

SPECIFICATIONS

CONTACT RATING: Dependent upon contact material, see page 106.

MECHANICAL LIFE: 50,000 make-and-break cycles.

CONTACT RESISTANCE: 20mΩ max. (initial value) @ 2-4VDC
100mA for both silver and gold plated contacts.

INSULATION RESISTANCE: 1,000MΩ min./1000VDC

DIELECTRIC STRENGTH: 1,000 Vrms min.@sea level. (initial value)

OPERATING TEMPERATURE: -40°C to 85°C.

MATERIALS

CASE: Diallyl phthalate(DAP) (UL94V-0).

PLUNGER: Glass filled nylon or glass filled polyester.(PBT)

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

CONTACT: Brass or copper with silver or gold plated.

(See page 106)

HOW TO ORDER

MODEL NO.	PLUNGER	BUSHING	TERMINAL TYPE	TERMINAL PLATING	SEAL	RoHS SOLDERING
<p>SP 7MS7 ON-(ON)</p> <p>DP 7MD7 ON-(ON)</p>	<p>P1 5.54 high (std)</p> <p><u>Metal plunger</u></p> <p>PA 5.54 high *</p> <p>PB 7.00 high **</p> <p>PC 8.75 high *</p> <p><u>Frame</u></p> <p>AP2 Cap</p> <p>AP4 Cap(flat)</p>	<p>B10 6.35 high, keyway (thd std)</p> <p>B11 6.35 high, flat (thd std)</p> <p>B20 6.35 high, keyway (non-thd)</p> <p>B21 6.35 high, flat (non-thd)</p> <p>B60 7.62 high, keyway (thd) *</p> <p>B13 11.38 high, keyway (15/32 bushing) **</p>	<p>M1 Solder Lug</p> <p>M2 PC thru-hole</p> <p>M51 19.50, Wire wrap</p> <p>M52 24.48, Wire wrap</p> <p>M53 10.80, Wire wrap</p> <p>M54 16.50, Wire wrap</p> <p>M6 Right angle, PC thru-hole</p> <p>M6N Right angle, snap-in, PC thru-hole ***</p> <p>M7 Vertical right angle, PC thru-hole</p> <p><u>V-bracket</u></p> <p>VS2 11.68 high</p> <p>V2N 11.68 high, snap-in</p> <p>VS3 16.00 high</p> <p>VS4 11.68 high</p> <p>VS5 16.00 high</p>	<p>Q Silver</p> <p>R Gold</p> <p>C Gold over silver</p>	<p>E EPOXY (std)</p> <p>N NO EPOXY</p>	<p>S RoHS & Lead Free</p>

FRAME COLOR	CAP COLOR
0	Without
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

Note: Plunger cap options see page 105.

* PA, PC plunger are only available with B60 bushing.
 ** PB plunger are only available with B13 bushing.
 *** Terminal M6N is not suitable for DPDT.
 **** Except standard color, for other colors information please consult sales representativity.

EXAMPLE:
7MS7P1B11M1QES(STD)

7MS7AP2 M1QES (FRAME)

└─ Cap color

└─ Frame color



7M Series

Snap-Acting Pushbutton Switches



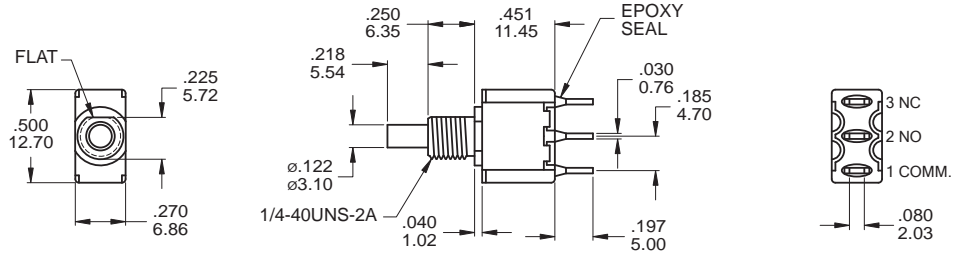
7M Pushbutton Switches

▼ SWITCH FUNCTION

NO. POLES	UL/CSA MODEL NO.	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS / SCHEMATIC	
			POS.1	POS.2	POS.1	POS.2
SP	Q2717	7MS7	ON	(ON)	1-3 NC 3 • 1 (COMM) • 2 NO	1-2 NC 3 • 1 (COMM) • 2 NO
DP	Q2727	7MD7	ON	(ON)	1-3,4-6 NC 3 • 1 (COMM) • 2 NO NC 6 • 4 • 5 NO	1-2,4-5 NC 3 • 1 (COMM) • 2 NO NC 6 • 4 • 5 NO

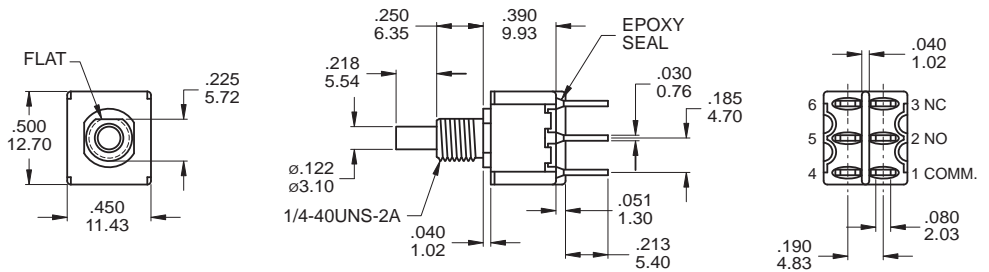
() = MOMENTARY

▼ POLE OPTIONS



SPDT

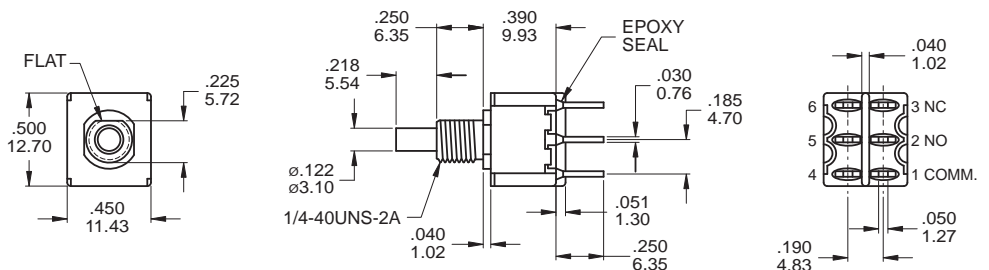
Model name. 7MS7P1B11M1QES



DPDT

Model name. 7MD7P1B11M1QES

M2

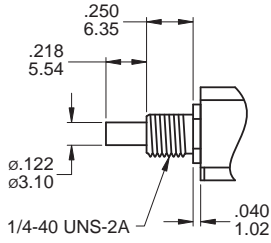


DPDT

Model name. 7MD7P1B11M2RES

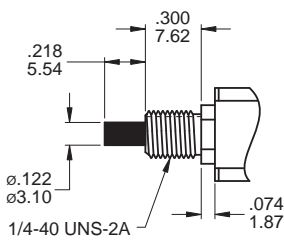
▼ PLUNGER OPTIONS

P1 (Std.)



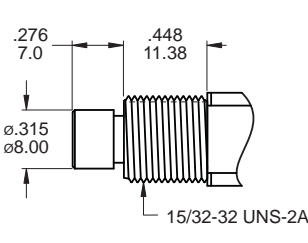
Note:
For terminal M6, M6N, M7, VS2-5:
-.017inch(0.42mm)

PA Metal plunger



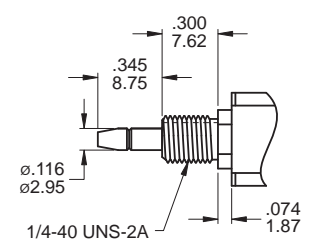
Standard for B60 bushing
Note: For terminal M6, M7, VS2-5:
SPDT: -.013inch(0.34m)
DPDT: -.020inch(0.50m)

PB Metal plunger



Standard for B13 bushing

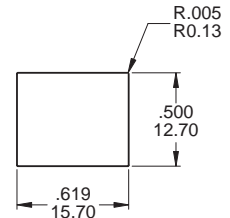
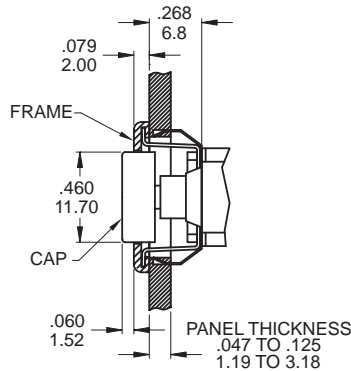
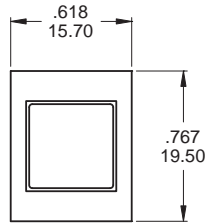
PC Metal plunger



Standard for B60 bushing
Note:
1. PC plunger only for K1 Cap
2. For terminal M6, M7, VS2-5:
-.020inch(0.50mm)

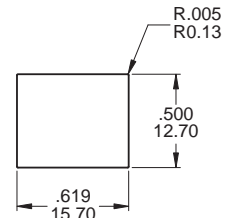
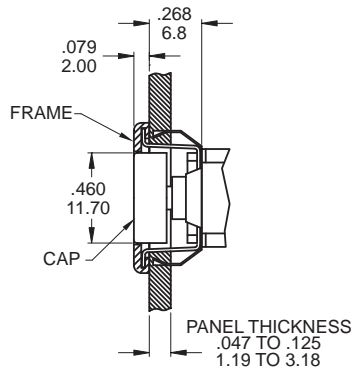
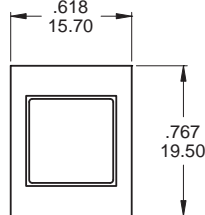
▼ FRAME OPTIONS

AP2



PANEL LAYOUT
INCREASE TO .620/.625 15.75/15.88
FOR .091/.125 2.31/3.18 THK PANEL

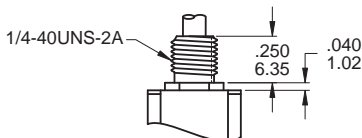
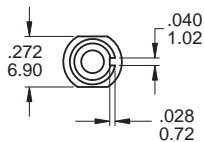
AP4 CAP(FLAT)



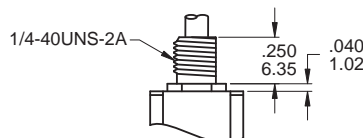
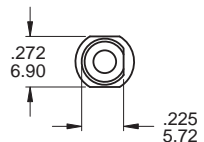
PANEL LAYOUT
INCREASE TO .620/.625 15.75/15.88
FOR .091/.125 2.31/3.18 THK PANEL

▼ BUSHING OPTIONS

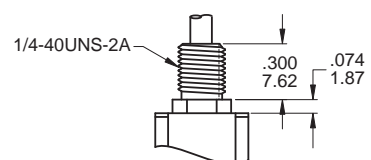
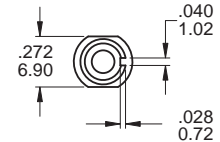
B10 THD STD B20 NON-THD



B11 THD STD B21 NON-THD



B60 THD



Note: Standard Hardware see page 105.

Only available for plunger PA, PC
Note: Not applicable to terminal M6N.



7M Series

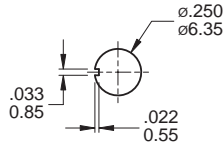
Snap-Acting Pushbutton Switches



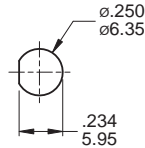
7M Pushbutton Switches

▼ PANEL MOUNTING

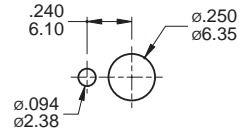
1/4 IN BUSHING



Without locking ring (Keyway)

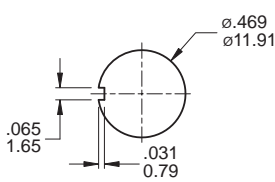


Without locking ring (Flat)

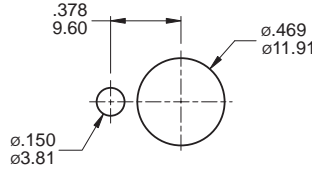


With standard locking ring.

15/32 IN BUSHING



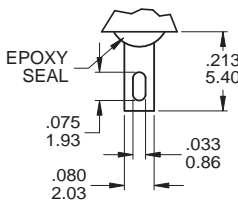
Without locking ring (Keyway)



With standard locking ring.

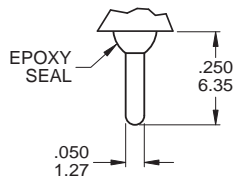
▼ TERMINAL OPTIONS

M1 Solder lug



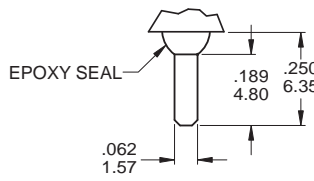
.030inch(0.76mm) THK.

M2 PC Thru-hole



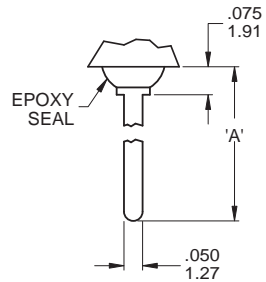
.030inch(0.76mm) THK.

M3 Quick connect



.030inch(0.76mm) THK.

M5 Wire Wrap



.030inch(0.76mm) THK.

▼ OTHER TERMINAL OPTIONS

M6 Right angle P.C. Mount

M7 Right angle P.C. Mount

VS2 Vertical bracket P.C. Mount

VS3 Vertical bracket P.C. Mount

VS4 Vertical bracket P.C. Mount

VS5 Vertical bracket P.C. Mount

M6N Right angle P.C. Mount

Snap-in bracket

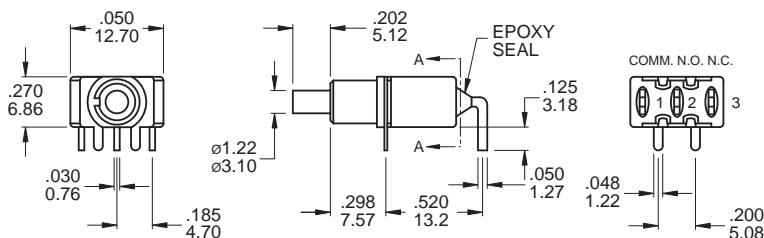
V2N Vertical bracket P.C. Mount

Snap-in bracket

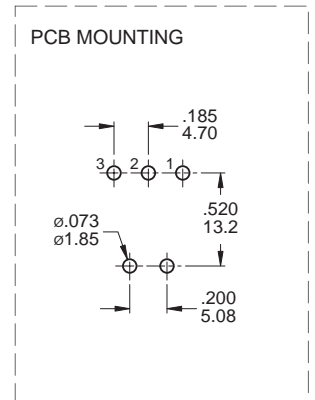
OPTION CODE	DIM. 'A'
M51	.750 (19.50)
M52	.964 (24.48)
M53	.426 (10.80)
M54	.650 (16.50)

M6

(M6N - Snap-in)



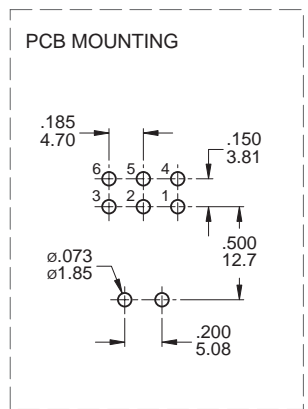
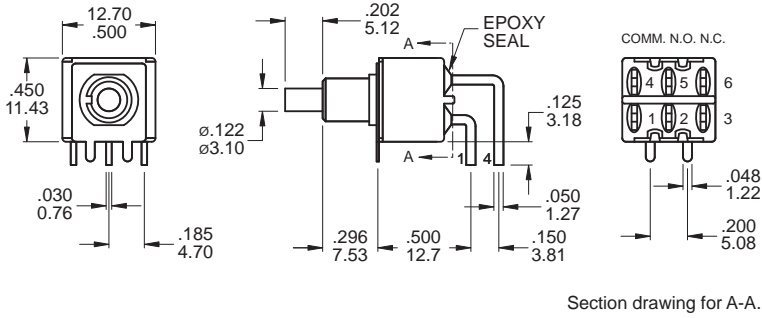
Section drawing for A-A.



SPDT

Model name. 7MS7P1B20M6QES

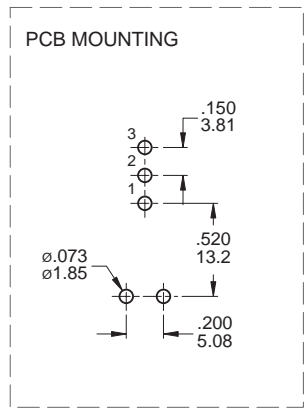
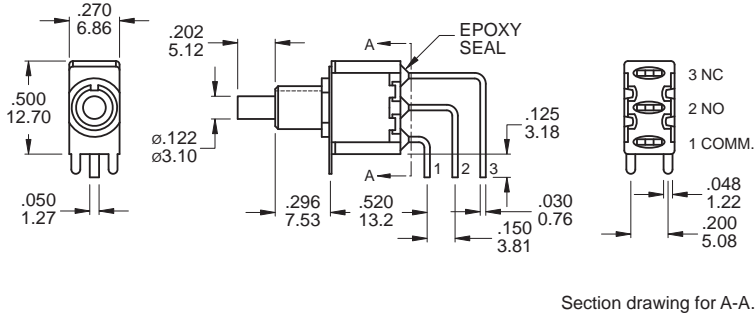
M6



DPDT

Model name. 7MD7P1B20M6QES

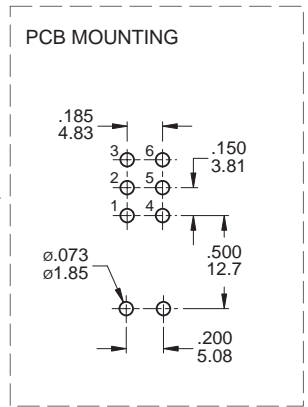
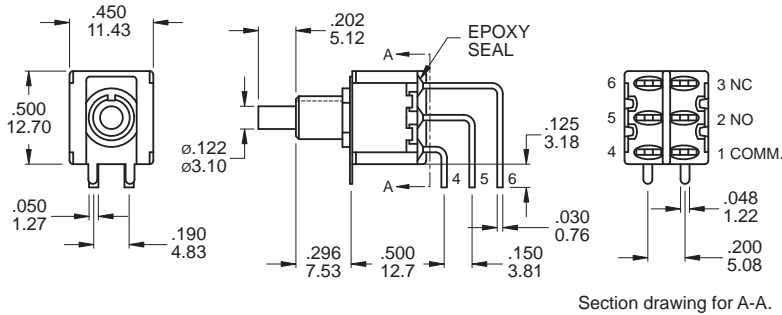
M7



SPDT

Model name. 7MS7P1B20M7QES

M7

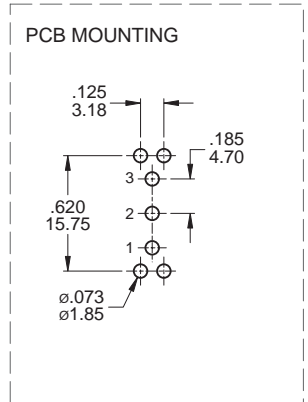
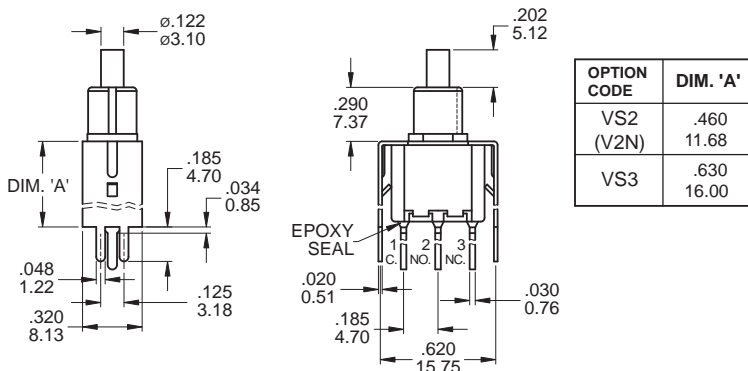


DPDT

Model name. 7MD7P1B20M7RES

VS2 / VS3

(V2N - Snap-in)



SPDT

Model name. 7MS7P1B20VS2RES



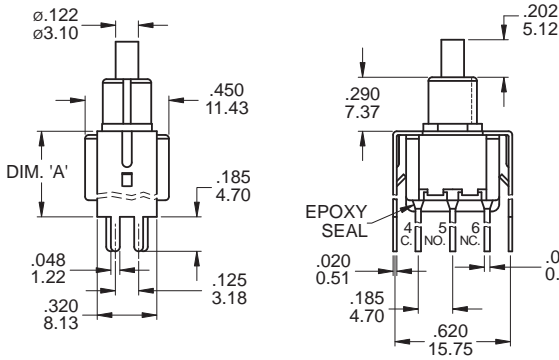
7M Series

Snap-Acting Pushbutton Switches



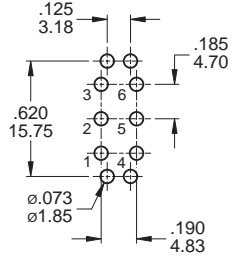
7M Pushbutton Switches

VS2 / VS3 (V2N - Snap-in)



OPTION CODE	DIM. 'A'
VS2 (V2N)	.460 / 11.68
VS3	.630 / 16.00

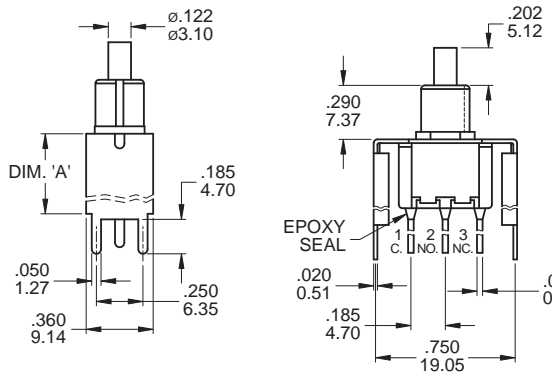
PCB MOUNTING



DPDT

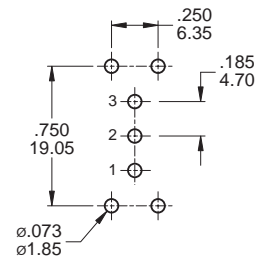
Model name. 7MD7P1B20VS2QES

VS4 / VS5



OPTION CODE	DIM. 'A'
VS4	.460 / 11.68
VS5	.630 / 16.00

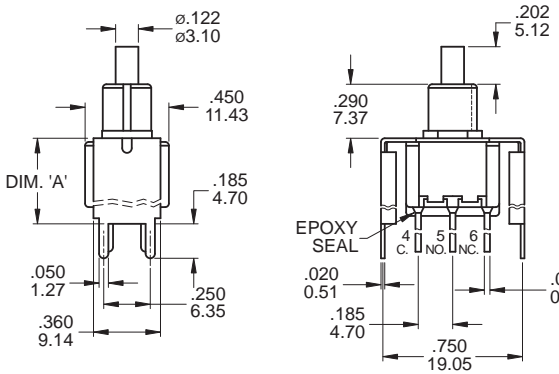
PCB MOUNTING



SPDT

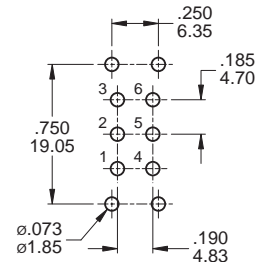
Model name. 7MS7P1B20VS4QES

VS4 / VS5



OPTION CODE	DIM. 'A'
VS4	.460 / 11.68
VS5	.630 / 16.00

PCB MOUNTING

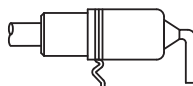


DPDT

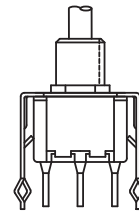
Model name. 7MD7P1B20VS4QES

▼ SNAP-IN TERMINAL OPTIONS

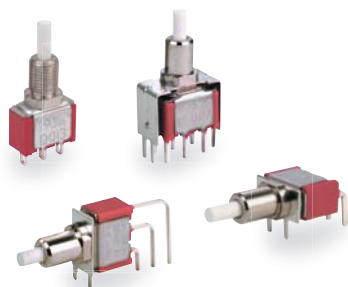
M6N



V2N



Note: The M6N terminal can only be used with SPDT, this option is not available for bushing B60.



SPECIFICATIONS

CONTACT RATING: Dependent upon contact material, see page 106.

MECHANICAL LIFE: 50,000 make-and-break cycles.

CONTACT RESISTANCE: 20mΩ max. (initial value) @ 2-4VDC
100mA for both silver and gold plated contacts.

INSULATION RESISTANCE: 1,000MΩ min./1000VDC

DIELECTRIC STRENGTH: 1,000 Vrms min.@sea level. (initial value)

OPERATING TEMPERATURE: -40°C to 85°C.

MATERIALS

CASE: Diallyl phthalate(DAP) (UL94V-0).

PLUNGER: Glass filled nylon or glass filled polyester.(PBT)

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

CONTACT: Copper gold over silver for plating
(See page 106)

HOW TO ORDER

MODEL NO.	PLUNGER	BUSHING	TERMINAL TYPE	TERMINAL PLATING	SEAL	RoHS SOLDERING
<u>SP</u> 7MSL On-On <u>DP</u> 7MDL On-On	P1 7.11 high(std) <u>Metal plunger</u> PA 5.54 high PB 7.00 high PC 8.75 high *	B60 7.62 high,keyway (thd std) B61 7.62 high,flat (thd std) B70 7.62 high,keyway (non-thd) B71 7.62 high,flat (non-thd) B13 11.38 high, keyway * (15/32 bushing)	M1 Solder Lug M2 PC thru-hole M51 19.50, Wire wrap M52 24.48, Wire wrap M53 10.80, Wire wrap M54 16.50, Wire wrap M6 Right angle, PC thru-hole M7 Vertical right angle, PC thru-hole <u>V-bracket</u> VS2 11.68 high V2N 11.68 high, snap-in VS3 16.00 high	Q Silver R Gold C Gold over silver	E EPOXY (std) N NO EPOXY	S RoHS & Lead Free

Note: Actuator cap options see page 105.

* PC plunger are only available with B13 bushing

EXAMPLE:
7MS7P1B60M1QES(STD)



7M(LOCK) Series

Snap-Acting Pushbutton Switches

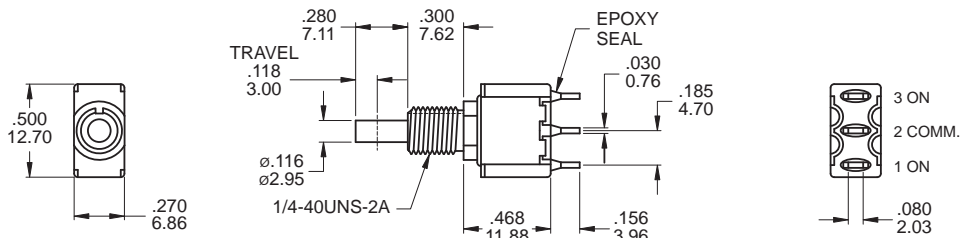


7M(LOCK)
Pushbutton Switches

▼ SWITCH FUNCTION

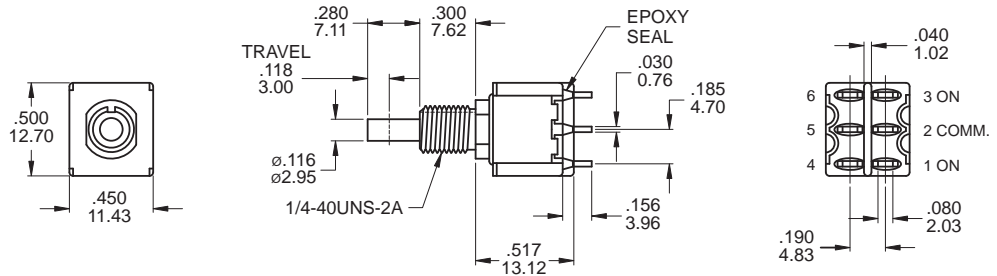
NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS / SCHEMATIC	
		POS.1	POS.2	POS.1	POS.2
SP	7MSL	ON	ON	1-2 	2-3
DP	7MDL	ON	ON	1-2,4-5 	2-3,5-6

▼ POLE OPTIONS



SPDT

Model name. 7MSLP1B60M1QES

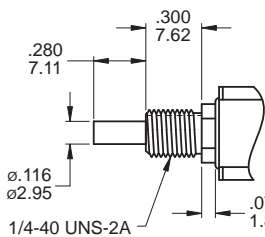


DPDT

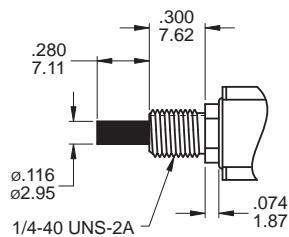
Model name. 7MDLP1B60M1QES

▼ PLUNGER OPTIONS

P1 (Std.)

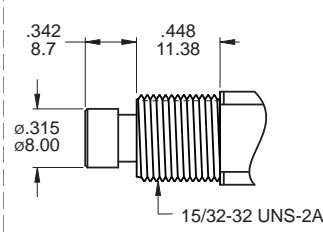


PA Metal plunger



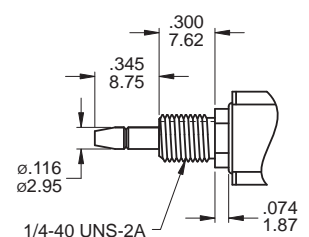
Standard for B60, B70 bushing.

PB Metal plunger



Standard for B13 bushing.

PC Metal plunger

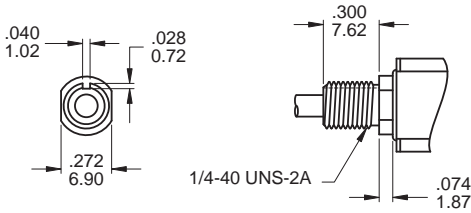


Standard for B60, B70 bushing
Note: PC plunger only for K1 Cap

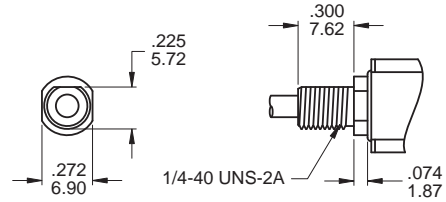
Note: P1, PA, PC plunger for terminal M6, M7, VS2-3: -.020inch(0.50mm)

▼ BUSHING OPTIONS

B60 THD STD
B70 NON-THD



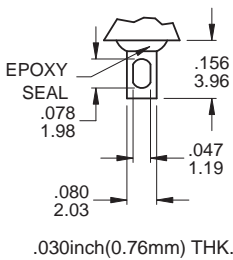
B61 THD STD
B71 NON-THD



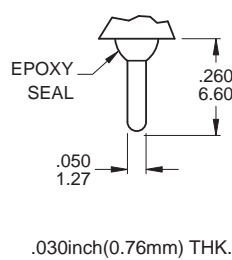
Note: Panel mounting see page 98.

▼ TERMINAL OPTIONS

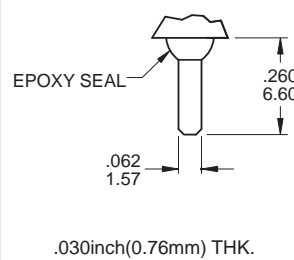
M1 Solder lug



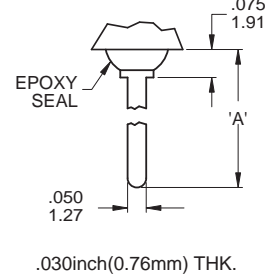
M2 PC Thru-hole



M3 Quick connect



M5 Wire Wrap

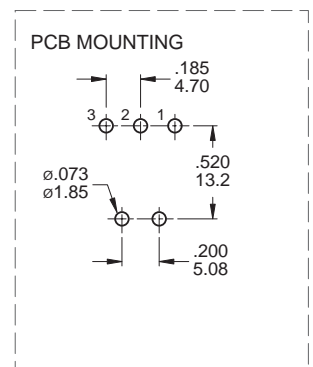
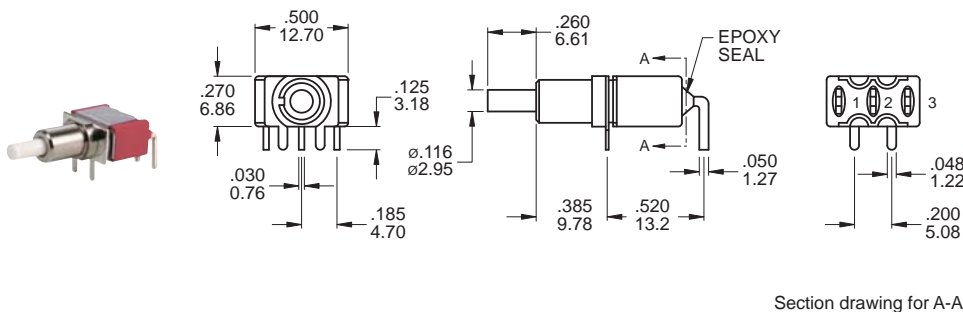


▼ OTHER TERMINAL OPTIONS

- M6** Right angle P.C. Mount
- M7** Right angle P.C. Mount
- VS2** Vertical bracket P.C. Mount
- VS3** Vertical bracket P.C. Mount
- V2N** Vertical bracket P.C. Mount, Snap-in bracket

OPTION CODE	DIM. 'A'
M51	.750 (19.50)
M52	.964 (24.48)
M53	.426 (10.80)
M54	.650 (16.50)

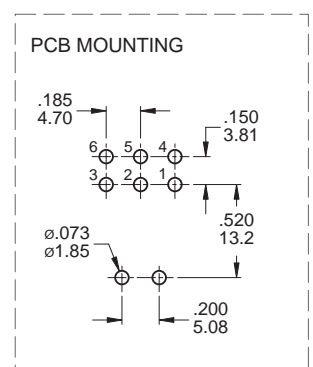
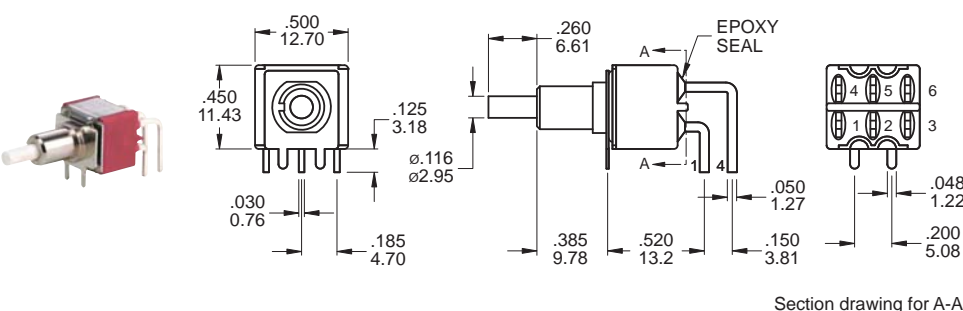
M6



SPDT

Model name. 7MSLP1B70M6QES

M6



DPDT

Model name. 7MDLP1B70M6QES



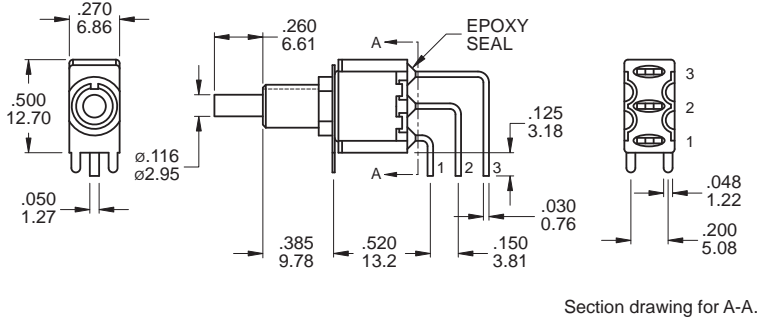
7M(LOCK) Series

Snap-Acting Pushbutton Switches

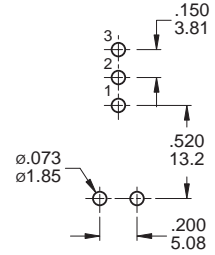


7M(LOCK)
Pushbutton Switches

M7



PCB MOUNTING

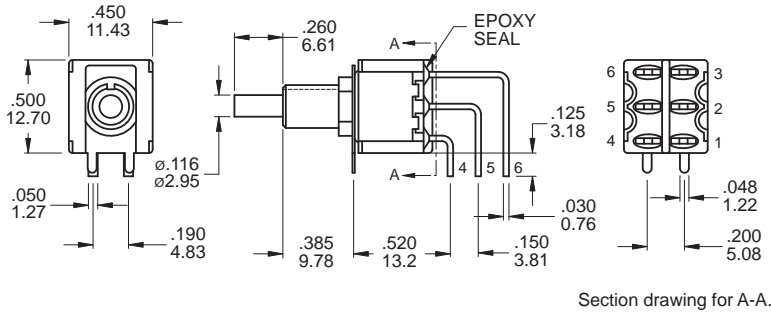
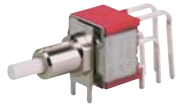


Section drawing for A-A.

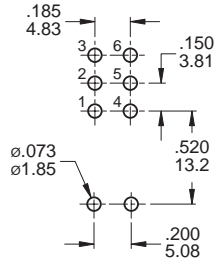
SPDT

Model name. 7MSLP1B70M7QES

M7



PCB MOUNTING

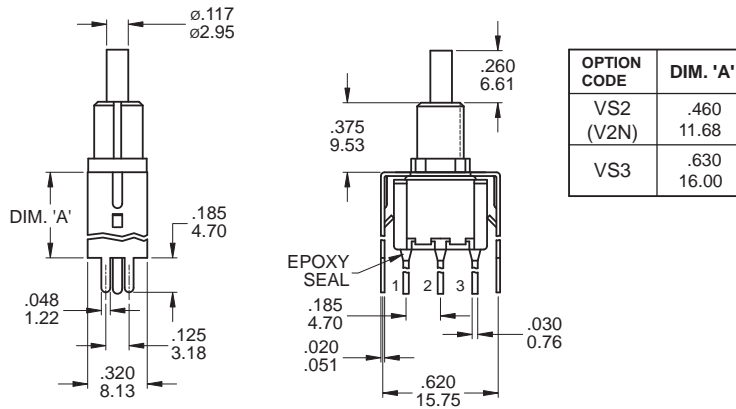


Section drawing for A-A.

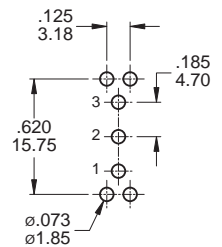
DPDT

Model name. 7MDLP1B70M7QES

VS2 / VS3
(V2N - Snap-in)



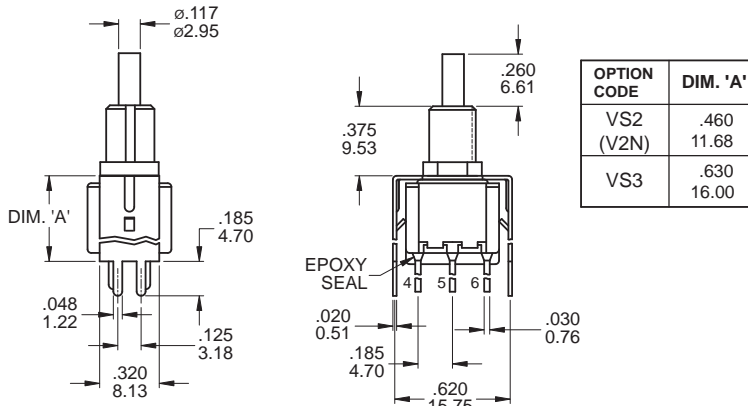
PCB MOUNTING



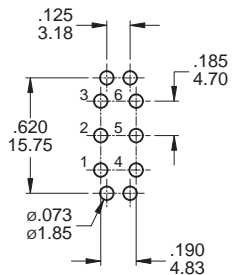
SPDT

Model name. 7MSLP1B70VS2QES

VS2 / VS3
(V2N - Snap-in)



PCB MOUNTING



DPDT

Model name. 7MDLP1B70VS2QES



▼ CONTACT & TERMINAL PLATING OPTIONS

7M series

	CONTACT PLATING	TERMINAL PLATING	RATINGS
Q	Silver	Silver	3 Amps with resistant load @ 120VAC or 28VDC 1 Amps with resistant load @ 250VAC
C	Gold over Silver	Gold over silver	
R	Gold	Gold	0.4 Volt - Amps (VA) max. @ 20V max. (AC or DC)

7M(LOCK) series

	CONTACT PLATING	TERMINAL PLATING	RATINGS
Q	Gold over Silver	Silver	3 Amps with resistant load @ 120VAC or 28VDC 1 Amps with resistant load @ 250VAC
C		Gold over silver	
R	Gold	Gold	0.4 Volt - Amps (VA) max. @ 20V max. (AC or DC)

▼ SOLDERING PROCESS

MANUAL SOLDERING: Use 30 watts soldering iron and controlled the temperature at 350°.

Duration of solder immersion: Max. 5 sec.

WAVE SOLDERING: Recommend soldering temperature: 260 ± 5°C

Duration of solder immersion: Max. 5 sec. (PCB thickness is 1.6mm)