

EB20

11

B

J23

#### Poles & Circuits

|    |      |    |      |
|----|------|----|------|
| 11 | SPDT | ON | (ON) |
| 65 | SPDT | ON | ON   |
| 61 | DPDT | ON | (ON) |
| 85 | DPDT | ON | ON   |

( ) = Momentary

#### Contacts, Ratings, & Terminals

|                |   |
|----------------|---|
| <b>No Code</b> | Silver Contacts; Solder Lug Terminals*<br>3A @ 125V AC            |
| <b>G</b>       | Gold Contacts; Solder Lug Terminals*<br>0.4VA max @ 28V AC/DC max |
| <b>P</b>       | Silver Contacts; Straight PC Terminals;<br>3A @ 125V AC           |
| <b>PG</b>      | Gold Contacts; Straight PC Terminals<br>0.4VA max @ 28V AC/DC max |

#### Cap Colors

|          |        |
|----------|--------|
| <b>A</b> | Black  |
| <b>B</b> | White  |
| <b>C</b> | Red    |
| <b>E</b> | Yellow |
| <b>F</b> | Green  |
| <b>G</b> | Blue   |
| <b>H</b> | Gray   |

\* Wire harness & cable assemblies offered only in Americas

#### Cap Extensions & Bezel Types

| Low Rise       |                | High Rise      |                | Description                   |
|----------------|----------------|----------------|----------------|-------------------------------|
| Momen-<br>tary | Alter-<br>nate | Momen-<br>tary | Alter-<br>nate |                               |
| J20            | J30            | J40            | J50            | Without Bezel                 |
| J21            | J31            | J41            | J51            | Bezel without LED             |
| J22            | J32            | J42            | J52            | Bezel with 1 Round LED        |
| J23            | J33            | J43            | J53            | Bezel with 2 Round LEDs       |
| J24            | J34            | J44            | J54            | Bezel with 2 Rectangular LEDs |

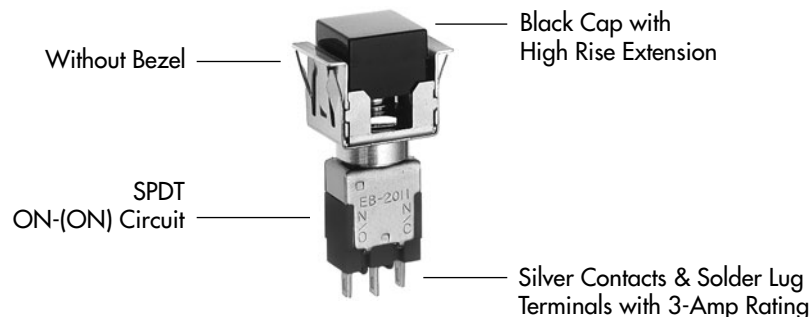
#### IMPORTANT:



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 WITHOUT BEZEL

**EB2011-A-J40**

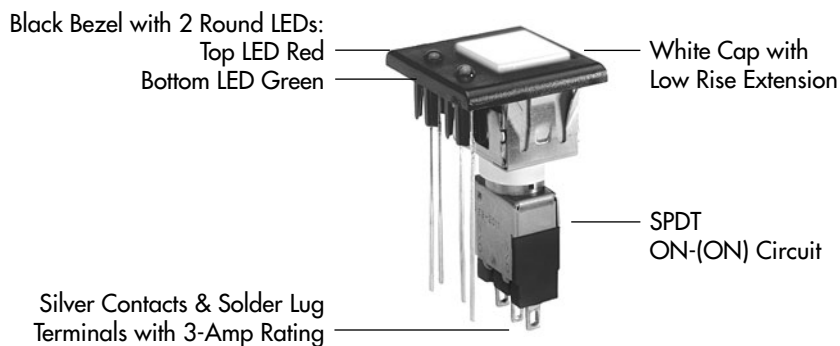


ORDERING EXAMPLES

|   |        |          |       |                   |        |                   |        |
|---|--------|----------|-------|-------------------|--------|-------------------|--------|
| <b>A</b>                                      |        |          |       | <b>C F</b>        |        |                   |        |
| <b>Bezel Colors</b>                           |        |          |       | <b>Led Colors</b> |        |                   |        |
| <b>Bezel without LEDs</b>                     |        |          |       |                   |        |                   |        |
| <b>A</b>                                      | Black  | <b>F</b> | Green |                   |        |                   |        |
| <b>B</b>                                      | White  | <b>G</b> | Blue  |                   |        |                   |        |
| <b>C</b>                                      | Red    | <b>H</b> | Gray  |                   |        |                   |        |
| <b>E</b>                                      | Yellow |          |       |                   |        |                   |        |
| <b>Bezel with 1 Round LED</b>                 |        |          |       | <b>1 LED</b>      |        |                   |        |
| <b>A</b>                                      | Black  |          |       | <b>C</b>          | Red    |                   |        |
|   |        |          |       | <b>F</b>          | Green  |                   |        |
| <b>Bezel with 2 Round or Rectangular LEDs</b> |        |          |       | <b>2 LEDs</b>     |        |                   |        |
|   |        |          |       | <b>Top LED</b>    |        | <b>Bottom LED</b> |        |
| <b>A</b>                                      | Black  |          |       | <b>C</b>          | Red    | <b>C</b>          | Red    |
|   |        |          |       | <b>E</b>          | Yellow | <b>E</b>          | Yellow |
|   |        |          |       | <b>F</b>          | Green  | <b>F</b>          | Green  |

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE WITH BEZEL

**EB2011-B-J23ACF**



Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt






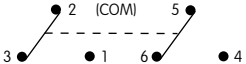
Touch

Indicators

Accessories

Supplement

## POLES & CIRCUITS

|      |                  | Plunger Position<br>( ) = Momentary   |   | Connected Terminals   |   | Throw & Switch Schematics   |
|------|------------------|---|---|---|---|---|
| Pole | Model            | Normal<br> | Down<br> | Normal<br> | Down<br> | Note: Terminal numbers are not actually on the switch.                                      |
| SP   | EB2011<br>EB2065 | ON<br>ON  | (ON)<br>ON  | 2-3   | 2-1   | SPDT<br> |
| DP   | EB2061<br>EB2085 | ON<br>ON  | (ON)<br>ON  | 2-3 5-6   | 2-1 5-4   | DPDT<br> |

## CONTACT MATERIALS, RATINGS, & TERMINALS



**Solder Lug  
Silver Contacts**

**Power Level**

**3A @ 125V AC**

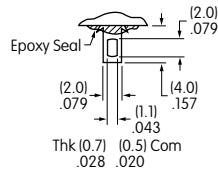


**Solder Lug  
Gold Contacts**

**Logic Level**

**0.4VA maximum @ 28V AC/DC maximum**

Complete explanation of operating range in Supplement section.



**Straight PC  
Silver Contacts**

**Power Level**

**3A @ 125V AC**



**Straight PC  
Gold Contacts**

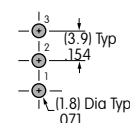
**Logic Level**

**0.4VA maximum @ 28V AC/DC maximum**

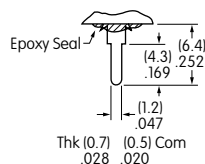
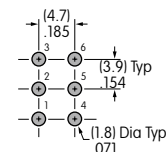
Complete explanation of operating range in Supplement section.

### PCB Footprints

Single Pole



Double Pole



## CAP COLORS

Factory Assembled on the Switch:  
 Square snap-on cap AT465, snap-in moulder  
 AT529, and optional bezels which follow.

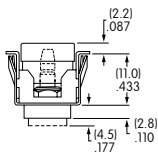
- |                |                |               |                 |
|----------------|----------------|---------------|-----------------|
| <b>A</b> Black | <b>B</b> White | <b>C</b> Red  | <b>E</b> Yellow |
| <b>F</b> Green | <b>G</b> Blue  | <b>H</b> Gray |                 |

## CAP EXTENSIONS & BEZEL TYPES

Cap Extension without Bezel

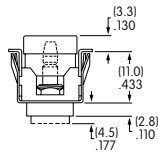
**J20**

Low Rise Momentary



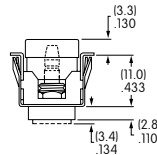
**J30**

Low Rise Alternate



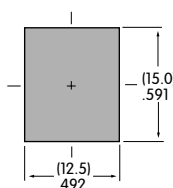
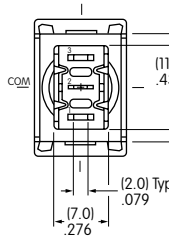
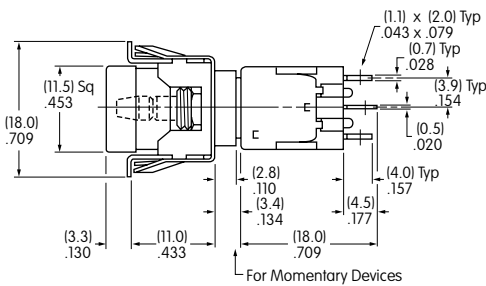
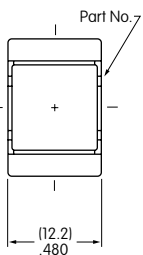
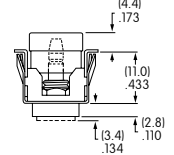
**J40**

High Rise Momentary



**J50**

High Rise Alternate



Maximum Panel Thickness  
 .039" ~ .157" (1.0mm ~ 4.0mm)  
 Cutout applies to SP & DP



High Rise

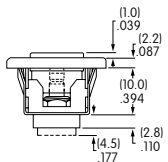
Single Pole

**EB2011-A-J40**

Cap Extension with Bezel

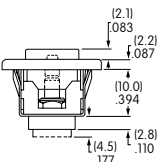
**J21**

Low Rise Momentary



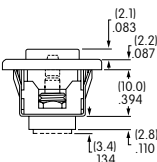
**J31**

Low Rise Alternate



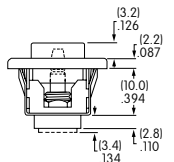
**J41**

High Rise Momentary



**J51**

High Rise Alternate

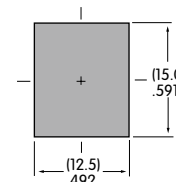
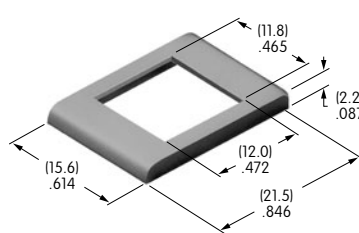


AT207 Bezel without LED

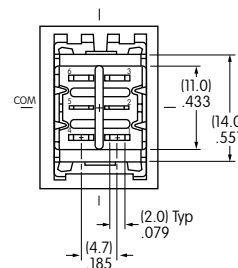
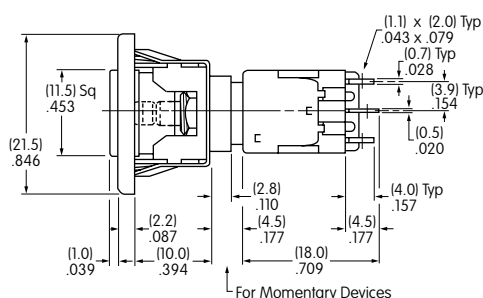
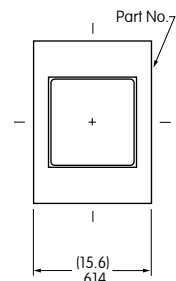
- |                 |                |
|-----------------|----------------|
| <b>E</b> Yellow |                |
| <b>A</b> Black  | <b>F</b> Green |
| <b>B</b> White  | <b>G</b> Blue  |
| <b>C</b> Red    | <b>H</b> Gray  |

Material:  
Polycarbonate

Finish:  
Glossy



Maximum Panel Thickness  
 .039" ~ .126" (1.0mm ~ 3.2mm)  
 Cutout applies to SP & DP



Low Rise

Double Pole

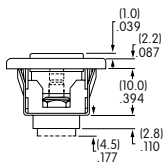
**EB2061-B-J21A**

## CAP EXTENSIONS & BEZEL TYPES

**Cap Extension with Bezel**

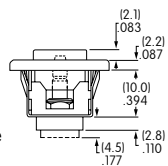
**J22**

Low Rise Momentary



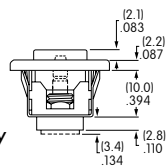
**J32**

Low Rise Alternate



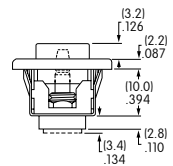
**J42**

High Rise Momentary



**J52**

High Rise Alternate

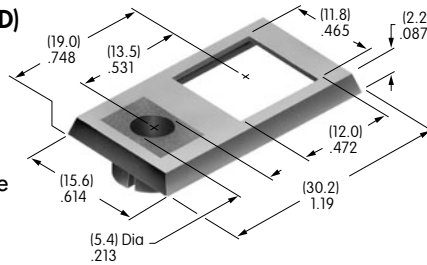


**AT208 Bezel with 1 Round LED (AT070 LED)**

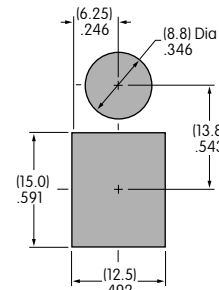
**A**

Black

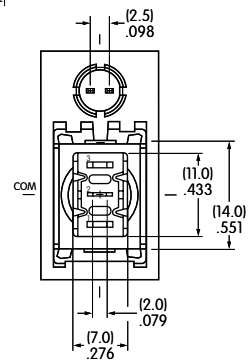
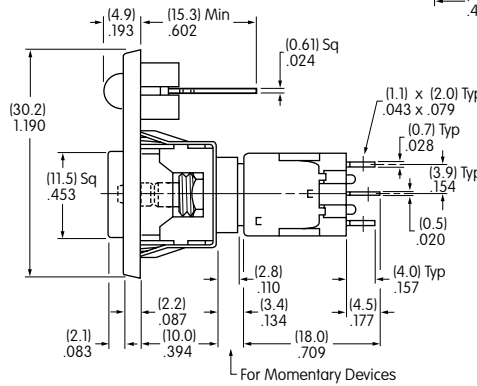
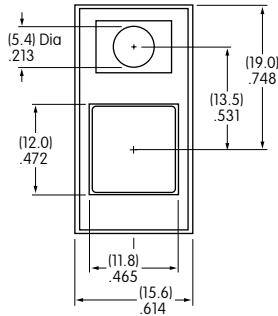
Material: Polycarbonate  
Finish: Glossy



Maximum Panel Thickness  
.039" ~ .126"  
(1.0mm ~ 3.2mm)  
Cutout applies to SP & DP



LED colors and specifications on next to last page of this EB section.



EB2011-B-J42AC

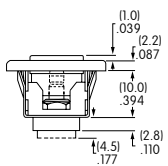
High Rise

Single Pole

**Cap Extension with Bezel**

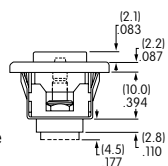
**J23**

Low Rise Momentary



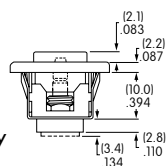
**J33**

Low Rise Alternate



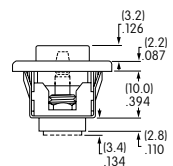
**J43**

High Rise Momentary



**J53**

High Rise Alternate

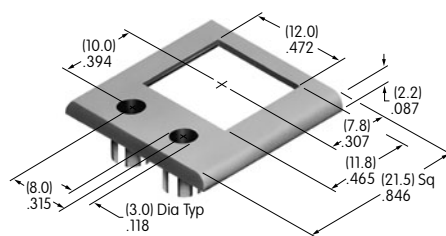


**AT212 Bezel with 2 Round LEDs (AT617 LEDs)**

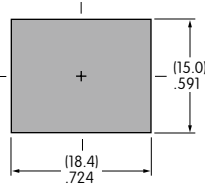
**A**

Black

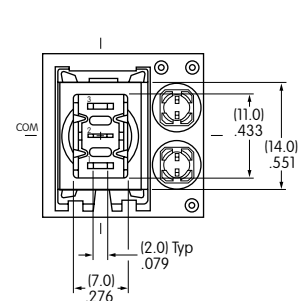
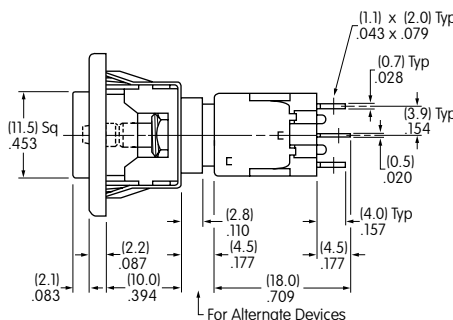
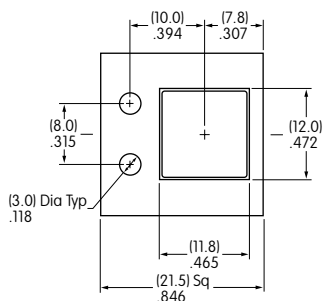
Material: Polycarbonate  
Finish: Glossy



Maximum Panel Thickness  
.039" ~ .126" (1.0mm ~ 3.2mm)  
Cutout applies to SP & DP



LED colors and specifications on next to last page of this EB section.



EB2065-B-J33ACF

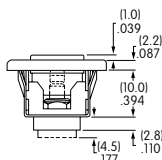
Low Rise

Single Pole

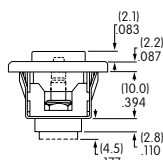
## CAP EXTENSIONS & BEZEL TYPES

Cap Extension with Bezel

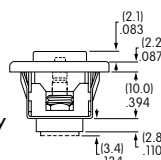
**J24**  
Low Rise Momentary



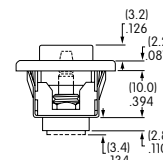
**J34**  
Low Rise Alternate



**J44**  
High Rise Momentary



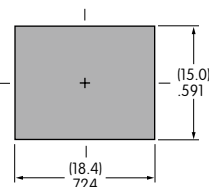
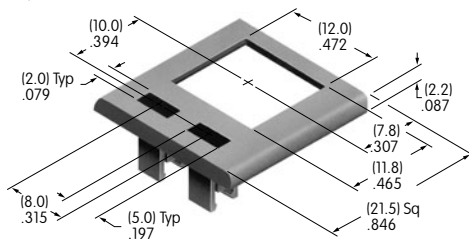
**J54**  
High Rise Alternate



AT213 Bezel with 2 Rectangular LEDs (AT618 LEDs)

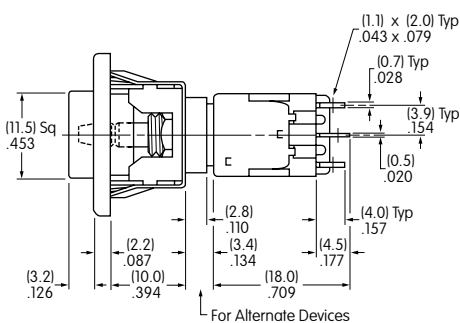
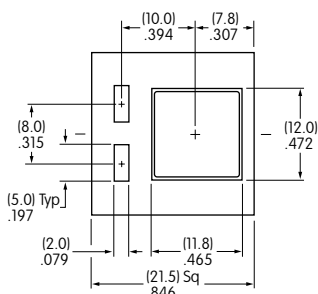
**A** Black

Material: Polycarbonate  
Finish: Glossy

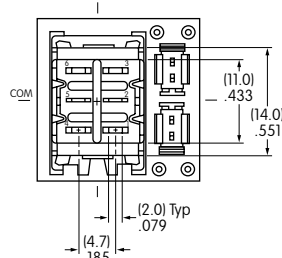


Maximum Panel Thickness  
.039" ~ .126" (1.0mm ~ 3.2mm)  
Cutout applies to SP & DP

LED colors and specifications on next page of this EB section.



High Rise



Double Pole



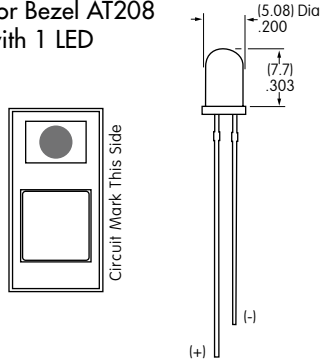
EB2085-B-J54ACF

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

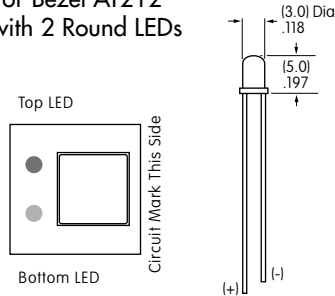
## LED COLORS & SPECIFICATIONS

### Bezel Orientation on Switch

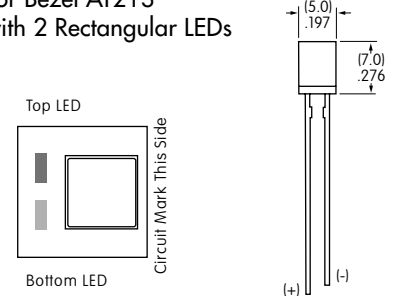
**AT070 LED**  
For Bezel AT208  
with 1 LED



**AT617 LED**  
For Bezel AT212  
with 2 Round LEDs



**AT618 LED**  
For Bezel AT213  
with 2 Rectangular LEDs



Note: Lead lengths may differ from manufacturing lot to lot. The longer lead is the anode (+).

|  |              | AT070        |            | AT617        |            |            | AT618        |            |            |
|--|--------------|--------------|------------|--------------|------------|------------|--------------|------------|------------|
|  |              | C            | F          | C            | E          | F          | C            | E          | F          |
|  | Color        | Red          | Green      | Red          | Yellow     | Green      | Red          | Yellow     | Green      |
| Forward Peak Current                               | $I_{FM}$     | 25mA         | 30mA       | 30mA         | 30mA       | 25mA       | 10mA         | 30mA       | 30mA       |
| Typical Forward Current                            | $I_F$        | 20mA         | 20mA       | 20mA         | 20mA       | 20mA       | 8mA          | 24mA       | 24mA       |
| Forward Voltage                                    | $V_F$        | 2.8V         | 2.1V       | 2.0V         | 2.1V       | 2.2V       | 1.9V         | 2.0V       | 2.1V       |
| Reverse Peak Voltage                               | $V_{RM}$     | 4V           | 5V         | 5V           | 5V         | 5V         | 5V           | 5V         | 5V         |
| Current Reduction Rate Above 25°C                  | $\Delta I_F$ | 0.33 mA/°C   | 0.40 mA/°C | 0.40 mA/°C   | 0.40 mA/°C | 0.33 mA/°C | 0.13 mA/°C   | 0.40 mA/°C | 0.40 mA/°C |
| Ambient Temperature Range (when used with a bezel) |              | -10° ~ +70°C |            | -15° ~ +70°C |            |            | -15° ~ +70°C |            |            |

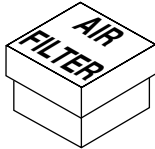
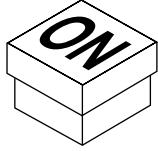
The electrical specifications shown are determined at a basic temperature of 25°C.  
LED circuit is independent of switch operation. LED is colored in OFF state.

If the source voltage is greater than the rated voltage of the LED, a ballast resistor must be connected in series with the lamp.  
The ballast resistor calculation and more lamp detail are shown in the Supplement section.

## LEGENDS

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

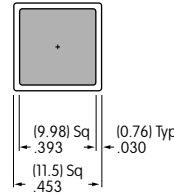
### Suggested Printable Area for Cap



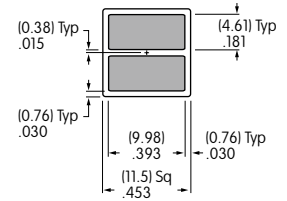
#### Recommended Print Method:

Screen Print or Pad Print

Epoxy based ink is recommended.



AT465



AT465

Shaded areas are printable areas.

Toggles

Rockers

**C** Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement