

➡ Product TypePC Mount Miniature & Sub-Miniature Pushbutton Switches

Product Series
3M-Series

Description

The 3M family of miniature pushbutton switches is composed of three switch series:

3MN-Series snap-action miniature pushbutton switch

3MS-Series sealed snap-action miniature pushbutton switch 3MA-Series alternate-action miniature pushbutton switch

These series of PC mount sub-miniature pushbutton switches offer a variety of ratings, circuits, contact materials, terminal platings, pushbutton styles, and optional color caps.

The 3MS-Series are sealed switches that are UL and CUL approved and IP68 certified. The 3MN and 3MA-Series of switches have UL & CUL agency approvals. All series within the 3M family of switches are able to withstand temperatures from -30°C to +85°C, and all offer PC mounting.

**Certifications** 3MN-Series and 3MA-Series: UL, CUL

3MS-Series: UL, CUL, IP68

**Number of Poles** 3MN-Series & 3MS-Series: 1-2 poles

3MA-Series: 1-4 poles

Ratings 1A @ 120 VAC or 28VDC

6A @ 125 VAC or 28VDC

3A @ 250VAC

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

Dielectric Strength1500 Volts RMS @ sea levelInsulation Resistance1000 megohms (minimum)

Actuator Style square pushbutton

plunger pushbutton

Case Material all UL94 V-0

3MN-Series & 3MA-Series: Dially phthalate (DAP)

3MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized

Plunger Material 3MN-Series: Thermoplastic polyester, black

3MS-Series & 3MA-Series: Glass filled nylon or glass filled

polyester (UL94V-0)

**Bushing Material** 3MN-Series: Brass, nickel plated

3MA-Series: Zinc, nickel plated

**Housing Material** 3MN-Series & 3MA-Series: Stainless Steel

Switch SupportStainless steelTerminal OptionsSolder Lug

PCB

**PC Mount** 

Snap-in, U bracket

Wire Wrap

**Mounting Hole Dimensions** See PDF elibrary file above for dimensions





#### 3MN-Series

3MS-Series

3MA-Series

Switch

Alternate Action

Miniature Pushbutton

Switch

Sealed Snap-Action

Miniature Pushbutton

Snap-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 m $\Omega$  max. ini-

tial @ 2-4 VDC 100mA for both sil-

ver & gold plated contacts.

 $3MS\text{-}\tilde{Series}$ : 50 m $\Omega$  max. initial @ 2-4 VDC 100mA for both silver &

gold plated contacts.

Insulation Resistance . . . 1000 M $\Omega$  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

(DAP) (UL 94V-0)

3MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL

94V-0)

3MN-Series: Thermoplastic poly-

ester, black

3MS & 3MA-Series: Glass filled nylon or glass filled polyester (UL

94V-0)

3MA-Series: Zinc. nickel plated

Switch Support Retainer . . 3MS-Series: Stainless Steel

Terminal Seal . . . . . . . . Epoxy



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







Cap Size Color

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

2 CAP SIZE

C1 round 7 6mm dia C5 round 14.5mm dia. C2 round 9.35 mm dia. (for 3MA w/ PL bushing) С3 square 11.7 x 11.7mm C6 brass chrome plated round 5mm dia. (for 3MA w/ PD bushing) **3 CAP COLOR** 

white 5 vellow 2 black 6 green 3 red 7 blue

4 orange

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  | gle pole | DP   | double pole |  |  |  |
| 3 CIRCU  |          |      |             |  |  |  |
| 7  | ON       | (ON) |             |  |  |  |

#### 4 ACTUATOR<sup>1</sup>

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

AP1 AP2 square with no frame 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<sup>1,2</sup>

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

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

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

OR

## **5 BUSHING**

Unthreaded (for terminations VS6-VS9 only) Threaded keyway

B6 B10 B11 Threaded with flat **B20** Unthreaded keyway 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

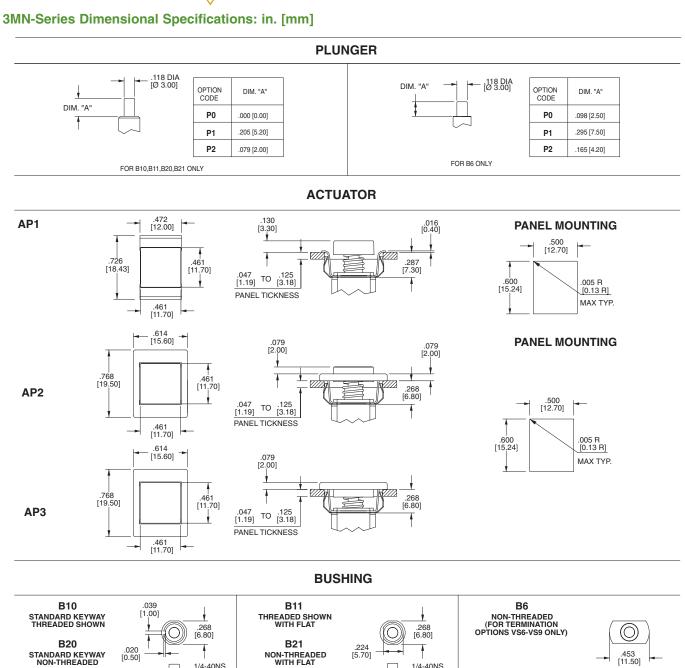
| G<br>Q<br>R | Material<br>silver <sup>1</sup><br>silver <sup>1</sup><br>gold <sup>2</sup> | Terminal Plating<br>gold over silver <sup>3</sup><br>silver <sup>1</sup><br>gold <sup>2</sup> | Rating<br>1A@120VAC or 28VDC<br>1A@120VAC or 28VDC<br>0.4VA max. @20V max (AC/DC) | Approvals<br>UL, CUL<br>UL, CUL |
|-------------|---|---|---|---------------------------------|
| п           | guiu  | yolu  | 0.4 VA IIIAX. @ 20 V IIIAX (AC/DC)  |                                 |
| NOT         | E:  |   |   |                                 |

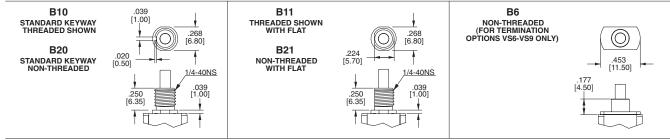
Tin-lead option available with PC type terminations only.

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

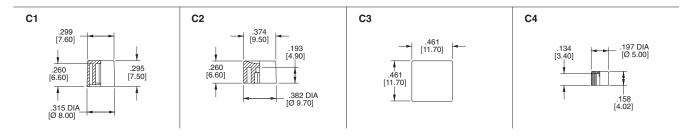
**8 EPOXY SEAL** Ε epoxy seal







## **CAP**





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

