See Supplement for instructions.

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE (UB15SKG03C-CC):

#### SERIES UB PUSHBUTTON



# NKK® SERIES UB PUSHBUTTON SWITCHES

## SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

### POLES AND CIRCUITS

POLE & THROW	MODEL	PLUNGER POSITION & TERMINAL NUMBERS	
		Normal	Down
SPDT	UB15 UB16	ON ON	(ON) ON
CONNECTED TERMINALS		1-3	1-2
SCHEMATICS Power/Lamp			
DPDT	UB25 UB26	ON ON	(ON) ON
CONNECTED TERMINALS		1-3 4-6	1-2 4-5
SCHEMATICS Power/Lamp			

Terminal numbers are not actually on the switch but labels are (NC, NO, COM, L+, L-). LED circuit is isolated and requires an external switch.

### CONTACT MATERIALS & RATINGS

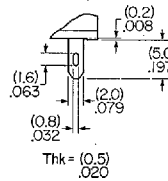
**W** Silver Rated 5A @ 125/250V AC

**G** Gold Rated 0.4VA maximum @ 28V AC/DC maximum

### TERMINALS

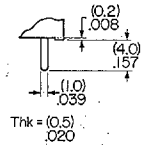
**01**

Solder Lug



**03**

Straight PC



### LED SPECIFICATIONS

#### For Square Type

		<b>C</b>	<b>E</b>	<b>F</b>
Colors:		Red	Yellow	Green
Forward Peak Current	$I_{FM}$	30mA	20mA	20mA
Continuous Fwd Current	$I_F$	20mA	15mA	15mA
Forward Voltage	$V_F$	2.0V	1.9V	1.95V
Reverse Peak Voltage	$V_{RM}$	5V	5V	5V
Current Reduction Rate	$\Delta I_F$	0.40	0.27	0.27
Above 25°C		mA°C	mA°C	mA°C
Ambient Temp Range		-25°C ~ +70°C		

#### For Rectangular Type

		Red	Yellow	Green
Colors:				
Forward Peak Current	$I_{FM}$	60mA	40mA	40mA
Continuous Fwd Current	$I_F$	40mA	30mA	30mA
Forward Voltage	$V_F$	2.0V	1.9V	1.95V
Reverse Peak Voltage	$V_{RM}$	5V	5V	5V
Current Reduction Rate	$\Delta I_F$	0.80	0.54	0.54
Above 25°C		mA°C	mA°C	mA°C
Ambient Temp Range		-25°C ~ +70°C		

Single element LEDs are an integral part of the UB device (1 LED in the square and 2 LEDs in the rectangular). LEDs are not available separately.

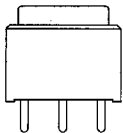
Electrical specifications shown are determined at a basic temperature of 25°C. If the source voltage exceeds rated voltage, a ballast resistor is required. Calculate resistor value by using the formula shown in the supplement.

### MOUNTING TYPES

#### PCB Mounting

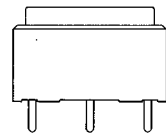
**SK**

Square



**RK**

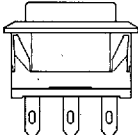
Rectangle



#### Snap-in Mounting (for solder lug only)

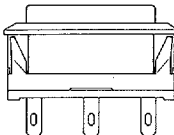
**KK**

Square w/Bezel



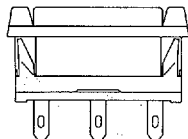
**NK**

Rectangle w/Bezel



**NBK**

Rectangle with Side Barriers



### LATCHDOWN MECHANISM

The latchdown feature on alternate action circuits provides visible, audible, and tactile feedback. The cap extends 1.0mm (.039") above the body or built-in bezel when in the latchdown position.



Normal Position



Latchdown Position

### SOLDERING & WIRING SPECIFICATIONS

Soldering Time & Temperature Limits are 3 seconds at 350°C or 5 seconds at 270°C.

Terminal Holes are .032" X .063" oblong & accommodate 1 solid 20-gauge wire or 2 solid or stranded 22-gauge wires.

# NKK® SERIES UB PUSHBUTTON SWITCHES

## SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

### CAP TYPES & COLOR CODES

Cap Colors:

- C**   **F**
- E**   **J**

Polycarbonate

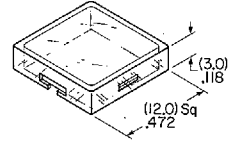
Diffuser Colors:

- B**   **E**
- C**   **F**

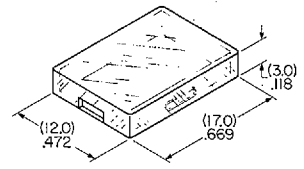
Polycarbonate

Transparent Cap with Diffuser for Illuminated

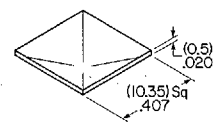
**AT4074**  
Square



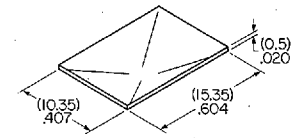
**AT4117**  
Rectangular



**AT4075**  
Diffuser  
for AT4074  
Square Cap



**AT4118**  
Diffuser  
for AT4117  
Rectangular Cap

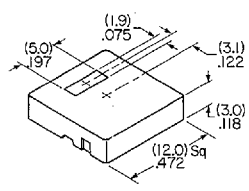


Note: Both cap & diffuser colors must be selected; the "white" (code B) diffuser has a frosted texture.

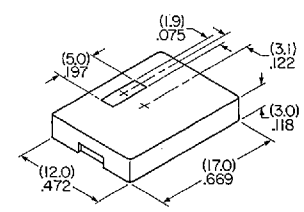
Spot Illuminated Cap

**A**

**AT4119**  
Square



**AT4120**  
Rectangular



Black Cap with Translucent Window for LED Display

Polycarbonate with matte finish

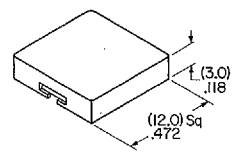
Opaque Cap for Nonilluminated

Available Colors:

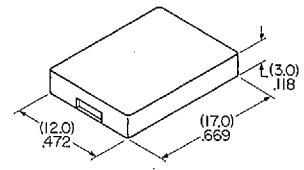
- B**   **E**   **G**
- C**   **F**

Polycarbonate

**AT4073**  
Square



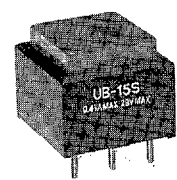
**AT4116**  
Rectangular



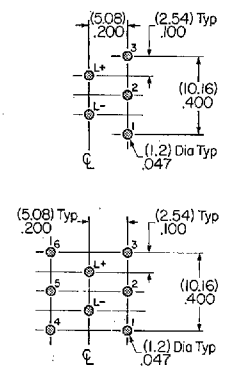
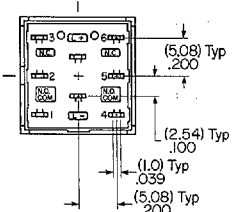
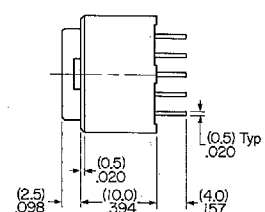
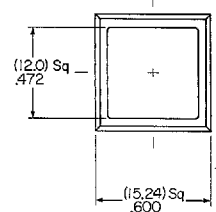
Color Codes: B White C Red E Yellow F Green G Blue J Clear

Legending can be accomplished with pad printing, engraving, or film insert. Maximum film thickness for film inserting between the cap and diffuser is 0.15mm (.006"). Optional cap removal tool AT109 is shown in Accessories section.

Square/PCB Mount with Straight PC Terminals/Single & Double Pole



UB15SKG03C-CB Model Shown



Single pole models do not have terminals 4, 5, & 6. Nonilluminated models have no lamp terminals.

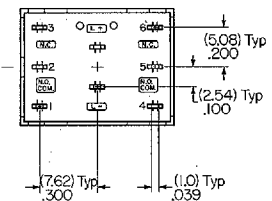
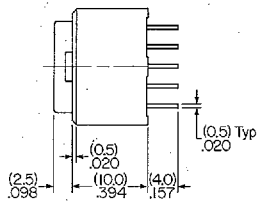
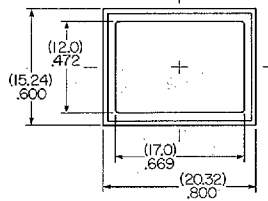
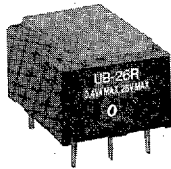
Pushbuttons

Illuminated

# NKK® SERIES UB PUSHBUTTON SWITCHES

## SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

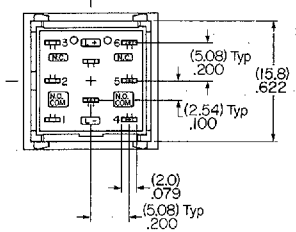
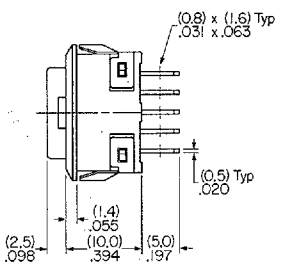
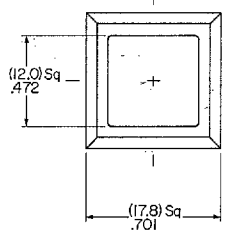
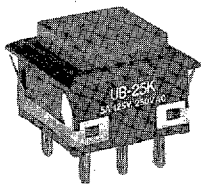
### Rectangular/PCB Mount with Straight PC Terminals/Single & Double Pole



UB26RKG03E-EE Model Shown

Single pole models do not have terminals 4, 5, & 6. Nonilluminated models have no lamp terminals.

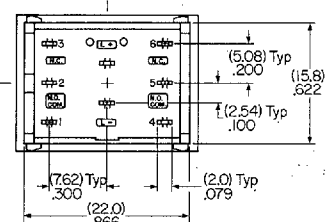
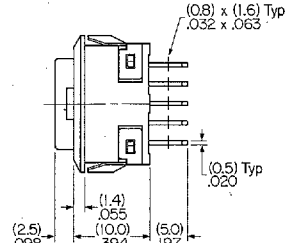
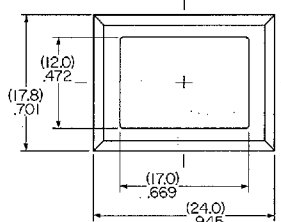
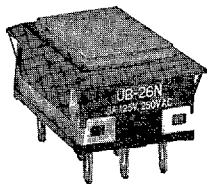
### Square/Snap-in Mount with Bezel & Solder Lug Terminals/Single & Double Pole



UB25KKW01C-CB Model Shown

Single pole models do not have terminals 4, 5, & 6. Nonilluminated models have no lamp terminals.

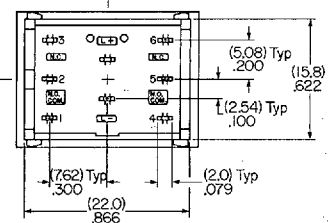
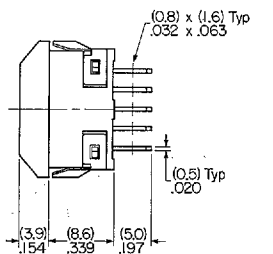
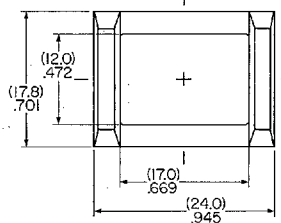
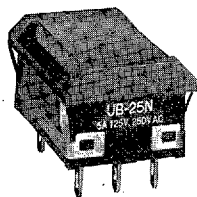
### Rectangular/Snap-in Mount with Bezel & Solder Lug Terminals/Single & Double Pole



UB26NKW01F-FF Model Shown

Single pole models do not have terminals 4, 5, & 6. Nonilluminated models have no lamp terminals.

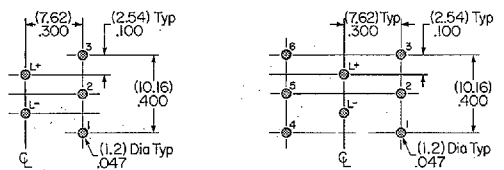
### Rectangular/Snap-in Mount with Side Barriers & Solder Lug Terminals/Single & Double Pole



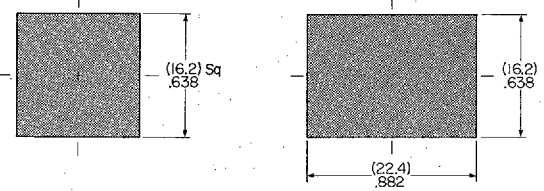
UB25NBKW01F-FB Model Shown

Single pole models do not have terminals 4, 5, & 6. Nonilluminated models have no lamp terminals.

### PCB Footprints for Rectangular



### Panel Cutouts for Square & Rectangular Snap-in



Panel Thickness: 1 ~ 3.2mm (.039" ~ .126")

Pushbuttons

Illuminated

# NKK®

# SERIES UB

## SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

A-25-79

### DISTINCTIVE FEATURES

Light diffusion designed to give bright, full surface illumination.

Long life LED is an integral part of the switch.

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

Extra low profile of a half inch.

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

Snap-acting contact mechanism provides sensitive actuation with audible feedback.

Precision design of switching mechanism extends life.

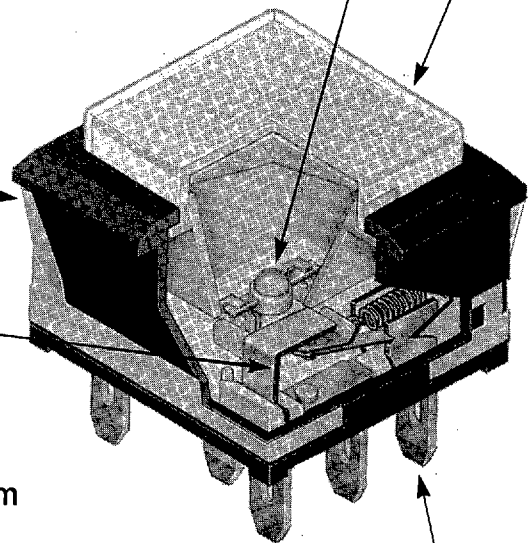
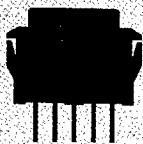
Momentary and alternate action circuits available in the same space-saving body size.

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

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

UL recognized and CSA certified.

**Actual Size**



Pushbuttons

Illuminated

**NKK®**  
**switches**

• 7850 E. Gelding Dr. • Scottsdale, AZ 85260 • Phone (602) 991-0942 • Fax (602) 998-1435

D 98E ■ 6428776 0002167 T67 ■

# NKK® SERIES UB PUSHBUTTON SWITCHES

## SHORT BODY/SNAP ACTION/PCB & SNAP-IN MOUNTING

### GENERAL SPECIFICATIONS

<b>Electrical Capacity:</b> (Resistive Load)	5A @ 125/250V AC & 5A @ 30V DC for silver 0.4VA maximum @ 28V AC/DC maximum for gold (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
<b>Contact Resistance:</b>	50 milliohms maximum for silver 100 milliohms maximum for gold
<b>Insulation Resistance:</b>	200 megohms minimum @ 500V DC
<b>Dielectric Strength:</b>	1,000V AC minimum between contacts 1,500V AC minimum between contacts and case
<b>Mechanical Life:</b>	1,000,000 operations minimum for momentary action 200,000 operations minimum for alternate action
<b>Electrical Life:</b>	10,000 operations minimum for silver with resistive load of 5A @ 125V AC 100,000 operations minimum for silver with resistive load of 3A @ 125V AC 200,000 operations minimum for gold
<b>Pretravel:</b>	1.7mm (.067")
<b>Overtravel:</b>	0.6mm (.024")
<b>Total Travel:</b>	2.3mm (.091")
<b>Ambient Temp Range:</b>	Illuminated: -20°C through +50°C (-4°F through +122°F) Nonilluminated: -20°C through +70°C (-4°F through +158°F)
<b>Nominal Operating Force:</b>	Single Pole : 160 grams for Square & 194 grams for Rectangular Double Pole: 260 grams for Square & 316 grams for Rectangular

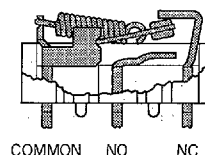
### MATERIALS & FINISHES

Housing/Bezel	Glass fiber reinforced polyamide (UL 94V-0)
Snap-in Frame	Stainless steel
Movable Contactor	Phosphor bronze
Movable Contact	Silver alloy or copper with gold plating over nickel
Stationary Contacts	Silver alloy or copper with gold plating over nickel
Power Terminals	Phosphor bronze with silver or gold plating
Switch Lamp Terminals	Brass with tin-lead plating
Indicator Lamp Terminals	Brass with tin-lead plating
Base	Glass fiber reinforced diallyphthalate (UL 94V-0)

### SNAP-ACTION MECHANISM

The UB pushbutton has a single break snap-action contact mechanism. The combined butterfly formation and spring action of the movable contact create the quick-make, quick-break characteristic which limits arcing and prolongs electrical life. An added benefit of this design is the sensitive and audible actuation.

This switch is offered with momentary or alternate action in single or double pole configurations.



Pushbuttons

Illuminated

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