Distinctive Characteristics

Power and logic level capabilities available to suit varying applications.

Bushing and snap-in mount versions available; snap-in models offer many style and color choices to enhance front panel appearance.

Light touch actuation.

High torque bushing prevents rotation and separation from metal frame during installation.

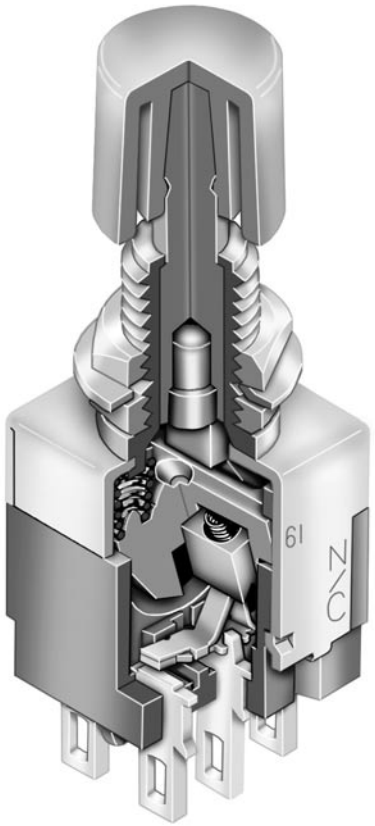
Stainless steel frame resists corrosion.

Case of heat resistant resin meets UL 94V-0 flammability rating.

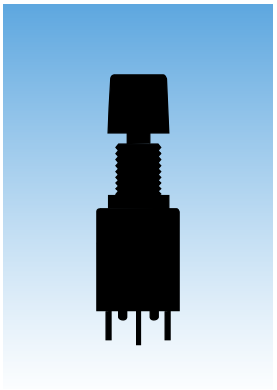
Higher insulating barriers protect against crossover in double pole devices.

1,500V dielectric strength between contacts and case is accomplished by clinching the frame away from the terminals.

Epoxy sealed terminals prevent entry of solder flux and other contaminants.



Actual Size



General Specifications

Electrical Capacity (Resistive Load)

Power Level (No code or P): 3A @ 125V AC for silver contacts
Logic Level (code G or PG): 0.4VA maximum @ 28V AC/DC maximum for gold contacts
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: Find additional explanation of operating range in Supplement section.

Other Ratings

Contact Resistance: 10 milliohms maximum for silver; 20 milliohms maximum for gold
Insulation Resistance: 1,000 megohms minimum @ 500V DC
Dielectric Strength: 1,000V AC minimum between contacts for 1 minute minimum;
1,500V AC minimum between contacts and case for 1 minute minimum
Mechanical Life: 100,000 operations minimum
Electrical Life: 25,000 operations minimum for silver;
50,000 operations minimum for gold
Nominal Operating Force: Single Pole: 2.35N for Momentary and 2.65N for Alternate Action
Double Pole: 2.94N for Momentary and 3.63N for Alternate Action
Travel: Momentary: Pretravel .047" (1.2mm); Overtravel .016" (0.4mm); Total Travel .063" (1.6mm)
Alternate: Pretravel .071" (1.8mm); Overtravel .016" (0.4mm); Total Travel .087" (2.2mm)

Materials & Finishes

Plunger: Brass with chrome plating for Momentary; brass with nickel plating for Alternate
Bushing: Brass with nickel plating
Frame: Stainless steel
Case: Melamine phenolic resin (UL94V-0)
Movable Contacts: Copper with silver or gold plating
Stationary Contacts: Silver with silver or gold plating
Terminals: Copper with silver or gold plating

Environmental Data

Operating Temp Range: –10°C through +70°C (+14°F through +158°F)
Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range and 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

Mounting Torque: 1.47Nm (13.0 lb•in) for double nut; 0.68Nm (6.0 lb•in) for single nut
Cap Installation Force: 78.5N (17.65 lbf) maximum downward force on actuator
Soldering Time & Temp: Wave Solder (Straight PC): See Profile B in Supplement section.
Manual Soldering: See Profile B in Supplement section.
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications

Flammability Standards: UL94V-0 case
UL Recognized: All single and double pole models recognized at 3A @ 125V AC; UL File No. WOYR2.E44145; add "/U" to end of part number to order UL mark on switch.
C-UL Recognized: All single and double pole models recognized at 3A @ 125V AC; UL File No. WOYR8.E44145; add "/C-UL" to end of part number to order C-UL mark on switch.
CSA Certified: Single pole solder lug and PC models certified at 3A @ 125V AC; double pole PC models certified at 3A @ 125V AC; CSA File No. 023535-0-000; add "/C" to end of part number to order CSA mark on switch.

TYPICAL SWITCH ORDERING EXAMPLE

EB20 | 11 | □ | — | B | — | J23 | A | C F

POLES & CIRCUITS

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

( ) = Momentary

CONTACTS, RATINGS, & TERMINALS

No Code	Silver Contacts; Solder Lug Terminals; 3A @ 125V AC
G	Gold Contacts; Solder Lug Terminals 0.4VA max @ 28V AC/DC max
P	Silver Contacts; Straight PC Terminals; 3A @ 125V AC
PG	Gold Contacts; Straight PC Terminals 0.4VA max @ 28V AC/DC max

CAP COLORS

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

CAP EXTENSIONS & BEZEL TYPES

Low Rise		High Rise		
Momentary	Alternate	Momentary	Alternate	Description
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

BEZEL COLORS

Bezel without LEDs

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

Bezel with 1 Round LED

A	Black

Bezel with 2 Round or Rectangular LEDs

A	Black

LED COLORS

1 LED

C	Red
F	Green

2 LEDs

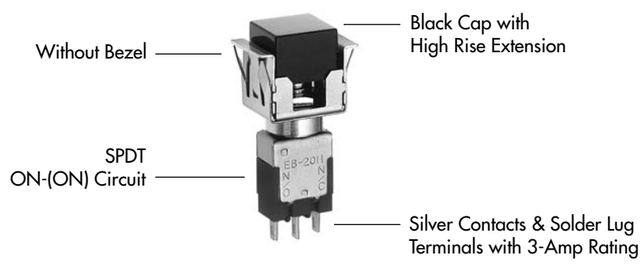
Top LED		Bottom LED	
C	Red	C	Red
E	Yellow	E	Yellow
F	Green	F	Green

IMPORTANT:

Switches are supplied without UL, C-UL & CSA markings unless specified. Specific models & ratings noted on General Specifications page.

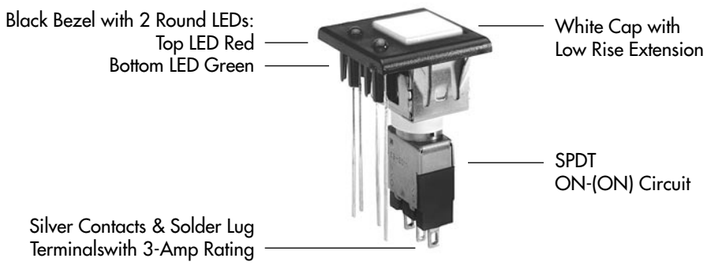
DESCRIPTION FOR TYPICAL ORDERING EXAMPLE WITHOUT BEZEL

EB2011-A-J40



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE WITH BEZEL

EB2011-B-J23ACF



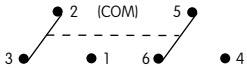
NKK Switches • email: sales@nkkswitches.com • Phone (480) 991-0942 • Fax (480) 998-1435 • www.nkkswitches.com

POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary: Normal (Keyway)	Plunger Position ( ) = Momentary: Down	Connected Terminals: Normal (Keyway)	Connected Terminals: Down	Throw & Switch Schematics
SP	EB2011 EB2065	ON ON	(ON) ON	2-3	2-1	SPDT
DP	EB2061 EB2085	ON ON	(ON) ON	2-3 5-6	2-1 5-4	DPDT

Note: Terminal numbers are not actually on the switch.





CONTACT MATERIALS, RATINGS, & TERMINALS

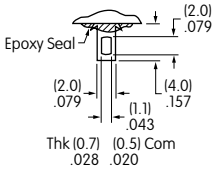
No Code — **Solder Lug, Silver Contacts**

Power Level — **3A @ 125V AC**

G — **Solder Lug, Gold Contacts**

Logic Level — **0.4VA maximum @ 28V AC/DC maximum**

Complete explanation of operating range in Supplement section.



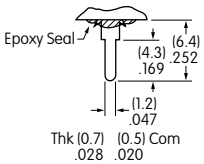
P — **Straight PC, Silver Contacts**

Power Level — **3A @ 125V AC**

PG — **Straight PC, Gold Contacts**

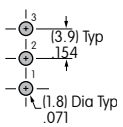
Logic Level — **0.4VA maximum @ 28V AC/DC maximum**

Complete explanation of operating range in Supplement section.

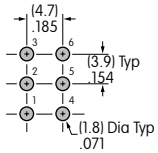


PCB Footprints

Single Pole



Double Pole



CAP COLORS

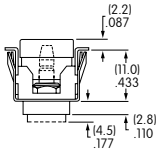
Factory Assembled on the Switch:
Square snap-on cap AT465, snap-in mounter AT529, and optional bezels which follow.

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

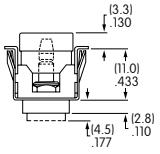
CAP EXTENSIONS & BEZEL TYPES

Cap Extension without Bezel

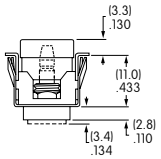
J20 Low Rise Momentary



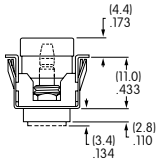
J30 Low Rise Alternate



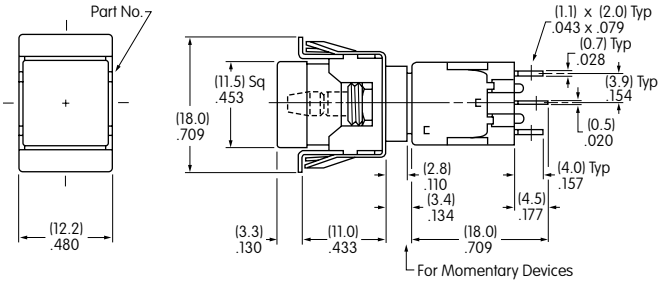
J40 High Rise Momentary

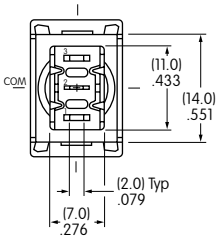


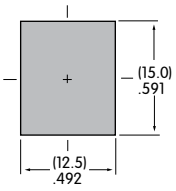
J50 High Rise Alternate









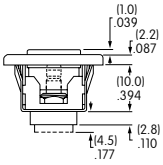


Maximum Panel Thickness
.039" ~ .157" (1.0mm ~ 4.0mm)
Cutout applies to SP & DP

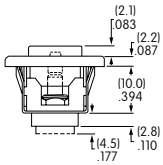
EB2011-A-J40 High Rise Single Pole

Cap Extension with Bezel

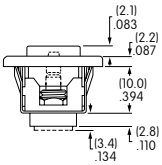
J21 Low Rise Momentary



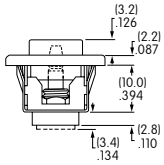
J31 Low Rise Alternate



J41 High Rise Momentary



J51 High Rise Alternate

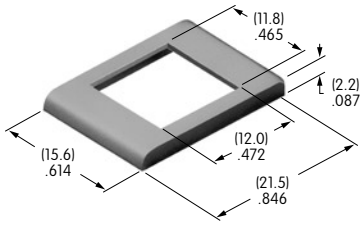


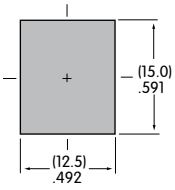
AT207 Bezel without LED

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

Material: Polycarbonate

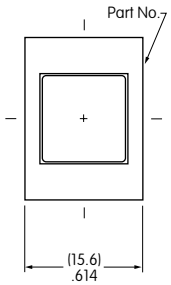
Finish: Glossy

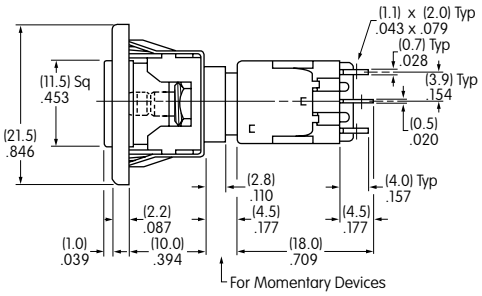


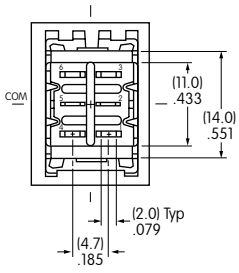


Maximum Panel Thickness
.039" ~ .126" (1.0mm ~ 3.2mm)
Cutout applies to SP & DP







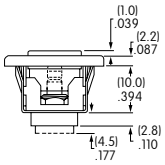


EB2061-B-J21A Low Rise Double Pole

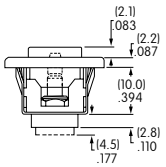
CAP EXTENSIONS & BEZEL TYPES

Cap Extension with Bezel

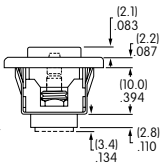
J22 Low Rise Momentary



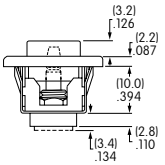
J32 Low Rise Alternate



J42 High Rise Momentary



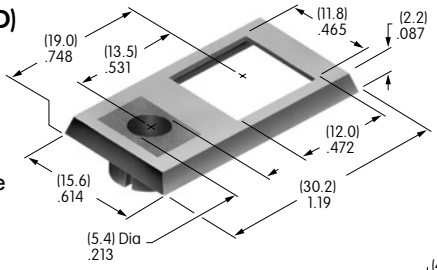
J52 High Rise Alternate



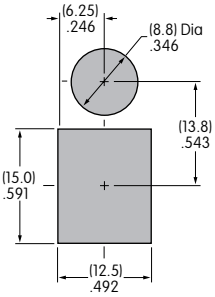
AT208 Bezel with 1 Round LED (AT070 LED)

A Black

Material: Polycarbonate
Finish: Glossy

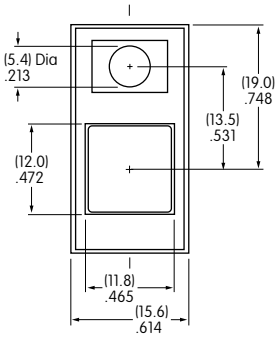


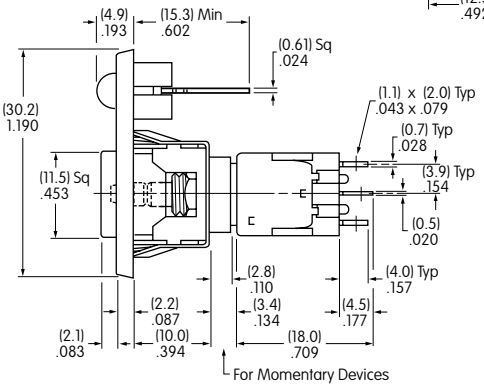
Maximum Panel Thickness
.039" ~ .126"
(1.0mm ~ 3.2mm)
Cutout applies to SP & DP

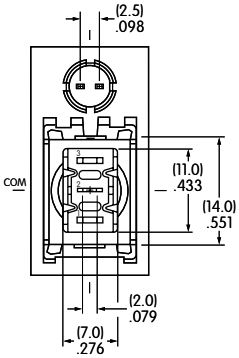


LED colors and specifications on next to last page of this EB section.









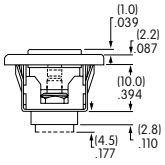
EB2011-B-J42AC

High Rise

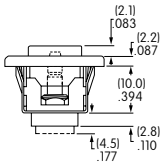
Single Pole

Cap Extension with Bezel

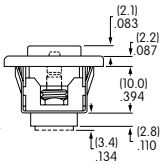
J23 Low Rise Momentary



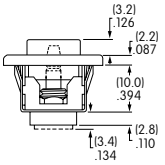
J33 Low Rise Alternate



J43 High Rise Momentary



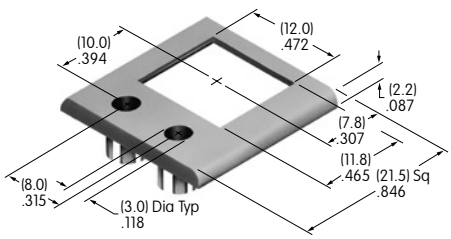
J53 High Rise Alternate

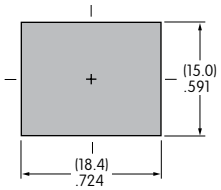


AT212 Bezel with 2 Round LEDs (AT617 LEDs)

A Black

Material: Polycarbonate
Finish: Glossy

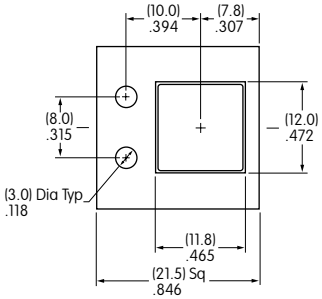


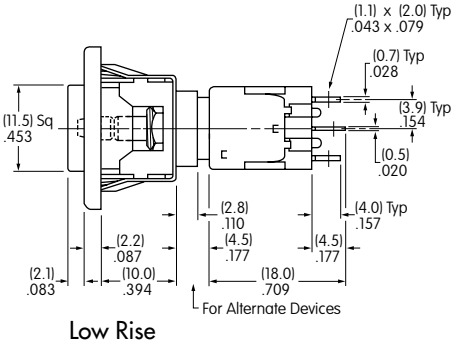


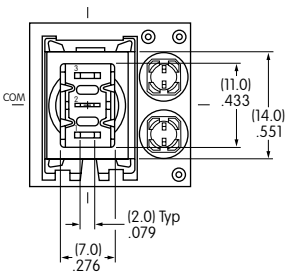
Maximum Panel Thickness
.039" ~ .126" (1.0mm ~ 3.2mm)
Cutout applies to SP & DP

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









EB2065-B-J33ACF

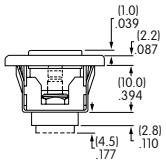
Low Rise

Single Pole

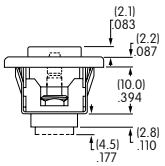
CAP EXTENSIONS & BEZEL TYPES

Cap Extension with Bezel

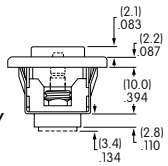
J24 Low Rise Momentary



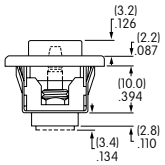
J34 Low Rise Alternate



J44 High Rise Momentary



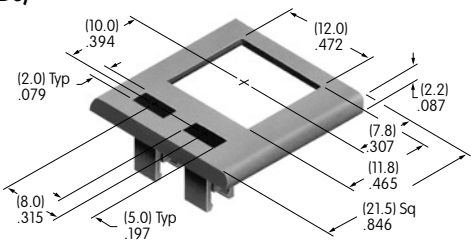
J54 High Rise Alternate

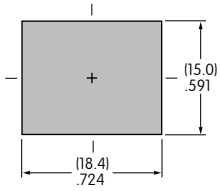


AT213 Bezel with 2 Rectangular LEDs (AT618 LEDs)

A Black

Material: Polycarbonate
Finish: Glossy

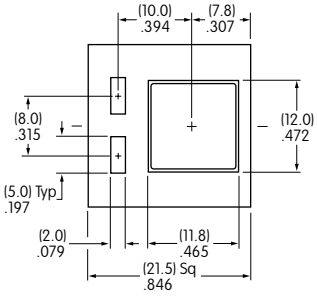


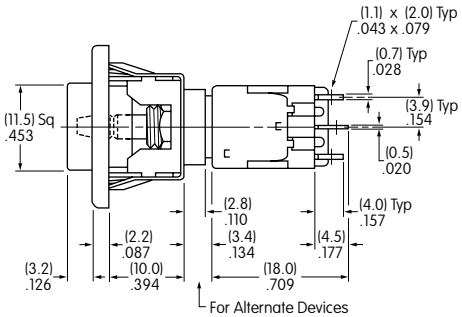


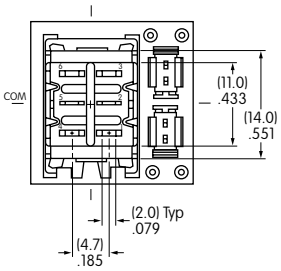
Maximum Panel Thickness
.039" ~ .126" (1.0mm ~ 3.2mm)
Cutout applies to SP & DP

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









EB2085-B-J54ACF

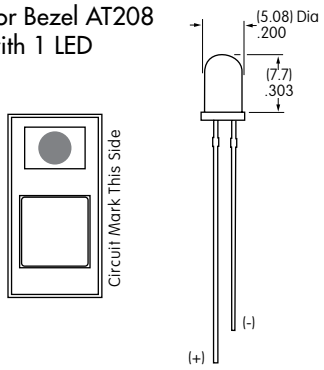
High Rise

Double Pole

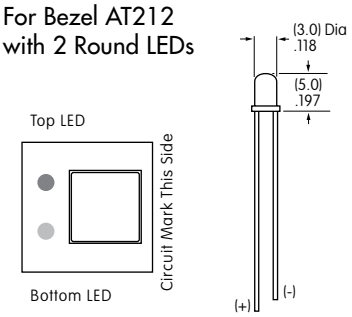
LED COLORS & SPECIFICATIONS

Bezel Orientation on Switch

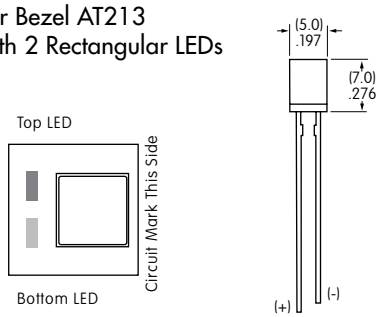
AT070 LED
For Bezel AT208
with 1 LED



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	30mA	10mA	30mA	30mA
Continuous Forward Current	I_F	20mA	20mA	24mA	24mA	24mA	8mA	24mA	24mA
Forward Voltage	V_F	2.8V	2.1V	2.0V	2.0V	2.1V	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	ΔI_F	0.33 mA/°C	0.40 mA/°C	0.40 mA/°C	0.40 mA/°C	0.40 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		

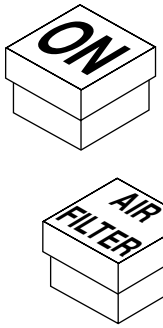
The electrical specifications shown are determined at a basic temperature of 25°C.
LED circuit is independent of switch operation. LED is colored in OFF state.

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

General information and basic specifications are presented here for customers who want to do their own legends.

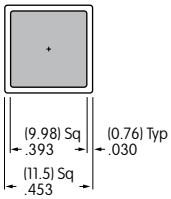
Suggested Printable Area for Cap



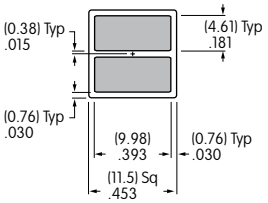
Recommended Print Method:

Screen Print or Pad Print

Epoxy based ink is recommended.



AT465



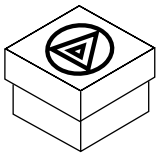
AT465

Shaded areas are printable areas.

Additional Method

An additional method for legends is engraving the cap. Maximum depth for engraving is .012" (0.3mm) on the cap. Enamel paint is recommended to fill the engraved area.

LEGEND PACKET FOR ORDERING CAPS WITH LEGENDS



1. To order caps with legends, contact the factory and request the EB Legend Packet.
2. Once you determine your desired legend, fill out the ordering work sheet included in the packet.
3. Return the completed work sheet to receive a quotation.