

# General Specifications

## Electrical Capacity (Resistive Load)

<b>Power Level (silver):</b>	6A @ 125V AC & 3A @ 250V AC or 3A @ 30V DC
<b>Logic Level (gold):</b>	0.4VA maximum @ 28V AC/DC maximum (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
<b>Logic/Power Level: (gold over silver)</b>	Combines silver & gold ratings

Note: Find additional explanation dual rating & operating range in Supplement section.

## Other Ratings

<b>Contact Resistance:</b>	10 milliohms maximum for silver; 20 milliohms maximum for gold
<b>Insulation Resistance:</b>	1,000 megohms minimum @ 500V DC
<b>Dielectric Strength:</b>	1,000V AC minimum between contacts for 1 minute minimum; 1,500V AC minimum between contacts & case for 1 minute minimum
<b>Mechanical Life:</b>	50,000 operations minimum for splashproof models; 100,000 for all other models
<b>Electrical Life:</b>	25,000 operations minimum for silver; 50,000 operations minimum for gold 50,000 operations minimum for silver at 3A @ 125V AC

**Nominal Operating Force:** Momentary Action: 1-pole 9.32N; 2-pole 16.18N; 4-pole 25.54N;  
Alternate Action: 1-pole 4.41N; 2-pole 7.06N; 4-pole 11.77N

<b>Contact Timing:</b>	Slow make, slow break		
<b>Plunger Travel:</b>	Screw-on Cap (Mom.)	Screw-on Cap (Alt.)	Snap-on Cap (Mom. & Alt.)
<b>Pretravel:</b>	.028" (0.71mm)	.110" (2.80mm)	.125" (3.19mm)
<b>Overtravel:</b>	.043" (1.09mm)	.043" (1.10mm)	.050" (1.26mm)
<b>Total Travel</b>	.071" (1.80mm)	.153" (3.90mm)	.175" (4.45mm)

## Materials & Finishes

<b>Plunger:</b>	Brass w/nickel plating; polyacetal w/B1 bushing	<b>Bushing:</b>	Brass with nickel plating
<b>Frame:</b>	Stainless steel	<b>Case:</b>	Diallyl phthalate resin (UL94V-0)
<b>Movable Contactor:</b>	Phosphor bronze with silver or gold plating		
<b>Movable Contacts:</b>	Silver alloy (code W); copper with gold plating (code G); or silver alloy with gold plating (code A)		
<b>Stationary Contacts:</b>	Silver with silver plating (code W); copper or brass with gold plating (code G); or silver with gold plating (code A)		
<b>Terminals:</b>	Copper or brass with silver plating; copper or brass with gold plating		

## Environmental Data

<b>Operating Temp Range:</b>	-30°C through +85°C (-22°F through +185°F)
<b>Humidity:</b>	90 ~ 95% humidity for 96 hours @ 40°C (104°F)
<b>Vibration:</b>	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
<b>Shock:</b>	50G (490m/s <sup>2</sup> ) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
<b>Sealing:</b>	B3 & D3 bushing options equivalent to IP67

## Installation

<b>Mounting Torque:</b>	1.5Nm (13.0 lb•in) for double nut; .7Nm (6.0 lb•in) for single nut
<b>Cap Installation Force:</b>	80.0N (18.0 lbf) maximum downward force on actuator
<b>Soldering Time &amp; Temp:</b>	Wave Soldering (PC version): See Profile A in Supplement section. Manual Soldering: See Profile A in Supplement section.
<b>Process Seal:</b>	These devices are not process sealed. Hand clean locally using alcohol based solution.

## Standards & Certifications

<b>Flammability Standards:</b>	UL94V-0 case
<b>UL:</b>	<b>File No. E44145 - Recognized only when ordered with marking on switch.</b> Add "/U" or "/CUL" before dash in part number to order UL recognized switch. All models recognized at 6A @ 125V AC or 3A @ 250V AC or 0.4VA max. @ 28V DC max.
<b>CSA:</b>	<b>File No. 023535_0_000 - Certified only when ordered with marking on switch.</b> Add "/C" before dash in part number to order CSA certified switch. All models certified at 6A @ 125V AC or 3A @ 250V AC or 0.4VA max. @ 28V max.

# Distinctive Characteristics

Guide interlocked with actuator block prevents window locking and maintains correct plunger alignment to assure contact stability.

Employs an over-center actuator mechanism, which diminishes sparking and increases operating life in AC circuits.

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

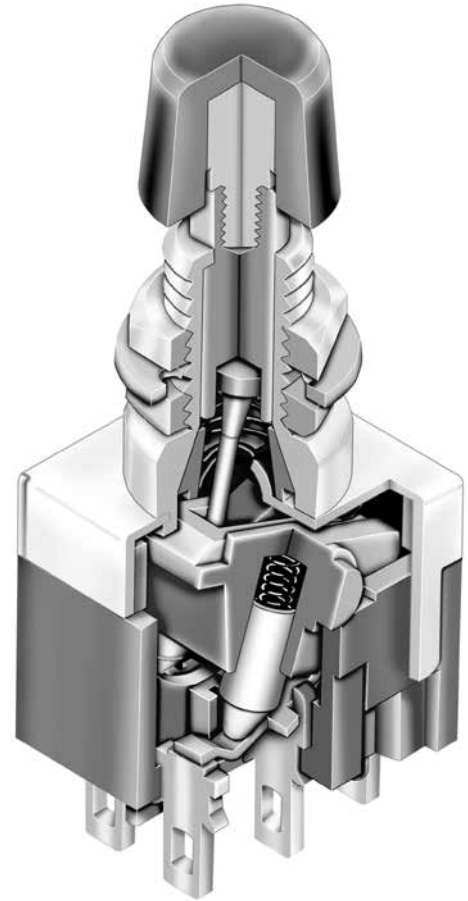
Splashproof option (D3 and B3 bushing codes) features an o-ring within the bushing and one under the face nut to protect from splashed, sprayed, or spilled liquids.

High insulating barriers, formed in the molded diallyl phthalate case, increase isolation of circuits in multipole devices.

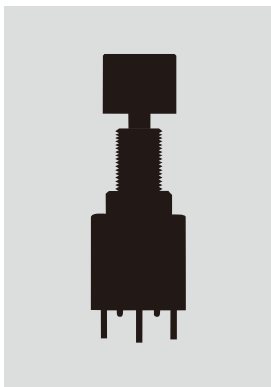
Prominent external insulating barriers increase insulation resistance and dielectric strength.




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

Clinching of the frame to the case well above the base and terminals provides 1,500V dielectric strength.



Actual Size



	Bushing Mount	Page C78
	Bracket PC Mount	Page C84
	Large Bushing	Page C91

Toggle

Rockers

Pushbuttons

Programmable Illuminated PB

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

### TYPICAL SWITCH ORDERING EXAMPLE

**MB 2011 S S1 W 01 — C A**

Poles & Circuits			
2011	SPDT	ON	(ON)
2065	SPDT	ON	ON
2061	DPDT	ON	(ON)
2085	DPDT	ON	ON
2181	4PDT	ON	(ON)
2185	4PDT	ON	ON

( ) = Momentary

Contact Materials & Ratings	
W	Silver Rated 6A @ 125V AC & 3A @ 250V AC
G	Gold Rated 0.4VA max @ 28V AC/DC max
A	Gold over Silver Rated 6A @ 125V AC & 0.4VA max @ 28V AC/DC max

Caps	
B	.315" (8.0mm) Diameter
C	.394" (10.0mm) Diameter

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

Plunger Types	
S	Plunger for Screw-on Caps
L	Plunger for Snap-on Caps

Bushings	
S1	.335" (8.5mm) Threaded with Keyway
S2	.335" (8.5mm) Smooth with Keyway
S4	.335" (8.5mm) Metric Threaded with Keyway
D1	.335" (8.5mm) Threaded with D-Flat
D3	.335" (8.5mm) Threaded Splashproof without Keyway

Terminals	
01	Solder Lug
02	Quick Connect
03	.250" (6.35mm) Straight PC
05	.425" (10.8mm) Wirewrap
06	.750" (19.05mm) Wirewrap
07	.964" (24.5mm) Wirewrap
08	1.062" (27.0mm) Wirewrap

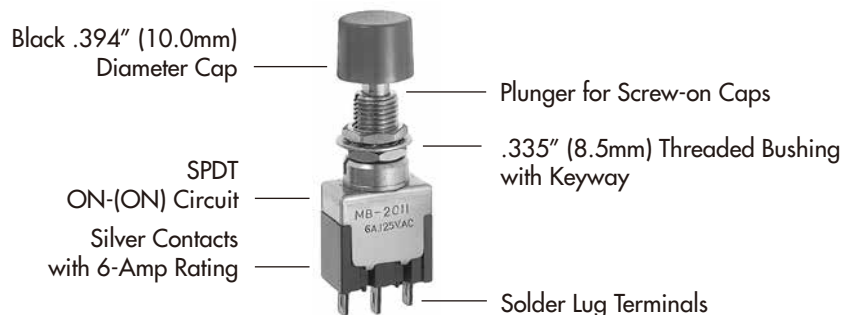
#### IMPORTANT:





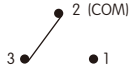
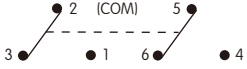



Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on the General Specifications page.

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**MB2011SS1W01-CA**



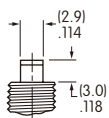
POLES & CIRCUITS						
Pole	Model	Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal  Keyway	Down 	Normal  Keyway	Down 	
SP	MB2011	ON	(ON)	2-3	2-1	Note: Terminal numbers are not actually on the switch. 
	MB2065	ON	ON			
DP	MB2061	ON	(ON)	2-3 5-6	2-1 5-4	
	MB2085	ON	ON			
4P	MB2181	ON	(ON)	2-3 5-6	2-1 5-4	
	MB2185	ON	ON	8-9 11-12	8-7 11-10	

## PLUNGER TYPES

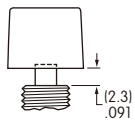
On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.



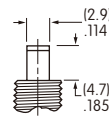
### Plunger for Screw-on Caps



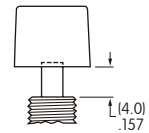
Momentary Plunger Length



Momentary Cap Location



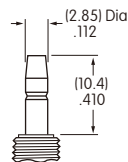
Alternate Plunger Length



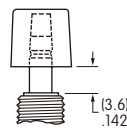
Alternate Cap Location



### Plunger for Snap-on Caps



Momentary & Alternate Plunger Length

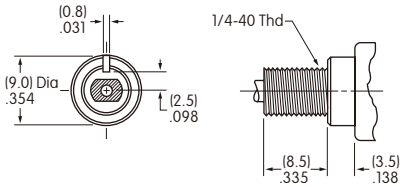


Momentary & Alternate Cap Location

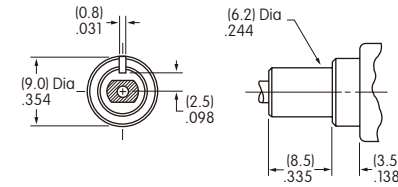
Toggles  
 Rockers  
 Pushbuttons  
 Illuminated PB  
 Programmable  
 Keylocks  
 Rotaries  
 Slides  
 Tactiles  
 Tilt  
 Touch  
 Indicators  
 Accessories  
 Supplement

### BUSHINGS

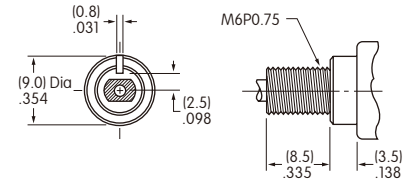
**S1** .335" (8.5mm)  
Threaded with Keyway



**S2** .335" (8.5mm)  
Smooth with Keyway



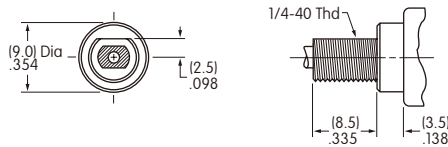
**S4** .335" (8.5mm) Metric  
Threaded with Keyway



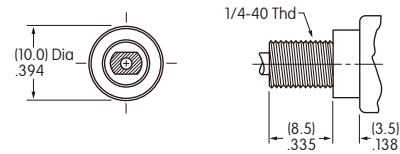
Maximum Panel Thickness with  
Standard Hardware: .154" (3.9mm)

Maximum Panel Thickness with  
Standard Hardware: .154" (3.9mm)

**D1** .335" (8.5mm)  
Threaded with D Flat



**D3** .335" (8.5mm)  
Threaded Splashproof without Keyway

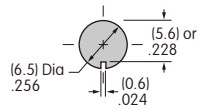


Maximum Panel Thickness with  
Standard Hardware: .154" (3.9mm)

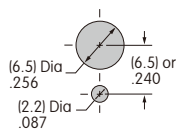
Maximum Panel Thickness with  
Standard Hardware: .240" (6.1mm)

### Panel Cutouts

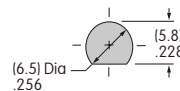
For S1, S2, or S4 Bushing  
with  
Keyway



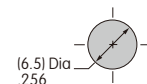
For S1 or S4 Bushing  
with  
Optional Locking Ring



For D1 Bushing  
with  
D Flat



For D3 Bushing  
without  
Keyway



Standard hardware for bushings S1, S4, & D1 includes 2 hex nuts & 1 lockwasher; D3 bushing has 1 hex nut & 1 o-ring.  
Standard & optional hardware are illustrated following the Typical Switch Dimension drawings.

### CONTACT MATERIALS & RATINGS

**W** Silver over Silver      Power Level      6A @ 125V AC & 3A @ 250V AC

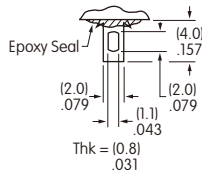
**G** Gold over Brass or Copper      Logic Level      0.4VA maximum @ 28V AC/DC maximum  
Note: Complete explanation of operating range in Supplement section.

**A** Gold over Silver      Power Level or Logic Level      6A @ 125V AC & 3A @ 250V AC or 0.4VA maximum @ 28V AC/DC maximum

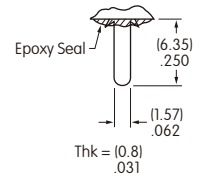
Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section for complete explanation of dual rating and operating range.

## TERMINALS

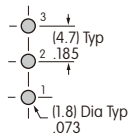
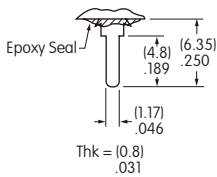
### 01 Solder Lug



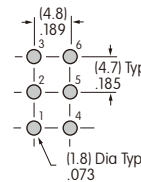
### 02 .062" (1.57mm) Wide Quick Connect



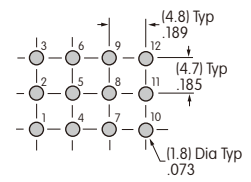
### 03 .250" (6.35mm) Straight PC



Single Pole



Double Pole



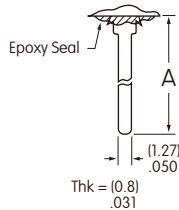
Four Pole

### 05 .425" (10.8mm) Wirewrap or Extended PC

### 06 .750" (19.05mm) Wirewrap or Extended PC

### 07 .964" (24.5mm) Wirewrap or Extended PC

### 08 1.062" (27.0mm) Wirewrap or Extended PC



If using as extended PC terminal, refer to the above footprints.

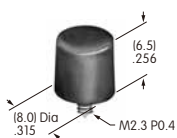
Dimension A = terminal lengths as shown beside the terminal codes at the left.

## CAPS & CAP COLORS

### B AT413 .315" (8.0mm) Diameter Screw-on Cap

For use with Plunger Code S

Cap Material: PBT  
Finish: Glossy



### AT443 .315" (8.0mm) Diameter Snap-on Cap

For use with Plunger Code L

Cap Material: Polycarbonate  
Finish: Glossy



### C AT407 .394" (10.0mm) Diameter Screw-on Cap

For use with Plunger Code S

Cap Material: PBT  
Finish: Glossy



### AT442 .394" (10.0mm) Diameter Snap-on Cap

For use with Plunger Code L

Cap Material: Polycarbonate  
Finish: Glossy



Cap Colors Available:

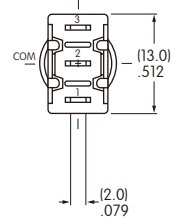
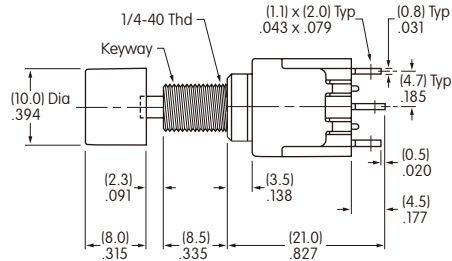
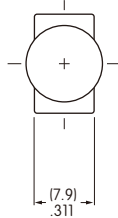
- A** Black
- B** White
- C** Red
- E** Yellow
- F** Green
- G** Blue
- H** Gray

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

## TYPICAL SWITCH DIMENSIONS

### Solder Lug

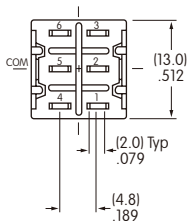
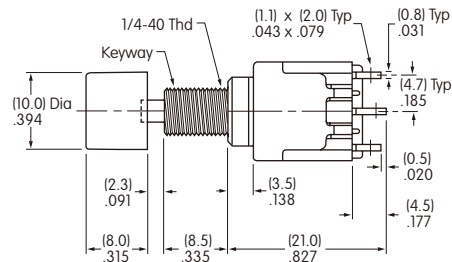
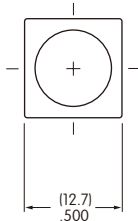
### Single Pole



**MB2011SS1W01-CA**

### Solder Lug

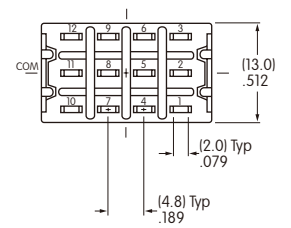
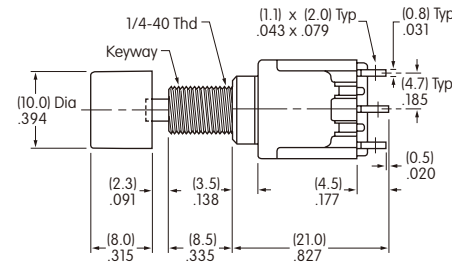
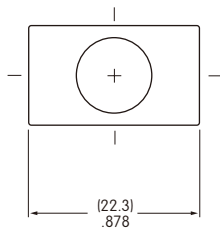
### Double Pole



**MB2061SS1W01-CA**

### Solder Lug

### Four Pole



**MB2181SS1W01-CA**

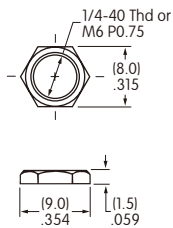
## HARDWARE

### Standard Hardware

#### AT513H for Inch AT513M for Metric Hexagon Nut

2 included with each switch  
(1 with splashproof models)

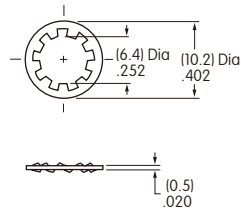
Material:  
Brass with Nickel plating



#### AT509 Lockwasher

1 included with each switch  
(not with splashproof models)

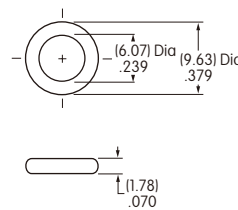
Material:  
Steel with Zinc/Chromate



#### AT516 O-ring for Splashproof Bushing

1 included with  
each splashproof model

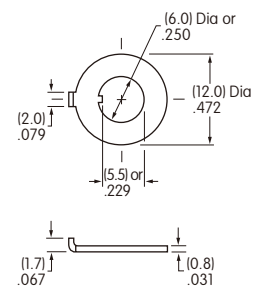
Material:  
Nitrile butadiene rubber



### Optional Hardware

#### AT507H for Inch AT507M for Metric Locking Ring

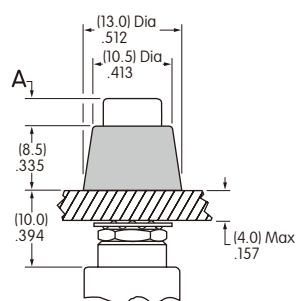
Material:  
Steel with Zinc/Chromate



### Optional Mounting Collars/Conical Nuts

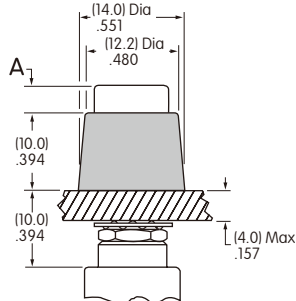
#### AT512H for Inch AT512M for Metric Conical Nut

Used with .315" (8.0mm)  
Diameter Cap (cap code B)  
Material:  
Brass with chrome plating



#### AT512CH for Inch AT512CM for Metric Conical nut

Used with .394" (10.0mm)  
Diameter Cap (cap code C)  
Material:  
Brass with chrome plating



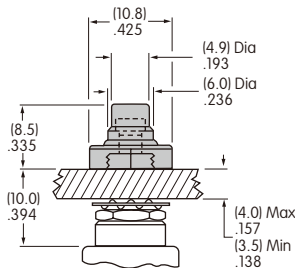
Dimension A = Cap Height

.091" (2.3mm) for Momentary with Plunger Code S  
.157" (4.0mm) for Alternate with Plunger Code S  
.142" (3.6mm) for Momentary & Alternate with Plunger Code L

### Optional Splashproof Boots for S Plunger

#### AT4041H for Inch AT4041M for Metric Boot for Momentary

Material:  
Silicone rubber

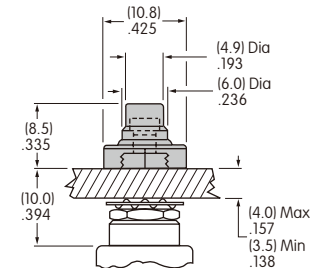


Operating Life 100,000

Boots for momentary devices  
are accompanied by a threaded  
adaptor which extends the length  
of the plunger.

#### AT4042H for Inch AT4042M for Metric Boot for Alternate

Material:  
Silicone rubber



Operating Life 30,000



### TYPICAL SWITCH ORDERING EXAMPLE

**MB**

**2011**

**S**

**S2**

**G**

**13**

**C**

**A**

#### Poles & Circuits

<b>2011</b>	SPDT	ON	(ON)
<b>2065</b>	SPDT	ON	ON
<b>2061</b>	DPDT	ON	(ON)
<b>2085</b>	DPDT	ON	ON
<b>2181</b>	4PDT	ON	(ON)
<b>2185</b>	4PDT	ON	ON

( ) = Momentary

4-pole not for use with right angle terminals

#### Contact Materials & Ratings

<b>W</b>	Silver Rated 6A @ 125V AC & 3A @ 250V AC
<b>G</b>	Gold Rated 0.4VA max @ 28V AC/DC max
<b>A</b>	Gold over Silver Rated 6A @ 125V AC & 0.4VA max @ 28V AC/DC max

#### Caps

<b>B</b>	.315" (8.0mm) Diameter
<b>C</b>	.394" (10.0mm) Diameter

#### 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

#### Plunger Type

<b>S</b>	Plunger for Screw-on Caps
----------	---------------------------

#### Bushings

<b>S2</b>	.335" (8.5mm) Smooth with Keyway
<b>S1</b>	.335" (8.5mm) Threaded with Keyway
<b>A2</b>	.200" (5.08mm) Smooth with Keyway Only Available in Part Numbers MB2011SA2G31 & MB2011SA2W31

#### Terminals

<b>13</b>	.250" (6.35mm) Straight PC with Bracket
<b>40</b>	.150" (3.81mm) Vertical PC
<b>45</b>	.100" (2.54mm) Vertical PC
<b>30</b>	Right Angle PC with .646" (16.4mm) Support to Terminals Available in 1- & 2-pole only
<b>31</b>	Right Angle PC with .500" (12.7mm) Support to Terminals Available in 1-pole only

#### IMPORTANT:

Switches are supplied without UL, cULus & CSA marking unless specified.

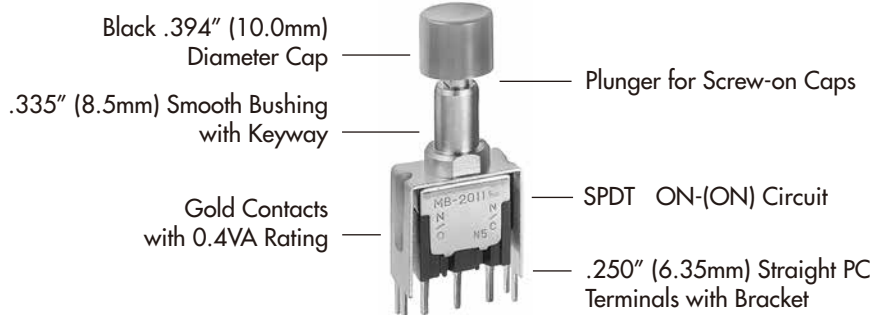
**UL, cULus & CSA recognized only when ordered with marking on the switch.**

Specific models, ratings, & ordering instructions are noted on the General Specifications page.



#### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

#### MB2011SS2G13-CA



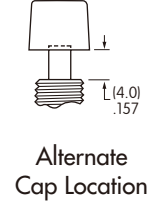
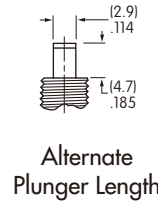
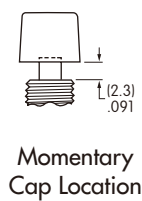
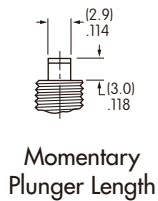
POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal	Down	Normal	Down	
SP	MB2011 MB2065	ON 	(ON) 	2-3 	2-1 	Note: Terminal numbers are not actually on the switch. SPDT 
DP	MB2061 MB2085	ON 	(ON) 	2-3 5-6 	2-1 5-4 	DPDT 
4P	MB2181 MB2185	ON 	(ON) 	2-3 5-6 8-9 11-12 	2-1 5-4 8-7 11-10 	4PDT 

PLUNGER TYPE

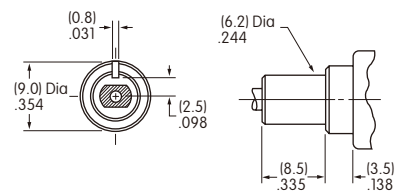
On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.

**S** Plunger for Screw-on Caps

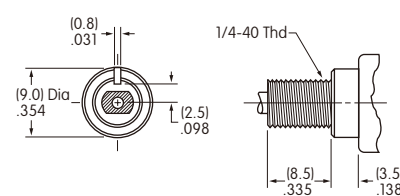


BUSHINGS

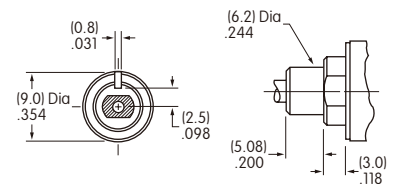
**S2** .335" (8.5mm) Smooth with Keyway



**S1** .335" (8.5mm) Threaded with Keyway



**A2** .200" (5.08mm) Smooth with Keyway

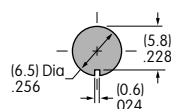


Standard hardware: 2 hex nuts (AT513H) & 1 lockwasher (AT509)  
Optional hardware: Locking ring (AT507)

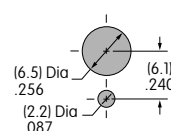
Only available in part numbers MB2011SA2W31 & MB2011SA2G31

Panel Cutouts

For S2, S1, or A2 Bushing with Keyway



With Optional Locking Ring

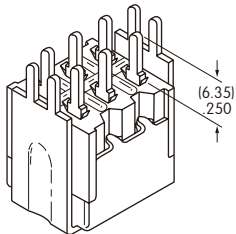
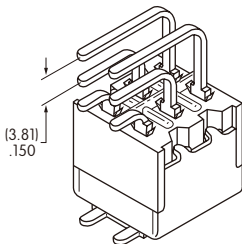
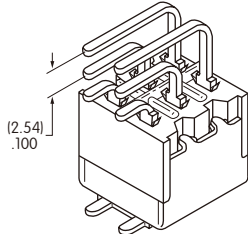
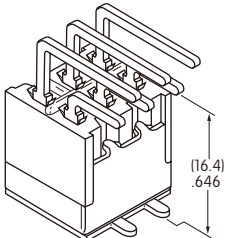
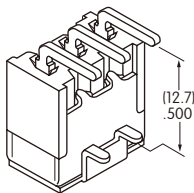


Maximum Panel Thickness with Standard Hardware: .154" (3.9mm)

### CONTACT MATERIALS & RATINGS

<b>W</b>	Silver over Silver	Power Level	6A @ 125V AC & 3A @ 250V AC
<b>G</b>	Gold over Brass or Copper	Logic Level	0.4VA maximum @ 28V AC/DC maximum Note: Complete explanation of operating range in Supplement section.
<b>A</b>	Gold over Silver	Power Level or Logic Level	6A @ 125V AC & 3A @ 250V AC or 0.4VA maximum @ 28V AC/DC maximum Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section for complete explanation of dual rating and operating range.

### TERMINALS

<b>13</b>	.250" (6.35mm) Straight PC with Bracket	<b>40</b>	.150" (3.81mm) Vertical PC	<b>45</b>	.100" (2.54mm) Vertical PC
					
<b>30</b>	Right Angle PC with .646" (16.4mm) Support to Terminal	<b>31</b>	Right Angle PC with .500" (12.7mm) Support to Terminal		
					
Only Available in 1 & 2 Pole					

Note: Full dimensioned drawings appear on the following pages.

### CAPS & CAP COLORS

<b>B</b>	AT413 .315" (8.0mm) Diameter Screw-on Cap		<b>C</b>	AT407 .394" (10.0mm) Diameter Screw-on Cap	
Cap Material: PBT Finish: Glossy		Cap Material: PBT Finish: Glossy			

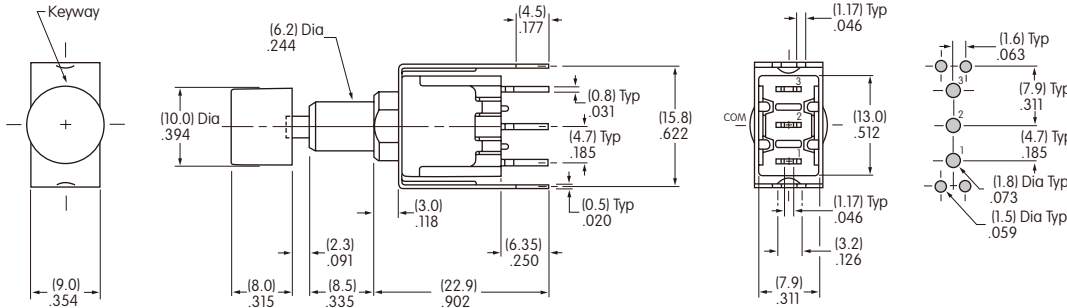
Cap Colors Available: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

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

TYPICAL SWITCH DIMENSIONS

Single Pole

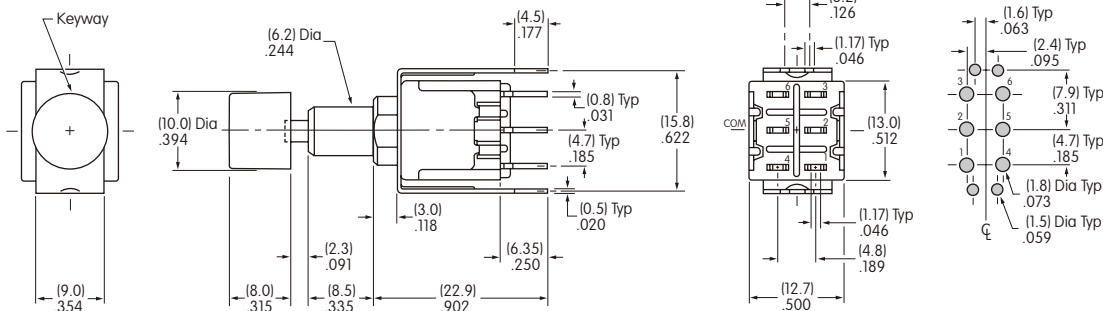
Straight PC with Bracket



MB2011SS2G13-CA

Double Pole

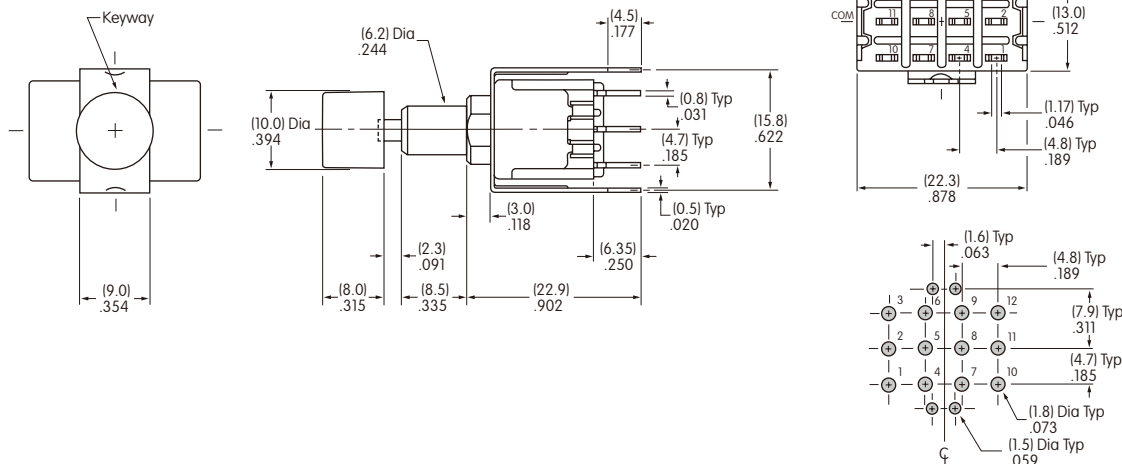
Straight PC with Bracket



MB2061SS2G13-CA

Four Pole

Straight PC with Bracket



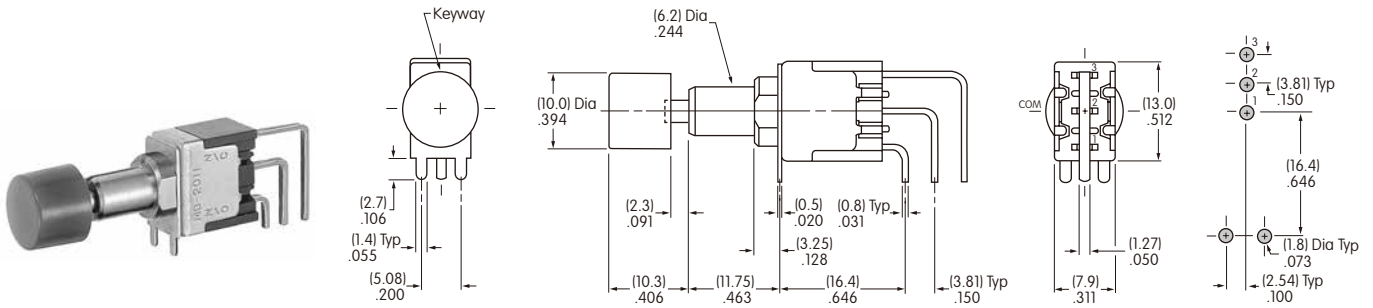
MB2181SS2G13-CA

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

### TYPICAL SWITCH DIMENSIONS

#### .150" (3.81mm) Vertical PC

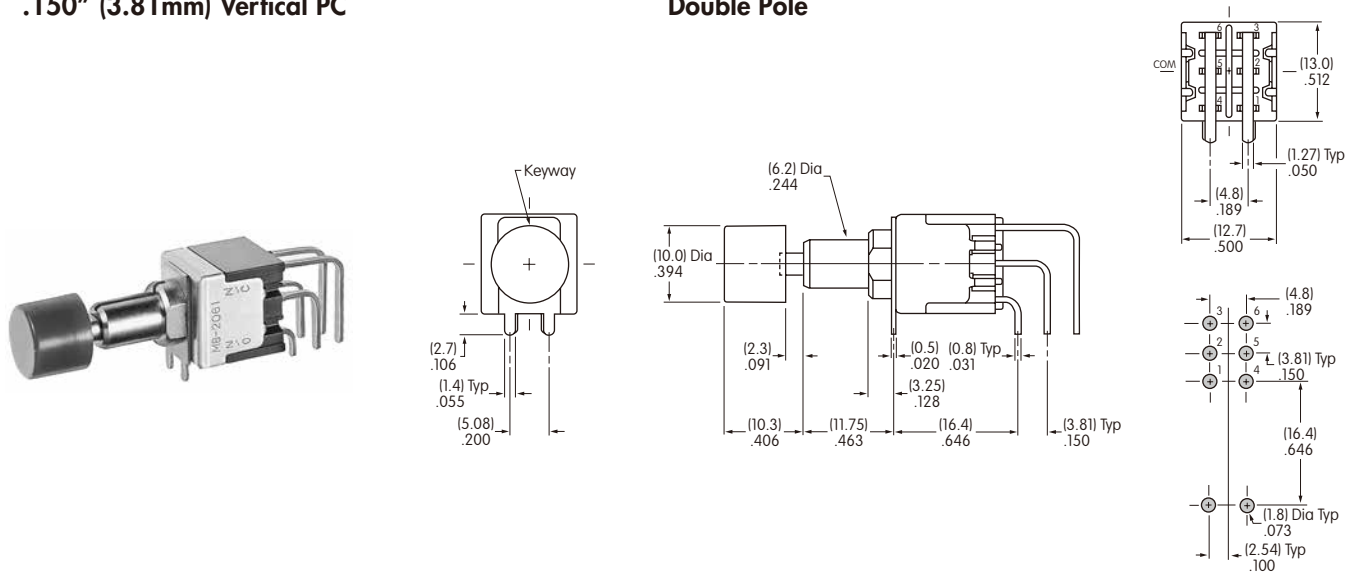
#### Single Pole



**MB2011SS2G40-CA**

#### .150" (3.81mm) Vertical PC

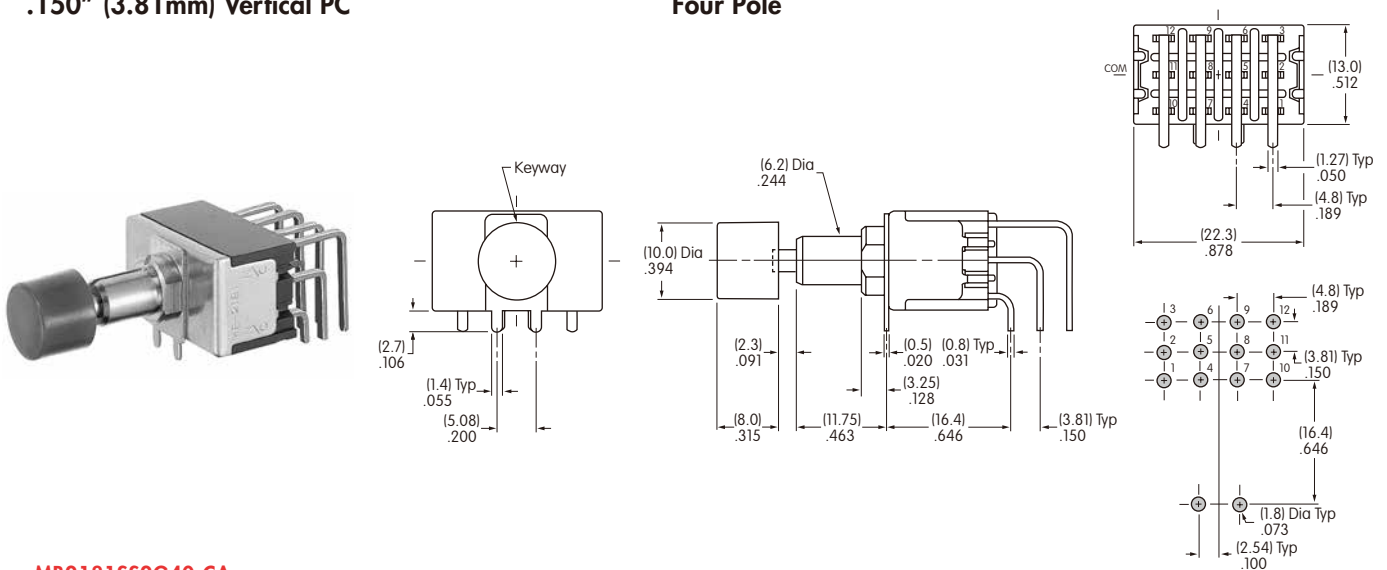
#### Double Pole



**MB2061SS2G40-CA**

#### .150" (3.81mm) Vertical PC

#### Four Pole

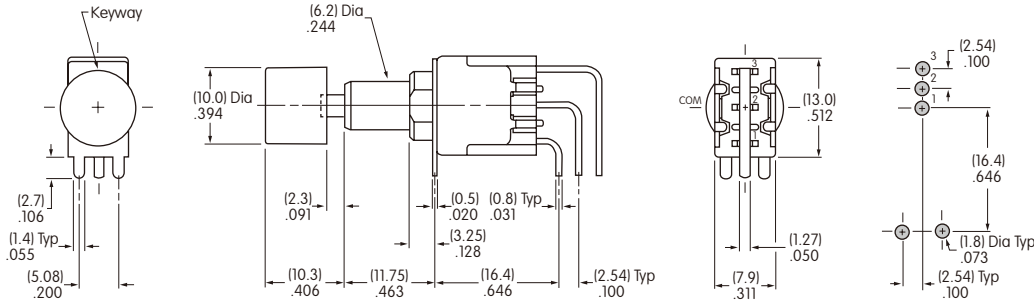


**MB2181SS2G40-CA**

TYPICAL SWITCH DIMENSIONS

Single Pole

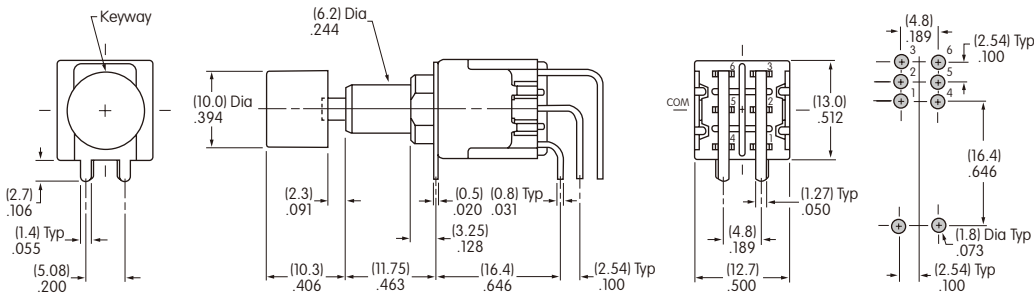
.100" (2.54mm) Vertical PC



MB2011SS2G45-CA

Double Pole

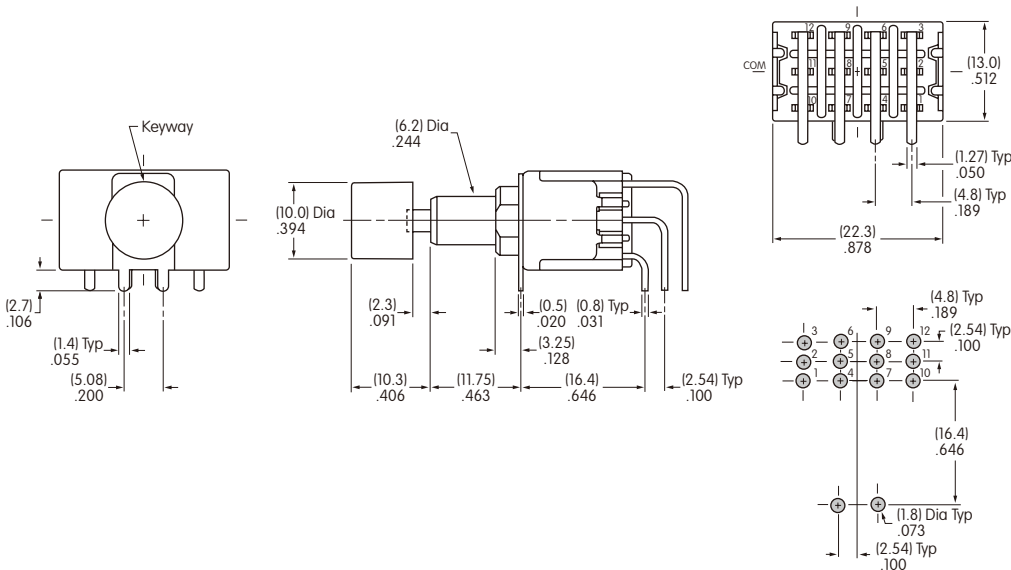
.100" (2.54mm) Vertical PC



MB2061SS2G45-CA

Four Pole

.100" (2.54mm) Vertical PC

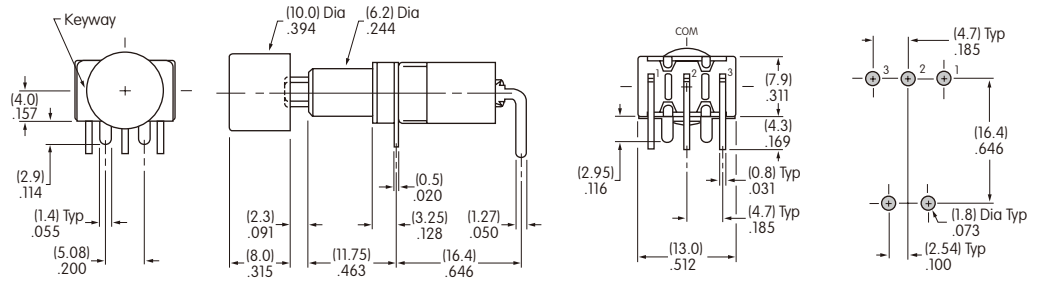


MB2181SS2G45-CA

### TYPICAL SWITCH DIMENSIONS

#### Right Angle PC

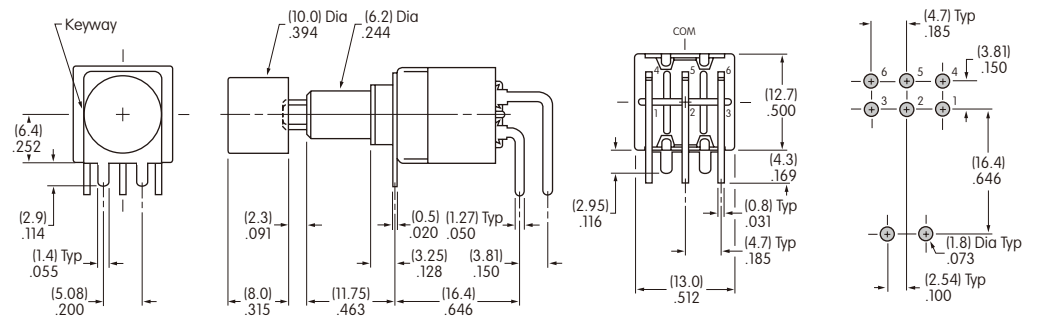
#### Single Pole



**MB2011SS2G30-CA**

#### Right Angle PC

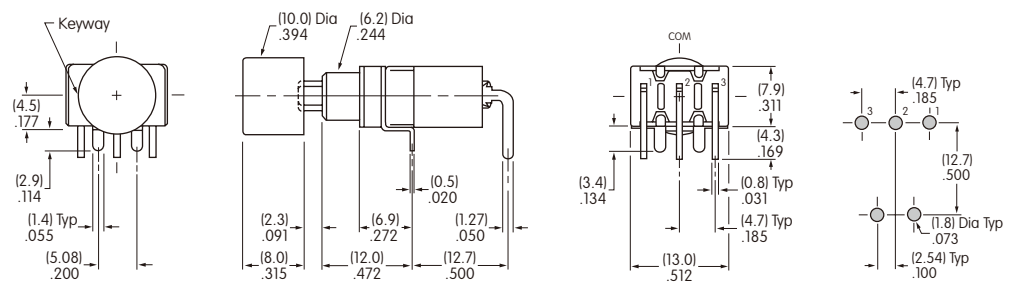
#### Double Pole



**MB2061SS2G30-CA**

#### Right Angle PC with .500" (12.7mm) Support to Terminal

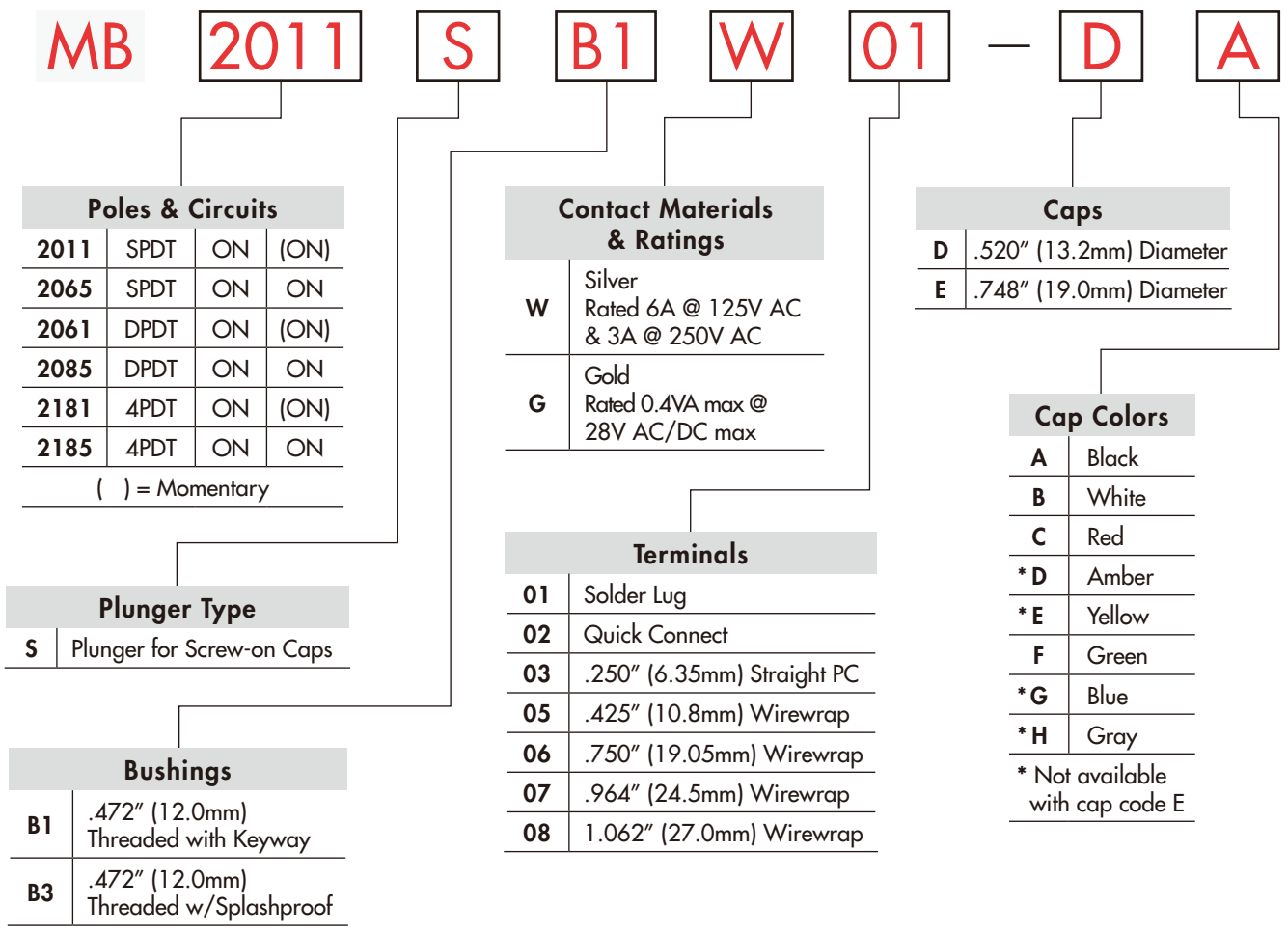
#### Single Pole



**MB2011SA2G31-CA**

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

TYPICAL SWITCH ORDERING EXAMPLE



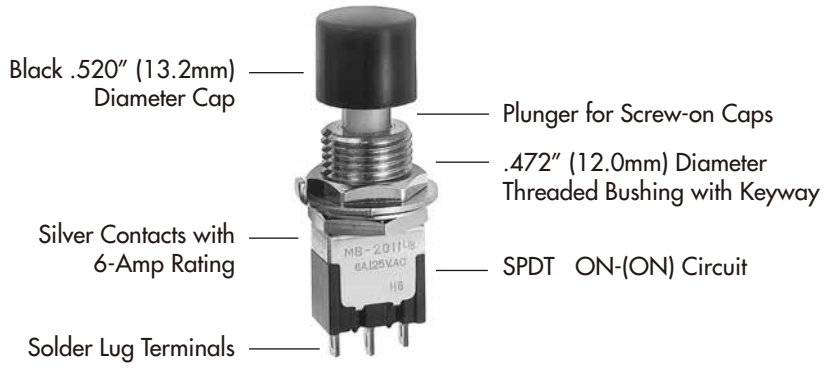
**IMPORTANT:**



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 the General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**MB2011SB1W01-DA**



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



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

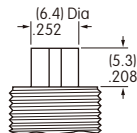
### POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal	Down	Normal	Down	
SP	MB2011 MB2065	ON ON	(ON) ON	2-3 2-3	2-1 2-1	SPDT 
DP	MB2061 MB2085	ON ON	(ON) ON	2-3 5-6 2-3 5-6	2-1 5-4 2-1 5-4	DPDT 
4P	MB2181 MB2185	ON ON	(ON) ON	2-3 5-6 8-9 11-12	2-1 5-4 8-7 11-10	4PDT 

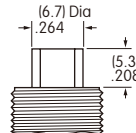
### PLUNGER TYPE

**S**

**Plunger for Screw-on Caps**  
Plunger is plastic for B1 bushing.



Plunger is metal for B3 bushing.



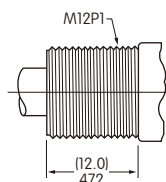
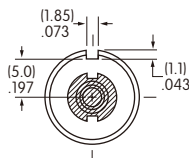
On alternate action models, after transferring circuit, the plunger returns to its original position, and does not latch down.

### BUSHINGS

**B1**

**.472" (12.0mm) Diameter Threaded with Keyway**

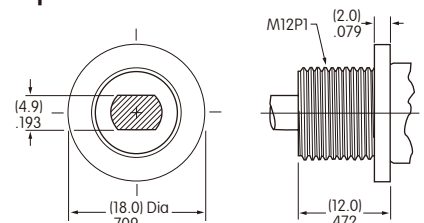
Maximum Panel Thickness with Standard Hardware: .217" (5.5mm)



**B3**

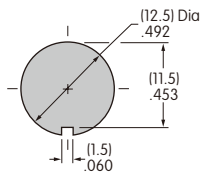
**.472" (12.0mm) Diameter Threaded Splashproof**

Maximum Panel Thickness with Standard Hardware: .217" (5.5mm)

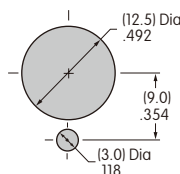


### Panel Cutouts

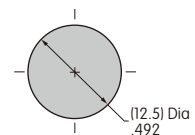
**For B1 Bushing with Keyway**



**For B1 Bushing with Locking Ring**



**For B3 Bushing without Keyway**



### CONTACT MATERIALS & RATINGS

**W**

Silver over Silver

Power Level

6A @ 125V AC & 3A @ 250V AC

**G**

Gold over Brass or Copper

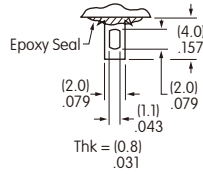
Logic Level

0.4VA maximum @ 28V AC/DC maximum

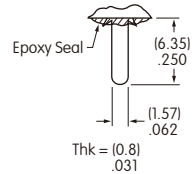
Note: Complete explanation of operating range in Supplement section.

TERMINALS

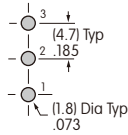
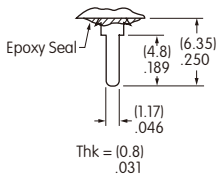
**01** Solder Lug



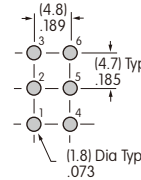
**02** .062" (1.57mm) Wide Quick Connect



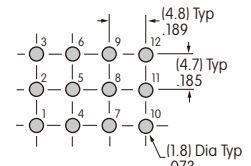
**03** .250" (6.35mm) Straight PC



Single Pole



Double Pole



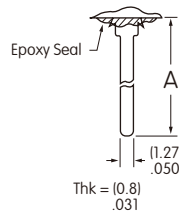
Four Pole

**05** .425" (10.8mm) Wirewrap or Extended PC

**06** .750" (19.05mm) Wirewrap or Extended PC

**07** .964" (24.5mm) Wirewrap or Extended PC

**08** 1.062" (27.0mm) Wirewrap or Extended PC



If using as extended PC terminal, refer to the above footprints.

Dimension A = terminal lengths as shown beside the terminal codes at the left.

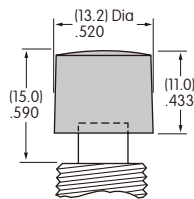
CAPS & CAP COLORS

**D** AT414  
.520" (13.2mm)  
Diameter Screw-on Cap

Material:  
PBT  
Finish:  
Glossy



Colors Available:  
A B C D E F G H

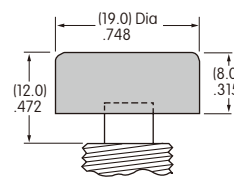


**E** AT412  
.748" (19.0mm)  
Diameter Screw-on Cap

Material:  
Polystyrene  
Finish:  
Glossy



Colors Available:  
A B C F



Cap Color Codes:

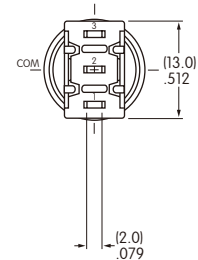
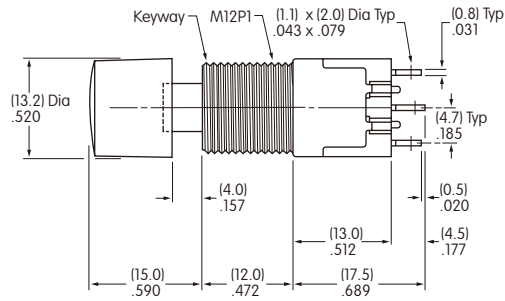
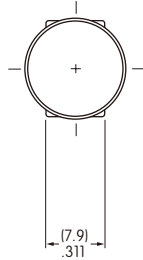
- A** Black
- B** White
- C** Red
- D** Amber
- E** Yellow
- F** Green
- G** Blue
- H** Gray

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

### TYPICAL SWITCH DIMENSIONS

#### Solder Lug

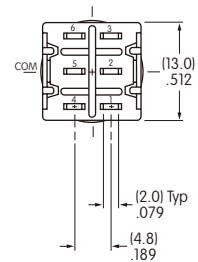
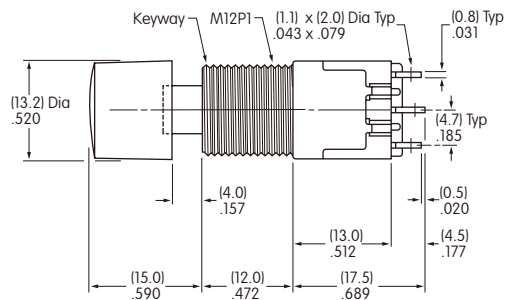
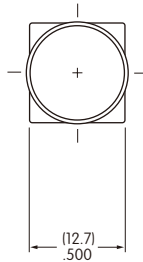
#### Single Pole



**MB2011SB1W01-DA**

#### Solder Lug

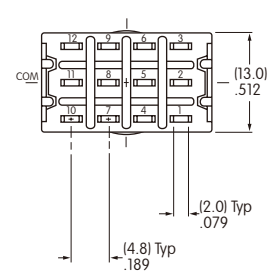
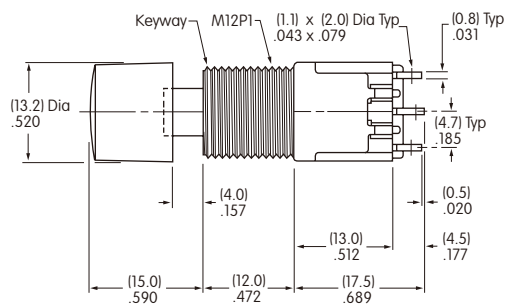
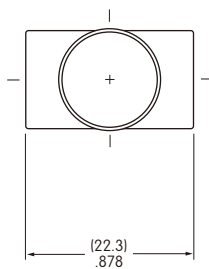
#### Double Pole



**MB2061SB1W01-DA**

#### Solder Lug

#### Four Pole



**MB2181SB1W01-DA**

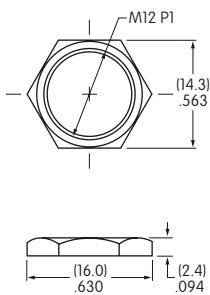
Toggles  
Rockers  
Pushbuttons  
Illuminated PB  
Programmable  
Keylocks  
Rotaries  
Slides  
Tactiles  
Tilt  
Touch  
Indicators  
Accessories  
Supplement

## HARDWARE

### Standard Hardware for B1 Bushing

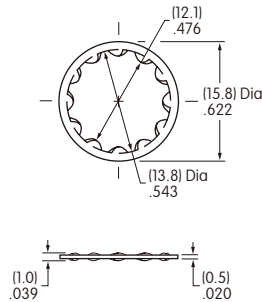
#### AT503M Hex Face Nut

Material:  
Brass with Chrome plating



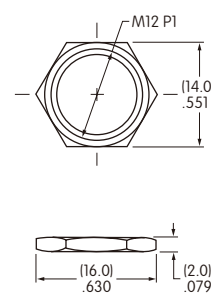
#### AT508 Lockwasher

Material:  
Steel with Zinc/Chromate



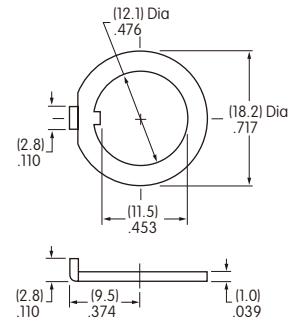
#### AT527M Hex Nut

Material:  
Steel with Nickel plating



#### AT506M Locking Ring

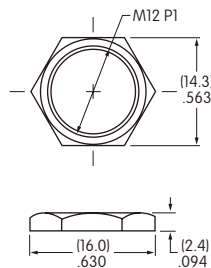
Material:  
Steel with Zinc/Chromate



### Standard Hardware for B3 Bushing

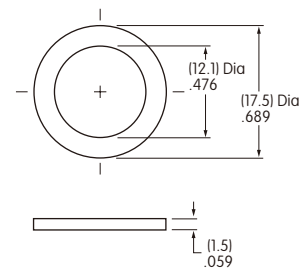
#### AT503M Hex Face Nut

Material:  
Brass with Chrome plating



#### AT401P O-ring

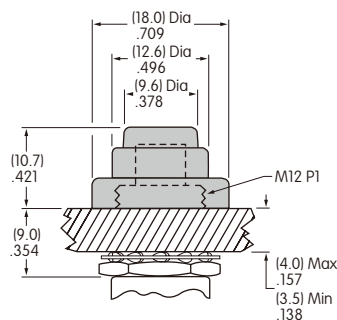
Material:  
Nitrile butadiene rubber



#### AT4043 Splashproof Boot

Material: Silicone Rubber  
Operating Life: 10,000 for momentary  
30,000 for alternate action

When using a splashproof boot, no cap is required.



### CUSTOM ASSEMBLY ORDERING EXAMPLE

The MB2000 pushbutton series offers flexibility to accommodate a variety of applications. Using a basic large bushing model, different accessories can be assembled onto the switch to achieve the mounting variations shown on the following two pages.

- These switches have:
- 12mm diameter threaded bushing with keyway
  - Silver contacts
  - 6-Amp rating
  - Solder lug terminals

Other 12mm bushing options can be used; see details in preceding Large Bushing Ordering tables.

**MB2011**

**SB1W01**

**4**

**C**

**A**

#### Poles & Circuits

<b>2011</b>	SPDT	ON	(ON)
<b>2065</b>	SPDT	ON	ON
<b>2061</b>	DPDT	ON	(ON)
<b>2085</b>	DPDT	ON	ON
4-pole available			
( ) = Momentary			

#### Mounter Shapes For Shroud

<b>4</b>	Round
<b>5</b>	Rectangular

#### Cap Colors For Shroud

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

#### Mounter Colors For Shroud

<b>A</b>	Black
<b>B</b>	White
<b>H</b>	Gray

#### Cap Colors For Snap-In

<b>A</b>	Black
<b>B</b>	White
<b>C</b>	Red
<b>F</b>	Green



**Round Shroud**  
**MB2011SB1W01-4C-A**



**Rectangular Shroud**  
**MB2011SB1W01-5C-A**

See custom assemblies on following pages.

MOUNTER SHAPES FOR SHROUDS

**4** AT455 Round

Material: Polycarbonate  
Colors: A B H



**5** AT453 Rectangular

Material: Polycarbonate  
Colors: A B H



CAPS & CAP COLORS FOR SHROUDS

AT454 Round  
Insert Cap

Material: Polycarbonate  
Colors: A B C F G H



AT452 Rectangular  
Insert Cap

Material: Polycarbonate  
Colors: A B C F G H



AT080 Screw Adaptor for Insert Caps

Material: Brass



Color Codes:

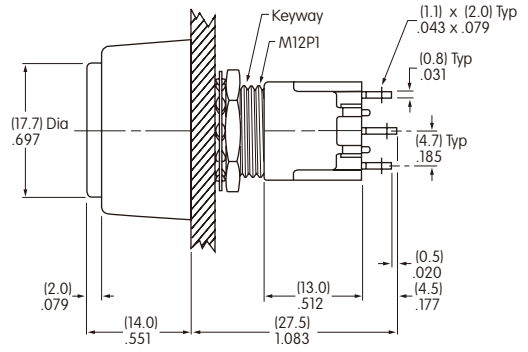
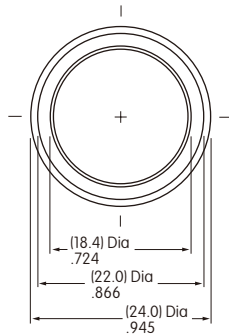
- A** Black
- B** White
- C** Red
- F** Green
- G** Blue
- H** Gray

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

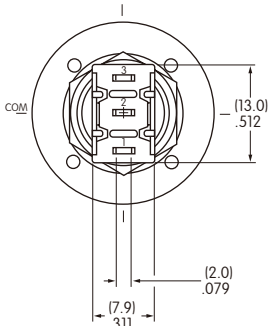
## CUSTOM ASSEMBLY WITH ROUND SHROUD



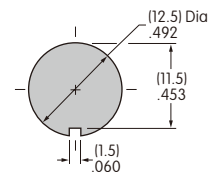
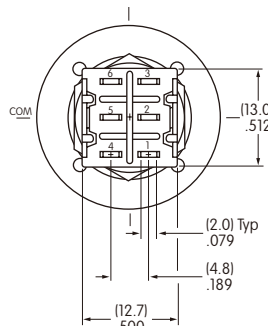
**MB2011SB1W01-4C-A**



### Single Pole



### Double Pole

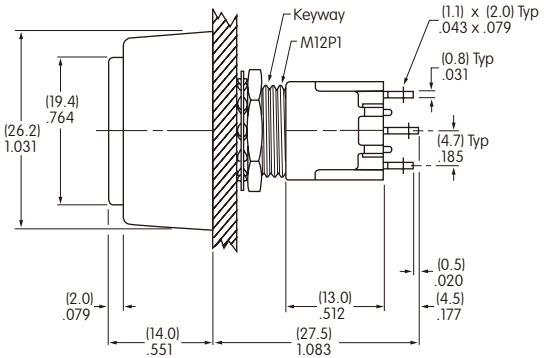
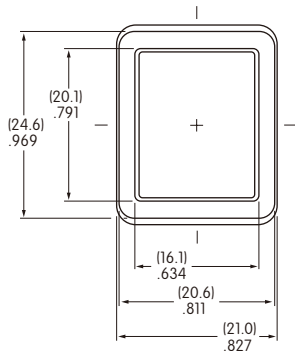


Effective Panel Thickness:  
.217" (5.5mm) maximum

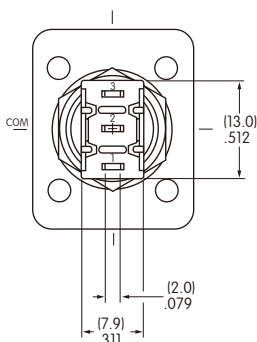
## CUSTOM ASSEMBLY WITH RECTANGULAR SHROUD



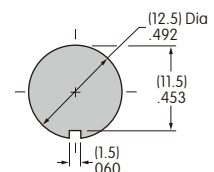
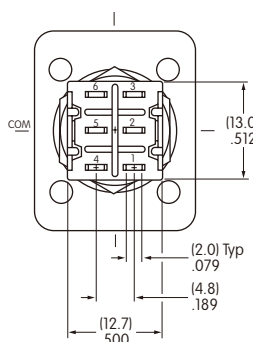
**MB2011SB1W01-5C-A**



### Single Pole



### Double Pole



Effective Panel Thickness:  
.217" (5.5mm) maximum

