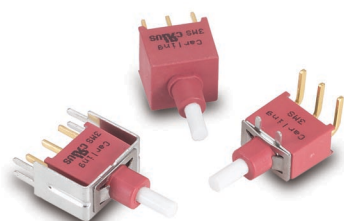
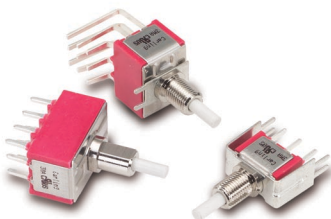




3MN-Series
Snap-Action Miniature
Pushbutton Switch



3MS-Series
Sealed Snap-Action
Miniature Pushbutton
Switch



3MA-Series
Alternate Action
Miniature Pushbutton
Switch

Specifications

Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance.	3MN & 3MA-Series: 10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts. 3MS-Series: 50 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts.
Insulation Resistance . . .	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level
Operating Temperature . . .	-30°C to +85°C
Index of Protection	3MS -Series: IP68
Cap Installation Support . . .	3MS-Series: 10 lbs. max.
Solder Heat Resistance. . .	MIL-STD-202, Method 210
Actuator Travel	25°

Materials

Case	3MN & 3MA-Series: Diallyl phthalate (DAP) (UL 94V-0) 3MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
Plunger.	3MN-Series: Thermoplastic polyester, black 3MS & 3MA-Series: Glass filled nylon or glass filled polyester (UL 94V-0)
Bushing	3MN-Series: Brass, nickel plated 3MA-Series: Zinc, nickel plated
Housing.	3MN & 3MA-Series: Stainless Steel
Switch Support Retainer . . .	3MS-Series: Stainless Steel
Terminal Seal	Epoxy

3M-Series Optional Cap

To order a cap assembled on a switch, specify the switch number followed by the cap part number and the word "assembled".

Ex: 3MN-SP-7-P2-B6-M6QE-C13ASSEMBLED

To order caps in bulk, specify the Series, followed by the cap. Ex.) 3MN-C13



1 SERIES OR SWITCH CATALOG NUMBER 3MN, 3MS or 3MA

2 CAP SIZE

C1	round 7.6mm dia.	C5	round 14.5mm dia. (for 3MA w/ PL bushing)
C2	round 9.35 mm dia.	C6	brass chrome plated (for 3MA w/ PD bushing)
C3	square 11.7 x 11.7mm		
C4	round 5mm dia.		

3 CAP COLOR

1	white	5	yellow
2	black	6	green
3	red	7	blue
4	orange		

1 Black, white & red standard. Other colors available. Consult factory.

3MN-Series Ordering Scheme
with Square Actuator

with Plunger Actuator

1 SERIES
3MN Snap-Action Miniature Pushbutton Switch

2 POLES
SP single pole **DP** double pole
3 CIRCUIT

() - momentary

7 **ON** **(ON)**
4 ACTUATOR¹
SQUARE ACTUATOR (use with Color Options in Selection 5A & 5B.)

AP1 square with no frame
AP2 square raised above frame
AP3 square flush with frame

PLUNGER ACTUATOR (use with Bushing Options in Selection 5)

P0 2.5mm short plunger(for B6 bushing only)
P1 5.2mm plunger(for bushing B10,B11,B20,B21; 7.5mm for B6)
P2 2.0mm plunger(for bushing B10,B11,B20,B21; 4.2mm for B6)

5A ACTUATOR COLOR & 5B FRAME COLOR^{1,2}

1 white	4 orange	7 blue
2 black	5 yellow	8 brown
3 red	6 green	9 gray

1 Black, white and red are standard. Other colors available, consult factory for details.
 2 Selection 5B is blank if actuator style is AP1 (no frame)

OR

5 BUSHING
B6 Unthreaded (for terminations VS6-VS9 only)
B10 Threaded keyway
B11 Threaded with flat
B20 Unthreaded keyway
B21 Unthreaded with flat

NOTE:

 If ordering optional CAP with bushings B10, B11, B20 or B21, specify actuator P1.
 For CAP with bushing B6, specify actuator P2.
 For CAP options, see ordering scheme on page 35.

6 TERMINATION

M1	Solder Lug
M2	PCB
M5-1	Wire Wrap .750 [19.05]
M5-3	Wire Wrap .425 [10.80]
M6	PC Mount, 90° horizontal
M7	PC Mount, 90° vertical
VS2	PC Mount, U bracket, .620 mounting x .460 high
VS3	PC Mount, U bracket, .620 mounting x .630 high
VS4	PC Mount, U bracket, .750 mounting x .460 high
VS5	PC Mount, U bracket, .750 mounting x .630 high
VS6	PC Mount, U bracket, .460 high (for B6 bushing only)
VS7	PC Mount, U bracket, .630 high (for B6 bushing only)
VS8	PC Mount, U bracket, .460 high (for B6 bushing only)
VS9	PC Mount, U bracket, .630 high (for B6 bushing only)

7 CONTACT

Material	Terminal Plating	Rating	Approvals
G silver ¹	gold over silver ³	1A@120VAC or 28VDC	UL, CUL
Q silver ¹	silver ¹	1A@120VAC or 28VDC	UL, CUL
R gold ²	gold ²	0.4VA max. @20V max (AC/DC)	

NOTE:

Tin-lead option available with PC type terminations only.

1 Moveable contact & terminals: copper alloy, silver plate
 2 Moveable contact & terminals: copper alloy with gold plate over nickel plate
 3 Terminals: silver plate with outer layer in gold plating

8 EPOXY SEAL
E epoxy seal

3MS-Series Ordering Scheme

3MS - **WSP** **7** - **P1** - **B1** - **M6** **Q** **E**

1 Series 2 Poles 3 Circuit 4 Actuator 5 Bushing 6 Termination 7 Contact 8 Seal

1 SERIES 3MS Sealed Snap-Action Miniature Pushbutton Switch		6 TERMINATION M1 Solder Lug M2 PCB M6 PC Mount, 90° horizontal M61 Snap-In, 90° horizontal M7 PC Mount, 90° vertical M71 Snap-In, 90° vertical VS2 PC Mount, U bracket, .620 mounting x .460 high VS21 Snap-In, U bracket, .620 mounting x .460 high VS3 PC Mount, U bracket, .620 mounting x .630 high VS4 PC Mount, U bracket, .750 mounting x .460 high VS5 PC Mount, U bracket, .750 mounting x .630 high																					
2 POLES WSP single pole WDP double pole		7 CONTACT <table><tr><td></td><td><i>Material</i></td><td><i>Terminal Plating</i></td><td><i>Rating</i></td><td><i>Approvals</i></td></tr><tr><td>G</td><td>silver¹</td><td>gold over silver³</td><td>1A@120VAC or 28VDC</td><td>UL, CUL IP68</td></tr><tr><td>Q</td><td>silver¹</td><td>silver¹</td><td>1A@120VAC or 28VDC</td><td>UL, CUL IP68</td></tr><tr><td>R</td><td>gold²</td><td>gold²</td><td>0.4VA max. @20V max (AC/DC)</td><td>IP68</td></tr></table> NOTE: Tin-lead option available with PC type terminations only. 1 Moveable contact & terminals: copper alloy, silver plate 2 Moveable contact & terminals: copper alloy with gold plate over nickel plate 3 Terminals: silver plate with outer layer in gold plating			<i>Material</i>	<i>Terminal Plating</i>	<i>Rating</i>	<i>Approvals</i>	G	silver ¹	gold over silver ³	1A@120VAC or 28VDC	UL, CUL IP68	Q	silver ¹	silver ¹	1A@120VAC or 28VDC	UL, CUL IP68	R	gold ²	gold ²	0.4VA max. @20V max (AC/DC)	IP68
	<i>Material</i>	<i>Terminal Plating</i>	<i>Rating</i>	<i>Approvals</i>																			
G	silver ¹	gold over silver ³	1A@120VAC or 28VDC	UL, CUL IP68																			
Q	silver ¹	silver ¹	1A@120VAC or 28VDC	UL, CUL IP68																			
R	gold ²	gold ²	0.4VA max. @20V max (AC/DC)	IP68																			
3 CIRCUIT () - momentary 7 ON (ON)																							
4 ACTUATOR P1 .173" plunger (for B1 bushing); .276" (for B4 bushing) P2 .220" plunger (for B1 bushing); .327" (for B4 bushing) P3 .087" plunger (for B1 bushing); .193" (for B4 bushing)																							
5 BUSHING B1 Threaded B4 Unthreaded		7 EPOXY SEAL E epoxy seal																					

3MA-Series Ordering Scheme

with Square Actuator **3MA** - **SP** **1** - **AP2** / **3** **2** - **M6** **Q** **E**

1 Series 2 Poles 3 Circuit 4 Actuator 5A Actuator Color 5B Frame Color 6 Termination 7 Contact 8 Seal

with Plunger Actuator **3MA** - **SP** **1** - **PD** - **BD** - **M6** **Q** **E**

1 Series 2 Poles 3 Circuit 4 Actuator 5 Bushing 6 Termination 7 Contact 8 Seal

1 SERIES

3MA Alternate-Action Miniature Pushbutton Switch

2 POLES

SP single poleDP double pole3P three pole4P four pole

3 CIRCUIT

() - momentary

Switching Position:

1

ON

2-3, 5-6, 8-9, 11-12

OPEN

2-1, 5-4, 8-7, 11-10

ON

2

ON

NONE

(ON)

4 ACTUATOR

SQUARE ACTUATOR (use with Color Options in Selection 5A & 5B.)

AP1 square with no frame

AP2 square raised above frame

PLUNGER ACTUATOR (use with Bushing Options in Selection 5)

PA .118 dia. x .299" plunger length

PI .118 dia. x .244" plunger length

PL .118 dia. x .327" plunger length

PC .315" dia. brass chrome plated plunger (for BD bushing only)

PD .242" dia. brass chrome plated plunger (for BD bushing only)

5A ACTUATOR COLOR & 5B FRAME COLOR^{1,2}

1 white

4 orange

7 blue

2 black

5 yellow

8 brown

3 red

6 green

9 gray

1 Black, red and white are standard. Other colors available, consult factory for details.

2 Selection 5B is blank if actuator style AP1 (no frame)

OR

5 BUSHING

BD Big bushing for PC, PD actuator 15/32"

B10 Threaded 1/4 - 40

B20 Unthreaded

B21 Unthreaded with flat

NOTE: For CAP options, see ordering scheme on page 35.

6 TERMINATION

M1 Solder Lug

VS2 PC Mount, U bracket, .620 mounting x .460 high

M2 PCB

VS3 PC Mount, U bracket, .620 mounting x .630 high

M5-1 Wire Wrap .750 [19.05]

VS4 PC Mount, U bracket, .750 mounting x .460 high

M5-2 Wire Wrap .964 [24.48]

VS5 PC Mount, U bracket, .750 mounting x .630 high

M5-3 Wire Wrap .425 [10.80]

M5-4 Wire Wrap 1.062 [26.87]

M6 PC Mount, 90° horizontal

M7 PC Mount, 90° vertical

7 CONTACT

Material

Terminal Plating

Rating

Approvals

G silver¹

gold over silver³

6A@125VAC or 28VDC, 3A@250VAC

UL, CUL

K gold²

tin-lead⁴

6A@125VAC or 28VDC

P silver¹

tin-lead⁴

6A@125VAC or 28VDC, 3A@250VAC

UL, CUL

Q silver¹

silver¹

6A@125VAC or 28VDC, 3A@250VAC

UL, CUL

R gold²

gold²

0.4VA max. @20V max (AC/DC)

NOTE:

Tin-lead option available with PC type terminations only.

1 Moveable contact & terminals: copper alloy, silver plate

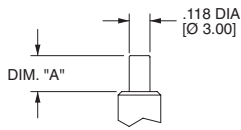
2 Moveable contact & terminals: copper alloy with gold plate over nickel plate

3 Terminals: silver plate with outer layer in gold plating

4 Outer terminals: copper alloy with tin-lead over nickel plate

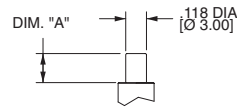
8 EPOXY SEAL

E epoxy seal

3MN-Series Dimensional Specifications: in. [mm]
PLUNGER


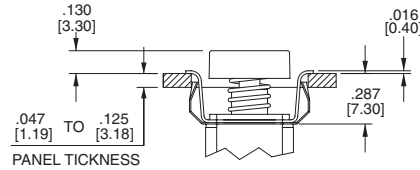
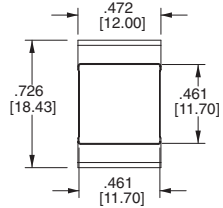
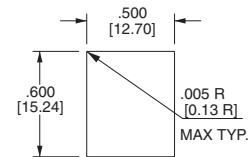
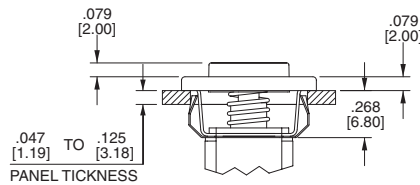
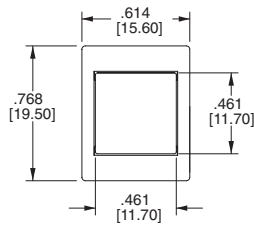
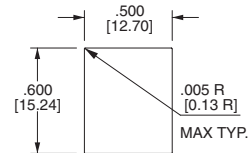
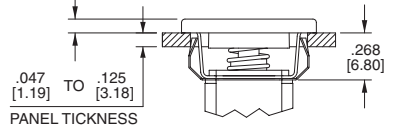
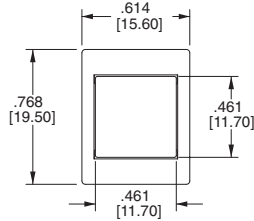
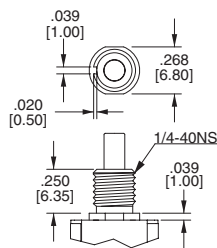
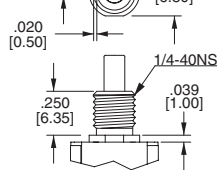
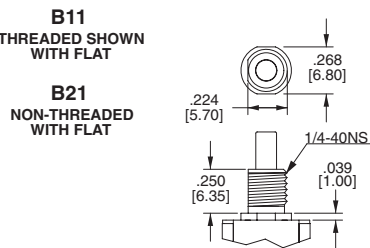
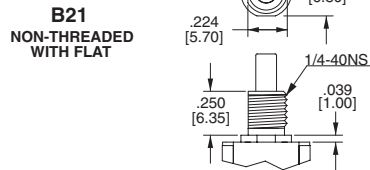
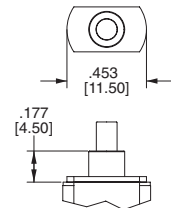
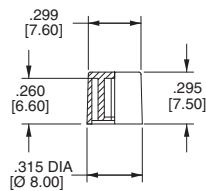
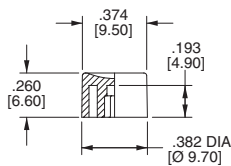
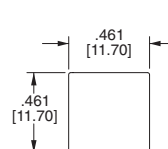
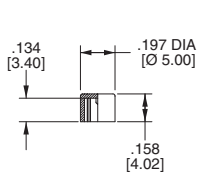
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P1	.205 [5.20]
P2	.079 [2.00]

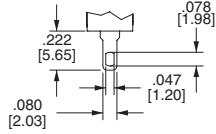
FOR B10,B11,B20,B21 ONLY



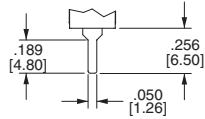
FOR B6 ONLY

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P2	.165 [4.20]

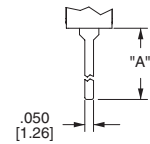
ACTUATOR
AP1

PANEL MOUNTING

AP2

PANEL MOUNTING

AP3

BUSHING
**B10
STANDARD KEYWAY
THREADED SHOWN**

**B20
STANDARD KEYWAY
NON-THREADED**

**B11
THREADED SHOWN
WITH FLAT**

**B21
NON-THREADED
WITH FLAT**

**B6
NON-THREADED
(FOR TERMINATION
OPTIONS VS6-VS9 ONLY)**

CAP
C1

C2

C3

C4


3MN-Series Dimensional Specifications: in. [mm]
TERMINATION
M1


THK .030 [0.75]

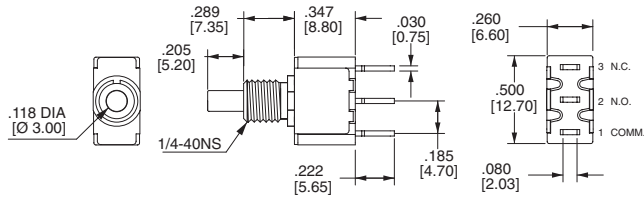
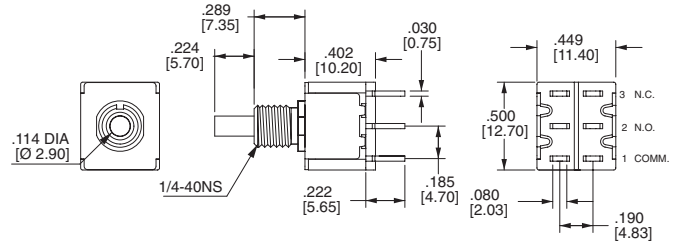
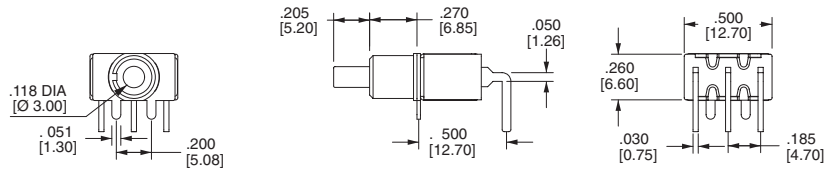
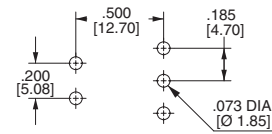
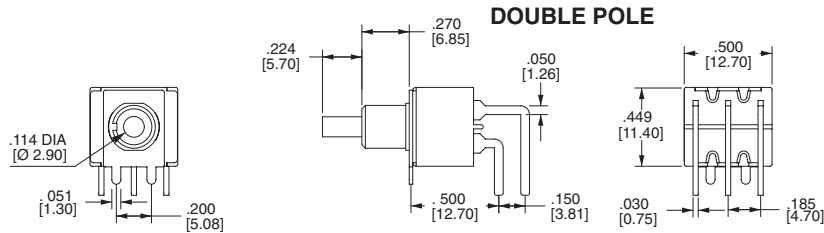
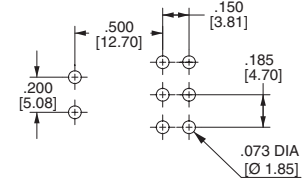
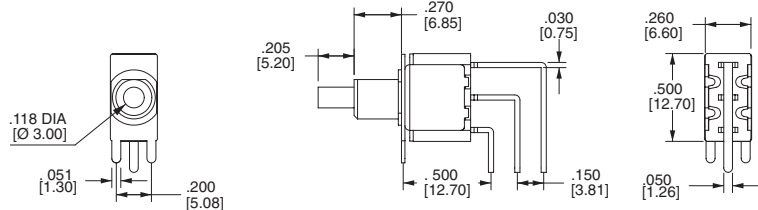
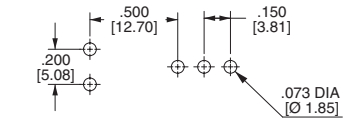
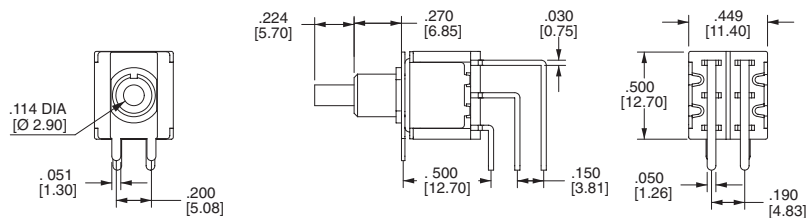
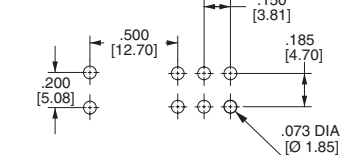
M2


THK .030 [0.75]

M5


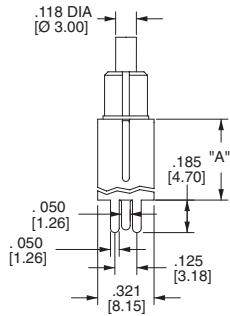
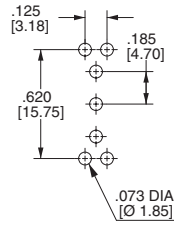
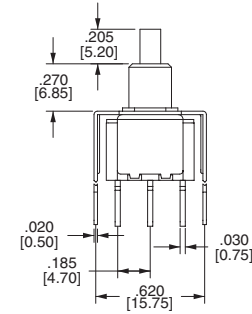
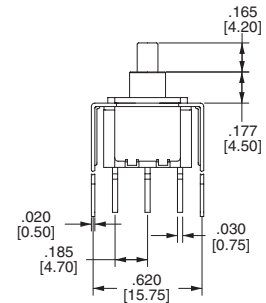
THK .030 [0.75]

OPTION CODE	DIM. "A"
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M5-3	.425 [10.80]

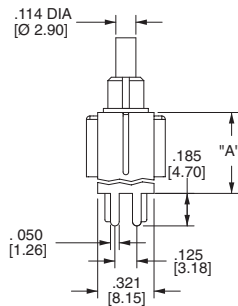
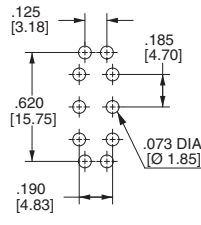
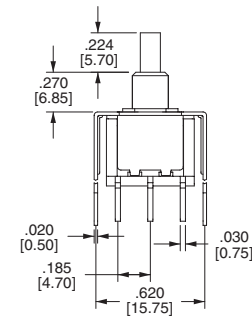
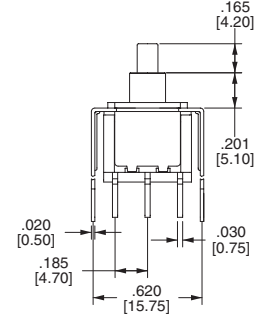
SINGLE POLE

DOUBLE POLE

M6
SINGLE POLE

PC MOUNTING

DOUBLE POLE

PC MOUNTING

M7
SINGLE POLE

PC MOUNTING

DOUBLE POLE

PC MOUNTING


3MN-Series Dimensional Specifications: in. [mm]
TERMINATION
SINGLE POLE

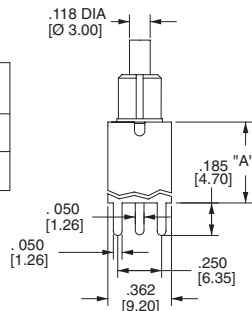
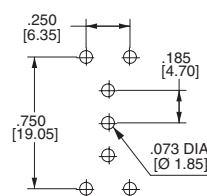
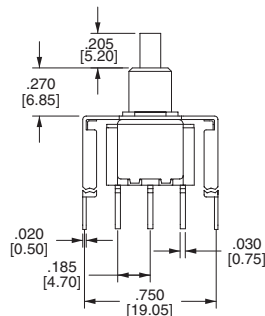
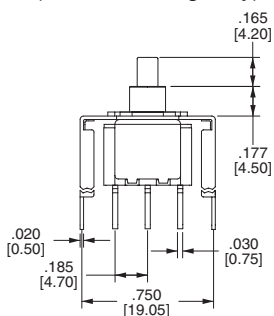
OPTION CODE	DIM. "A"
VS2	.460 [11.68]
VS6	.630 [16.00]
VS3	.630 [16.00]
VS7	.630 [16.00]


PC MOUNTING

VS2-VS3

**VS6-VS7
(For B6 Bushing Only)**

DOUBLE POLE

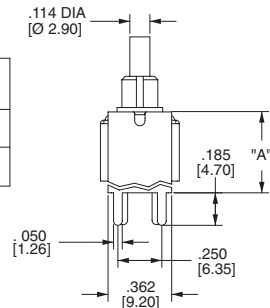
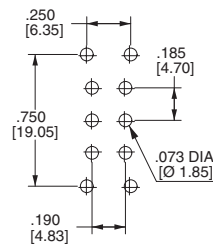
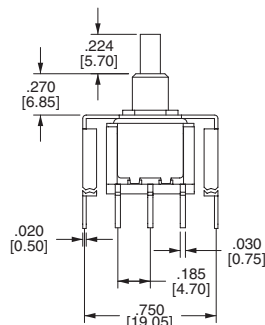
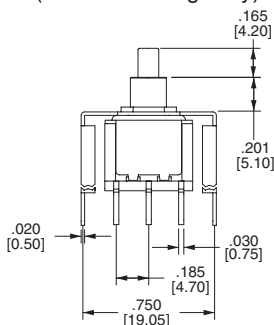
OPTION CODE	DIM. "A"
VS2	.460 [11.68]
VS6	.630 [16.00]
VS3	.630 [16.00]
VS7	.630 [16.00]

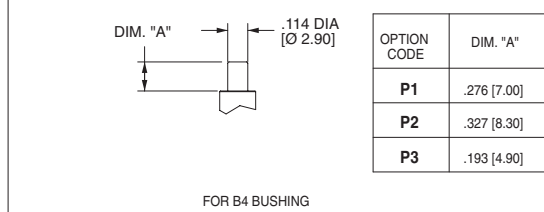
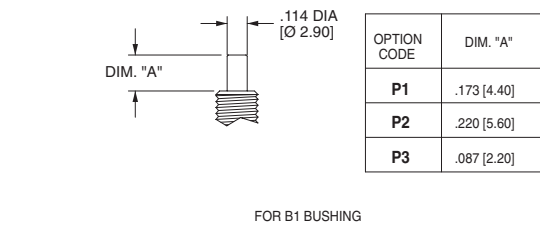
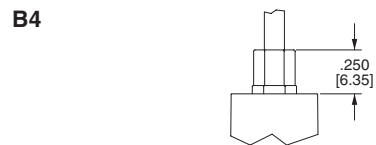
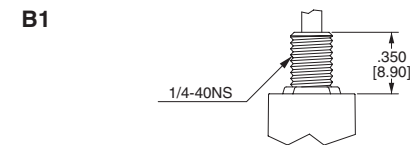
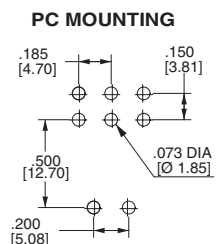
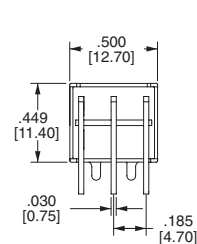
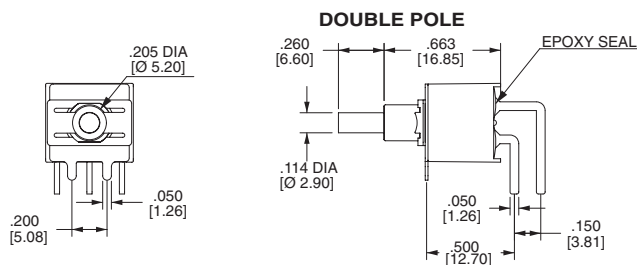
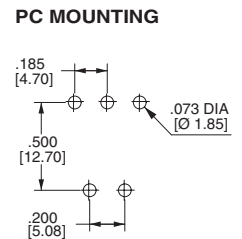
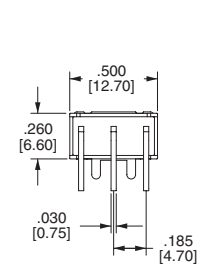
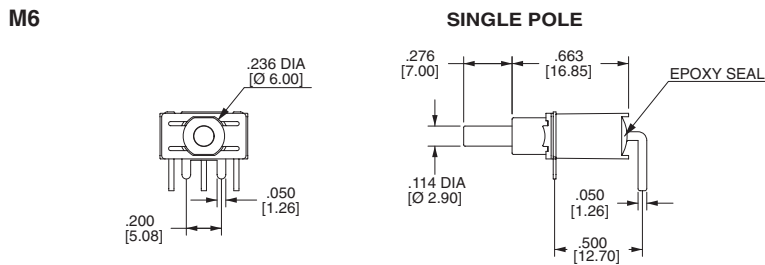
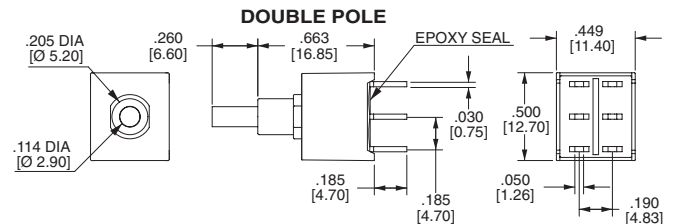
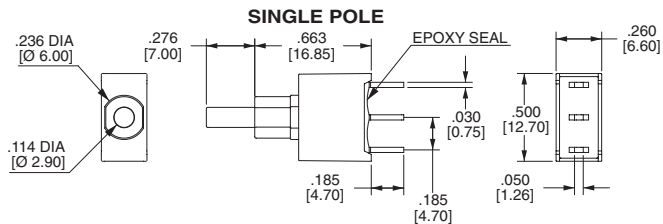
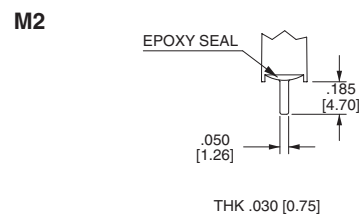
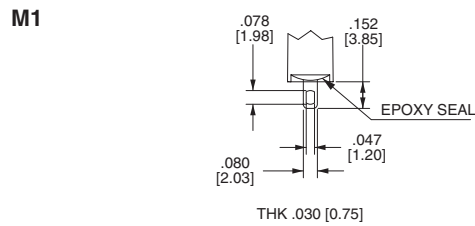

PC MOUNTING

VS2-VS3

**VS6-VS7
(For B6 Bushing Only)**

SINGLE POLE

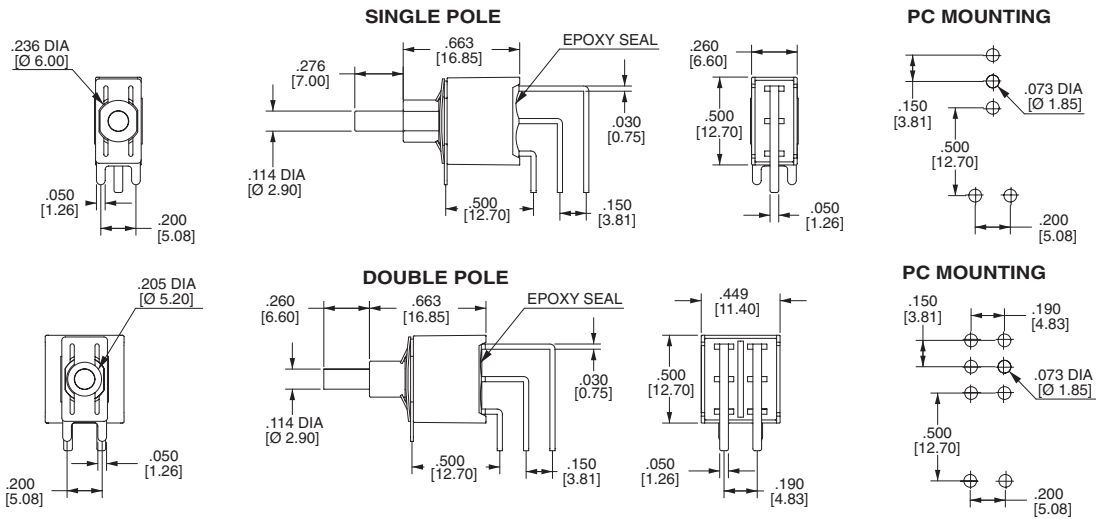
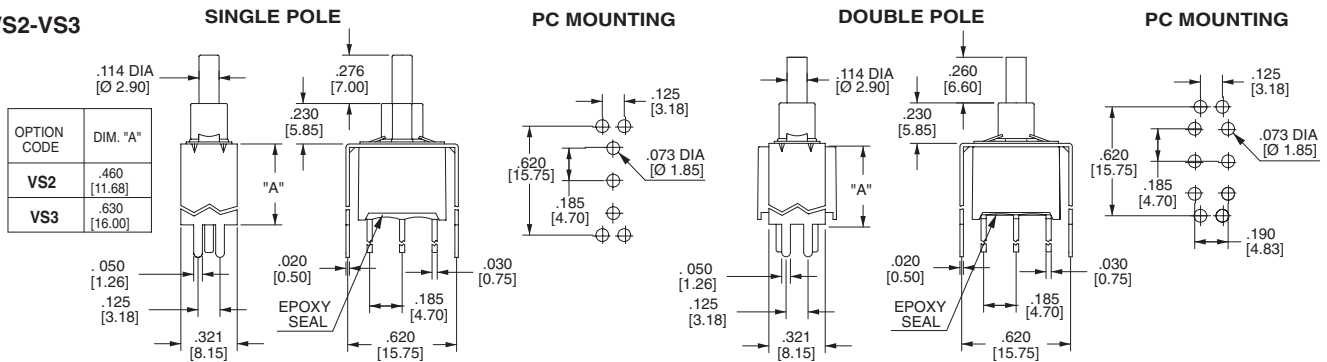
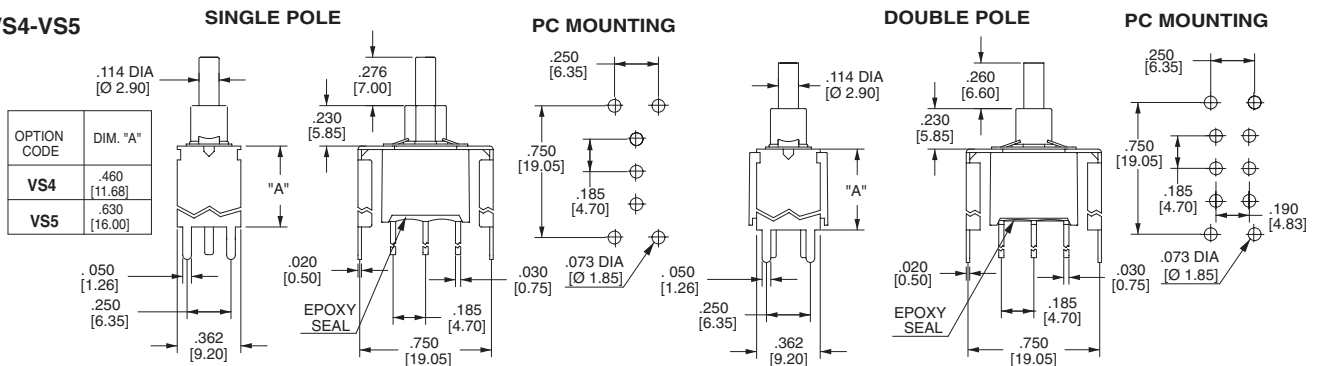
OPTION CODE	DIM. "A"
VS4	.460 [11.68]
VS8	.630 [16.00]
VS5	.630 [16.00]
VS9	.630 [16.00]

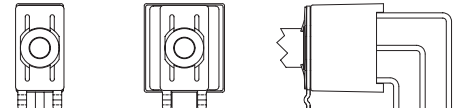
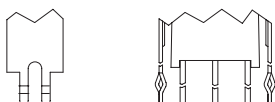

PC MOUNTING

VS4-VS5

**VS8-VS9
(For B6 Bushing Only)**

DOUBLE POLE

OPTION CODE	DIM. "A"
VS4	.460 [11.68]
VS8	.630 [16.00]
VS5	.630 [16.00]
VS9	.630 [16.00]

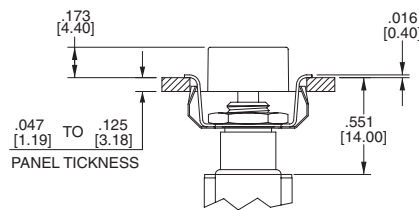
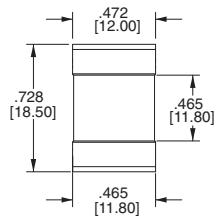
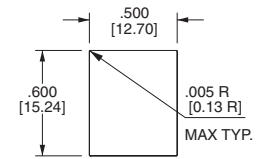
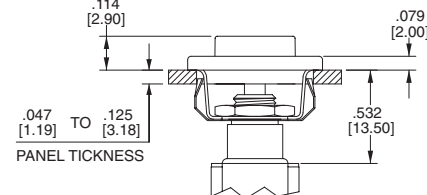
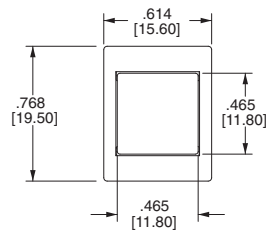
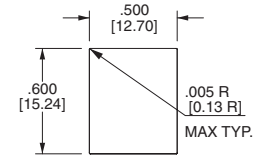

PC MOUNTING

VS4-VS5

**VS8-VS9
(For B6 Bushing Only)**


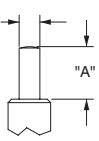
3MS-Series Dimensional Specifications: in. [mm]
PLUNGER

BUSHING

TERMINATION


3MS-Series Dimensional Specifications: in. [mm]
TERMINATION
M7

VS2-VS3

VS4-VS5

SNAP-IN TERMINATION OPTIONS
M61

M71

VS21,VS31

VS41,VS51

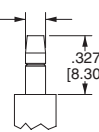

M61,M71,VS21,VS31,VS41,VS51 have the same P.C. mounting but with snap-in bracket.

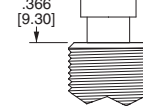
3MA-Series Dimensional Specifications: in. [mm]
ACTUATOR
AP1

PANEL MOUNTING

AP2

PANEL MOUNTING

PLUNGER
PA,PI

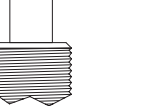
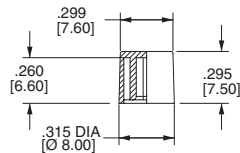
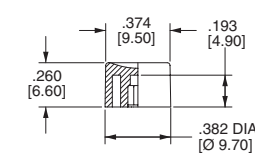
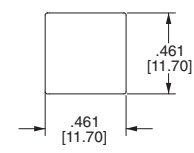
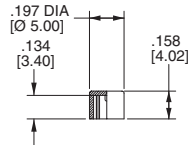
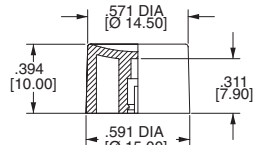
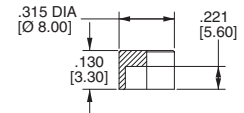
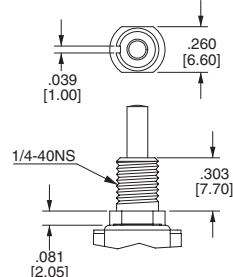
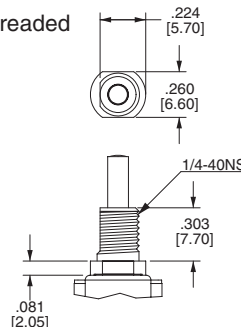
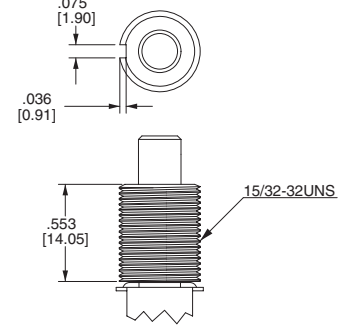
.118 DIA
[Ø 3.00]


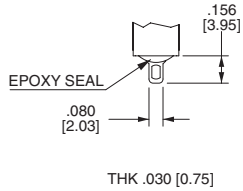
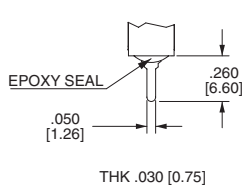
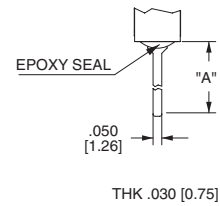
OPTION CODE	DIM. "A"
PA	.299 [7.60]
PI	.244 [6.20]

PL

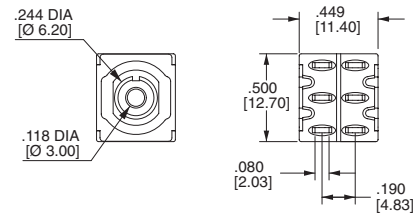
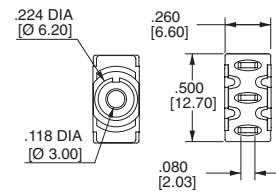
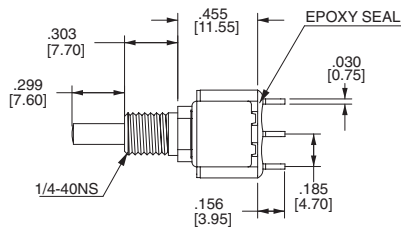
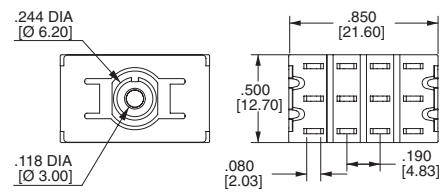
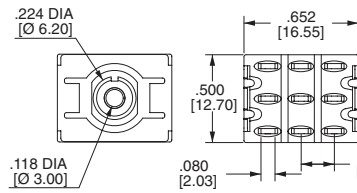
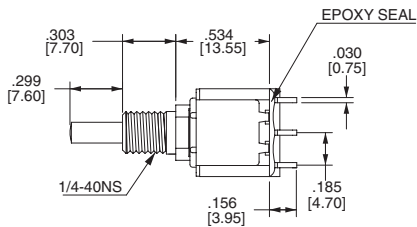
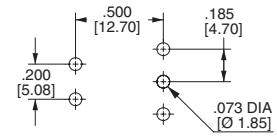
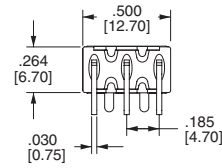
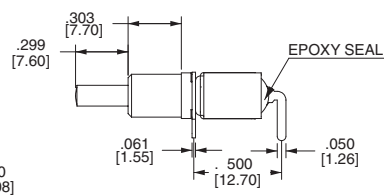
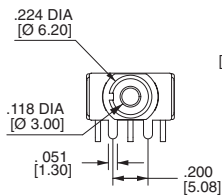
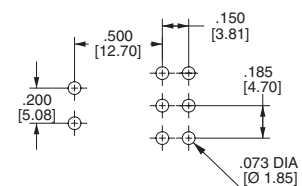
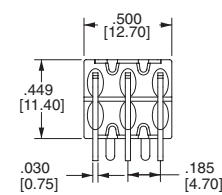
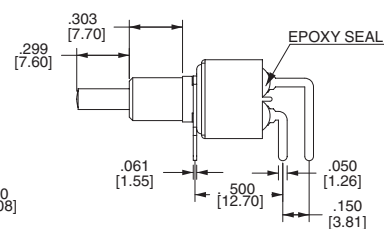
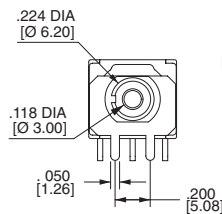
.114 DIA
[Ø 2.90]

PC
Brass Chrome Plated

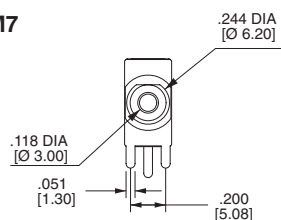
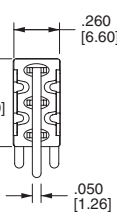
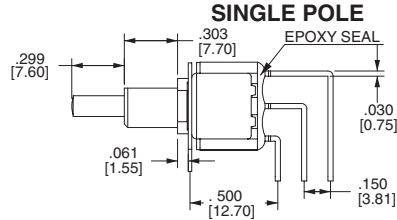
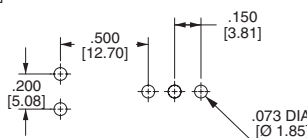
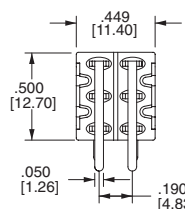
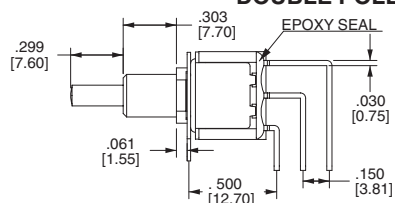
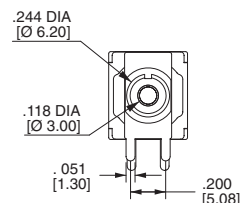
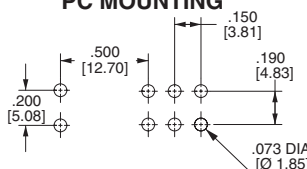
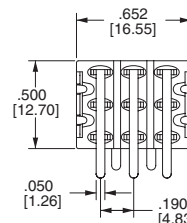
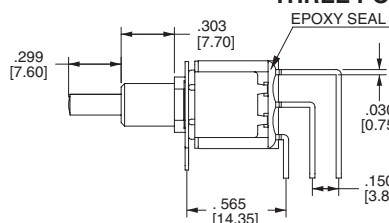
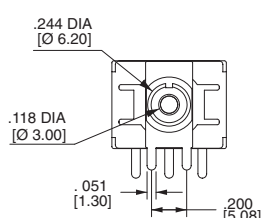
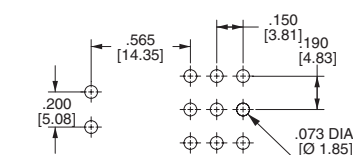
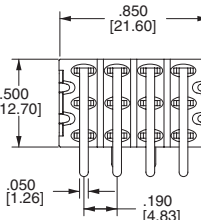
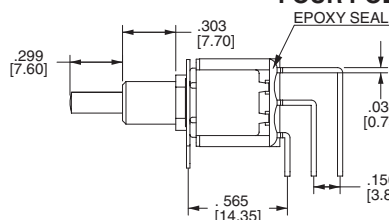
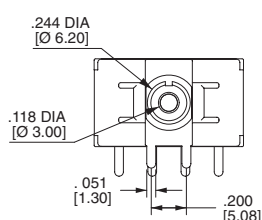
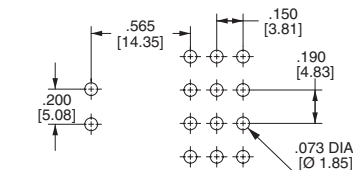
.315 DIA
[Ø 8.00]

PD

.242 DIA
[Ø 6.15]

PC, PD Plunger must fit with BD bushing
CAP
C1

C2

C3

C4

C5

For PL Bushing Only
C6
Brass Chrome Plated

For PD Bushing Only
BUSHING
**B10 Threaded
B20 Non-Threaded**

B21 Non-Threaded

BD


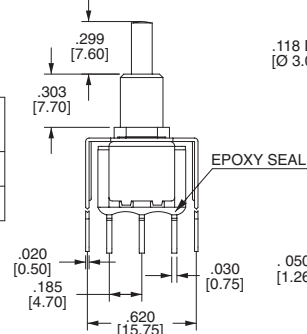
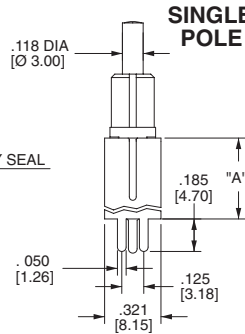
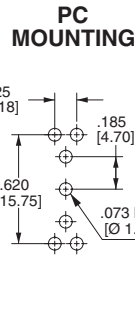
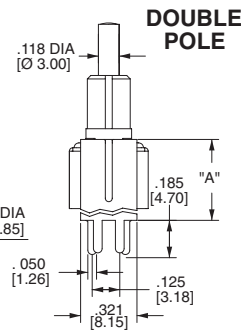
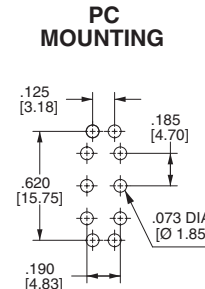
3MA-Series Dimensional Specifications: in. [mm]
TERMINATION
M1

M2

M5


OPTION CODE	DIM. "A"
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

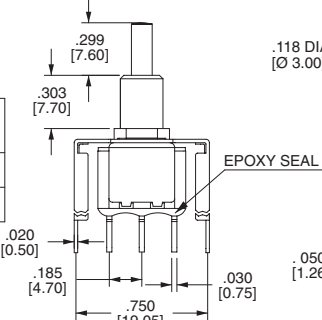
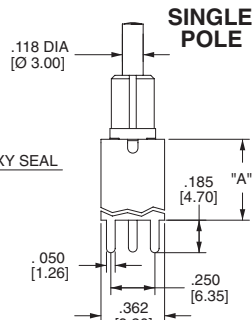
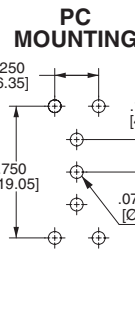
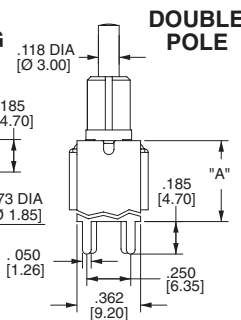
SINGLE POLE
DOUBLE POLE

3 POLE
4 POLE

M6
SINGLE POLE
PC MOUNTING

DOUBLE POLE
PC MOUNTING


3MA-Series Dimensional Specifications: in. [mm]
TERMINATION
M7

SINGLE POLE

PC MOUNTING

DOUBLE POLE

PC MOUNTING

THREE POLE

PC MOUNTING

FOUR POLE

PC MOUNTING

VS2-VS3

OPTION CODE	DIM. "A"
VS2	.460 [11.68]
VS3	.630 [16.00]


SINGLE POLE

PC MOUNTING

DOUBLE POLE

PC MOUNTING

VS4-VS5

OPTION CODE	DIM. "A"
VS4	.460 [11.68]
VS5	.630 [16.00]


SINGLE POLE

PC MOUNTING

DOUBLE POLE

PC MOUNTING
