

General Specifications

Electrical Capacity (Resistive Load)

Power Level (silver):	3A @ 125V AC
Logic Level (gold):	0.4VA maximum @ 28V AC/DC maximum (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Logic/Power Level:	Combines silver & gold ratings
(gold over silver)	Note: Find additional explanation of dual rating & operating range in Supplement section.

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
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
Frame:	Stainless steel
Case:	Polybutylene terephthalate (PBT) (UL94V-0)
Base:	Diallyl phthalate resin (UL94V-0)
Movable Contactor:	Phosphor bronze with silver or gold plating
Movable Contacts:	Silver alloy (code W); copper with gold plating (code G); or silver alloy with gold plating (code A)
Stationary Contacts:	Silver alloy with silver plating (code W); copper or brass with gold plating (code G); or silver with gold plating (code A)
Terminals:	Copper or brass with silver plating; copper or brass with gold plating

Environmental Data

Operating Temp Range:	-30°C through +85°C (-22°F through +185°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 & returning in 1 minute; 3 right angled directions for 2 hours
Shock:	50G (490m/s ²) acceleration (tested in 6 right angled directions, with 3 shocks in each direction)

Installation

Mounting Torque:	1.5Nm (13.0 lb•in) for double nut; 0.7Nm (6.0 lb•in) for single nut
Cap Installation Force:	80.0N (18.0 lbf) maximum downward force on actuator
Soldering:	Wave Soldering (PC version): 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. See Cleaning Specifications in Supplement section.

Standards & Certifications

Flammability Standards:	UL94V-0 case & base
UL:	File No. E44145 All single and double pole models recognized at 3A @ 125V AC or 0.4VA max. @ 28V DC max. Add "/U" to end of part number to order UL mark on switch. Add "/CUL" to end of part number to order cULus mark on switch.
CSA:	File No. 023535_0_000 Single pole models with PC, solder lug, or Wirewrap terminals & double pole with PC or Wirewrap terminals certified at 3A @ 125V AC or 0.4VA @ 28V maximum. Add "/C" to end of part number to order CSA mark on switch.

Distinctive Characteristics

Snap-acting mechanism gives smooth actuation, short stroke, light touch, and audible feedback. This mechanism also provides long mechanical life.

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

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

Compatible companions with M series toggles. Body, bushing, and footprint dimensions ideal for mounting MB2400 pushbuttons and M toggles next to one another.

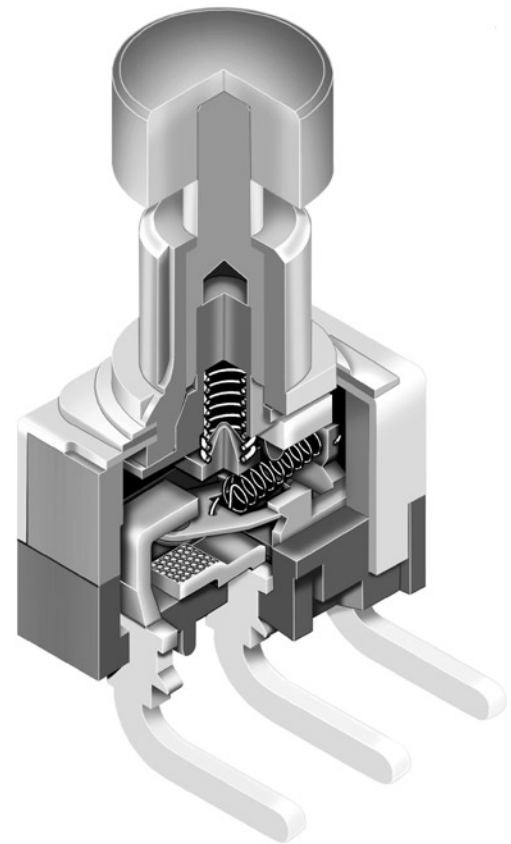
Stainless steel frame resists corrosion.

Longer center solder lug terminal simplifies wiring and soldering.

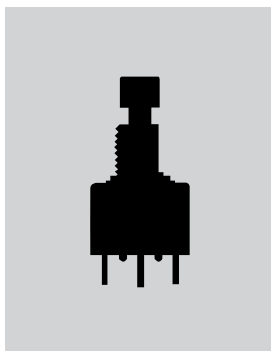
Silver contacts of specially composed alloy for hardness.


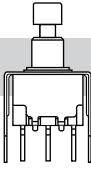
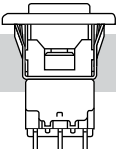
Epoxy sealed terminals prevent entry of solder flux and other contaminants.

Prominent external insulating barriers increase insulation resistance and dielectric strength.



Actual Size



	Bushing Mount	Page C98
	Bracket PC Mount	Page C102
	Snap-in Mount	Page C108

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

TYPICAL SWITCH ORDERING EXAMPLE

MB24

11

A2

G

40

F

A

Poles & Circuits

11	SPDT	ON	(ON)
61	DPDT	ON	(ON)

() = Momentary

Contact Materials & Ratings

W	Silver Rated 3A @ 125V AC
G	Gold Rated 0.4VA max @ 28V AC/DC max
A	Gold over Silver Rated 3A @ 125V AC & 0.4VA max @ 28V AC/DC max

Caps

F	.201" (5.1mm) Dia.
H	.295" (7.5mm) Dia.

Bushings

A2	.280" (7.1mm) Smooth with Keyway
A1	.280" (7.1mm) Threaded with Keyway
E2	.285" (7.24mm) Smooth with D Flat
E1	.285" (7.24mm) Threaded with D Flat
S2	.350" (8.9mm) Smooth with Keyway
S1	.350" (8.9mm) Threaded with Keyway

Cap Colors

A	Black
B	White
C	Red

Terminals

With Bracket

13	.250" (6.35mm) Straight PC with .465" (11.8mm) Bracket
15	.425" (10.8mm) Straight PC with .630" (16.0mm) Bracket
17	.964" (24.5mm) Straight PC with 1.150" (29.2mm) Bracket

With Reinforced Bracket

23	.250" (6.35mm) Straight PC with .465" (11.8mm) Bracket
25	.425" (10.8mm) Straight PC with .630" (16.0mm) Bracket
26	.750" (19.05mm) Straight PC with .953" (24.2mm) Bracket

With Terminal Support

30	Right Angle PC
32	Right Angle PCB with Reverse Circuit (1-pole & 0.4VA rating only)
40	Vertical PC

IMPORTANT:

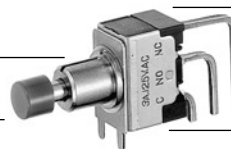


Switches are supplied without UL, cULus, & CSA markings unless specified. Specific models & ratings noted on General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MB2411A2G40-FA

.280" (7.1mm) Smooth Bushing with Keyway
Black .201" (5.1mm) Diameter Cap



SPDT ON-(ON) Circuit
Vertical PC Terminals
Gold Contacts with 0.4VA Rating

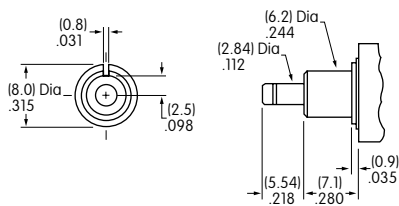
POLES & CIRCUITS

Pole	Model	Plunger Position () = Momentary		Connected Terminals		Throw & Switch Schematics
		Normal	Down	Normal	Down	
						Note: Terminal numbers are not actually on the switch. * When using terminal code 32, connected terminals and schematic are reversed.
SP	*MB2411	ON	(ON)	1-3	1-2	
DP	MB2461	ON	(ON)	1-3 4-6	1-2 4-5	

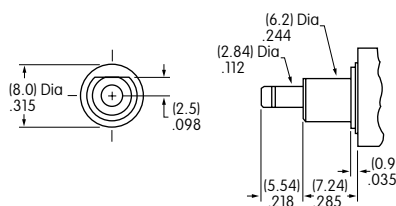
BUSHINGS

Note: Plunger selection is not required for MB2400 pushbuttons.
The plunger can be used with or without a cap.

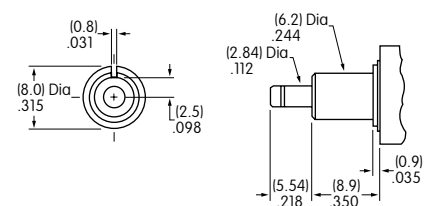
A2 .280" (7.1mm)
Smooth with Keyway



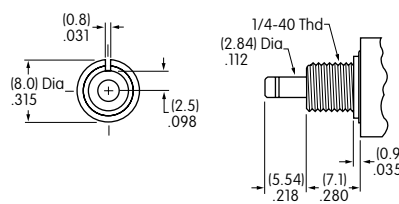
E2 .285" (7.24mm)
Smooth with D Flat



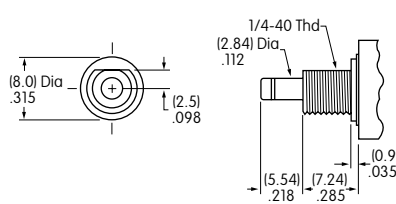
S2 .350" (8.9mm)
Smooth with Keyway



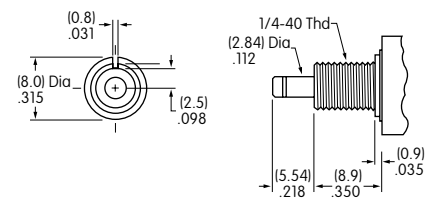
A1 .280" (7.1mm)
Threaded with Keyway



E1 .285" (7.24mm)
Threaded with D Flat



S1 .350" (8.9mm)
Threaded with Keyway



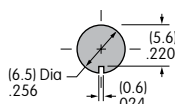
Maximum Panel Thickness with Standard Hardware: .068" (1.74mm)

Maximum Panel Thickness with Standard Hardware: .068" (1.74mm)

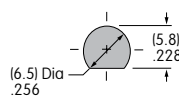
Maximum Panel Thickness with Standard Hardware: .134" (3.40mm)

Panel Cutouts

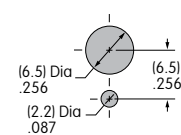
For A1, A2, S1, or S2 Bushing with Keyway



For E1 or E2 Bushing with D Flat



With Optional Locking Ring



Standard hardware includes 2 hex nuts & 1 lockwasher.
Hardware is illustrated following the Typical Switch Dimension drawings.

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

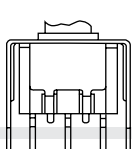
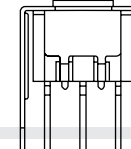
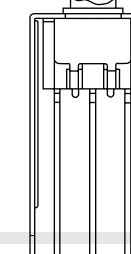
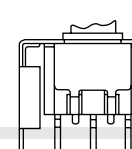
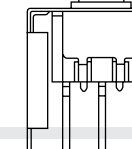
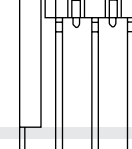
CONTACT MATERIALS & RATINGS

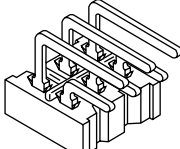
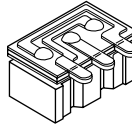
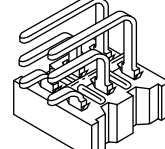
W	Silver over Silver	Power Level	3A @ 125V AC
G	Gold over Brass or Copper	Logic Level	0.4VA maximum @ 28V AC/DC maximum
Note: Complete explanation of operating range in Supplement section.			
A	Gold over Silver	Power Level or Logic Level	3A @ 125V AC or 0.4VA maximum @ 28V AC/DC maximum
Note: This dual 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

Straight PC Mount with Bracket

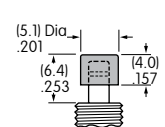
Straight PC Mount with Reinforced Bracket

13	15	17	23	25	26
.250" (6.35mm) Terminal with .465" (11.8mm) Bracket	.425" (10.8mm) Terminal with .630" (16.0mm) Bracket	.964" (24.5mm) Terminal with 1.150" (29.2mm) Bracket	.250" (6.35mm) Terminal with .465" (11.8mm) Bracket	.425" (10.8mm) Terminal with .630" (16.0mm) Bracket	.750" (19.05mm) Terminal with .953" (24.2mm) Bracket
					

30	32	40
Right Angle PC	Right Angle PCB with Reverse Circuit Available only in single pole with 0.4VA rating (code G)	Vertical PC
		

PCB footprints are on the following Typical Switch Dimension pages.

CAPS & CAP COLORS

F	AT475 .201" (5.1mm) Diameter Cap		H	AT496 .295" (7.5mm) Diameter Cap	
Material: Polyamide			Material: Polyamide		
Finish: Glossy			Finish: Glossy		

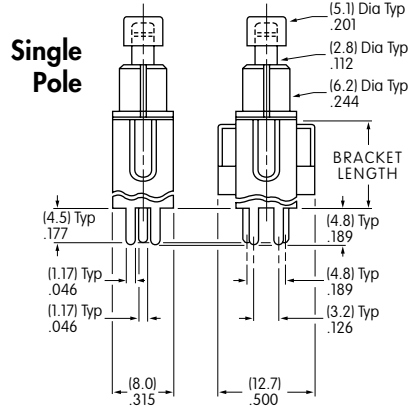
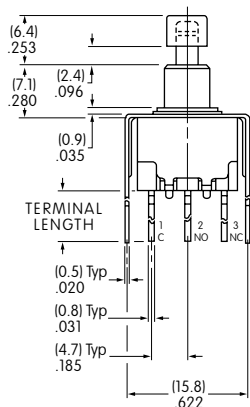
Cap Colors Available:

A	B	C
Black	White	Red

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

TYPICAL SWITCH DIMENSIONS

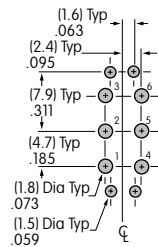
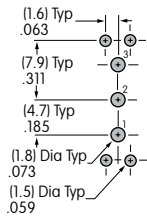
Straight PC • Bracket



Double Pole

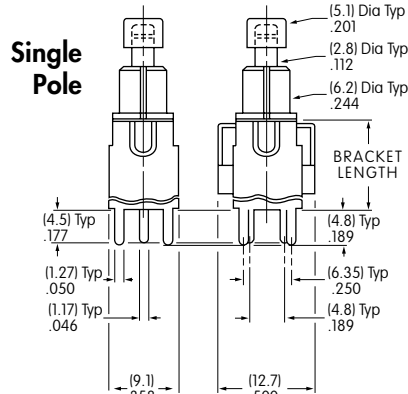
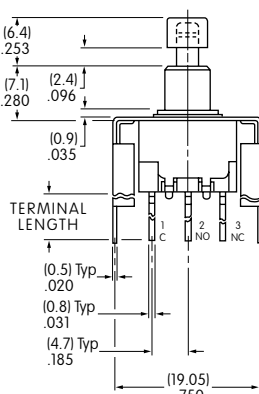


MB2411A2G13-FA



Terminal Code:	Terminal Length:	Bracket Length:
13	.250 (6.35mm)	.465 (11.8mm)
15	.425 (10.8mm)	.630 (16.0mm)
17	.964 (24.5mm)	1.150 (29.2mm)

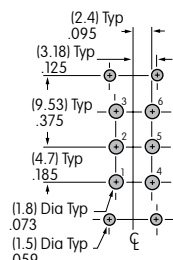
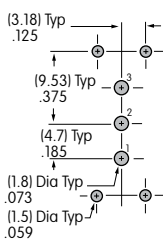
Straight PC • Reinforced Bracket



Double Pole



MB2411A2G23-FA

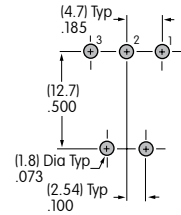
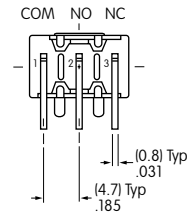
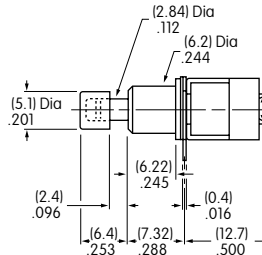
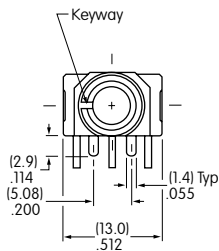


Terminal Code:	Terminal Length:	Bracket Length:
23	.250 (6.35mm)	.465 (11.8mm)
25	.425 (10.8mm)	.630 (16.0mm)
26	.750 (19.05mm)	.953 (24.2mm)

TYPICAL SWITCH DIMENSIONS

Right Angle PC

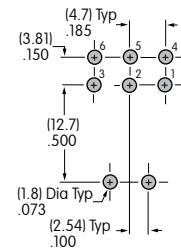
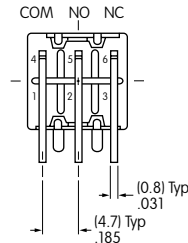
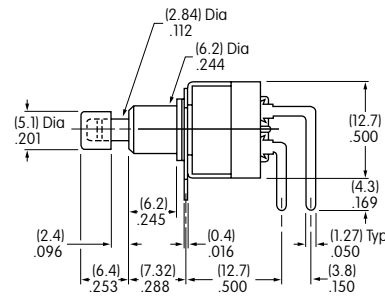
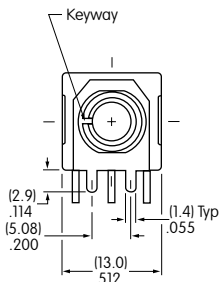
Single Pole



MB2411A2G30-FA

Right Angle PC

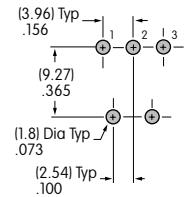
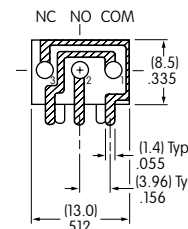
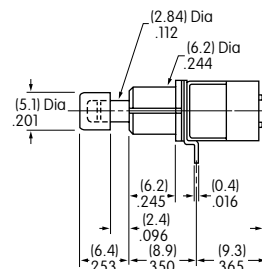
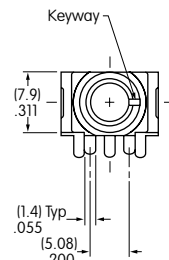
Double Pole



MB2461A2G30-FA

Right Angle PCB

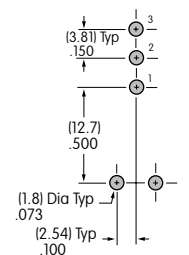
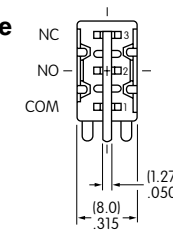
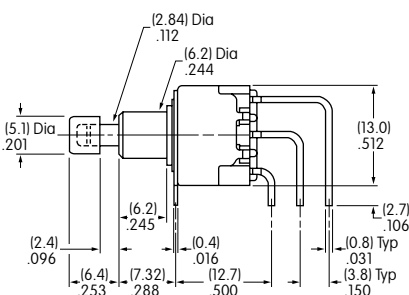
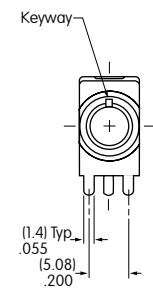
Single Pole • Reverse Circuit



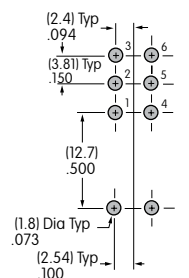
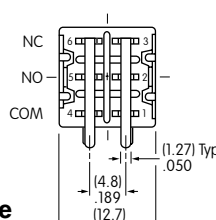
MB2411A2G32-FA

Vertical PC

Single Pole



Double Pole



MB2411A2G40-FA

Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

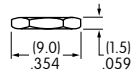
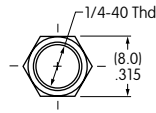
HARDWARE

Standard Hardware

AT513H Inch Threaded Hexagon Nut

2 included with each switch

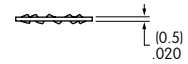
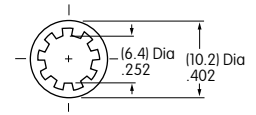
Material:
Brass with Nickel Plating



AT509 Lockwasher

1 included with each switch

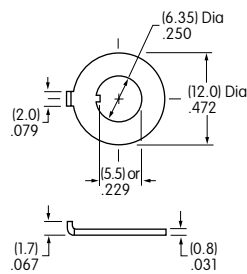
Material:
Steel with Zinc/Chromate



Optional Hardware

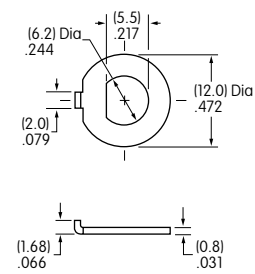
AT507H Locking Ring for A1 or S1 Bushing

Material:
Steel with Zinc/Chromate



AT515 Locking Ring for E1 Bushing

Material:
Steel with Zinc/Chromate



Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement