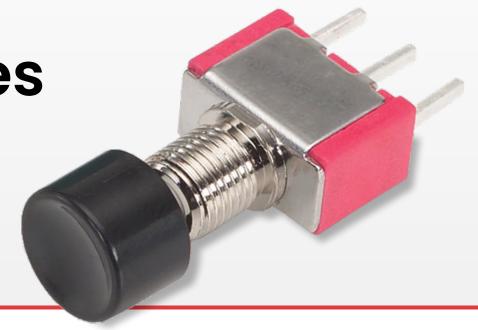


3M-Series

Miniature Pushbutton Switches

PRODUCT WEBPAGE

request sample, configure part





The 3M family of miniature pushbutton switches is composed of four switch series; the 3MNH-Series premium sealed snap-action pushbutton, the 3MN-Series snap-action pushbutton, the 3MS-Series sealed snap-action pushbutton, and the 3MA-Series alternateaction pushbutton. These PC mount pushbutton switches offer a variety of ratings, circuits, contact materials, terminal platings, pushbutton styles, and optional color caps.

1-2

.4-6

125, 250

Poles

VDC

Typical Applications

- Instrumentation
- Networking
- · Performance Audio
- Computers
- Low Power On/Off Designs

Telecommunications

Tech Specs



3MNH-Series Premium Sealed Miniature Pushbutton Switch



3MS-Series Sealed Snap-Action Miniature Pushbutton Switch



3MN-Series Snap-Action Miniature Pushbutton Switch



3MA-Series Alternate Action Miniature Pushbutton Switch

Electrical

Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance	3MS-Series: $50 \text{ m}\Omega$ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts. 3MN, 3MA & 3NMH-Series: $10 \text{ m}\Omega$ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts.
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

Physical

Operating Temperature	-30°C to +85°C
Index of Protection	3MS-Series: IP68 3MNH-Series: IP67
Cap Installation Support	3MS-Series: 10 lbs. max.
Solder Heat Resistance	MIL-STD-202, Method 210

Material

Case	3MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL94V-0) 3MN, 3MA & 3NMH-Series: Dially phthalate (DAP) (UL 94V-0)
Plunger	3MS & 3MA-Series: Glass filled nylon or glass filled polyester (UL94V-0) 3MN-Series:Thermoplastic polyester, black 3NMH-Series: Brass, black finish with o-ring seal
Bushing	3MN-Series: Brass, nickel plated 3MA-Series: Zinc, nickel plated 3NMH-Series: Brass, black finish with o-ring seal
Housing	3MN & 3MA-Series: Stainless Steel
Switch Support	3MS-Series: Stainless Steel
Terminal Seal	Ероху

Ordering Schemes

Sample Part Number

Selection

1. SERIES 3MNH Premium Sealed Miniature Pushbutton Switch

Single pole - uses terminals 1, 2 & 3 Double pole - uses terminals 1, 2, 3, 4, 5 & 6

3. CIRCUIT

() - momentary Switching Position: ON ON (ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

4. ACTUATOR STYLE

.325 height [8.25 mm] .157 height [4.00 mm] .354 height [9.00 mm] ΡJ PA

PJ Plunger for maintained circuits only. PA and PB Plunger for momentary circuits only Hardware includes (1) 2M1-HDW4 nut and (1) 3MNH-WCP-0872 o-ring

BJ Bushing only available with PJ Plunger BL Bushing only available with PA or PB Plunger

Movable contact & terminal platings: silver over copper alloy Movable Contact platings: gold over nickel over copper alloy Terminal platings: gold over nickel over copper alloy

🛭 Configure Complete Part Number >

® Browse Standard Parts >

5. ACTUATOR COLOR

 $\,$ BJ 3 $\,$ Threaded 15/32, flat, .553 height [14.05 mm] $\,$ BL 4 $\,$ Threaded 15/32, flat, .295 height [7.49 mm]

6. TERMINATION

M1 Solder Lug М2 PC thru-hole

M51 Wire wrap, .711" [18.05 mm]
M52 Wire wrap, .924" [23.48 mm]
M53 Wire wrap, .386" [9.80 mm]

7. CONTACTS / TERMINALS

Cor	ntact Material	Terminal Platin	g Rating	Approvals
G	silver ⁵	gold over silver		c FU °us, IP67
		_	6A@125VAC or 28VDC	
		(3A@250VAC	
		(SP7, DP7)	14 0100) (40 == 20) (50	
_	5	" 5 (1A@120VAC or 38VDC	
Q	silver ⁵	silver ⁵ (SP1, DP1)	04 0105) (40 00) (50	c 👊 us,IP67
			6A@125VAC or 28VDC 3A@250VAC	
		(SP7, DP7)	3A@25UVAC	
		(3F1, DF1)	1A@120VAC or 38VDC	
R	gold ⁶	gold ⁷	0.4VA max @ 20V max (AC/DC) N/A

8. EPOXY SEAL

Epoxy Seal

Sample Part Number Selection

1. SERIES

3MS Sealed Snap-Action Miniature Pushbutton Switch

2. POLES

Single pole - uses terminals 1, 2 & 3 Double pole - uses terminals 1, 2, 3, 4, 5 & 6

3. CIRCUIT

() - momentary **Switching Position:** 2-3, 5-6 (ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

4. ACTUATOR STYLE

Standard Plunger Long Plunger Р3 Short Plunger

5. BUSHING

Threaded, with keyway, .350 height [8.89 mm] Unthreaded, flatted, .250 height [6.35 mm]

Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15

Movable contact and terminal platings: gold over nickel over copper alloy

Movable contact and terminal platings: silver over copper alloy

6. TERMINATION

Solder Lug MΊ

PCB M2

М6 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 .461" height VS21 Snap-In, U bracket, .620" mounting x .461" height VS3 PC Mount, U bracket, .620" mounting x .630" height

VS31 Snap-In, vertical, .630" height

VS4 PC Mount, U bracket, 750" mounting x 461" height

VS41 Snap-In, vertical, .461 height VS5 PC Mount, U bracket, .750" mounting x .630" height VS51 Snap-In, vertical, .630" height

7. CONTACTS/TERMINALS

Approvals Contact Material Terminal Plating Rating gold over silver c**91**2 us, IP68 G silver 3 1A 120VAC or 38VDC silver ³ silver 3 c**71** us, IP68 1A 120VAC or 38VDC gold² gold² 0.4VA max 20V max (AC/DC)

8. EPOXY SEAL

Epoxy Seal without Epoxy Seal

Browse Standard Parts >

Ordering Scheme

3MN-Series with Square Actuator

Part Number Selection

3MN-Series with Plunger Actuator

Sample Part Number Selection

1. SERIES

3MN Snap-Action Miniature Pushbutton Switch

Single pole - uses terminals 1, 2 & 3 Double pole - uses terminals 1, 2, 3, 4, 5 & 6

3. CIRCUIT

() - momentary **Switching Position:** 2-3, 5-6 (ON) ON

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

4. ACTUATOR

Square Actuator (use with Color Options in Selection 5A & 5B)

Square with no frame Square raised above frame AP3 Square flush with frame

Plunger Actuator (use with Bushing Options in Selection 5)

P0 Flush Plunger Standard Plunger Short Plunger

5A. ACTUATOR COLOR & 5B FRAME COLOR

White Black Red

5B. BUSHING

Unthreaded (for terminations VS6-VS9 only)

Threaded keyway **B11** ² Threaded with flat **B20** Unthreaded keyway Unthreaded with flat

6. TERMINATION

MΊ Solder Lug PCB M51 Wire Wrap .750 [19.05]

M52 Wire Wrap .964 [24.40] M53 Wire Wrap .425 [10.80]
M6 PC Mount, 90° horizontal
M7 PC Mount, 90° vertical

M7 PC Mount, 90° vertical
VS2 PC Mount, U bracket, .620" mounting x .461" height
VS3 PC Mount, U bracket, .620" mounting x .630" height
VS4 PC Mount, U bracket, .750" mounting x .630" height
VS5 PC Mount, U bracket, .750" mounting x .630" height
VS6 PC Mount, U bracket, .461 height (for B6 bushing only)
VS7 PC Mount, U bracket, .461 height (for B6 bushing only)
VS8 PC Mount, U bracket, .461 height (for B6 bushing only) VS9 PC Mount, U bracket, .630 height (for B6 bushing only)

7. CONTACTS/TERMINALS

Contact Material Terminal Plating Rating **Approvals** gold over silver 1A 125VAC or 28VDC c **FL** us, **G** silver Q silver ⁵ R aold ⁶ silver ⁵ 1A 125VAC or 28VDC c **TU**us, gold 6 gold ⁶ 0.4VA max 20V max (AC/DC) N/A

8. EPOXY SEAL

E Epoxy Seal 0 without Epoxy Seal

as:
Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW1 washer, and
(1) 2M1-HDW15 locking ring
Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and
(1) 2M1-HDW16 locking ring
Selection 5B is blank if actuator style is AP1 (no frame)
Black, white and red are standard. Other colors available, consult factory for details.

Movable contact & terminal platings: silver over copper alloy Movable contact & terminal platings: gold over nickel over copper alloy

Ordering Scheme

3MA-Series with Square Actuator

Sample Part Number

3MN-Series with Plunger Actuator

Sample Part Number 5 Selection

1. SERIES

3MA Alternate Action Miniature Pushbutton Switch

2. POLES

Single pole - uses terminals 1, 2 & 3 Double pole uses terminals 1,2, 3, 4, 5 & 6 Three pole uses terminals 1,2, 3, 4, 5, 6, 7, 8 & 9 3P 1 Four pole uses terminals 1,2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

3. CIRCUIT

() - momentary Switching 1 Position: 2-3, 5-6, 8-9, 11-12 Connected Terminals 2-1, 5-4, 8-7,11-10 ON (ON) NONE ON *Available in SP & DP only

4. ACTUATOR

Square Actuator (use with Color Options in Selection 5A & 5B) Square with no frame AP2 Square raised above frame Plunger Actuator (use with Bushing Options in Selection 5) Standard Plunger PΑ Medium Plunger

Brass Chrome Plunger Brass Chrome Plated Plunger with Cap (for BD bushing only) PC Brass Chrome Plated Plunger (for BD bushing only)

5A. ACTUATOR COLOR & 5B FRAME COLOR

	White Black Red		Orange Yellow Green		Blue Brown Gray
--	-----------------------	--	---------------------------	--	-----------------------

5B. BUSHING

BD 1 Big bushing for PC, PD actuator 15/32" Threaded 1/4 - 40 B10²

B20 Unthreaded Unthreaded with flat

6. TERMINATION

м Solder Lug **M2 PCB** M51 Wire Wrap .750 Wire Wrap .964 M53 Wire Wrap .425 M54 Wire Wrap 1.062 PC Mount, 90° horizontal PC Mount, 90° vertical М6 М7 PC Mount, 90° Vertical PC Mount, U bracket, .620" mounting x .461" height PC Mount, U bracket, .620" mounting x .630" height PC Mount, U bracket, .750" mounting x .461" height PC Mount, U bracket, .750" mounting x .630" height VS2 VS4

7. CONTACTS/TERMINALS

Cont	act Material	Terminal Plating	Rating	Approvals
G	silver ⁶	gold over silver	6A 125VAC or 28VDC 3A 250VAC	c FM us
к	gold ⁷	tin ⁸	0.4VA max 20V max (AC	C/DC) N/A
Р	silver ⁶	gold over silver	6A 125VAC or 28VDC 3A 250VAC	c 711 us
Q	silver ⁶	silver ⁶	6A 125VAC or 28VDC	c '911 'us
R	gold ⁷	gold ⁷	3A 250VAC 0.4VA max 20V max (AC	(DC) N/A

8. EPOXY SEAL

Epoxy Seal without Epoxy Seal

Notes

- Hardware includes (2) 2MI-HDW2 nuts, (1) 2MI-HDW12 washer, and (1) 2MI-HDW17 locking ring Hardware includes (2) 2MI-HDW2 nuts, (1) 2MI-HDW11 washer, and
- (1) 2M1-HDW15 locking ring Tin option available with PC type terminations only.
- 4 5 Available with circuit 1 only
- Black, white and red are standard. Other colors available, consult factory for details.
- 6 Selection 5B is blank if actuator style is API (no frame)
- Movable contact & terminal platings: silver over copper alloy Movable contact & terminal platings: silver over copper alloy Movable contact & terminal platings: gold over nickel over copper alloy Terminal platings: tin over nickel over copper alloy, available for PC mount terminations only

🖾 Configure Complete Part Number >

Browse Standard Parts >

3M-Series Accessories

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

Optional Cap

Sample Part Number Selection

1. SERIES

Fits 3MN, 3MS or 3MA

2. PUSHBUTTTON CAP SIZE

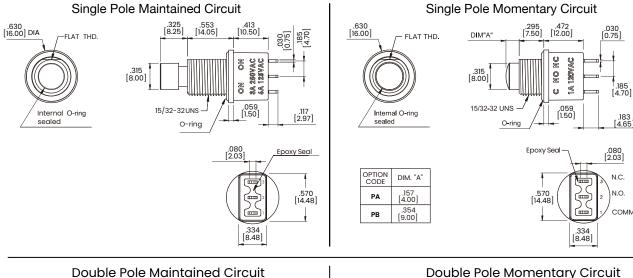
- Round 8 mm diameter Round 9.70 mm diameter
- Square 11.7 x 11.7 mm Round 5 mm diameter
- C5 1 Round 15 mm diameter C6² Brass Chrome Plated, 3.15 mm diameter

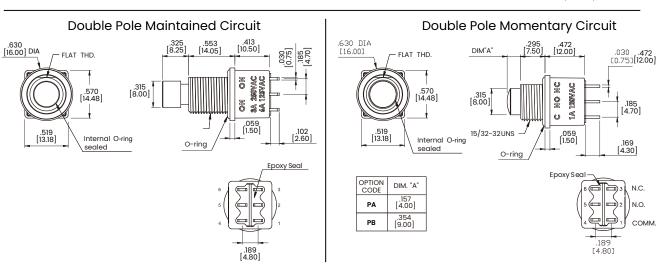
3. CAP COLOR

White Yellow 5 Green Black 2 3 Red Blue 4 Orange

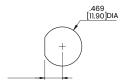
For 3MA with PL Bushing For 3MA with PD Bushing

inches [millimeters]

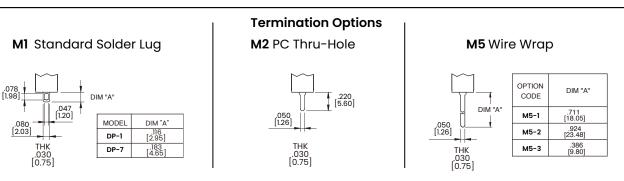




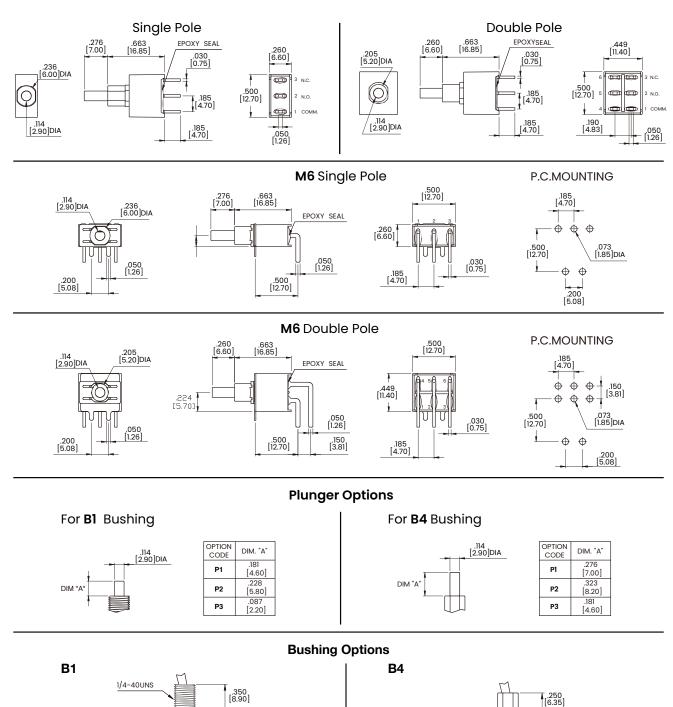




15/32-32 UNS FLAT-CUT THREADED BUSHING



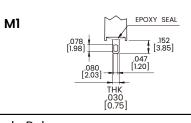
inches [millimeters]



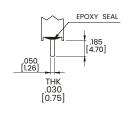
inches [millimeters]



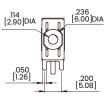
М2

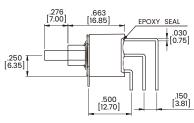


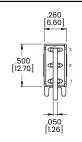


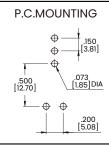




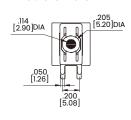


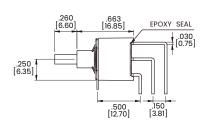


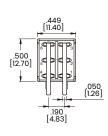


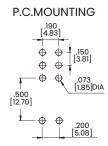


M7 Double Pole

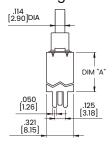


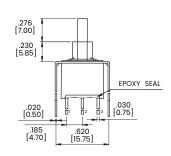




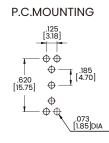


VS2-VS3 Single Pole

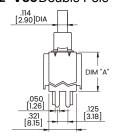


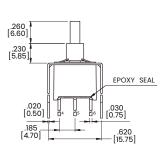


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

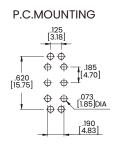


VS2-VS3 Double Pole





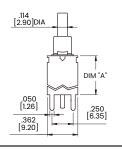
OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

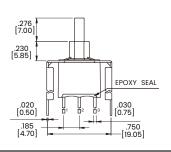


inches [millimeters]

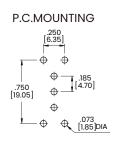
VS4-VS5Single Pole

Termination Options

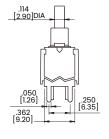


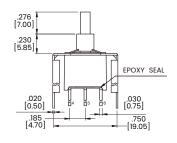


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

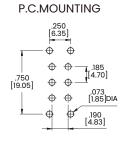




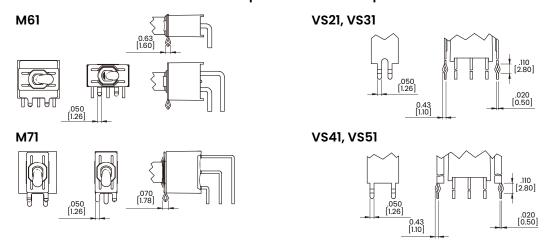




OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

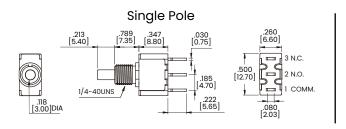


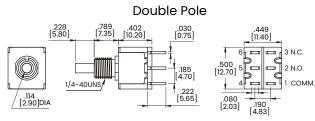
Snap-In Termination Options



^{*} PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

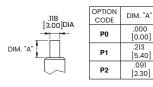
inches [millimeters]





Plunger Options

For B1, B2, B3, B4 Bushing

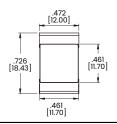


For **B6** Bushing

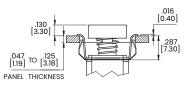


OPTION CODE	DIM. "A"
P1	.157 [4.00]
P2	.106 [2.70]

AP1



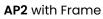
Actuator Options for Snap-In Front Mount

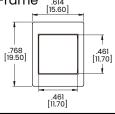


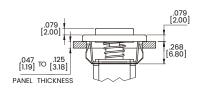
PANEL MOUNTING



* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] the panels





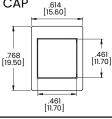


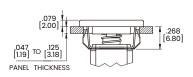
PANEL MOUNTING



Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

AP3 Flush CAP



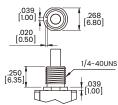


PANEL MOUNTING

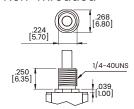


*Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

B1 Threaded Standard **B2** Non-Threaded



Bushing Options B3 Threaded Standard B4 Non-Threaded



B6 Non-Threaded

(FOR TERMINATION OPTIONS VS6-VS9 ONLY)



inches [millimeters]

Termination Options M1 Standard Solder Lug M2 PC Thru-Hole M5 Wire Wrape OPTION CODE .750 [19.05] .050 [1.26] .964 [24.48] THK .030 [0.75] .425 [10.80] M5-3 M6 Single Pole P.C.MOUNTING COMM. N.O. N.C. .270 [6.85] .213 [5.40] .185 [4.70] .260 [6.60] .030 .500 [12.70] M6 Double Pole P.C.MOUNTING COMM. N.O. N.C. .114 [2.90]DIA .270 [6.85] .228 [5.80] .449 [11.40] .228 [5.80] .150 [3.81] .185 [4.70] M7Single Pole P.C.MOUNTING .213 .270 [5.40] [6.85] .118 [3.00]DIA .150 [3.81] .030 [0.75] .252 [6.40] .200 [5.08] .150 [3.81] .073 [1.85]DIA P.C.MOUNTING M7 Double Pole .228 .270 [5.80] [6.85] .500 [12.70] .200 [5.08] .073 [1.85]DIA .150 [3.81] VS2-VS3 Single Pole P.C.MOUNTING .118 [3.00]DIA .213 [5.40] OPTION .270 [6.85] DIM.'A' CODE DIM 'A' VS2 [11.70] .185 [4.70] .020 [0.50]

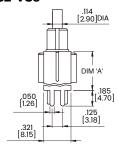
.630

[16.00]

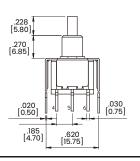
VS3

inches [millimeters]

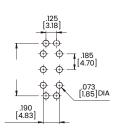
VS2-VS3 Double Pole



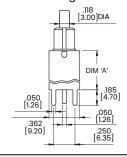
Termination Options

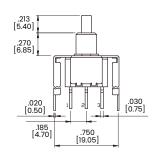


P.C.MOUNTING

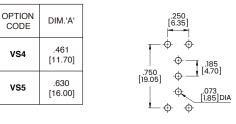


VS4-VS5 Single Pole

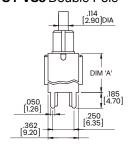


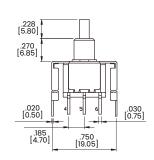


P.C.MOUNTING



VS4-VS5 Double Pole





OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

OPTION CODE

VS2

VS3

DIM.'A'

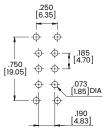
.461

[11.70]

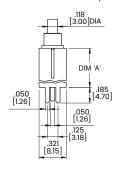
.630

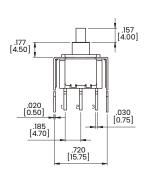
[16.00]

P.C.MOUNTING



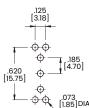
VS6-VS7 Single Pole (FOR B6 BUSHING ONLY)





OPTION CODE	DIM.'A'
VS6	.461 [11.70]
VS7	.630 [16.00]

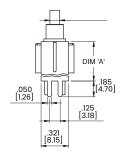
P.C.MOUNTING

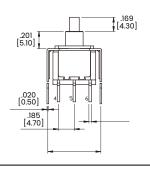


inches [millimeters]

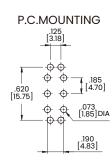
Termination Options





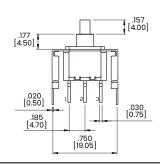


OPTION CODE	DIM.'A'
VS6	.461 [11.70]
VS7	.630 [16.00]

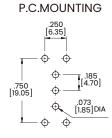


VS8-VS9 Single Pole (FOR B6 BUSHING ONLY)

.050 [1.26] .050 [2.26] .050 [1.26] .050



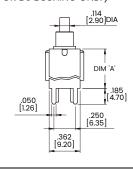
OPTION CODE	DIM.'A'
VS8	.461 [11.70]
VS9	.630 [16.00]

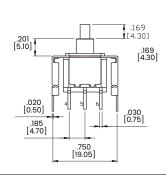


VS8-VS9 Double Pole

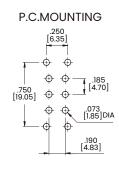
.362 [9.20]

(FOR B6 BUSHING ONLY)



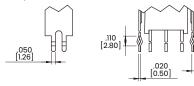


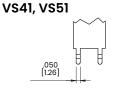
OPTION CODE	DIM.'A'
VS8	.461 [11.70]
VS9	.630 [16.00]

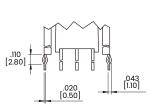


Snap-In Termination Options



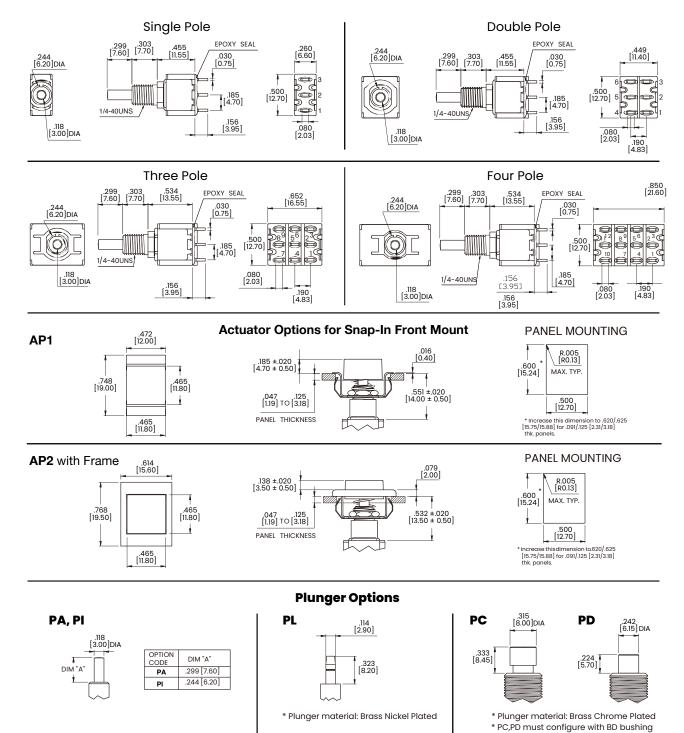




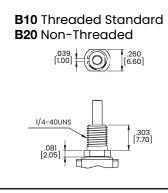


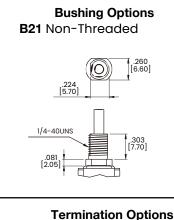
^{*} PC Mounting for VS21, VS31, VS41, VS51 refer to VS2, VS3, VS4, VS5 respectively.

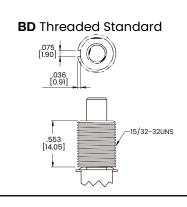
inches [millimeters]

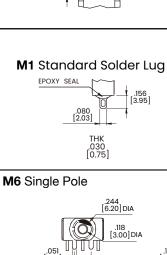


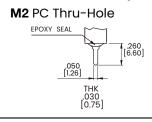
inches [millimeters]

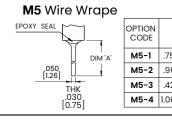


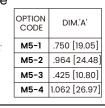


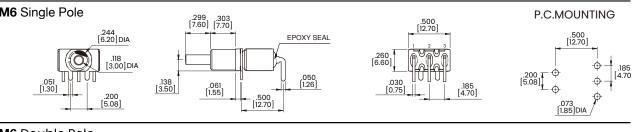


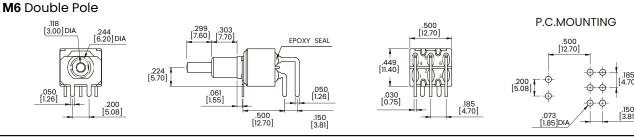


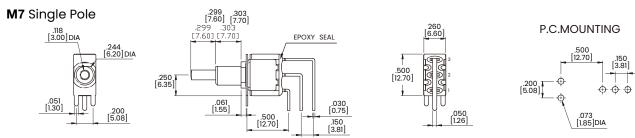








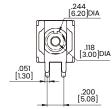


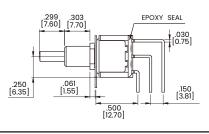


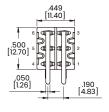
inches [millimeters]

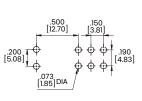
Termination Options

M7 Double Pole



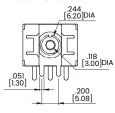


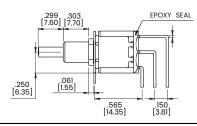


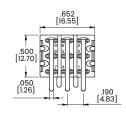


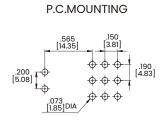
P.C.MOUNTING

M7 Three Pole

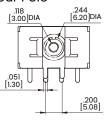


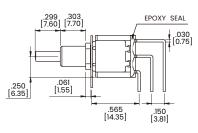


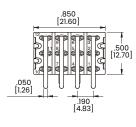


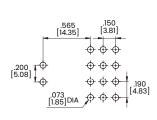


M7Four Pole



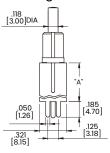


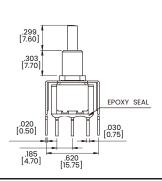




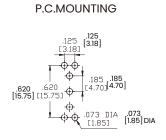
P.C.MOUNTING

VS2-VS3Single Pole

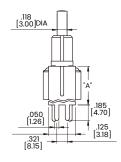


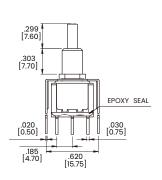


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]



VS2-VS3Double Pole





OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

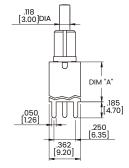
125 [3.18] .073 [1.85] DIA 0.073 1.85 DIA 0.185 1.85 1.85 1.70]

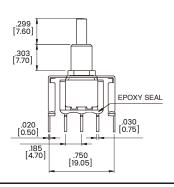
P.C.MOUNTING

inches [millimeters]

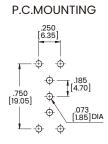
Termination Options

VS4-VS5 Single Pole

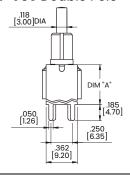


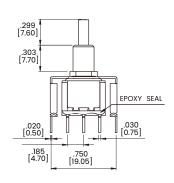


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

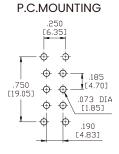


VS4-VS5 Double Pole

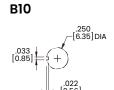




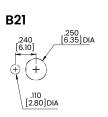
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

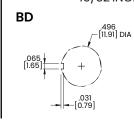


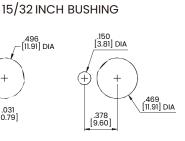
1/4 INCH BUSHING





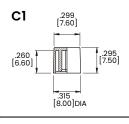


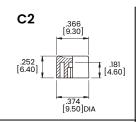


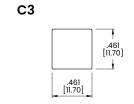


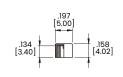
Plunger Caps

Panel Mounting

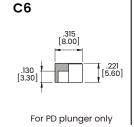


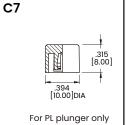






For PL plunger only





CAP AND FRAME COLORS			
1	White	6	Green
2	Black	7	Blue
3	Red	8	Brown
4	Orange	9	Gray
5	Yellow		

MATERIAL: ABS for C1~C5, C7
MATERIAL: Chrome plated brass for C6

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