

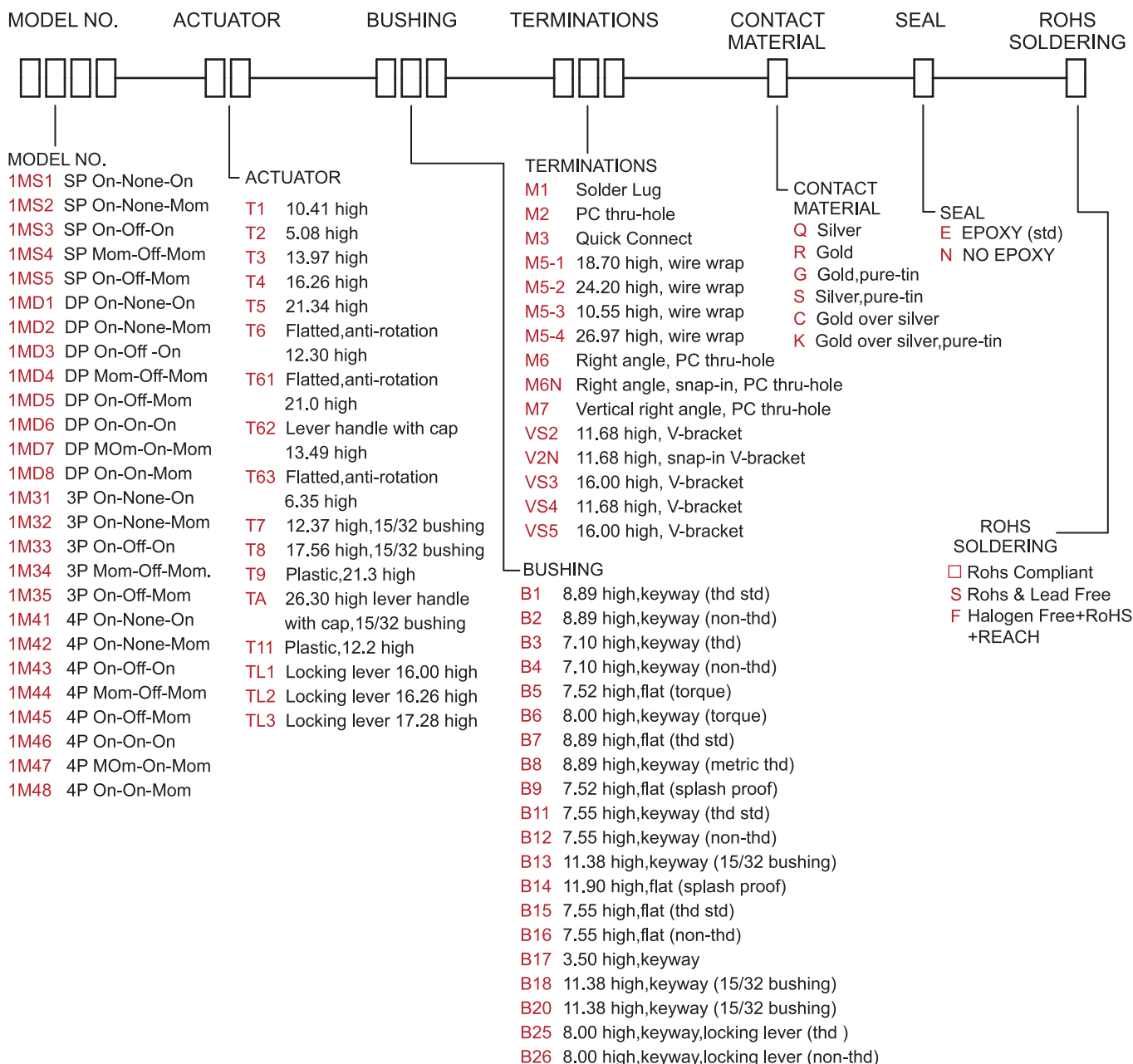
## SPECIFICATIONS

- CONTACT RATING:** Dependent upon contact material.
- MECHANICAL LIFE:** 40,000 make-and-break cycles.
- CONTACT RESISTANCE:** 10mΩ max. initial @ 2-4VDC  
100mA for both silver and gold plated contacts.
- INSULATION RESISTANCE:** 1,000MΩ min.
- DIELECTRIC STRENGTH:** 1,000 V RMS@sea level.
- OPERATING TEMPERATURE:** -30°C to 85°C.

## MATERIALS

- CASE:** Diallyl phthalate (DAP) (UL94v-0).
- ACTUATOR:** Brass,chrome plated.
- BUSHING:** Brass,nickel plated.
- HOUSING:** Stainless Steel.
- SWITCH SUPPORT:** Brass,tin plated.
- TERMINAL/CONTACT:** Silver or gold plated.(See Page 11)

## HOW TO ORDER



**SWITCH FUNCTION**

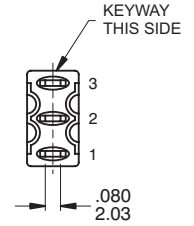
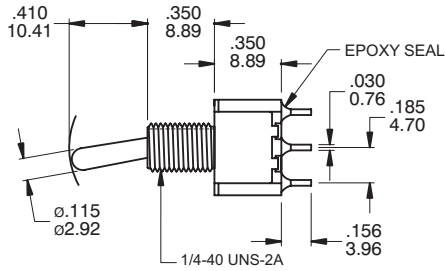
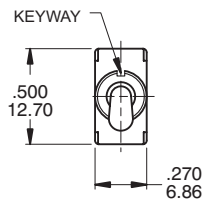
NO. POLES	UL/CSA MODEL NO.	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS / SCHEMATIC		
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3
SP	Q1111	1MS1	ON	NONE	ON		N/A	
	Q1112	1MS2	ON	NONE	MOM	2-3		2-1
	Q1113	1MS3	ON	OFF	ON			
	Q1114	1MS4	MOM	OFF	MOM		OPEN	
	Q1115	1MS5	ON	OFF	MOM			
DP	Q1121	1MD1	ON	NONE	ON		N/A	
	Q1122	1MD2	ON	NONE	MOM	2-3,5-6		2-1,5-4
	Q1123	1MD3	ON	OFF	ON			
	Q1124	1MD4	MOM	OFF	MOM		OPEN	
	Q1125	1MD5	ON	OFF	MOM			
	Q1126	1MD6	ON	ON	ON			
	▲ Q1127	1MD7	MOM	ON	MOM	2-3,5-6	2-3,5-4	2-1,5-4
	▲ Q1128	1MD8	ON	ON	MOM			
3P	Q1131	1M31	ON	NONE	ON		N/A	
	Q1132	1M32	ON	NONE	MOM	2-3,5-6,8-9		2-1,5-4,8-7
	Q1133	1M33	ON	OFF	ON			
	Q1134	1M34	MOM	OFF	MOM		OPEN	
	Q1135	1M35	ON	OFF	MOM			
4P	Q1141	1M41	ON	NONE	ON		N/A	
	Q1142	1M42	ON	NONE	MOM	2-3,5-6,8-9,11-12		2-1,5-4,8-7,11-10
	Q1143	1M43	ON	OFF	ON			
	Q1144	1M44	MOM	OFF	MOM		OPEN	
	Q1145	1M45	ON	OFF	MOM			
	Q1146	1M46	ON	ON	ON			
	▲ Q1147	1M47	MOM	ON	MOM	2-3,5-6,8-9,11-12	2-3,5-4,8-9,11-10	2-1,5-4,8-7,11-10
	▲ Q1148	1M48	ON	ON	MOM			

MOM=MOMENTARY

▲ Please check the availability in advance before order

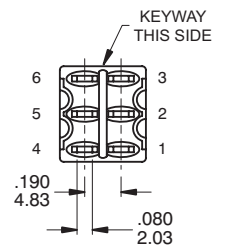
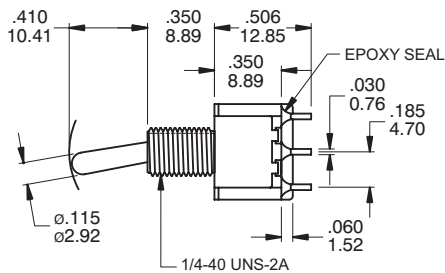
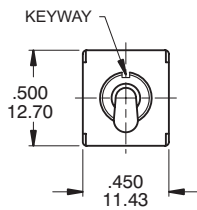
**POLE OPTIONS**

**SPDT**



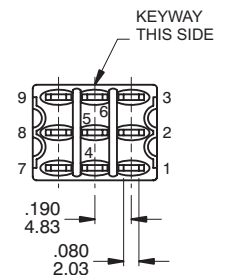
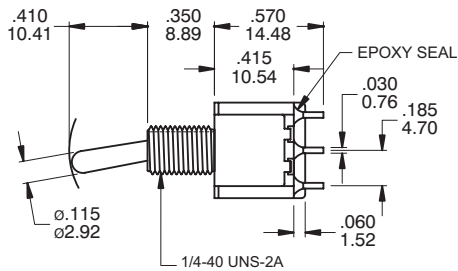
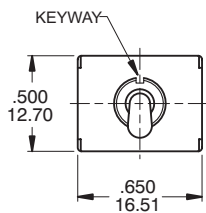
Part No. Shown : 1MS1T1B1M1QE

**DPDT**



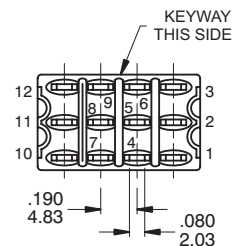
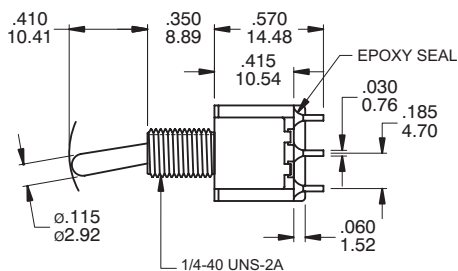
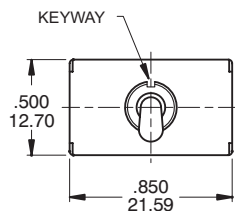
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**3PDT**



Part No. Shown : 1M31T1B1M1QE

**4PDT**



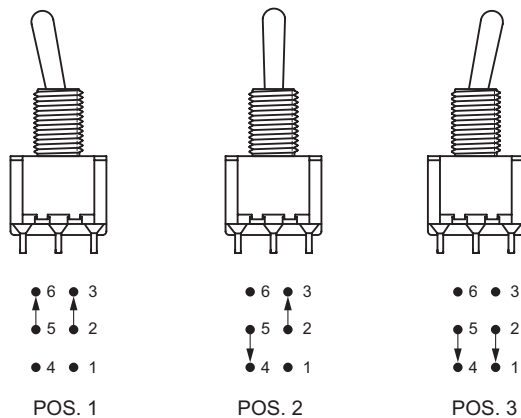
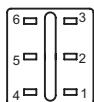
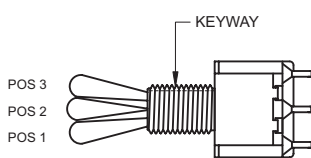
Part No. Shown : 1M41T1B1M1QE

## 3-WAY SWITCHES

### 3-WAY WIRING DIAGRAM SCHEMATICS

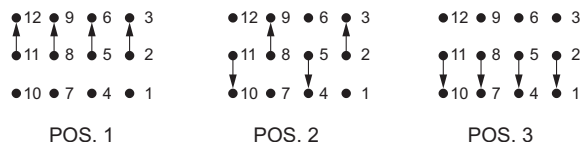
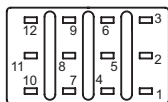
#### SINGLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
1MD6	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4



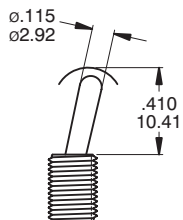
#### DOUBLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
1M46	ON	ON	ON
Term. Comm.	2-3,5-6 8-9,11-12	2-3,5-4 8-9,11-10	2-1,5-4 8-7,11-10

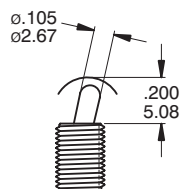


## ACTUATOR OPTIONS

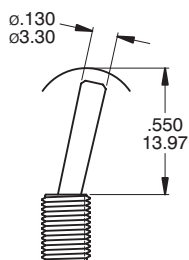
#### T1 STD



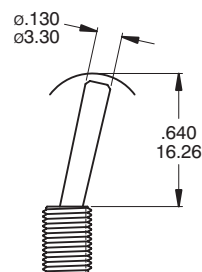
#### T2



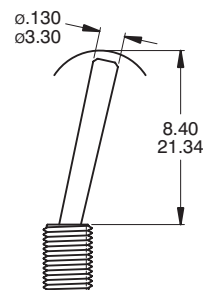
#### T3



#### T4

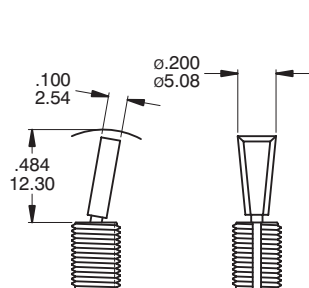


#### T5

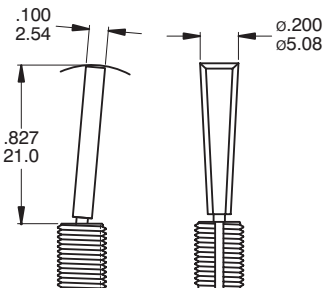


**NOTE** T1 ~ T5 Actuator shown with standard B1 Bushing :  
 Add .070 (1.78) for B3 Bushing ;  
 Subtract .020 (0.51) for B6 Bushing ;  
 Std for M1 , M2 Terminal sub .016 (0.40) for M6 , M7 , VSX

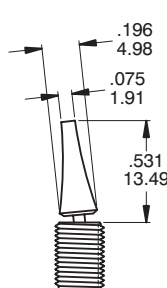
#### T6 FLATTED WITH ANTIROTATION



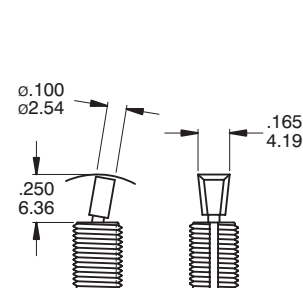
#### T61



#### T62

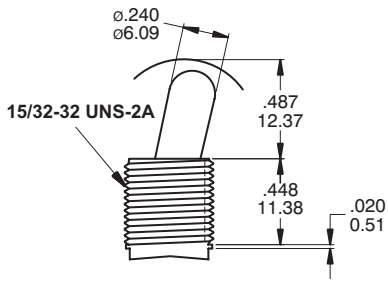


#### T63



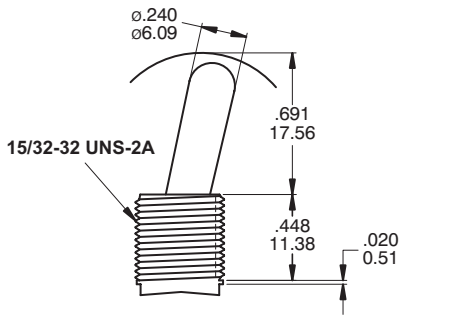
**NOTE** T6,T6-1,T6-2 ,T63 use with B11, B12, B15, B16 bushing only.

## T7



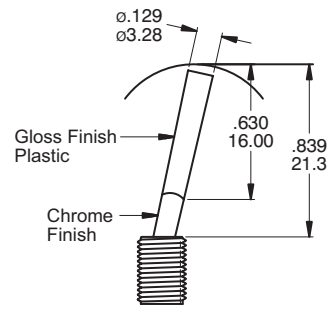
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 13.00mm

## T8



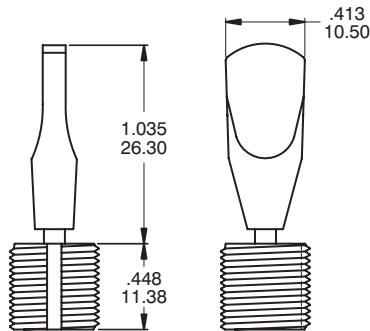
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 18.00mm

## T9



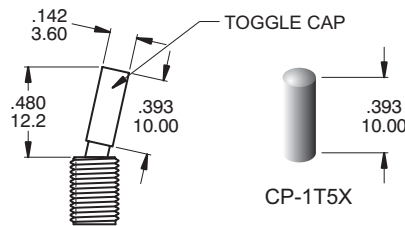
B1 / B2 bushing std with black and red color only ( std. )

## TA PLASTIC BLACK



Use with B18 bushing only

## T11



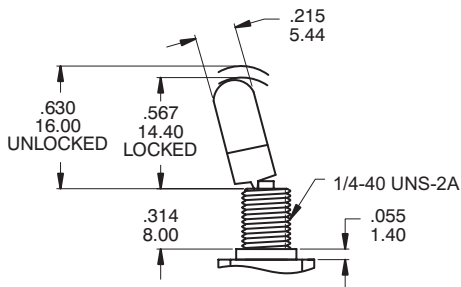
**NOTE** T11 Actuator shown with standard B1 Bushing ;  
Add .070 ( 1.78 ) for B3 Bushing ;  
Subtract .020 ( 0.51 ) for B6 Bushing.  
Std for M1.M2 Terminal sub .016 (0.40 ) for M6.M7.VSX

### Plastic No.Color :

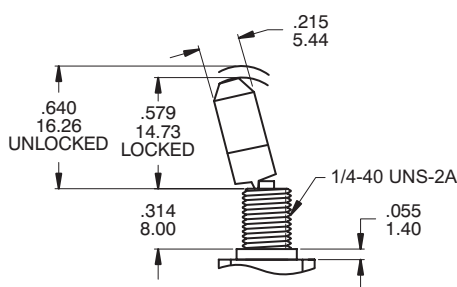
ITEM NO	COLOR
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

T6-2 , TA , T9 , T11 ACTUATOR ONLY

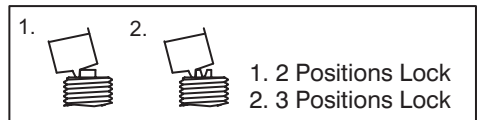
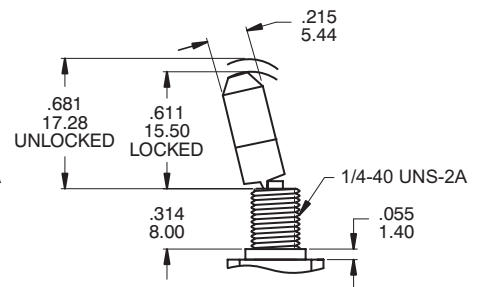
## TL1B25



## TL2B25

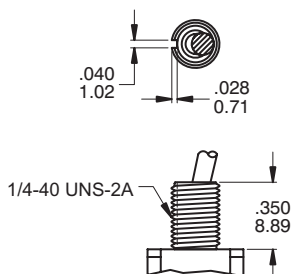


## TL3B25

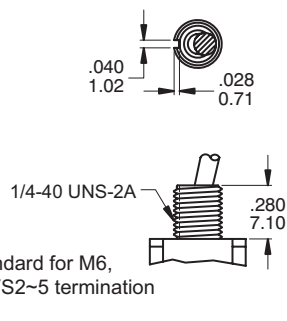


## BUSHING OPTIONS

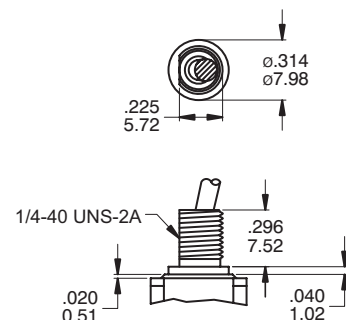
### B1 THD STD B2 NON-THD



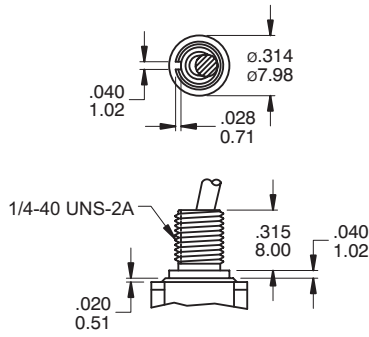
### B3 THD B4 NON-THD



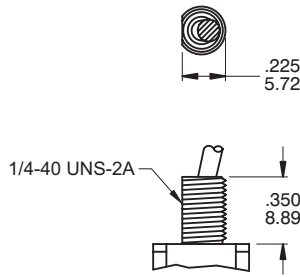
### B5 HIGH TORQUE



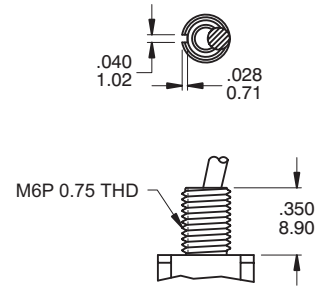
**B6 HIGH TORQUE**



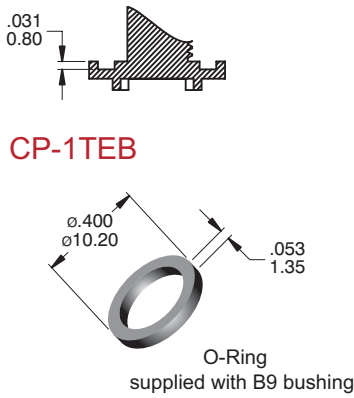
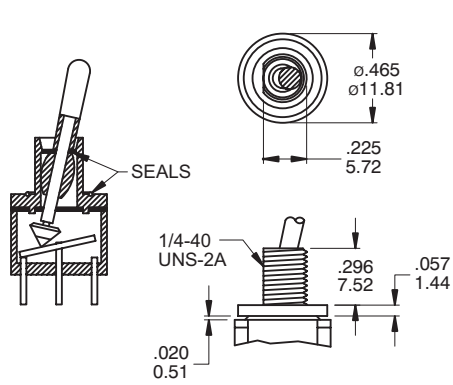
**B7 THD STD**



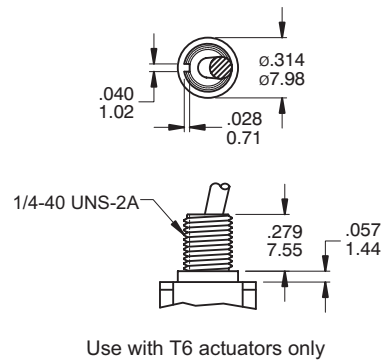
**B8 METRIC THD**



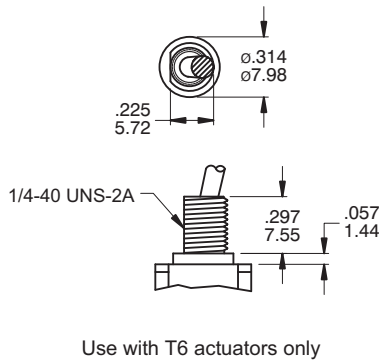
**B9 SPLASH PROOF**



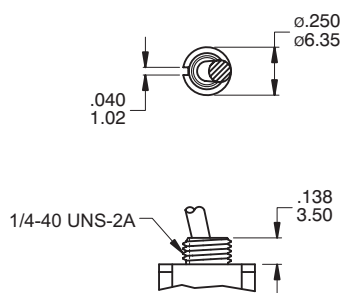
**B11 THD STD  
B12 NON-THD**



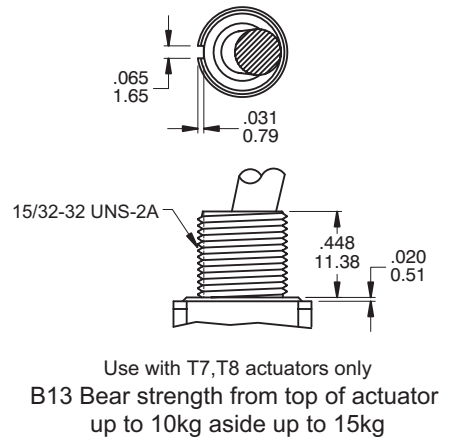
**B15 THD STD  
B16 NON-THD**



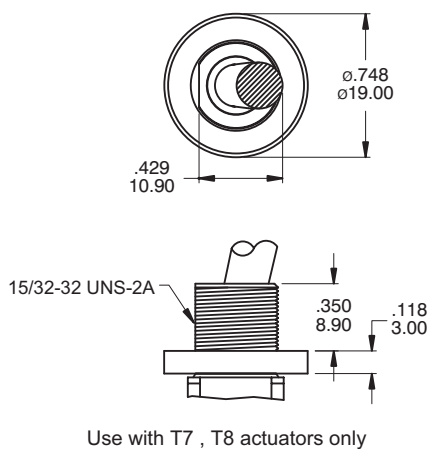
**B17**



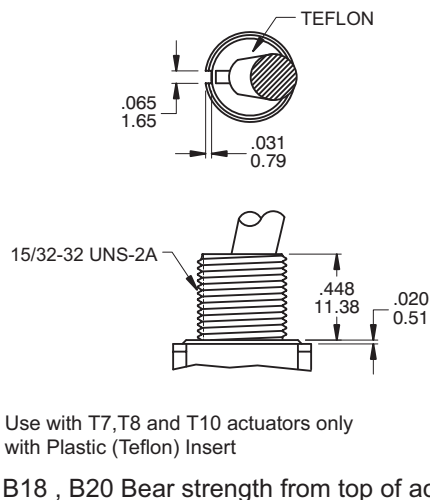
**B13**



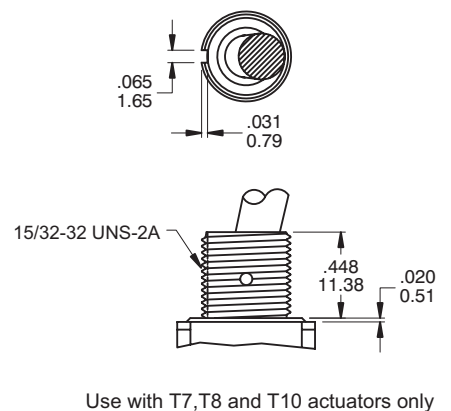
**B14 SPLASH PROOF**



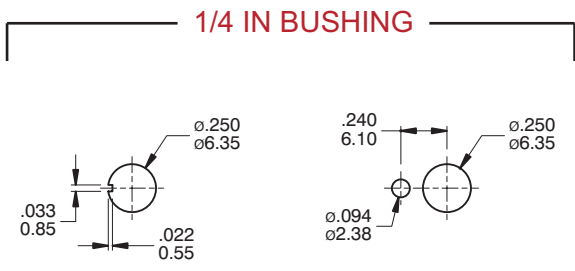
**B18**



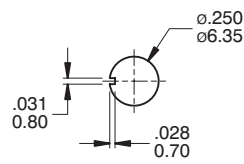
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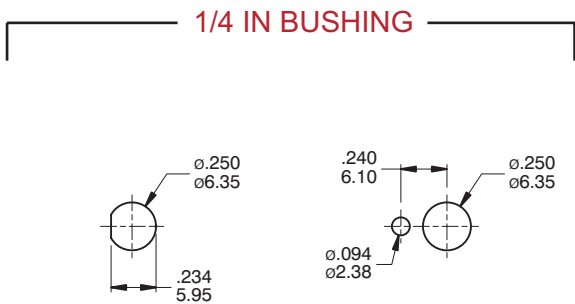
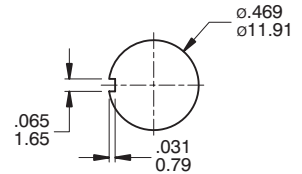
**PANEL MOUNTING**



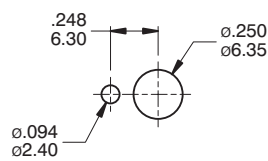
**METRIC BUSHING**



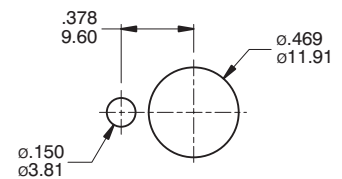
**15/32IN BUSHING**



**METRIC BUSHING**

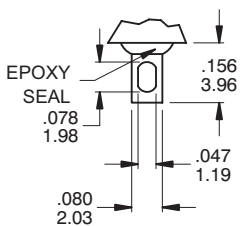


**15/32IN BUSHING**



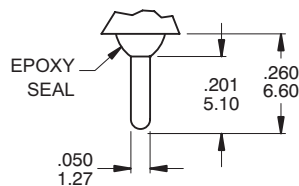
**TERMINATION OPTIONS**

**M1 SOLDER LUG**



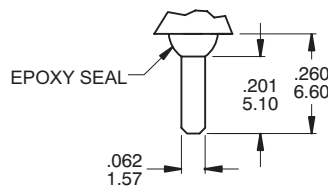
.030(0.76) THK.

**M2 PC THRU-HOLE**



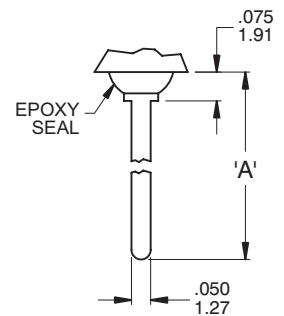
.030(0.76) THK.

**M3 QUICK CONNECT**



THK .030(0.76)

**M5 WIRE WRAP**



THK .030(0.76)

**OTHER TERMINATION OPTIONS**

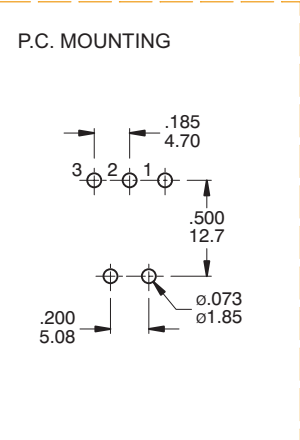
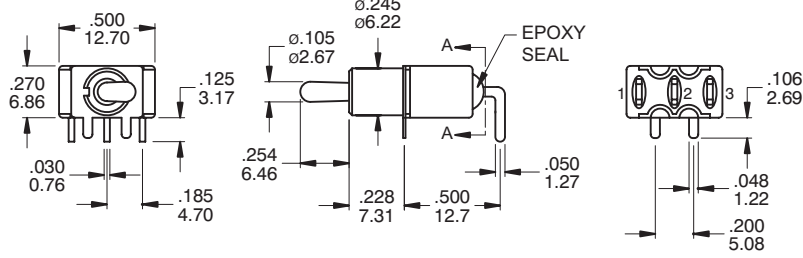
- M6 RIGHT ANGLE P.C. MOUNT
- M7 RIGHT ANGLE P.C. MOUNT
- VS2 VERTICAL BRACKET P.C. MOUNT
- VS3 VERTICAL BRACKET P.C. MOUNT
- VS5 VERTICAL BRACKET P.C. MOUNT

RE Mating Quick Connector  
Amp P/N 60900-1

OPTION CODE	DIM. 'A'
M5-1	.736 (18.70)
M5-2	.953 (24.20)
M5-3	.415 (10.55)
M5-4	1.062 (26.97)



M6

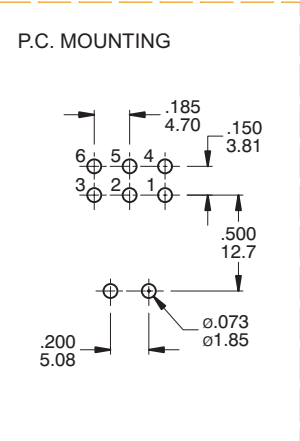
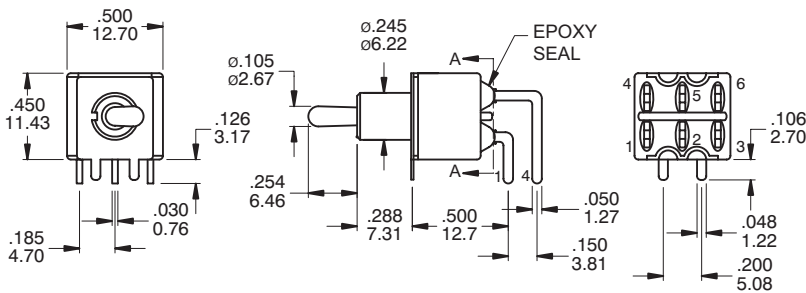


SPDT

Part No. Shown : 1MS1T2B4M6QE

SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

M6

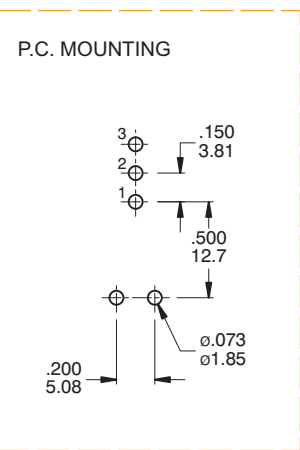
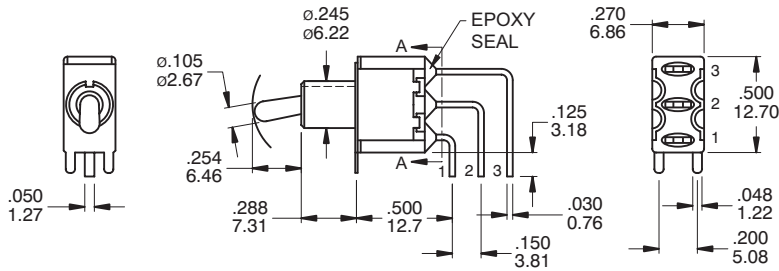
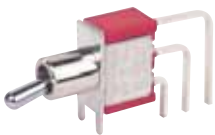


DPDT

Part No. Shown : 1MD1T2B4M6RE

SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

M7

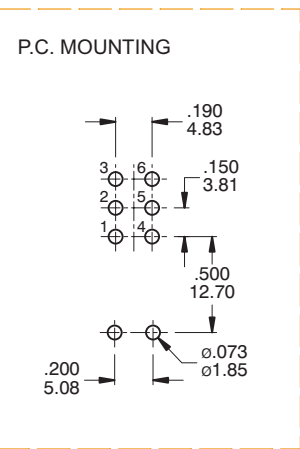
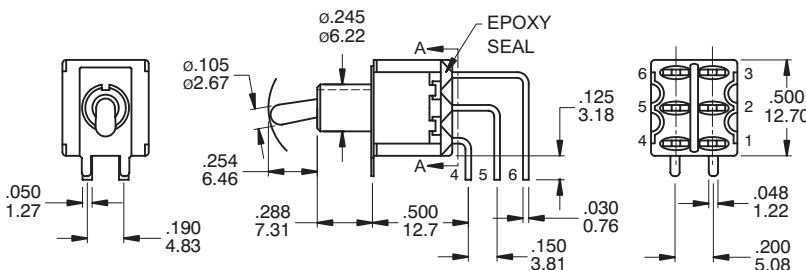


SPDT

Part No. Shown : 1MS1T2B4M7QE

SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

M7



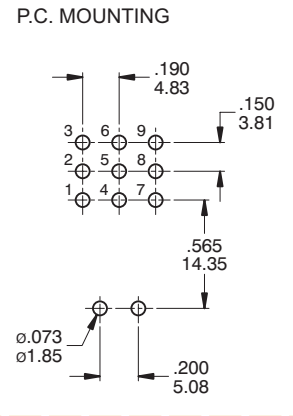
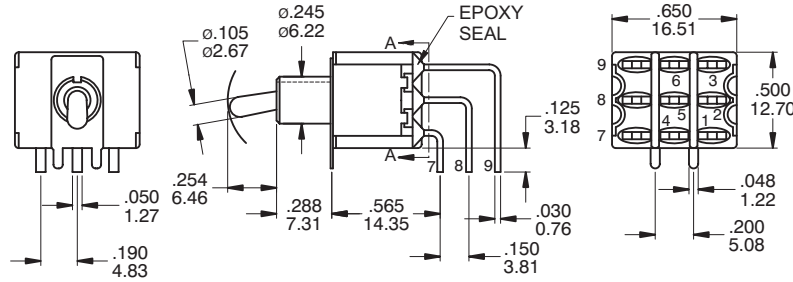
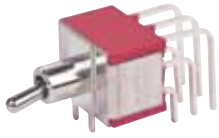
DPDT

Part No. Shown : 1MD1T2B4M7QE

SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY



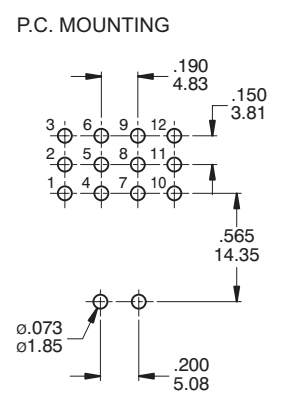
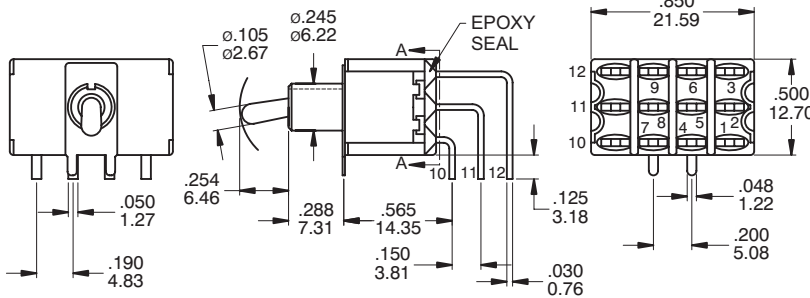
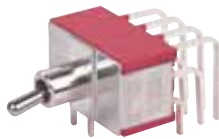
**M7**



**3PDT**

Part No. Shown : 1M31T2B4M7QE

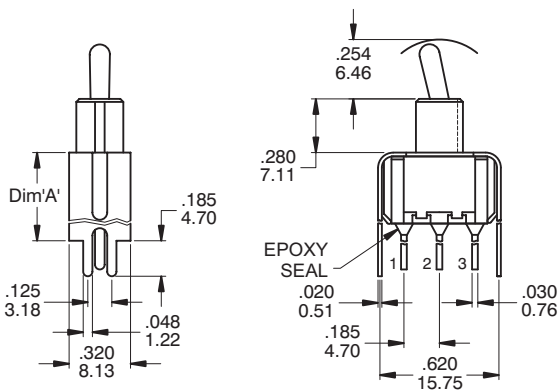
**M7**



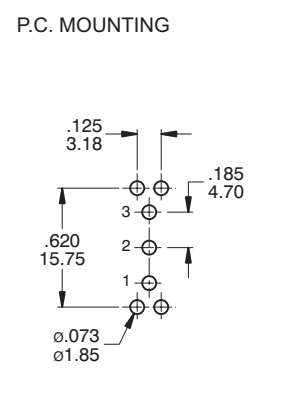
**4PDT**

Part No. Shown : 1M41T2B4M7QE

**VS2 - VS3**



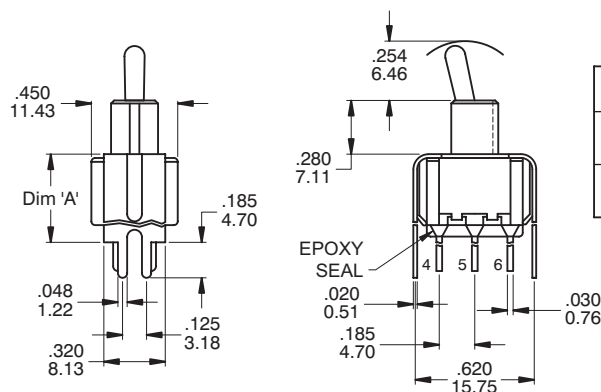
OPTION CODE	DIM. 'A'
VS2	.460 11.68
VS3	.630 16.00



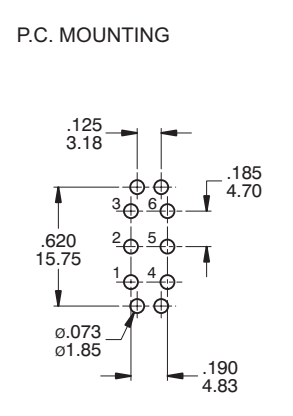
**SPDT**

Part No. Shown : 1MS1T2B4VS2QE

**VS2 - VS3**



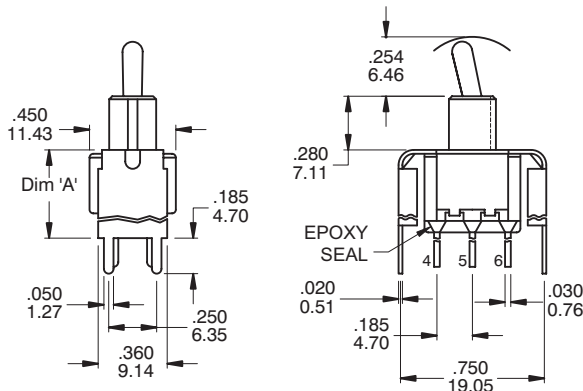
OPTION CODE	DIM. 'A'
VS2	.460 11.68
VS3	.630 16.00



**DPDT**

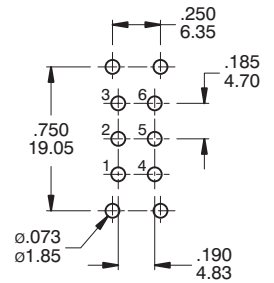
Part No. Shown : 1MD1T2B4VS3QE

**VS5**



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

P.C. MOUNTING

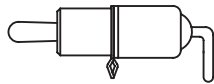
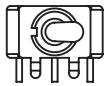


**DPDT**

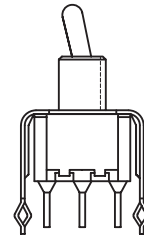
Part No. Shown : 1MD1T2B4VS5QE

## SNAP-IN TERMINATION OPTIONS

**M6N**

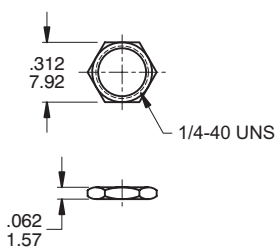


**V2N**



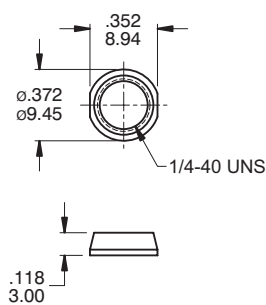
## HARDWARE

**1/4 NUTS HDW2**

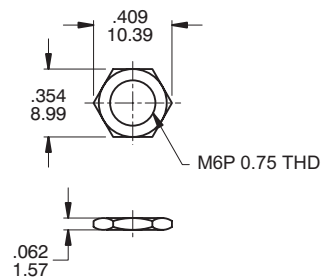


Supplied standard with B1, B3, B5, B6 and B9 options

**DRESS NUT HDW3**

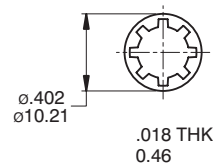


**METRIC NUT HDW6**



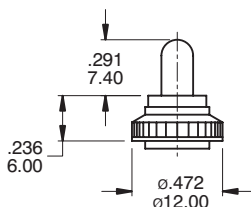
Supplied standard with B8 metric bushing

**LOCK WASHER HDW11**



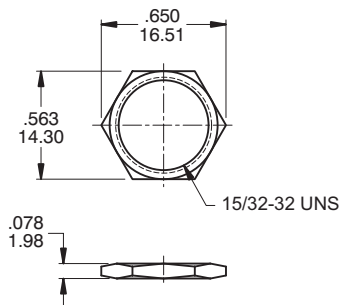
Supplied standard with B1 / B3 bushing

**OPTIONAL RUBBER HOOD SEALING**

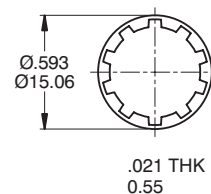


K1=Metric  
E1=Inch (Std.)  
for actuator T1, T2 and  
B1, B3, B5, B6 Bushing only

**15/32 NUTS HDW4**



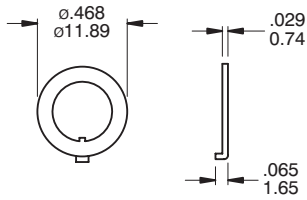
Supplied standard with B13 bushing



Supplied standard with B13 bushing

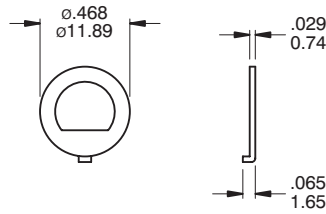
# Miniature Toggle Switches **1M SERIES**

**HDW15**



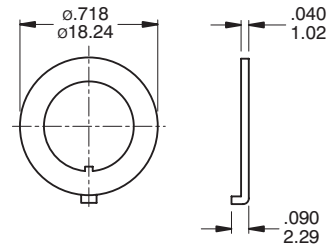
Locking ring supplied standard

**HDW16**



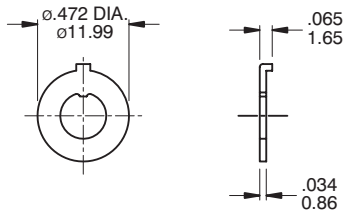
Locking ring supplied with B5 bushing

**HDW17**



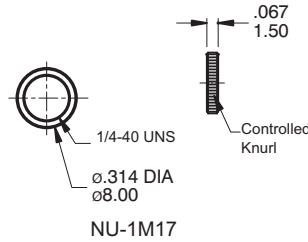
Locking ring supplied with B13,B18,B20 bushing

**HDW18**



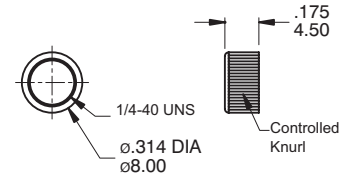
Locking ring supplied with B8 bushing

**HDW19**



NU-1M17

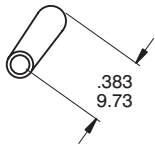
**HDW20**



NU-1M24

## OPTIONAL TOGGLE CAP

**CP-1T1X**

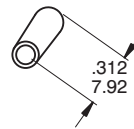


Use with T1

**CAP Color :**

ITEM NO	COLOR
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

**CP-1T2X**



Use with T2

**CAP Color :**

ITEM NO	COLOR
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

## CONTACT MATERIAL OPTIONS

	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
<b>Q</b>	Silver	<b>Q</b> = Silver	5 Amps with resistant load @ 120VAC or 28VDC 2 Amps with resistant load @ 250VA
<b>S</b>		<b>S</b> = Silver,pure - tin	
<b>C</b>	Gold over Silver	<b>C</b> = Gold over silver	
<b>K</b>		<b>K</b> = Gold over silver,pure - tin	
<b>R</b>	Gold	<b>R</b> = Gold	0.4 Volt - Amps ( VA ) max. @ 20V max. ( AC or DC )
<b>G</b>		<b>G</b> = Gold,pure - tin	



## SOLDERING PROCESSES

**MANUAL SOLDERING** : Use soldering iron of 30 watts, controlled at 350°C approximately 5 seconds while applying solder.

**WAVE SOLDERING** : Recommended Soldering Temperature : 260 ± 5°C  
Duration of Solder Immersion : 5 ± 1 seconds  
(PCB is 1.6mm in thickness)

### SOLDERING : Vapor phase

