



# **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.



125, 250 VAC

28 VDC

### **Typical Applications**

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

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### **Tech Specs**



3MNH-Series Premium Sealed Miniature Pushbutton Switch



3MS-Series Sealed Snap-Action Miniature Pushbutton Switch



3MN-Series Snap-Action Miniature Pushbutton Switch



**Material** 

Case

3MA-Series Alternate Action Miniature Pushbutton Switch

3MS-Series: Glass filled nylon

### **Electrical**

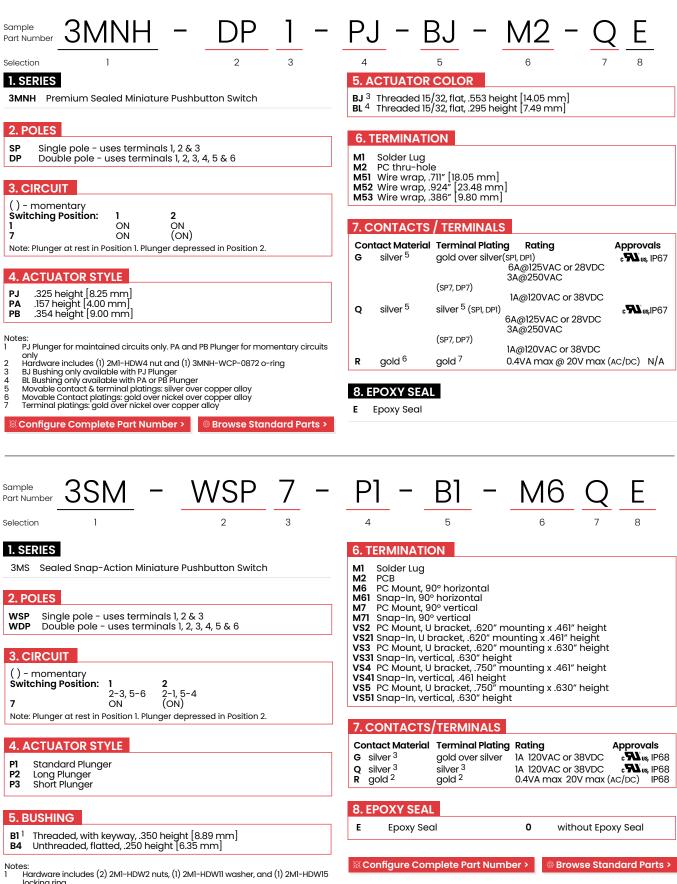
Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance	<ul> <li>3MS-Series: 50 mΩ max. initial @</li> <li>2-4 VDC 100mA for both silver &amp;</li> <li>gold plated contacts.</li> <li>3MN, 3MA &amp; 3NMH-Series: 10 mΩ</li> <li>max. initial @ 2-4 VDC 100mA</li> <li>for both silver &amp; gold plated</li> <li>contacts.</li> </ul>
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

Cuse	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

### Physical

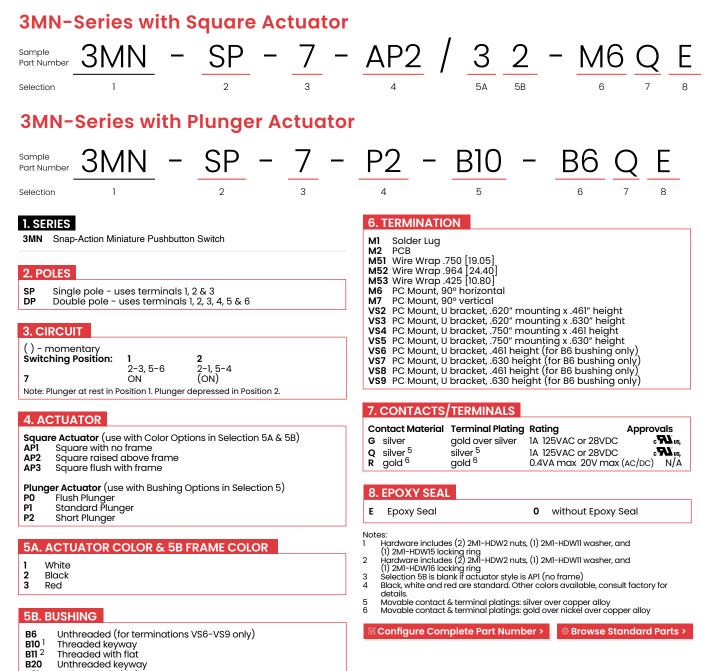
Operating Temperature	-30°C to +85°C
Index of Protection	3MS-Series: IP68 3MNH-Series: IP67
Cap Installation Support	3MS-Series: 10 lbs. max.
Solder Heat Resistance	MIL-STD-202, Method 210

### **Ordering Schemes**



locking ring 2 Movable contact and terminal platings: gold over nickel over copper alloy

### **Ordering Scheme**



B21 Unthreaded with flat

	derir Series w												
Sample Part Number	ЗМА	_	SP	_	1	_	AP2	/	3	2	_	M6	(
Selection	1		2		3		4	-	5A	5B		6	_
3MN-	Series w	ith P	lunge	er Ac	ctuc	itor							
	• • • •				_			-			_		_

Sample Part Number

Selection

1. SERIES

3MA Alternate Action Miniature Pushbutton Switch

#### 2. POLES

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

#### 3. CIRCUIT

( ) - momentary <b>Switching 1</b>	2	3
<b>Position</b> : 2-3, 5-6, 8-9, 11-12	Connected Terminal	s 2-1, 5-4, 8-7,11-10
1 ON	NONE	ON
<b>2</b> * ON	NONE	(ON)
*Available in SP & DP only.		

2

#### 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)
- Standard Plunger PA
- Medium Plunger Ы
- Brass Chrome Plunger PL
- Brass Chrome Plated Plunger with Cap (for BD bushing only) PC PD
- Brass Chrome Plated Plunger (for BD bushing only)

#### **5A. ACTUATOR COLOR & 5B FRAME COLOR**

1 2 3	White Black Red	4 5 6	Orange Yellow Green		Blue Brown Gray	
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#### **5B. BUSHING**

- Big bushing for PC, PD actuator 15/32" Threaded 1/4 40 BD<sup>1</sup>
- B10<sup>2</sup>
- B20 Unthreaded B21 Unthreaded with flat

#### Wire Wrap .750 M52 Wire Wrap .964

Solder Lug

**6. TERMINATION** 

PCB

4

м

М2

M51

M53 Wire Wrap .425 M54 Wire Wrap 1.062 PC Mount, 90° horizontal PC Mount, 90° vertical M6 M7 PC Mount, U bracket, 620" mounting x .461" height PC Mount, U bracket, 620" mounting x .630" height PC Mount, U bracket, .620" mounting x .630" height PC Mount, U bracket, .750" mounting x .630" height VS2

8

6

0 without Epoxy Seal

VS3 VS4

5

VS5

#### 7. CONTACTS/TERMINALS

Conto G	<b>act Material</b> silver <sup>6</sup>	<b>Terminal Plating</b> gold over silver	Rating Approvals 6A 125VAC or 28VDC & Wus 3A 250VAC
K P	gold <sup>7</sup> silver <sup>6</sup>	tin <sup>8</sup> gold over silver	3A 250VAC 0.4VA max 20V max (AC/DC) N/A 6A 125VAC or 28VDC 3A 250VAC
Q	silver <sup>6</sup>	silver <sup>6</sup>	6A 125VAC or 28VDC CRUs 3A 250VAC
R	gold <sup>7</sup>	gold <sup>7</sup>	0.4VA max 20V max (AC/DC) N/A

#### 8. EPOXY SEAL

E Epoxy Seal

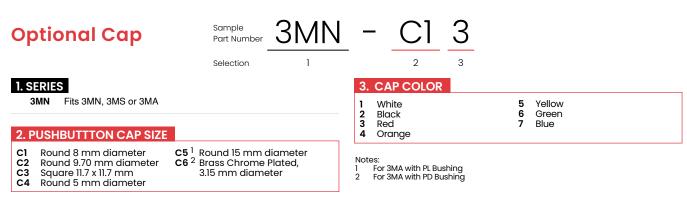
#### Notes

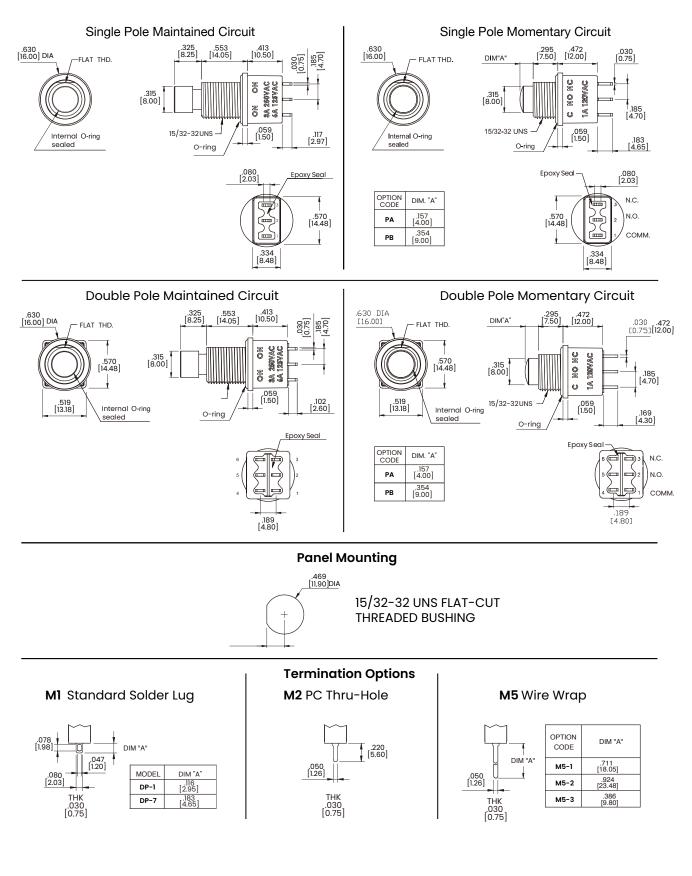
1

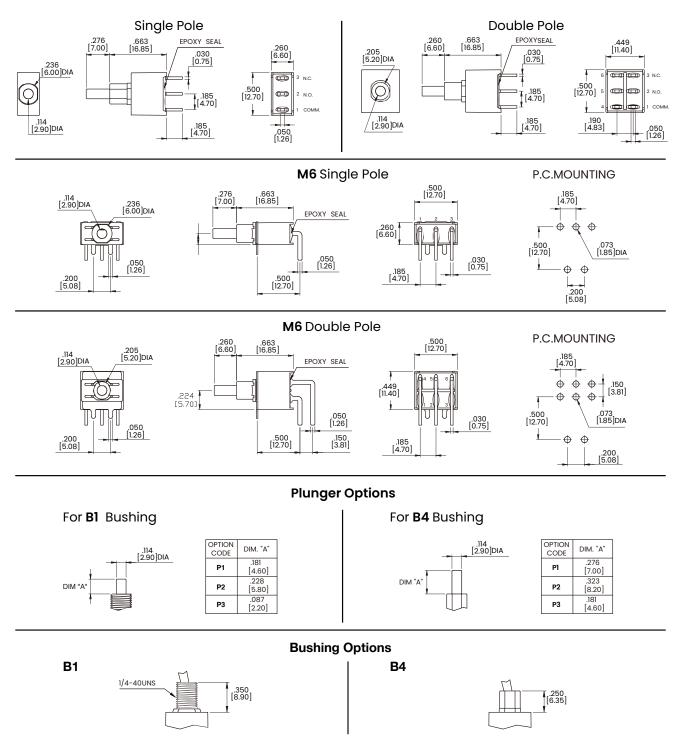
- Hardware includes (2) 2MI-HDW2 nuts, (1) 2MI-HDW12 washer, and (1) 2MI-HDW17 locking ring Hardware includes (2) 2MI-HDW2 nuts, (1) 2MI-HDW1 washer, and
- 2
  - (1) 2M1-HDW15 locking ring Tin option available with PC type terminations only.
- 3 4 5 Available with circuit 1 only
- Black, white and red are standard. Other colors available, consult factory for details.
- 6 7 Selection 5B is blank if actuator style is API (no frame)
- 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 8 9
- 🕅 Configure Complete Part Number > Browse Standard Parts >

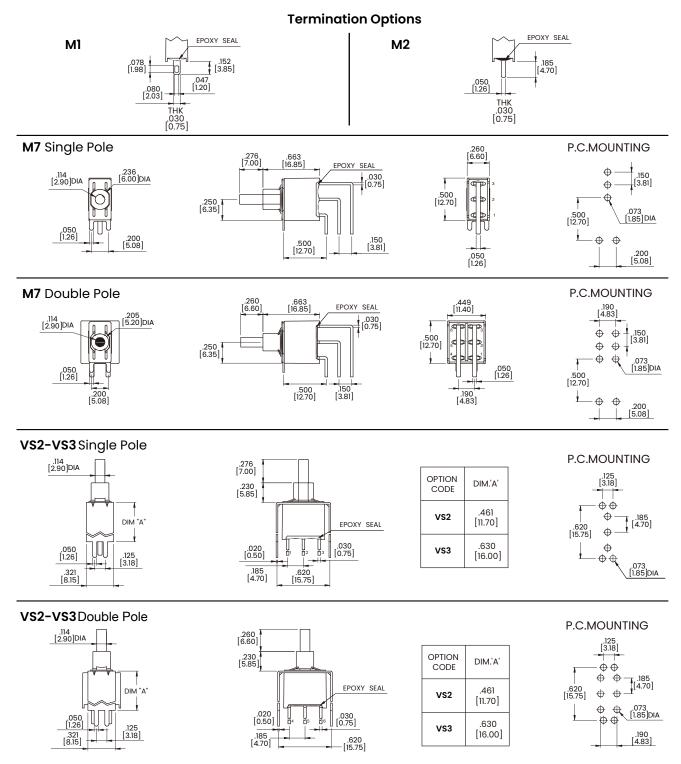
#### **3M-Series Accessories**

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









inches [millimeters]

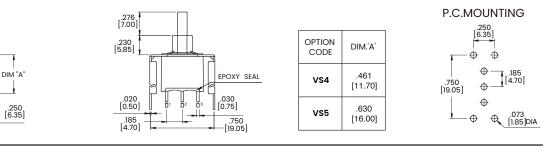
.114 [2.90]DIA

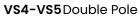
> .050 [1.26]

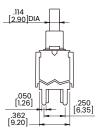
.362 [9.20]

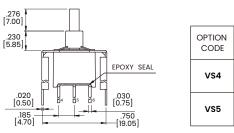
### VS4-VS5Single Pole

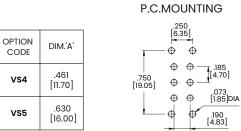
**Termination Options** 



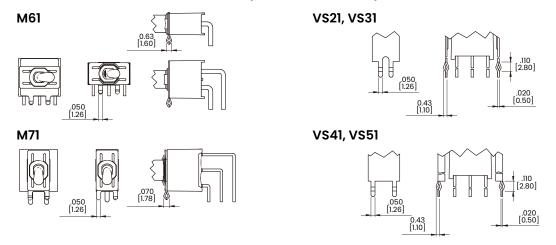




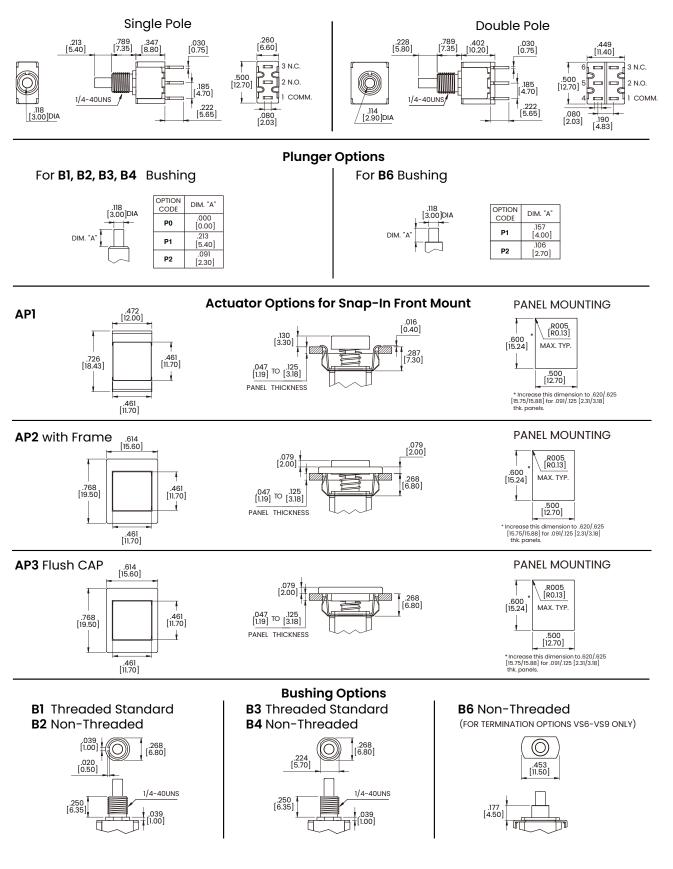


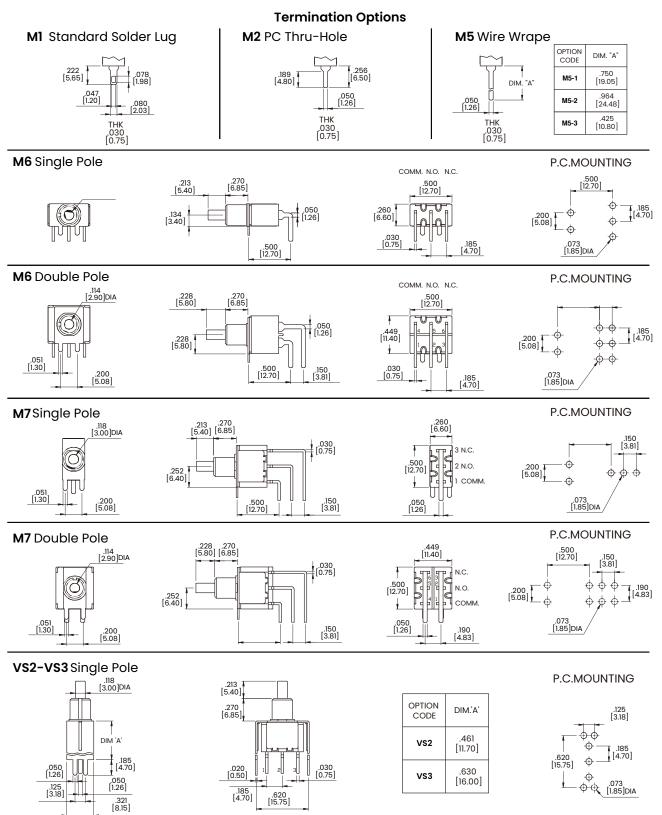


#### Snap-In Termination Options



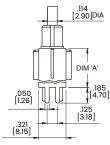
\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.



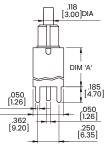


inches [millimeters]

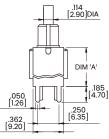
### VS2-VS3 Double Pole



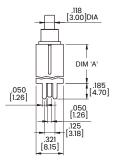
### VS4-VS5 Single Pole

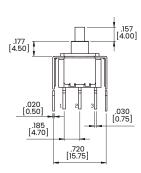


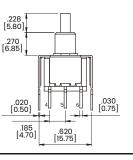
#### VS4-VS5 Double Pole



#### VS6-VS7 Single Pole (FOR B6 BUSHING ONLY)







.750 [19.05]

.750 [19.05]

.213 [5.40]

.270 [6.85]

> .020 [0.50]

.228 [5.80]

.270 [6.85]

> .020 [0.50]

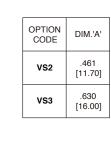
> > .185 [4.70]

.185 [4.70] **Termination Options** 

.030 [0.75]

q

.030 [0.75]



OPTION

CODE

VS4

VS5

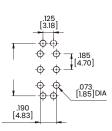
DIM.'A'

.461 [11.70]

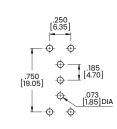
.630

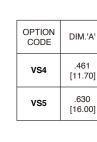
[16.00]

#### P.C.MOUNTING



#### P.C.MOUNTING





OPTION

CODE

VS6

VS7

DIM.'A'

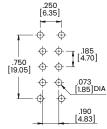
.461

[11.70]

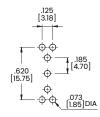
.630

[16.00]

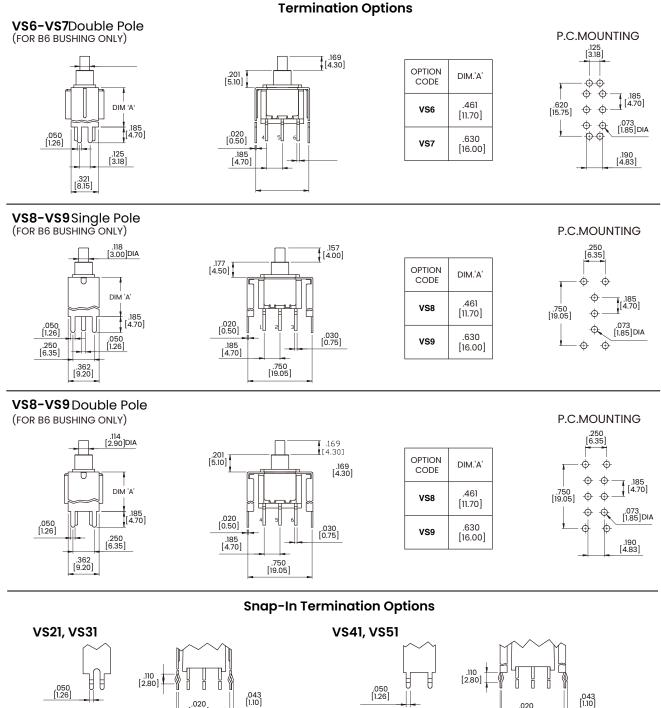
### P.C.MOUNTING



#### P.C.MOUNTING



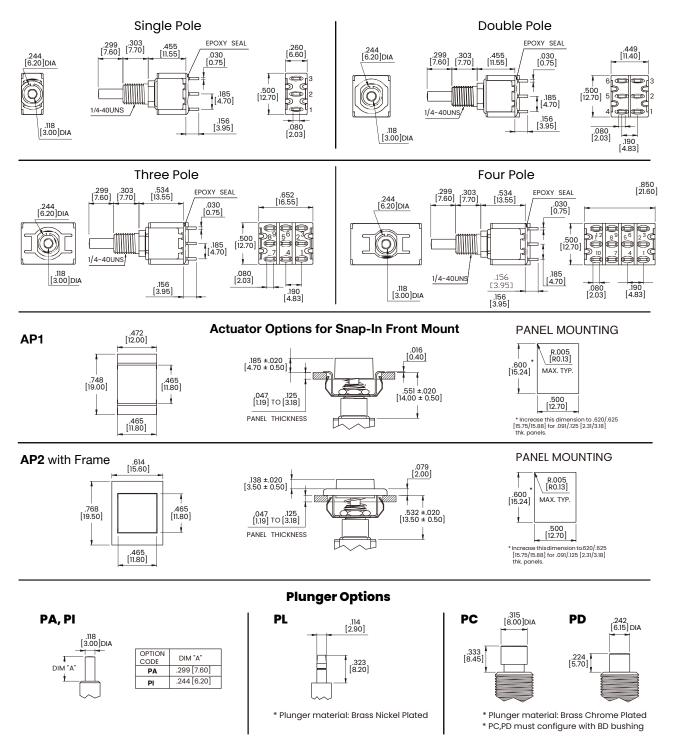
inches [millimeters]

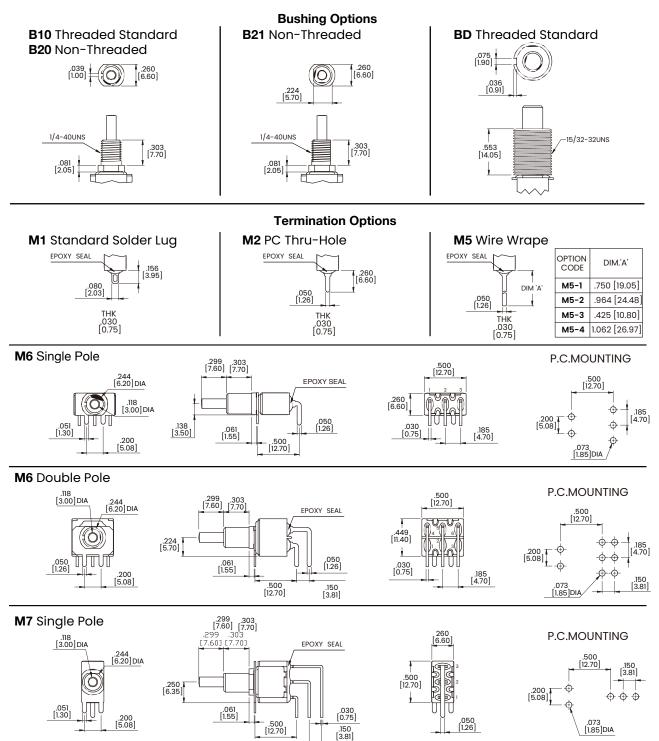


.020 [0.50]

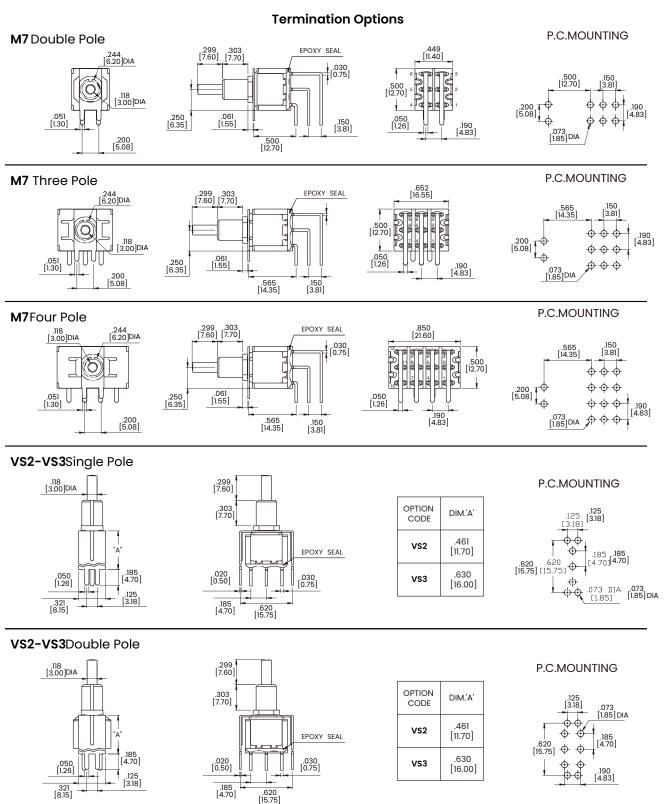
\* PC Mounting for VS21, VS31, VS41, VS51 refer to VS2, VS3, VS4, VS5 respectively.

.020 [0.50]





inches [millimeters]



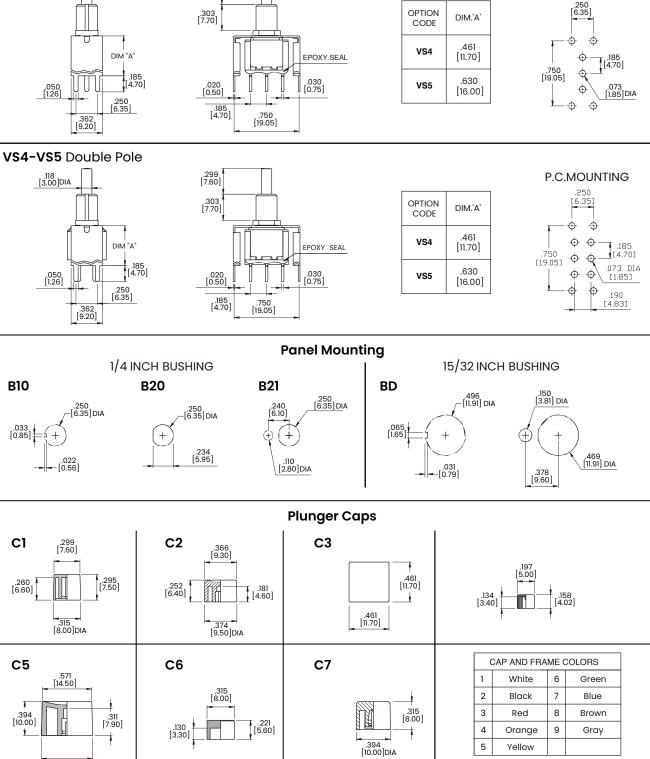
16.

inches [millimeters]

.118 [3.00]DIA

VS4-VS5 Single Pole





For PL plunger only

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

P.C.MOUNTING

For PL plunger only

For PD plunger only

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