

General Specifications

Electrical Capacity (Resistive Load)

Power Level (code W):	2A @ 125V AC
Logic Level (code G):	0.4VA maximum @ 28V AC/DC maximum (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)

Other Ratings

Contact Resistance:	20 milliohms maximum for silver; 30 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 & case for 1 minute minimum
Mechanical Life:	200,000 operations minimum
Electrical Life:	25,000 operations minimum for silver; 100,000 operations minimum for gold
Nominal Operating Force:	Single pole 2.45N; double pole 3.92N
Nominal Travel:	Pretravel .024" (0.6mm); Overtravel .016" (0.4mm); Total Travel .039" (1.0mm)

Materials & Finishes

Plunger:	Brass with nickel plating
Bushing:	Brass with nickel plating
Mounting & Body Frames:	Stainless steel
Support Bracket:	Brass with tin plating
Guide:	Polybutylene terephthalate (PBT) (UL94V-0)
Case:	Diallyl phthalate resin
Movable Contactor:	Phosphor bronze with silver or gold plating
Movable Contacts:	Silver alloy (code W); copper with gold plating (code G)
Stationary Contacts:	Silver with silver plating (code W); copper or brass with gold plating (code G)
Terminals:	Copper or brass with silver plating; copper or brass with gold plating

Environmental Data

Operating Temperature Range:	-30°C through +85°C (-22°F through +185°F)
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:	500m/s ² acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation

Mounting Torque:	1.5Nm (13 lb•in) for double nut; 0.7Nm (6 lb•in) for single nut
Cap Installation Force:	80N (18 lbf) maximum downward force on actuator

Processing

Soldering:	Wave Soldering Recommended: 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 Guide & Case
UL :	Contact NKK Switches for UL or CUL marking option requirements.

Distinctive Characteristics

Short stroke and light touch.

Antijamming design protects contacts from damage due to excessive downward force on the actuator.

High torque bushing construction prevents rotation or separation from frame during installation.

Stainless steel frame resists corrosion.

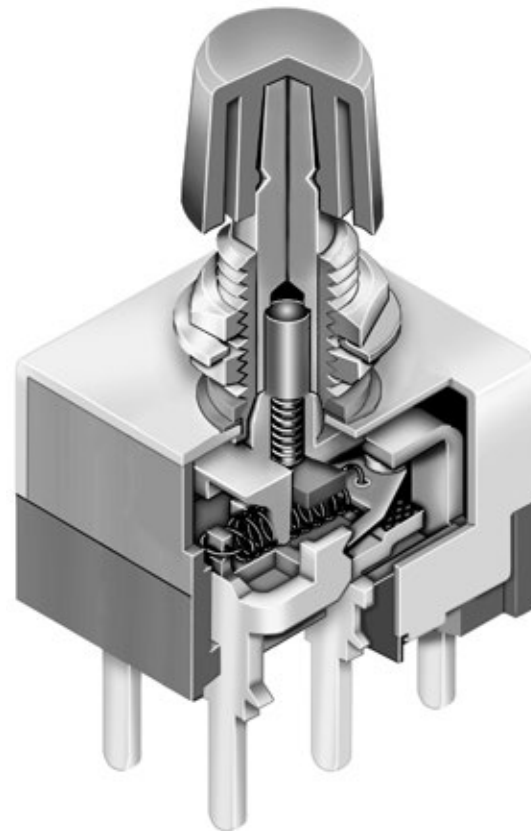
Longer center solder lug terminal simplifies wiring and soldering.

Patented silver contacts of specially composed alloy for hardness.

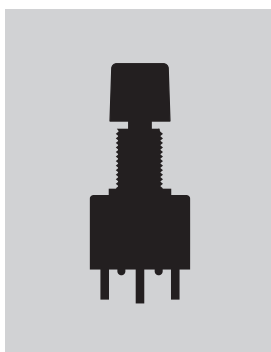
Epoxy sealed terminals prevent entry of solder flux and other contaminants.

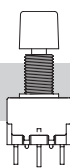
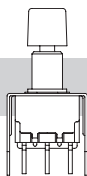
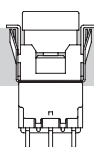
Snap-acting mechanism gives smooth actuation and audible feedback.

Prominent external insulating barriers increase insulation resistance and dielectric strength.



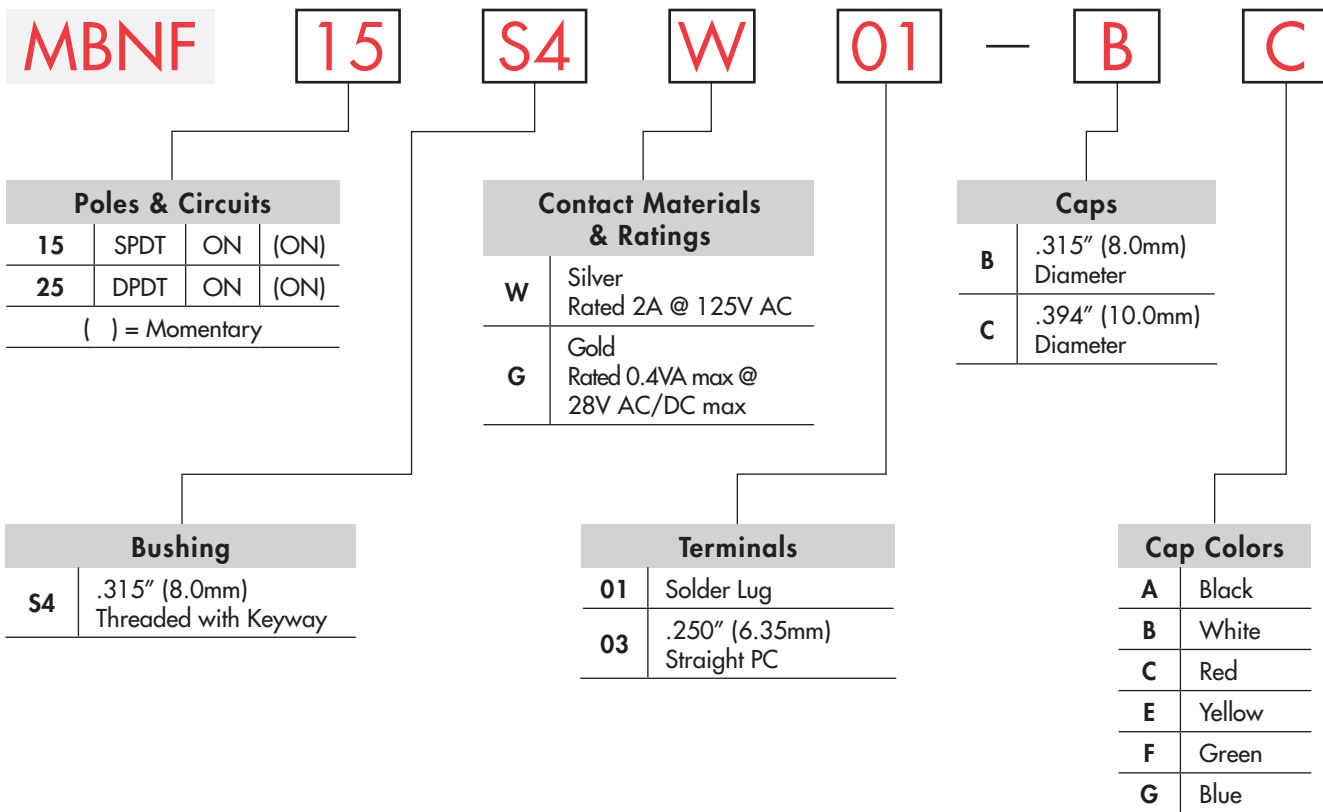
Actual Size



	Bushing Mount	Page C116
	Bracket PC Mount	Page C119
	Snap-in Mount	Page C122

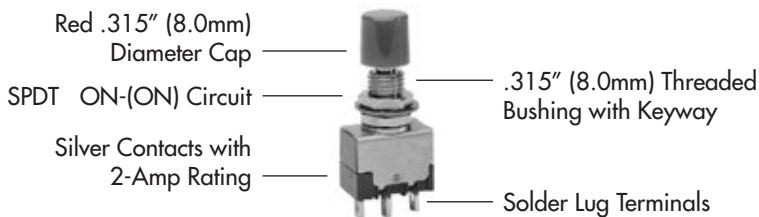
- Toggle
- Rockers
- Pushbuttons**
- Illuminated PB
- Programmable
- Keylocks
- Rotaries
- Slides
- Tactiles
- Tilt
- Touch
- Indicators
- Accessories
- Supplement

TYPICAL SWITCH ORDERING EXAMPLE








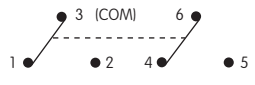
DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MBNF15S4W01-BC



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

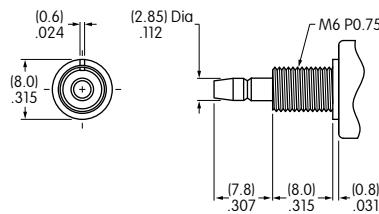
POLES & CIRCUITS

Pole	Model	Plunger Position () = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal  Keyway	Down 	Normal  Keyway	Down 	
SP	MBNF15	ON	(ON)	3-1	3-2	SPDT 
DP	MBNF25	ON	(ON)	3-1 6-4	3-2 6-5	DPDT 

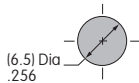
Note: Terminal numbers are not actually on the switch.

BUSHING

S4 .315" (8.0mm)
Threaded with Keyway

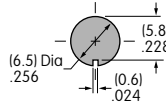


Without Keyway

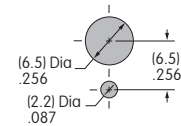


Panel Cutouts

With Keyway



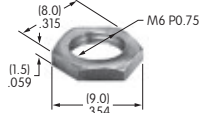
With Optional Locking Ring



Maximum Panel Thickness with Standard Hardware: .134" (3.4mm)

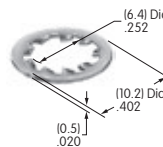
Standard Hardware

AT513M Threaded
Hex Nut



2 included
with each switch
Brass with
nickel plating

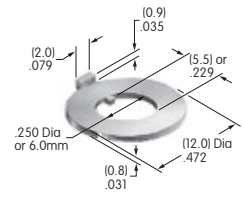
AT509
Lockwasher



1 included
with each switch
Steel with
zinc/chromate

Optional Hardware

AT507M
Locking Ring



Steel with
zinc/chromate

CONTACT MATERIALS & RATINGS



Silver

Power Level

2A @ 125V AC



Gold

Logic Level

0.4VA maximum @ 28V AC/DC maximum

Note: Complete explanation of operating range in Supplement section.

Toggle

Rockers

Pushbuttons

Programmable Illuminated PB

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

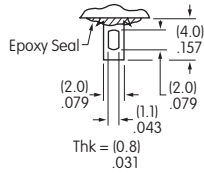
Indicators

Accessories

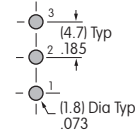
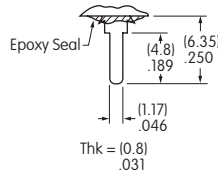
Supplement

TERMINALS

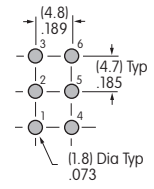
01 Solder Lug



03 .250" (6.35mm) Straight PC



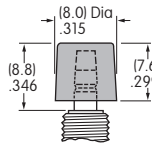
Single Pole



Double Pole

CAPS & CAP COLORS

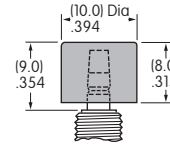
B AT443
.315" (8.0mm) Diameter Cap



Material: Polycarbonate

Finish: Glossy

C AT442
.394" (10.0mm) Diameter Cap



Material: Polycarbonate

Finish: Glossy

Cap Colors Available:



Black



White



Red



Yellow



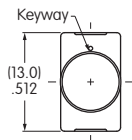
Green



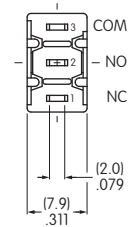
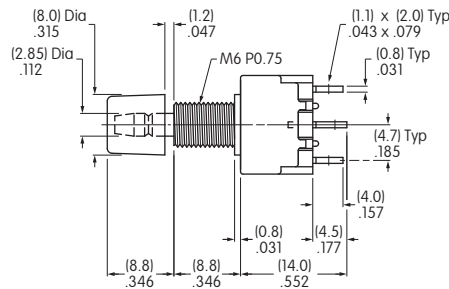
Blue

TYPICAL SWITCH DIMENSIONS

Solder Lug

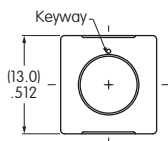


Single Pole

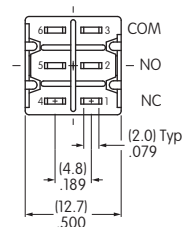
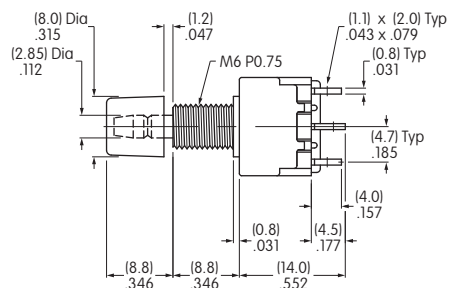


MBNF1554W01-BC

Solder Lug

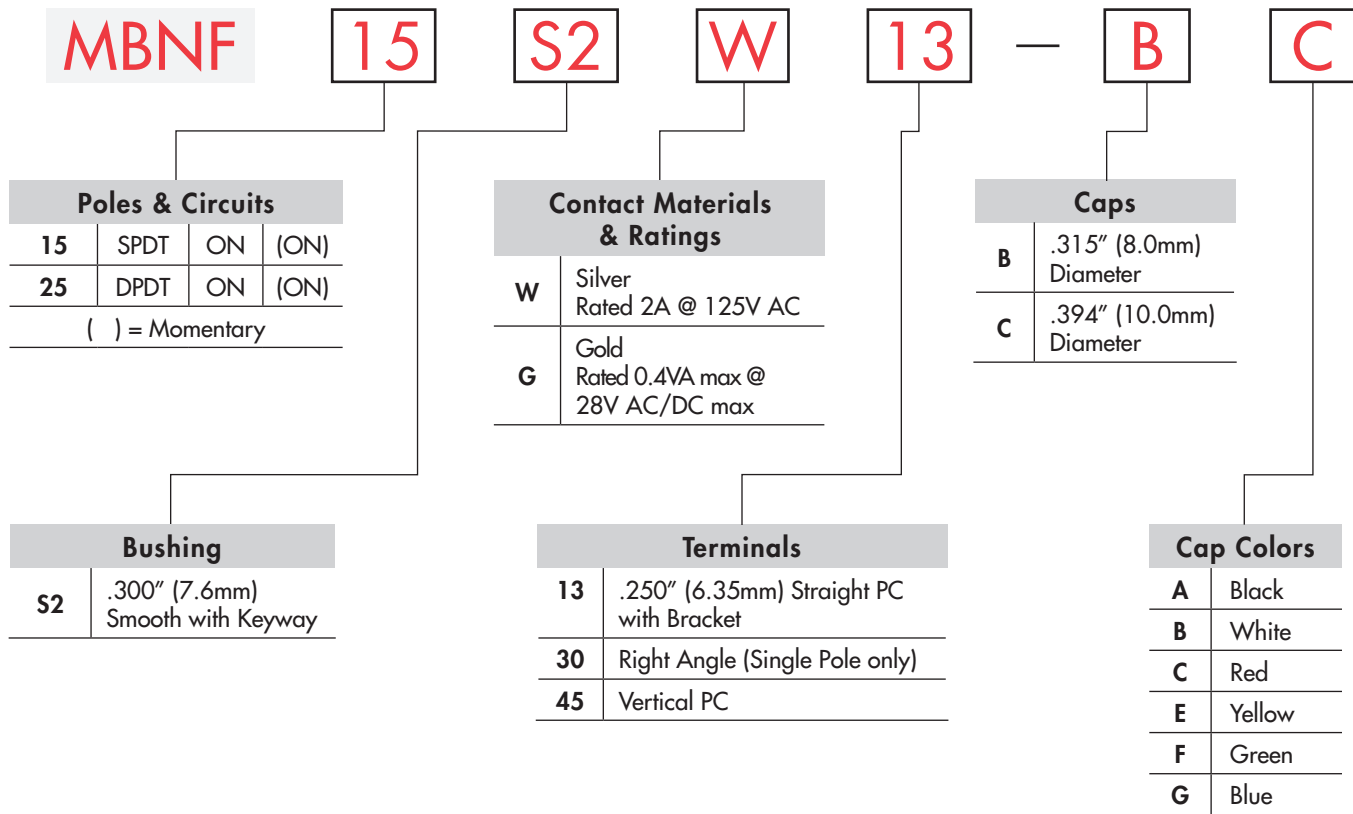


Double Pole



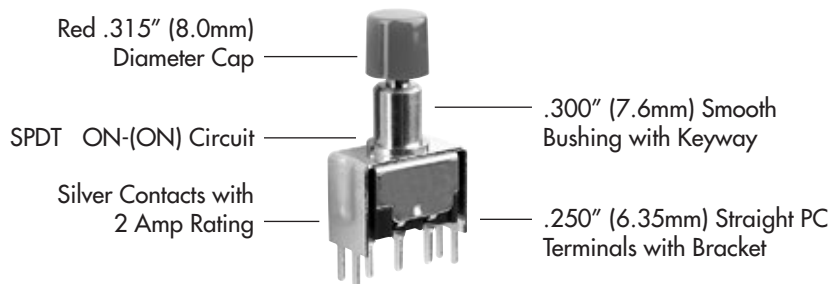
MBNF2554W01-BC

TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MBNF15S2W13-BC



Toggle

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt






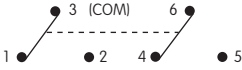
Touch

Indicators

Accessories

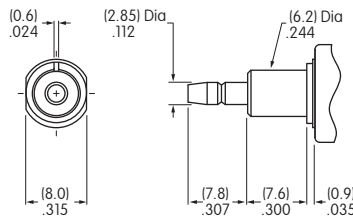
Supplement

POLES & CIRCUITS

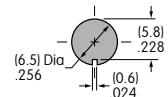
		Plunger Position () = Momentary		Connected Terminals		Throw & Switch Schematics
Pole	Model	Normal 	Down 	Normal 	Down 	Note: Terminal numbers are not actually on the switch.
SP	MBNF15	ON	(ON)	3-1	3-2	SPDT 
DP	MBNF25	ON	(ON)	3-1 6-4	3-2 6-5	DPDT 

BUSHING

S2 .300" (7.6mm)
Smooth with Keyway



Panel Cutout



CONTACT MATERIALS & RATINGS

W

Silver

Power Level

2A @ 125V AC

G

Gold

Logic Level

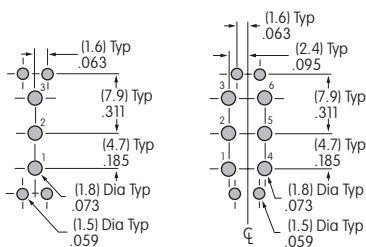
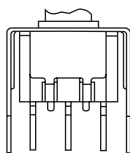
0.4VA maximum @ 28V AC/DC maximum

Note: Complete explanation of operating range in Supplement section.

TERMINALS

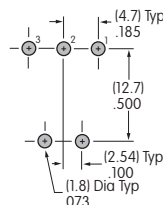
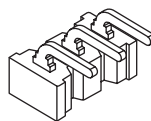
13

.250" (6.35mm) Terminal
with .465" (11.8mm) Bracket



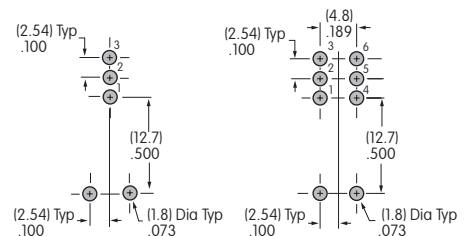
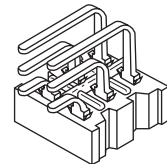
30

Right Angle PC
Single Pole only



45

Vertical PC

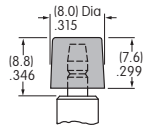


CAPS & CAP COLORS

B AT443
.315" (8.0mm) Diameter Cap



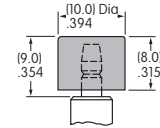
Material: Polycarbonate
Finish: Glossy



C AT442
.394" (10.0mm) Diameter Cap



Material: Polycarbonate
Finish: Glossy

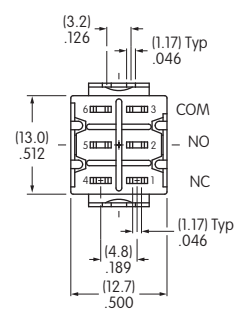
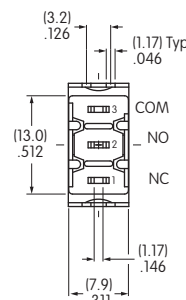
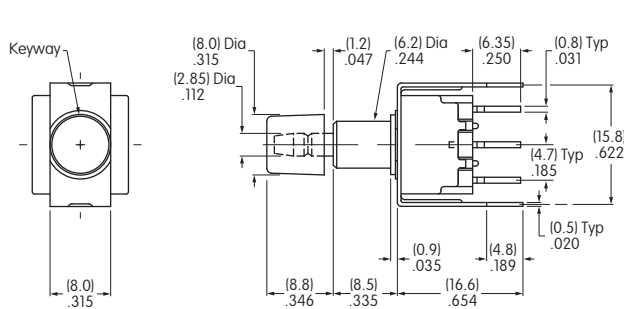


Cap Colors Available:

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

TYPICAL SWITCH DIMENSIONS

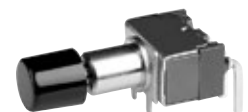
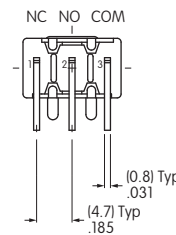
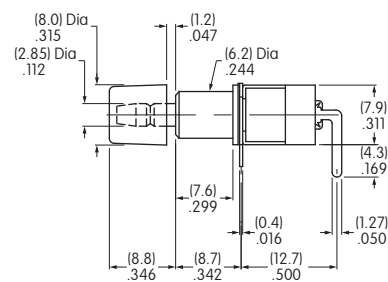
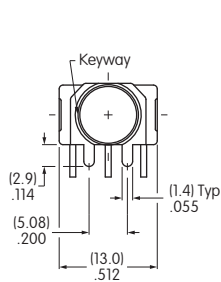
Single Pole Double Pole Straight PC • Bracket



MBNF15S2W13-BC

Single Pole

Right Angle PC

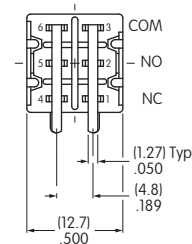
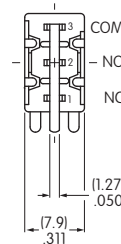
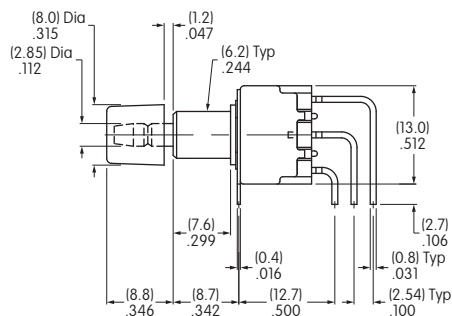
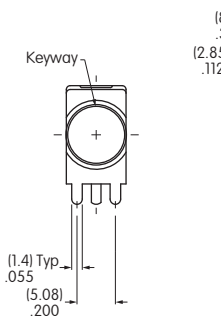


MBNF15S2G30-BC

Single Pole

Double Pole

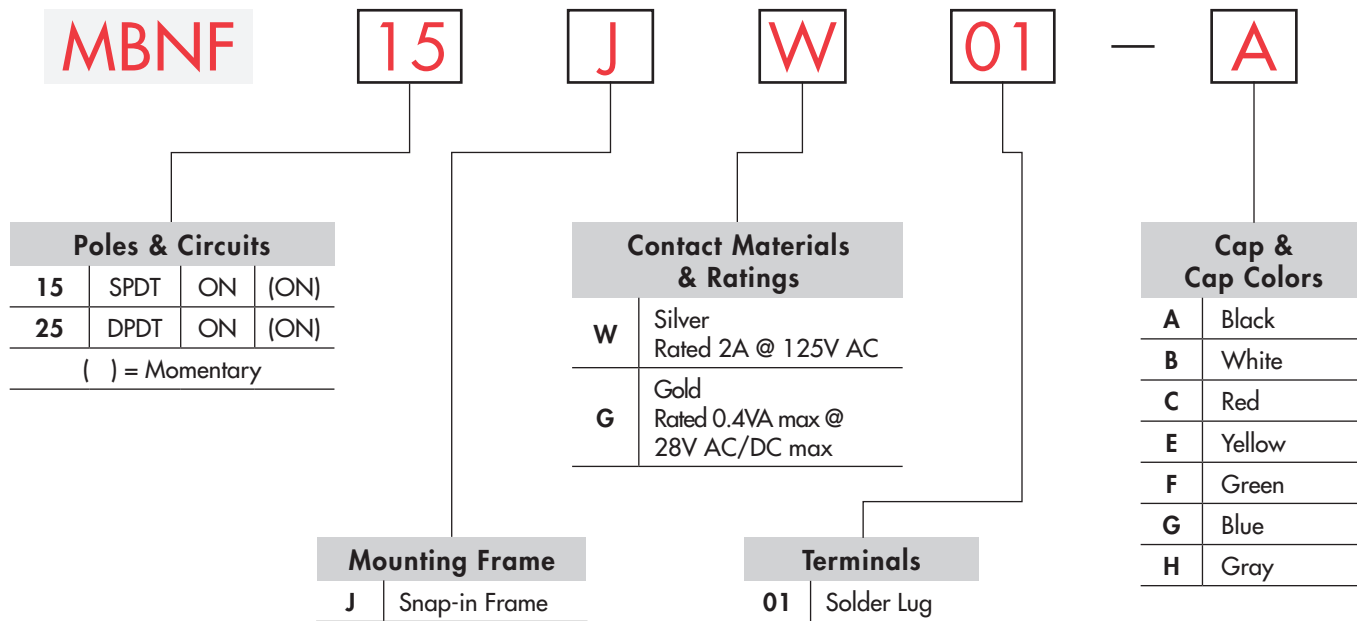
Vertical PC



MBNF15S2G45-BC

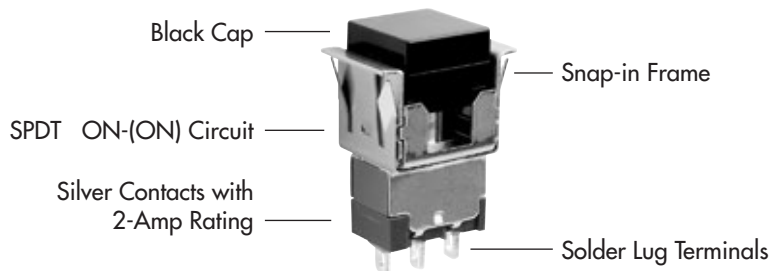
Toggles
Rockers
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

TYPICAL SWITCH ORDERING EXAMPLE










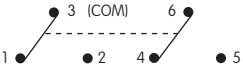


DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MBNF15JW01-A



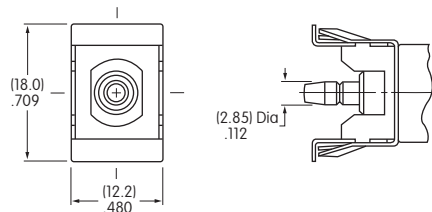
POLES & CIRCUITS

Pole	Model	Plunger Position () = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal	Down	Normal	Down	
SP	MBNF15	ON 	(ON) 	3-1 	3-2 	Note: Terminal numbers are not actually on the switch. SPDT 
DP	MBNF25	ON 	(ON) 	3-1 6-4 	3-2 6-5 	DPDT 

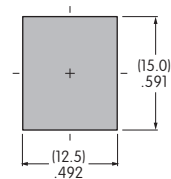
MOUNTING FRAME

J

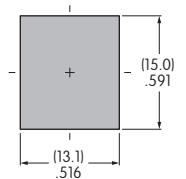
Snap-in Frame



Panel Cutout for Single Pole without Bezel



Panel Cutout for Double Pole without Bezel



Panel Thickness without Bezel: .039" ~ .157" (1.0mm ~ 4.0mm)
Panel Thickness with Bezel: .039" ~ .126" (1.0mm ~ 3.2mm)

CONTACT MATERIALS & RATINGS

W

Silver

Power Level

2A @ 125V AC

G

Gold

Logic Level

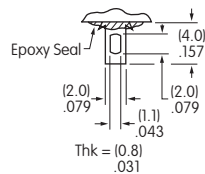
0.4VA maximum @ 28V AC/DC maximum

Note: Complete explanation of operating range in Supplement section.

TERMINALS

01

Solder Lug

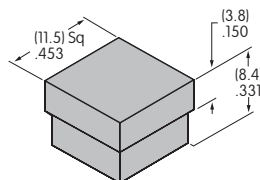


CAP & CAP COLORS

AT465

.453" (11.5mm) Square Cap

Material: Polycarbonate
Finish: Glossy



Contact factory for matte finish.

Cap Colors Available:

A

Black

B

White

C

Red

E

Yellow

F

Green

G

Blue

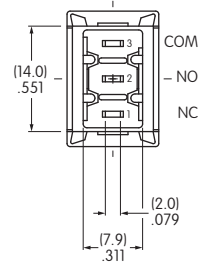
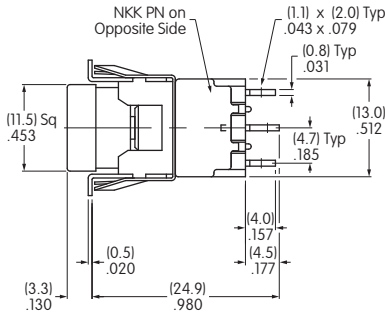
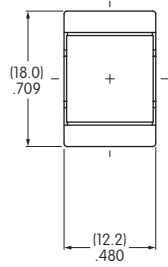
H

Gray

TYPICAL SWITCH DIMENSIONS

Solder Lug

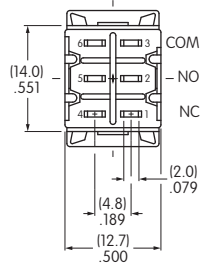
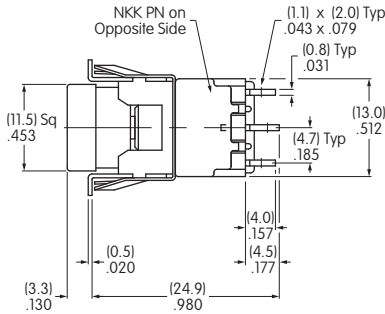
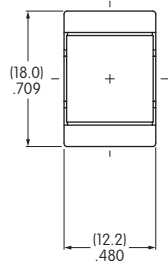
Single Pole



MBNF15JW01-A

Solder Lug

Double Pole



MBNF25JW01-C

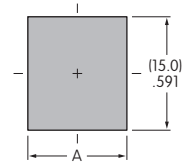
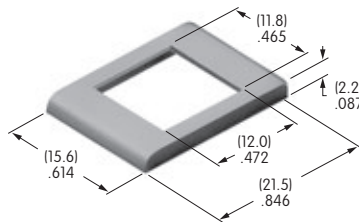
OPTIONAL SNAP-IN BEZELS & BEZEL COLORS

AT207 Bezel

Material: Polycarbonate
Finish: Glossy

Colors:
Black, White, Red, Yellow,
Green, Blue, Gray

Contact factory for matte finish.

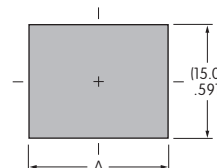
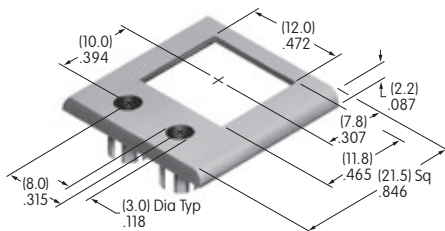


	Single Pole	Double Pole
A	(12.5mm) .492"	(13.1mm) .516"

AT212 Bezel for AT617 LED

Material: Polycarbonate
Finish: Semi-glossy

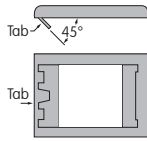
Color: Black



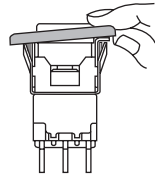
	Single Pole	Double Pole
A	(18.4mm) .724"	(18.7mm) .736"

Bezel Assembly

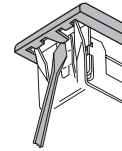
1. Pry out tab on bezel to a 45° angle.



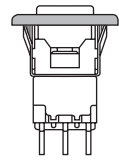
2. Insert switch frame under tab and snap on the bezel.



3. Push tab back into place.



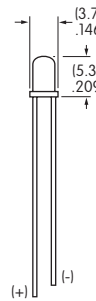
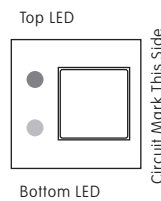
4. Snap assembled bezel and switch into panel.



LED COLORS & SPECIFICATIONS

AT617 LED

For Bezel AT212 with 2 Round LEDs



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

The electrical specifications shown are determined at a basic temperature of 25°C. The LED circuit is independent of switch operation. LED is colored in OFF state.	AT617 LED			
		C	E	F
	Color	Red	Yellow	Green
Maximum Forward Current	I_{FM}	30mA	30mA	30mA
Typical Forward Current	I_F	20mA	20mA	20mA
Forward Voltage	V_F	2.1V	2.1V	2.2V
Maximum Reverse Voltage	V_{RM}	5V	5V	5V
Current Reduction Rate Above 25°C	ΔI_F	0.40mA/°C	0.40mA/°C	0.40mA/°C
Ambient Temperature Range (when used with a bezel)		-15° ~ +70°C		

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