

FEATURE

1. Completely sealed switching chamber
2. Step-design case provides added space between terminals to help prevent shorting
3. IP68 protection degree



SPECIFICATIONS

CONTACT RATING: 15 GPA, 125 V AC, 250 V AC, 277 V AC

ELECTRIC LIFE: 10,000 cycles

CONTACT RESISTANCE: 10 mΩ max. (initial)

INSULATION RESISTANCE: 1,000 MΩ min. 500VDC

DIELECTRIC STRENGTH: 2,500 VAC/ 1 min.

OPERATING TEMPERATURE: -40°C to +85°C

How do you build the switches you need!!

T 6 0 1 3 - T 1 E B - 1 0 - H

Switch Function	
T6013	On-None-On
T6013A	On-None-(On)
T6014	On-Off-On
T6014A	(On)-Off-(On)
T6014B	On-Off-(On)

Locking	
/	NO Locking
A	in 3 position
D	out of center
G	keyway side

Actuator	
T1	Round
U1	Flatted
Bushing	
E	Standard

Terminal	
B	solder lug
D	quick connect
S	screw

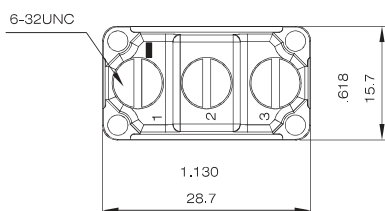
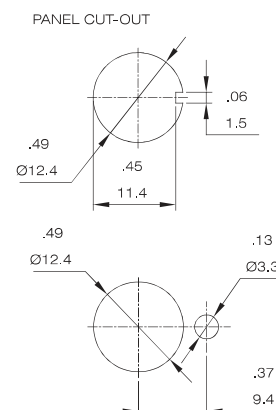
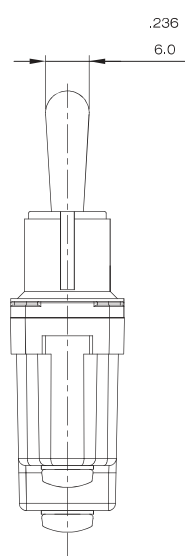
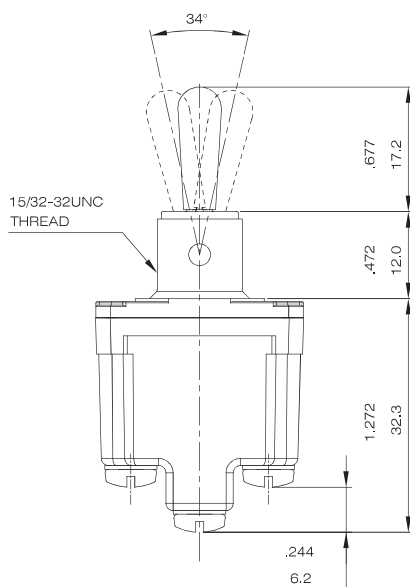
Contact Material	
NON	No plated
Q	Silver plated

Agency approval	
/	none
10	10A UL
15	15A UL

Agency approval	
/	Standard
2P	Two terminal

RoHS code
H= ROHS Compliant

Model No.	Switching position		
T6013	ON	None	ON
T6013A	ON	None	(ON)
T6014	ON	OFF	ON
T6014A	(ON)	OFF	(ON)
T6014B	ON	OFF	(ON)



T6014 - T1ES - 15 - H



SPECIFICATIONS

CONTACT RATING: 0.1A 30 VDC (Q terminal)

ELECTRIC LIFE: 10,000 cycles

CONTACT RESISTANCE: 30 mΩ max. (initial)

INSULATION RESISTANCE: 100 MΩ min. 500VDC, 0.5 mA

DIELECTRIC STRENGTH: 1,000 VAC/ 1 min.

OPERATING TEMPERATURE: -30°C to +85°C

How do you build the switches you need!!

T 7 0 1 3 - U H C Q -

Switch Function	
T7013	SP on-none-on
T7013A	SP on-none-(on)
T7014	SP on-off-on
T7014A	SP (on)-off-(on)
T7014B	SP on-off-(on)
T7011	DP on-none-on
T7011A	DP on-none-(on)
T7012	DP on-off-on
T7012A	DP (on)-off-(on)
T7012B	DP on-off-(on)

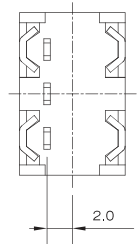
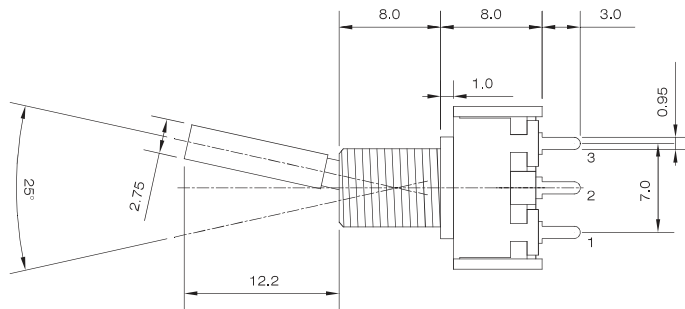
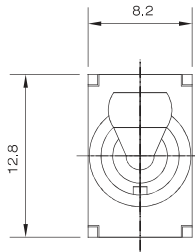
Actuator	
U	Standard
U1	Short
U2	Long

Bushing	
H	Thd (std. type)
H2	Metric

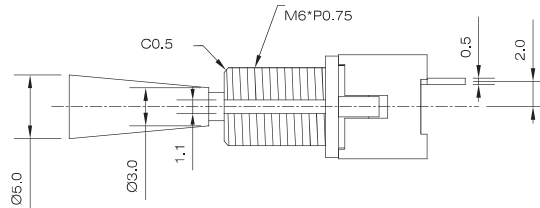
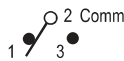
Termination	
C	P.C

Contact Material	
Q	Silver plated

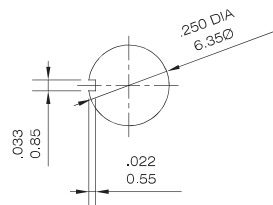
RoHS code	
H	RoHS Compliant



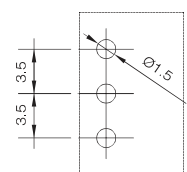
Model No.	Switching position		
T7013	ON	None	ON
T7013A	ON	None	(ON)
T7014	ON	OFF	ON
T7014A	(ON)	OFF	(ON)
T7014B	ON	OFF	(ON)
Term. Comm	2-3	OPEN	2-1



PANEL MOUNTING



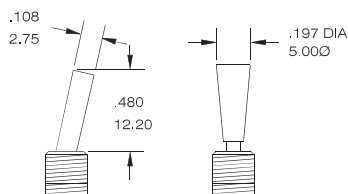
P.C. MOUNTING



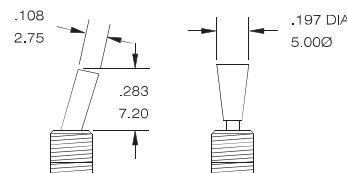
T7013 - UHCQ

Actuator Option

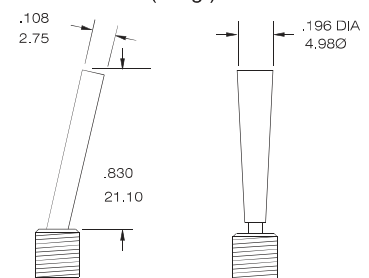
U (standard)

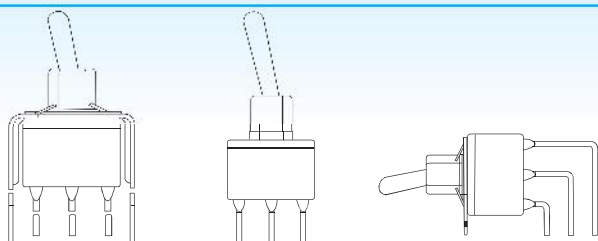


U1 (short)



U2 (long)





SPECIFICATIONS

CONTACT RATING: 6A @125 VAC or 28 VDC (Q terminal)
ELECTRICAL LIFE:50,000 make-and-break cycles at full load
CONTACT RESISTANCE: 10 mΩ max. initial @2-4 VDC, 100 mA
INSULATION RESISTANCE: 1,000 MΩ min.
DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.
OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

CASE -Glass filled nylon 6/6 or nylon 4/6 (UL94V-0)
ACTUATOR - Copper alloy , chrome plated with internal o-ring standard
SWITCH SUPPORT - Copper alloy or steel, tin plated
CONTACT AND TERMINAL- Copper alloy , silver plated
TERMINAL SEAL: Epoxy

IP67 protection degree

How do you build the switches you need!!

The straight type , please see the (A) ;

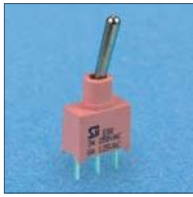
The right angle P.C terminals, please see the (B)

(A) **N E 8 0 1 3** - **S** **E** **C** **Q** - **S 2 0** - **T 1** - **2** - -

Switch Function		Actuator		Bushing		Contact Material		Actuator Cap		O Ring			
NE8013	SP on-none-on	S	12.43	N	(std.) non-thd.	6.15	Q	silver plated	(none)		(none)		
NE8013A	SP on-none-(on)	T	7.30	E	thd.	8.89	R	gold plated	T1	10.58 (for actuator S)	E6	for inch thd	
NE8014	SP on-off-on	Esd protection actuator		Termination		Vertical support Bracket		G	gold over silver	T2	7.56 (for actuator T)	RoHS code	
NE8014A	SP (on)-off-(on)							K	tin plated	Cap color			
NE8014B	SP on-off-(on)												
NE8011	DP on-none-on												
NE8011A	DP on-none-(on)												
NE8012	DP on-off-on	P1	(black) 12.43	B	solder lug	(none)	0	transparent	H = RoHS Compliant				
NE8012A	DP (on)-off-(on)	P11	(white) 12.43	C	P.C 1.27width	S20	11.68	1			white		
NE8012B	DP on-off-(on)	P19	(silver) 12.43	D	Quick connect	S25	16.00	2			black		
		P2	(black) 7.30	D1	wire wrap	S35	11.68	3			red		
		P21	(white) 7.30	D3	wire wrap	S40	16.00	4			orange		
		P29	(silver) 7.30			V20	snap-in 11.68	5			yellow		
						V25	snap-in 16.00	6			green		
						V35	snap-in 11.68	7	blue				
						V40	snap-in 16.00						
3 way position switches													
NE812	DP on-on-on												

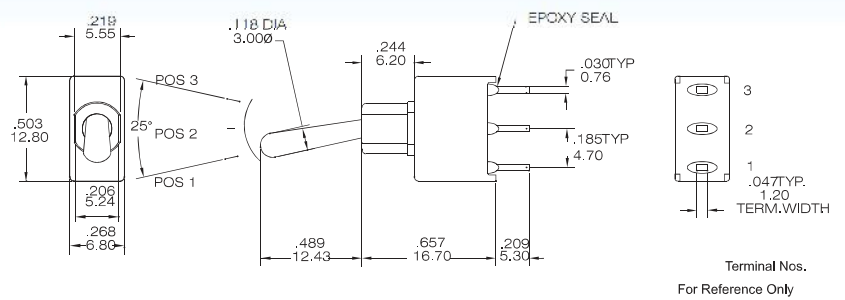
(B) **N E 8 0 1 9 L** - **T** **N** **Q** - **T 2** - **2** -

Horizon Right Angle	Vertical Right Angle	Switches Function	Actuator		Bushing			Cap color		RoHS code	
NE8019	NE8019L	SP on-none-on	S	12.43	N	(std)	non-thd	6.15	0 transparent	H = RoHS Compliant	
NE8019A	NE8019LA	SP on-none-(on)	T	7.30	Contact Material			1 white			
NE8020	NE8020L	SP on-off-on	Esd protection actuator					2 black			
NE8020A	NE8020LA	SP (on)-off-(on)						3 red			
NE8020B	NE8020LB	SP on-off-(on)						4 orange			
NE8021	NE8021L	DP on-none-on						5 yellow			
NE8021A	NE8021LA	DP on-none-(on)						6 green			
NE8022	NE8022L	DP on-off-on	P1 (black) 12.43	Q silver plated	Actuator Cap	7 blue					
NE8022A	NE8022LA	DP (on)-off-(on)	P11 (white) 12.43	R gold plated		(none)	10.58 (actuator S)				
NE8022B	NE8022LB	DP on-off-(on)	P19 (silver) 12.43	G gold over silver							
			P2 (black) 7.30	K tin plated							
			P21 (white) 7.30								
			P29 (silver) 7.30								
3 way position switches											
NE822	NE822L	DP on-on-on									

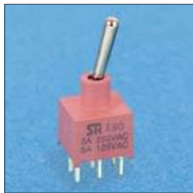


Model No.	Switching position		
NE8013	ON	none	ON
NE8013A	ON	none	(ON)
NE8014	ON	OFF	ON
NE8014A	(ON)	OFF	(ON)
NE8014B	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

SPDT

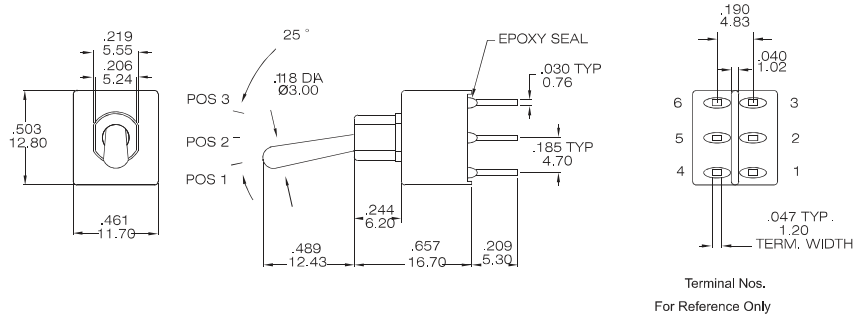


NE8013 - SNCQ



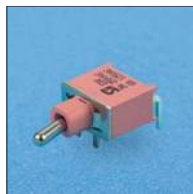
Model No.	Switching position		
NE8011	ON	none	ON
NE8011A	ON	none	(ON)
NE8012	ON	OFF	ON
NE8012A	(ON)	OFF	(ON)
NE8012B	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches			
NE812	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

DPDT



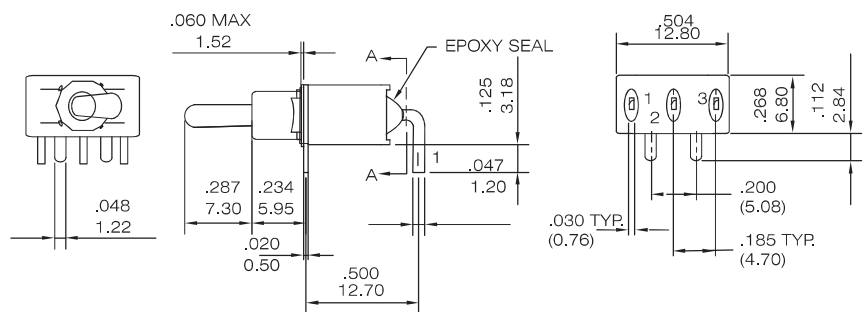
NE8011 - SNCQ

Please see page A08 to know more about NE812 (3-way Switches)

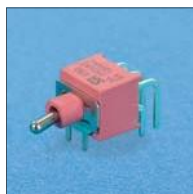


Model No.	Switching position		
NE8019	ON	none	ON
NE8019A	ON	none	(ON)
NE8020	ON	OFF	ON
NE8020A	(ON)	OFF	(ON)
NE8020B	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

SPDT

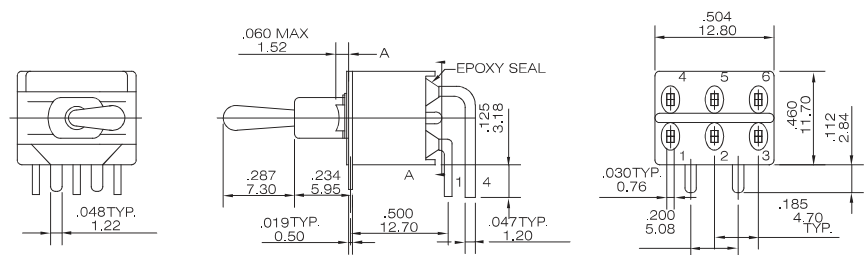


NE8019 - TNQ



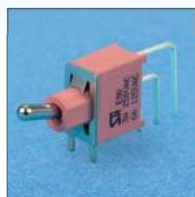
Model No.	Switching position		
NE8021	ON	none	ON
NE8021A	ON	none	(ON)
NE8022	ON	OFF	ON
NE8022A	(ON)	OFF	(ON)
NE8022B	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches			
NE822	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

DPDT



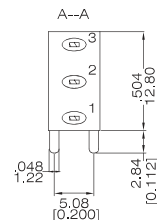
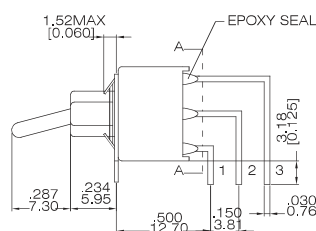
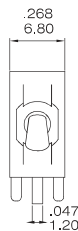
NE8021 - TNQ

Please see page A08 to know more about NE822 (3-way Switches)

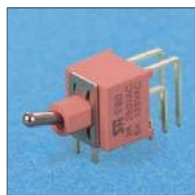


Model No.	Switching position		
NE8019L	ON	none	ON
NE8019LA	ON	none	(ON)
NE8020L	ON	OFF	ON
NE8020LA	(ON)	OFF	(ON)
NE8020LB	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

SPDT

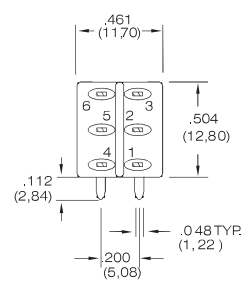
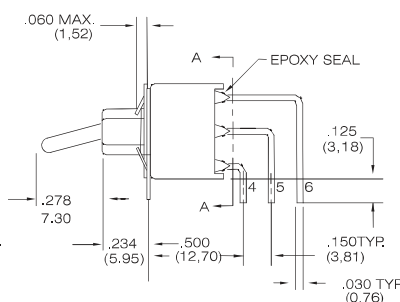
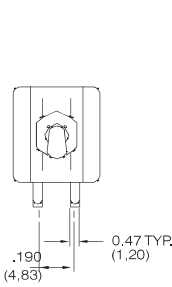


NE8019L - TNQ



Model No.	Switching position		
NE8021L	ON	none	ON
NE8021LA	ON	none	(ON)
NE8022L	ON	OFF	ON
NE8022LA	(ON)	OFF	(ON)
NE8022LB	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches			
NE822L	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

DPDT

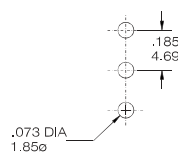


NE8021L - TNQ

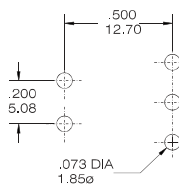
Please see page A08 to know more about NE822L (3-way Switches)

P.C.B MOUNTING DIMENSIONS

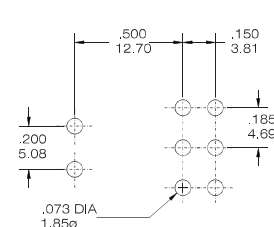
NE8013-NE8014B



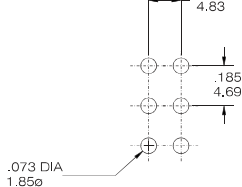
NE8019-NE8020B



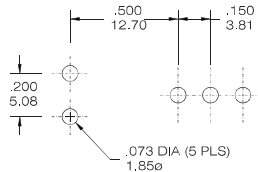
NE8021-NE8022B



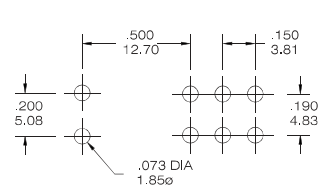
NE8011-NE8012B



NE8019L-NE8020LB

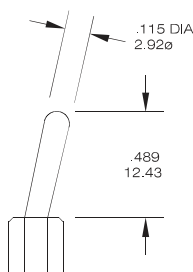


NE8021L-NE8022LB

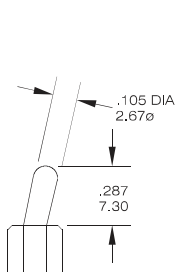


Actuator Option

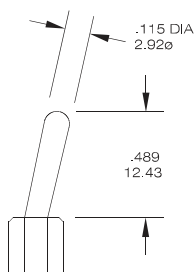
S (STD)



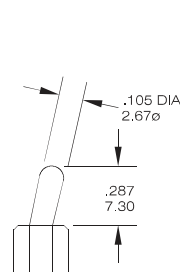
T (STD)



PLASTIC TOGGLE
P1



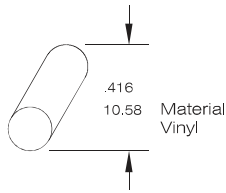
P2



code	description
P1/P2	black(std.)
P11/P21	white
P19/P29	silver

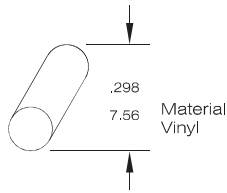
Toggle Cap Option

T1



For actuator "S" only

T2

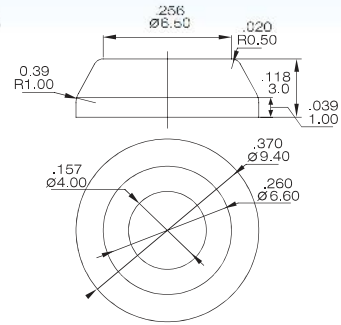


For actuator "T"

code	color
0	transparent
1	white
2	black
3	red
4	orange
5	yellow
6	green
7	blue

O Ring

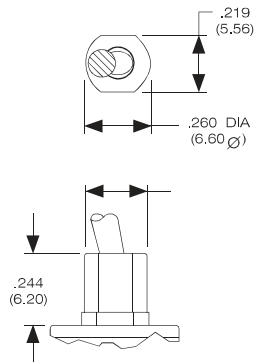
E6



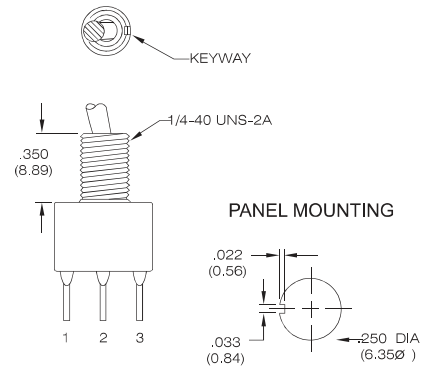
For "E" bushing

Bushing Option

N (std)

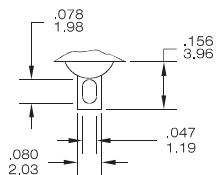


E



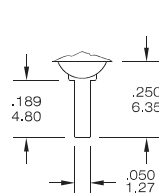
TERMINAL OPTION

B SOLDER LUG



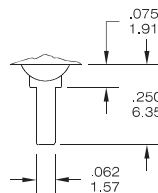
THK 0.76 (.030)

C PRINTED CIRCUIT



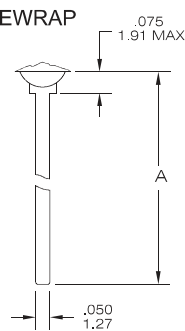
THK 0.76 (.030)

D QUICK CONNECT



THK 0.76 (.030)

WIREWRAP



THK 0.76 (.030)

CODE	"A" dimension
D1	.750 (19.05)
D3	.425 (10.8)

CONTACT MATERIAL OPTIONS

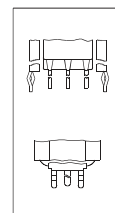
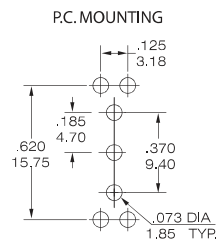
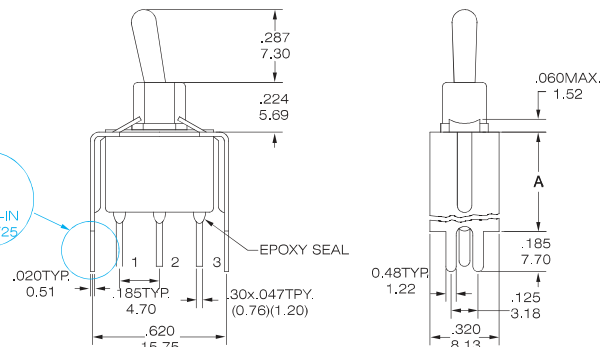
CODE	CONTACT MATERIAL	TERMINAL MATERIAL	RATING
Q	Silver plated	Silver plated	6 A @ 125V AC or 28 V DC; 3 A @ 250 VAC
R	Gold plated over nickel plated	Gold plated over nickel plated	0.4VA MAX @ 20 V AC or DC MAX
G	Gold plated over silver plated	Gold plated over silver plated	0.4 VA MAX @ 20 V AC or DC MAX or 6 A @ 125V AC or 28 V DC; 3 A @ 250 VAC
K	Gold plated over nickel plated	Tin over nickel plated	0.4VA MAX @ 20 V AC or DC MAX

* THE K option is only for some special item. Please inquire first when you need the "K" option

VERTICAL SUPPORT BRACKET OPTION

(only apply the straight type terminal -page A04. Please build the terminal option is "c" code)

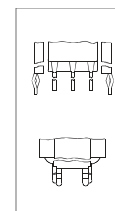
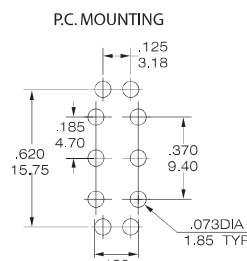
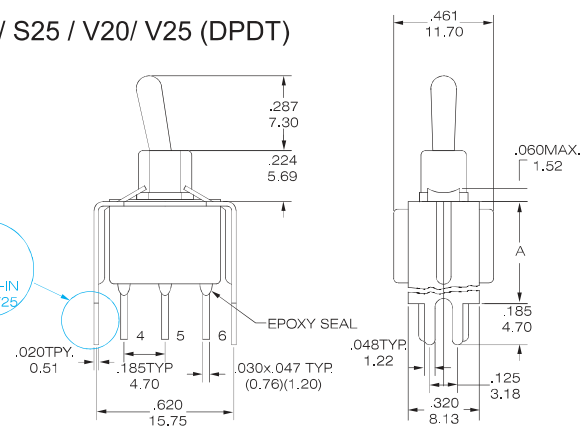
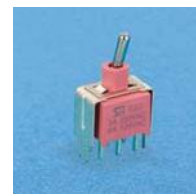
S20/ S25 / V20/ V25 (SPDT)



SNAP-IN
V20/ V25

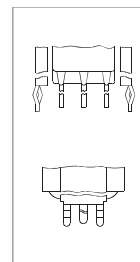
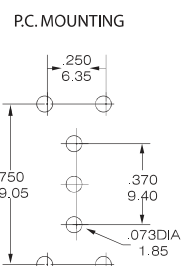
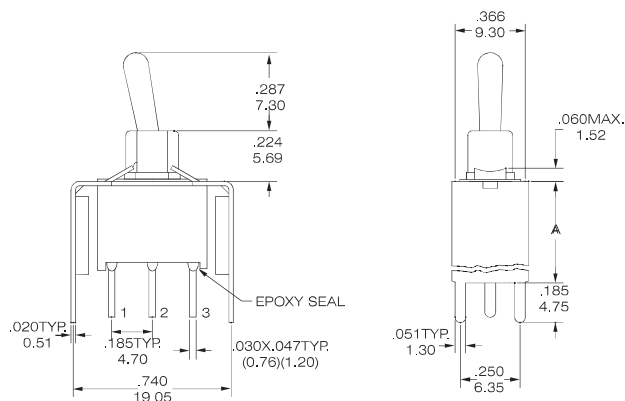
NE8013 - TNCQ-S20(S25)

S20/ S25 / V20/ V25 (DPDT)



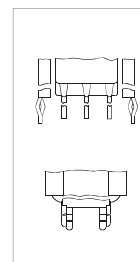
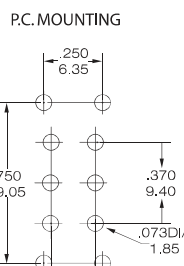
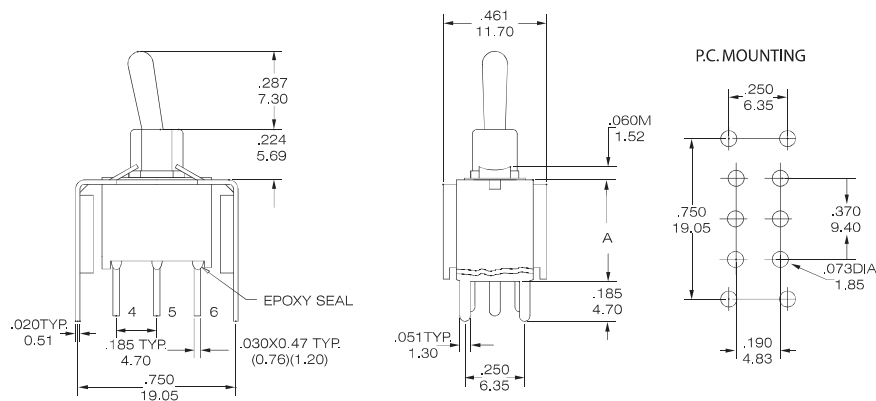
SNAP-IN
V20/ V25

NE8011 - TNCQ-S20(S25)



SNAP-IN
V35/ V40

NE8013 - TNCQ-S35(S40)



SNAP-IN
V35/ V40

NE8011 - TNCQ-S35(S40)

option Code	A dimension
S35/V35	.460 11.68
S40/V40	.630 16.00
V35/V40 : the snap-in type	

option Code	A dimension
S35/V35	.460 11.68
S40/V40	.630 16.00
V35/V40 : the snap-in type	

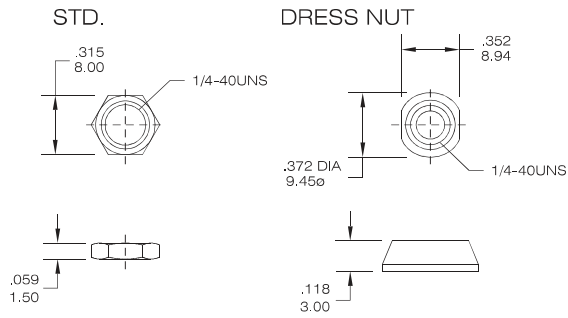
**NE80-T**

Sealed Toggle Switches

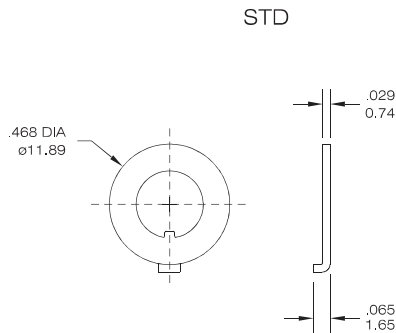


The hardware of NE80-T toggle switches (only for E bushing)

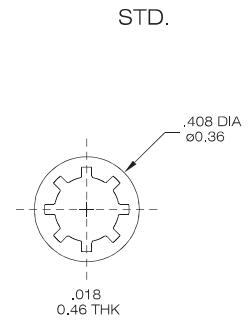
NUT



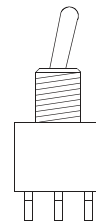
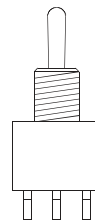
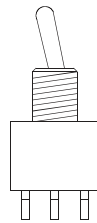
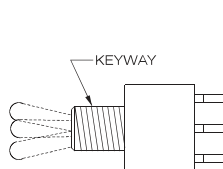
LOCKING RING



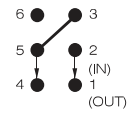
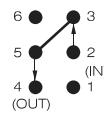
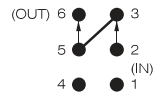
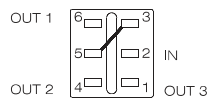
LOCK WASHER



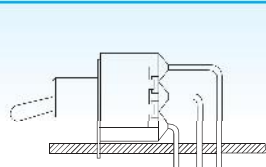
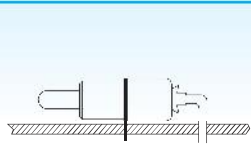
The information of 3-way toggle switches



SINGLE POLE, 3 POSITION



SP3T



SPECIFICATIONS

CONTACT RATING: 6A @125 VAC or 28 VDC (Q contact)
ELECTRICAL LIFE: 10,000 make-and-break cycles at full load
CONTACT RESISTANCE: 10 mΩ max. initial @2-4 VDC, 100 mA
INSULATION RESISTANCE: 1,000 MΩ min.
DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.
OPERATING TEMPERATURE: -30°C to +120°C

MATERIALS

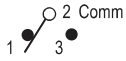
CASE - diallyl phthalate (DAP)
TOGGLE HANDLE - Copper alloy , chrome plated
BUSHING - Copper alloy , nickel plated
HOUSING - Stainless Steel
CONTACT AND TERMINAL - copper alloy, silver plated

How do you build the switches you need!!

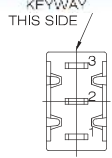
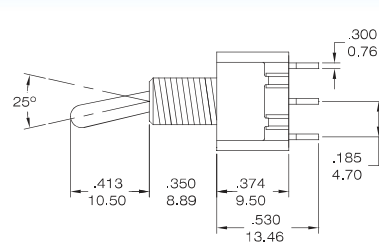
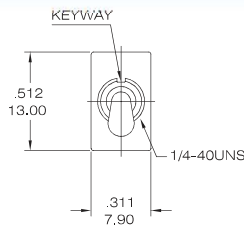
(A) T 9 0 1 3 - S E C Q - E - S 2 0 - T 1 - 2 -

Switch Function		Actuator		Bushing		Termination		Vertical support Bracket		Cap color		
T9013	SP on-none-on	S	10.41	E	(STD)	8.89	B	solder lug	(none)	0	transparent	
T9013A	SP on-none-(on)	T	5.08	M	(non-thd)	8.89	C	P.C 1.27width	S20	11.68	1	white
T9014	SP on-off-on	X	13.97	K	(metric)	8.89	D	Quick connect	S25	16.00	2	black
T9014A	SP (on)-off-(on)	W	21.34	F		7.10	D1	wire wrap(19.05)	S35	11.68	3	red
T9014B	SP on-off-(on)	V	16.26	N	(non-thd)	7.10	D3	wire wrap(10.8)	S40	16.00	4	orange
T9011	DP on-none-on	Flatted toggle		G		7.52	Contact Material		V20	snap-in 11.68	5	yellow
T9011A	DP on-none-(on)			G1	(non-thd)	7.52			V25	snap-in 16.00	6	green
T9012	DP on-off-on	U	11.43	H		8.00	Epoxy seal		V35	snap-in 11.68	7	blue
T9012A	DP (on)-off-(on)	U1	7.20	H1	(non-thd)	8.00			V40	snap-in 16.00		
T9012B	DP on-off-(on)	Large15/32 bushing		J	(long)	9.60	Q	silver plated	Actuator Cap/ Rubber hood Sealing		RoHS code H = RoHS Compliant	
T9301	3P on-none-on			J1	(non-thd)	9.60	R	gold plated				
T9303	3P on-none-(on)			L	(splash-proof)	7.47	G	gold over silver				
T9305	3P on-off-on			none		the actuator: Z/Z1/Z3/Z4/LK/LK1 No requirement to choose the bushing unless the splash proof (L) ZL/Z1L/LKL/LK1L and the non-thd (N) LKN/LK1N						
T9307	3P (on)-off-(on)	Z	11.68									
T9309	3P on-off-(on)	Z1	17.45									
T9401	4P on-none-on	Z3	antirotation (17.45)									
T9403	4P on-none-(on)	Z4	antirotation (11.68)									
T9405	4P on-off-on	Locking Lever										
T9407	4P (on)-off-(on)	LK	Round top									
T9409	4P on-off-(on)	LK1	Flat top									
3 way position switches												
T912	SP3T on-on-on											
T912A	SP3T (on)-on-(on)											
T912B	SP3T on-on-(on)											
T945	DP3T on-on-on											
T947	DP3T (on)-on-(on)											
T949	DP3T on-on-(on)											
								Rubber hood				
								E1 for E Bushing				
								E2 for Z/Z1 Bushing				
								E3 for Z/Z1 Bushing				
								K1 for K bushing				
								Actuator Cap				
								T1 10.58 (for actuator S)				
								T2 7.56 (for actuator T)				

SPDT



Model No.	Switching position		
T9013	ON	none	ON
T9013A	ON	none	(ON)
T9014	ON	OFF	ON
T9014A	(ON)	OFF	(ON)
T9014B	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

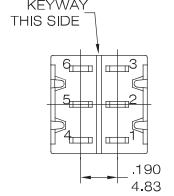
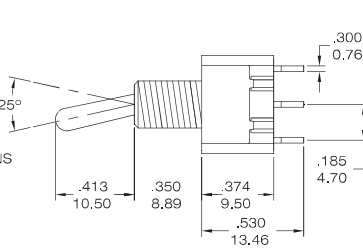
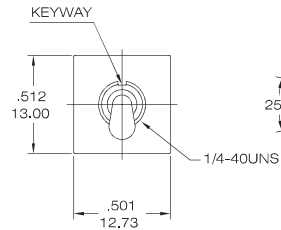


T9013 - SEBQ

DPDT



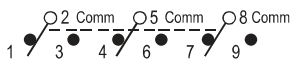
Model No.	Switching position		
T9011	ON	none	ON
T9011A	ON	none	(ON)
T9012	ON	OFF	ON
T9012A	(ON)	OFF	(ON)
T9012B	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
T912	ON	ON	ON
T912A	(ON)	ON	(ON)
T912B	ON	ON	(ON)
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4



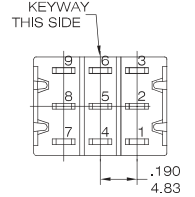
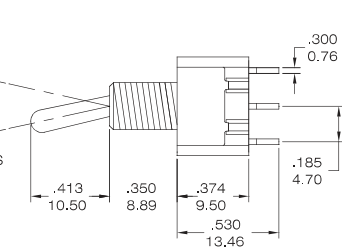
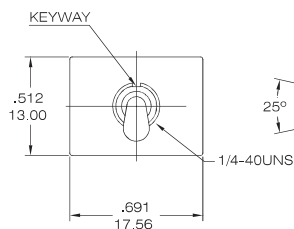
T9011 - SEBQ

Please see page A18 to know more about T912 (3-way Switches)

3PDT



Model No.	Switching position		
T9301	ON	none	ON
T9303	ON	none	(ON)
T9305	ON	OFF	ON
T9307	(ON)	OFF	(ON)
T9309	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9	open	2-1,5-4 8-7

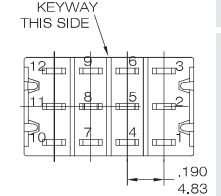
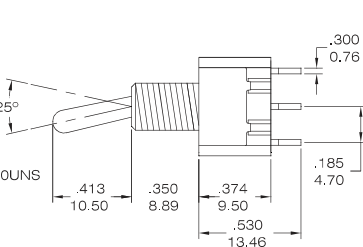
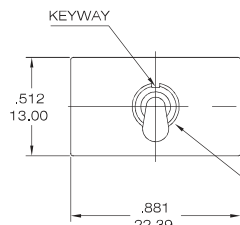


T9301- SEBQ

4PDT



Model No.	Switching position		
T9401	ON	none	ON
T9403	ON	none	(ON)
T9405	ON	OFF	ON
T9407	(ON)	OFF	(ON)
T9409	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9,11-12	open	2-1,5-4 8-7,11-10
3 way switches (DP3T)			
T945	ON	ON	ON
T947	(ON)	ON	(ON)
T949	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



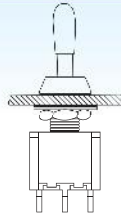
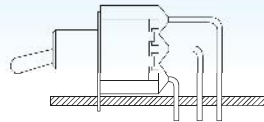
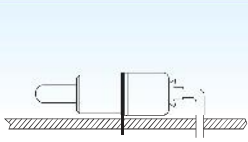
T9401 - SEBQ

Please see page A18 to know more about T945 (3-way Switches)



T80-T (UL1054)

Miniature Toggle Switches



SPECIFICATIONS

CONTACT RATING: 5A @125 VAC or 28 VDC (Q contact)
 ELECTRICAL LIFE: 50,000 make-and-break cycles at full load
 CONTACT RESISTANCE: 10 mΩ max. initial @2-4 VDC, 100 mA
 INSULATION RESISTANCE: 1,000 MΩ min.
 DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.
 OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

CASE - diallyl phthalate (DAP)
 TOGGLE HANDLE - Copper alloy , chrome plated
 BUSHING - Copper alloy , nickel plated
 HOUSING - Stainless Steel
 CONTACT AND TERMINAL - copper alloy, silver plated

How do you build the switches you need!!

The straight type , please see the (A) ;

The right angle P.C terminals, please see the (B)

(A) T 8 0 1 3 - S E C Q - E - S 2 0 - T 1 - 2 - -

Switch Function		Actuator		Bushing		Termination		Vertical support Bracket		Cap color	
T8013	SP on-none-on	S	10.41	E (STD)	8.89	B solder lug	(none)	(none)	0 transparent		
T8013A	SP on-none-(on)	T	5.08	M (non-thd)	8.89	C P.C 1.27width	S20 11.68	1 1 white			
T8014	SP on-off-on	X	13.97	K (metric)	8.89	D Quick connect	S25 16.00	2 2 black			
T8014A	SP (on)-off-(on)	W	21.34	N (non-thd)	7.10	D1 wire wrap(19.05)	S35 11.68	3 3 red			
T8014B	SP on-off-(on)	V	16.26	F (non-thd)	7.10	D3 wire wrap(10.8)	S40 16.00	4 4 orange			
T8011	DP on-none-on	Y	21.34	G (non-thd)	7.52		V20 snap-in 11.68	5 5 yellow			
T8011A	DP on-none-(on)			H (non-thd)	8.00		V25 snap-in 16.00	6 6 green			
T8012	DP on-off-on			H1 (non-thd)	8.00		V35 snap-in 11.68	7 7 blue			
T8012A	DP (on)-off-(on)			H2 (metric)	8.00		V40 snap-in 16.00				
T8012B	DP on-off-(on)			J (long)	9.60						
T8301	3P on-none-on			J1 (non-thd)	9.60						
T8303	3P on-none-(on)			L (splash-proof)	7.47						
T8305	3P on-off-on										
T8307	3P (on)-off-(on)										
T8309	3P on-off-(on)										
T8401	4P on-none-on										
T8403	4P on-none-(on)										
T8405	4P on-off-on										
T8407	4P (on)-off-(on)										
T8409	4P on-off-(on)										
3 way position switches		Locking Lever		Epoxy seal		Actuator Cap/ Rubber hood Sealing		Rubber hood		O Ring	
T812	SP3T on-on-on	LK	Round top	(none)	none seal	(none)	E1 for E Bushing	(none)		(none)	
T812A	SP3T (on)-on-(on)	LK1	Flat top	E	epoxy seal		E2 for Z/Z1 Bushing			E6 for inch thd	
T812B	SP3T on-on-(on)						E3 for Z/Z1 Bushing				
T845	DP3T on-on-on						K1 for K bushing				
T847	DP3T (on)-on-(on)										
T849	DP3T on-on-(on)										
3 way position switches		RoHS code		Actuator Cap		Cap color		RoHS code		Cap color	
T822	SP3T on-on-on										
T822A	SP3T (on)-on-(on)										
T822B	SP3T on-on-(on)										
T845P	DP3T on-on-on										
T847P	DP3T (on)-on-(on)										
T849P	DP3T on-on-(on)										

(B) T 8 0 1 9 L - T N Q - E - S - T 2 - 2 -

Horizon Right Angle		Vertical Right Angle		Switches Function	
T8019 T8019A T8020 T8020A T8020B T8021 T8021A T8022 T8022A T8022B T8301P(A) T8303P(A) T8305P(A) T8307P(A) T8309P(A)		T8019L T8019LA T8020L T8020LA T8020LB T8021L T8021LA T8022L T8022LA T8022LB T8301P T8303P T8305P T8307P T8309P T8401P T8403P T8405P T8407P T8409P		SP on-none-on SP on-none-(on) SP on-off-on SP (on)-off-(on) SP on-off-(on) DP on-none-on DP on-none-(on) DP on-off-on DP (on)-off-(on) DP on-off-(on) 3P on-none-on 3P on-none-(on) 3P on-off-on 3P (on)-off-(on) 3P on-off-(on) 4P on-none-on 4P on-none-(on) 4P on-off-on 4P (on)-off-(on) 4P on-off-(on)	
3 way position switches					
T822 T822A T822B		T822L T822LA T822LB T845P T847P T849P		SP3T on-on-on SP3T (on)-on-(on) SP3T on-on-(on) DP3T on-on-on DP3T (on)-on-(on) DP3T on-on-(on)	

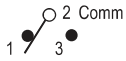
Actuator	
S T X W V	10.41 5.08 13.97 21.34 16.26
Flatted toggle	
U U1 U2	11.43 7.2 21.30
Locking Lever	
LK LK1	Round top(thd) Flat top(thd)

Bushing	
E M K F N G G1 H H1 H2 J J1 L	(STD) 8.89 (non-thd) 8.89 (metric) 8.89 7.10 (non-thd) 7.10 7.52 (non-thd) 7.52 8.00 (non-thd) 8.00 (metric) 8.00 (long) 9.60 (non-thd) 9.60 (splash-proof) 7.47
none	
the actuator: LK/LK1 No requirement to choose the bushing unless the splash proof (L) LKL/LK1L and the non-thd (N) LKN/LK1N	

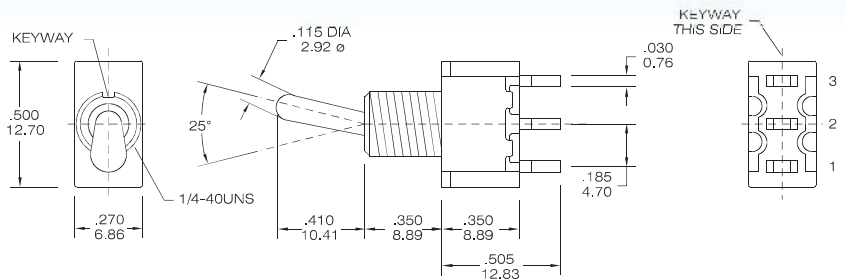
Contact Material	
Q R G K	silver plated gold plated gold over silver tin plated
Epoxy seal	
(none) E	none seal epoxy seal
Support Bracket type	
(none) S	std. snap-in type

Actuator Cap	
(none) T1 T2	-10.58 (actuator S) - 7.56 (actuator T)
Cap color	
0 1 2 3 4 5 6 7	transparent white black red orange yellow green blue
RoHS code	
H = RoHS Compliant	

SPDT



Model No.	Switching position		
T8013	ON	none	ON
T8013A	ON	none	(ON)
T8014	ON	OFF	ON
T8014A	(ON)	OFF	(ON)
T8014B	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

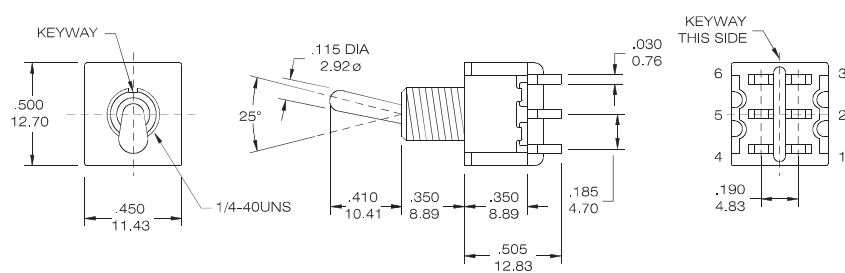


T8013 - SEBQ

DPDT



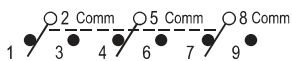
Model No.	Switching position		
T8011	ON	none	ON
T8011A	ON	none	(ON)
T8012	ON	OFF	ON
T8012A	(ON)	OFF	(ON)
T8012B	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
T812	ON	ON	ON
T812A	(ON)	ON	(ON)
T812B	ON	ON	(ON)
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4



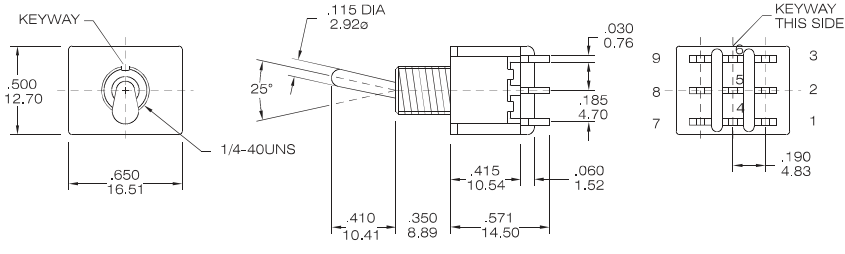
T8011 - SEBQ

Please see page A18 to know more about T812 (3-way Switches)

3PDT



Model No.	Switching position		
T8301	ON	none	ON
T8303	ON	none	(ON)
T8305	ON	OFF	ON
T8307	(ON)	OFF	(ON)
T8309	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9	open	2-1,5-4 8-7

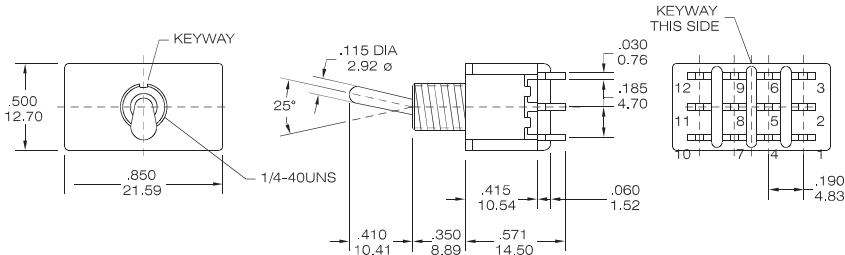


T8301- SEBQ

4PDT



Model No.	Switching position		
T8401	ON	none	ON
T8403	ON	none	(ON)
T8405	ON	OFF	ON
T8407	(ON)	OFF	(ON)
T8409	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9,11-12	open	2-1,5-4 8-7,11-10
3 way switches (DP3T)			
T845	ON	ON	ON
T847	(ON)	ON	(ON)
T849	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

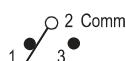


T8401 - SEBQ

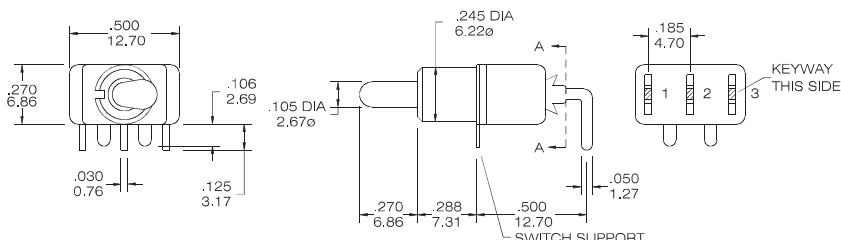
Please see page A18 to know more about T845 (3-way Switches)

**T80-T (UL1054)****Miniature Toggle Switches (Right Angle Type)****FEATURE**

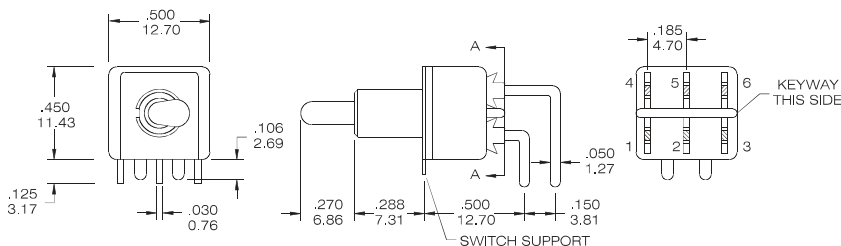
The T80-T series P.C.B Mounted Toggle Switches - Right Angle Type - are specially designed for P.C. Boards . Easy to mount and install securely with a vertical support rack . The toggle operates in the same direction as the print connectors . Customers' specifications of pitch are acceptable.

HORISON RIGHT ANGLE**SPDT**

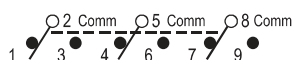
Model No.	Switching position		
T8019	ON	none	ON
T8019A	ON	none	(ON)
T8020	ON	OFF	ON
T8020A	(ON)	OFF	(ON)
T8020B	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

**T8019 - TNQ****DPDT**

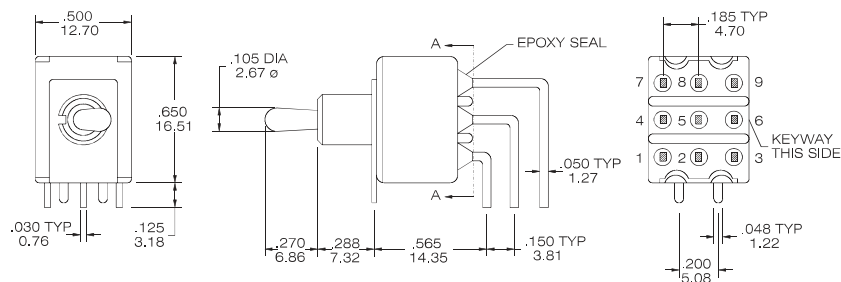
Model No.	Switching position		
T8021	ON	none	ON
T8021A	ON	none	(ON)
T8022	ON	OFF	ON
T8022A	(ON)	OFF	(ON)
T8022B	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
T822	ON	ON	ON
T822A	(ON)	ON	(ON)
T822B	ON	ON	(ON)
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

**T8021 - TNQ**

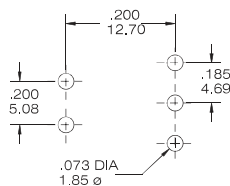
Please see page A18 to know more about T822 (3-way Switches)

3PDT

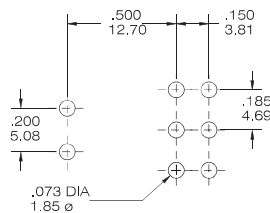
Model No.	Switching position		
T8301P(A)	ON	none	ON
T8303P(A)	ON	none	(ON)
T8305P(A)	ON	OFF	ON
T8307P(A)	(ON)	OFF	(ON)
T8309P(A)	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9	open	2-1,5-4 8-7

**T8301P(A)- TNQ****P.C.B MOUNTING DIMENSIONS**

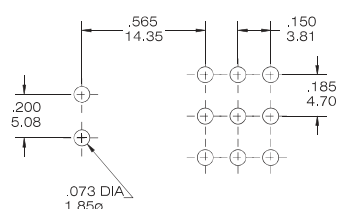
FOR T8019-T8020B

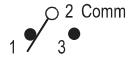


FOR T8021-T8022B

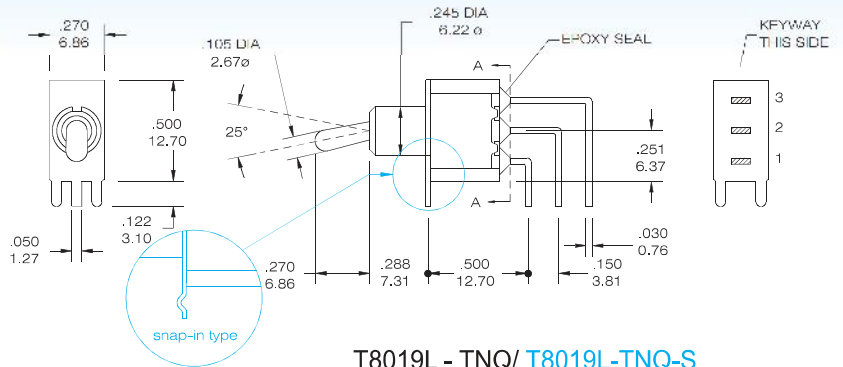


FOR T8301P(A)-T8309P(A)

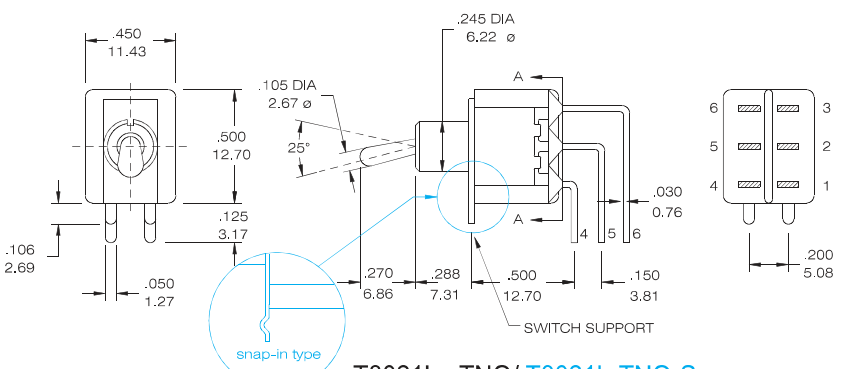


**T80-T (UL1054)****Miniature Toggle Switches (Right Angle Type)****VERTICAL RIGHT ANGLE****SPDT**

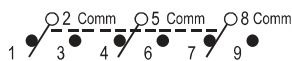
Model No.	Switching position		
T8019L	ON	none	ON
T8019LA	ON	none	(ON)
T8020L	ON	OFF	ON
T8020LA	(ON)	OFF	(ON)
T8020LB	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

**T8019L - TNQ/ T8019L-TNQ-S****DPDT**

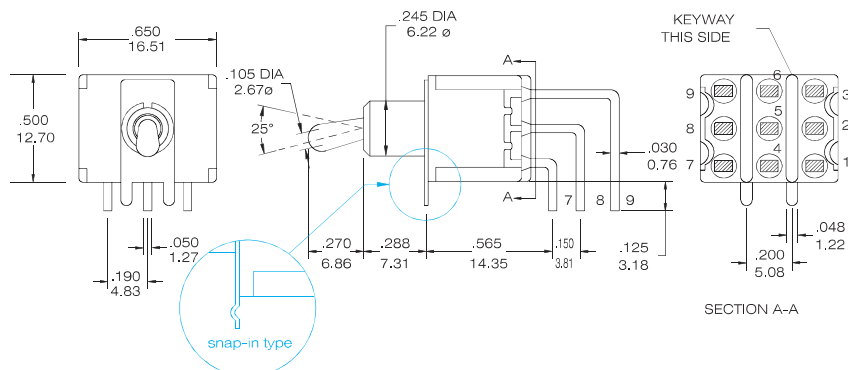
Model No.	Switching position		
T8021L	ON	none	ON
T8021LA	ON	none	(ON)
T8022L	ON	OFF	ON
T8022LA	(ON)	OFF	(ON)
T8022LB	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
T822L	ON	ON	ON
T822LA	(ON)	ON	(ON)
T822LB	ON	ON	(ON)
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

**T8021L - TNQ/ T8021L-TNQ-S**

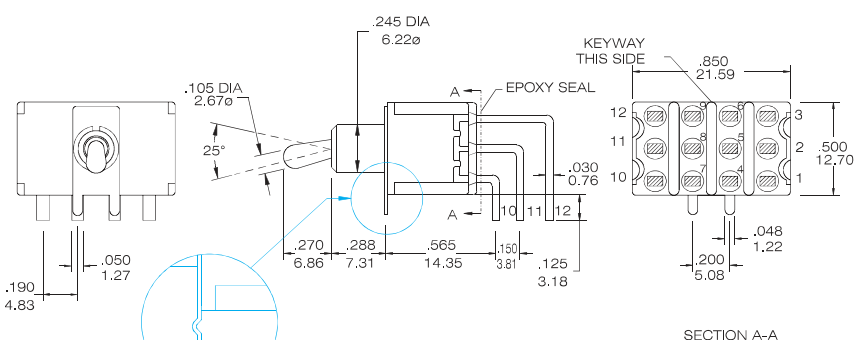
Please see page A18 to know more about T822L (3-way Switches)

3PDT

Model No.	Switching position		
T8301P	ON	none	ON
T8303P	ON	none	(ON)
T8305P	ON	OFF	ON
T8307P	(ON)	OFF	(ON)
T8309P	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9	open	2-1,5-4 8-7

**T8301P- TNQ/ T8301P-TNQ-S****4PDT**

Model No.	Switching position		
T8401P	ON	none	ON
T8403P	ON	none	(ON)
T8405P	ON	OFF	ON
T8407P	(ON)	OFF	(ON)
T8409P	ON	OFF	(ON)
Term. Comm.	2-3,5-6 8-9,11-12	open	2-1,5-4 8-7,11-10
3 way switches (DP3T)			
T845P	ON	ON	ON
T847P	(ON)	ON	(ON)
T849P	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

**T8401P- TNQ/ T8401P-TNQ-S**

Please see page A18 to know more about T845P (3-way Switches)

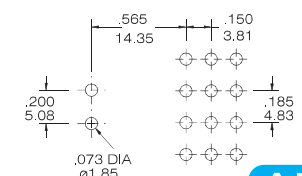
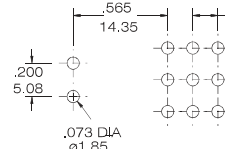
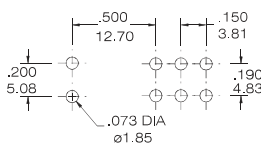
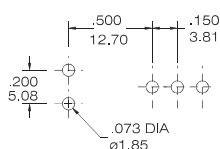
P.C.B MOUNTING DIMENSIONS

FOR T8019L-T8020LB

FOR T8021L-T8022LB

FOR T8301P-T8309P

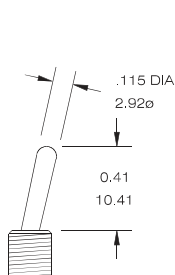
FOR T8401P-T8409P



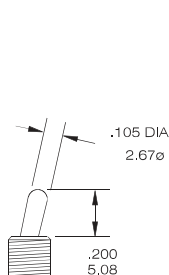
The dimensions in the catalogue and website are for reference only, not suitable for formal acknowledge.

Actuator Option

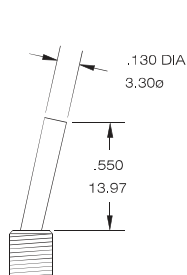
S (STD)



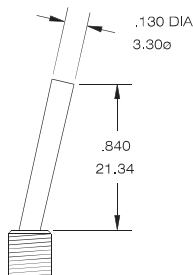
T(STD)



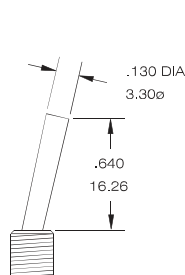
X LONG



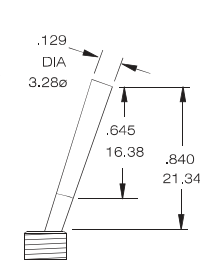
W LONG



V LONG



Y PLASTIC



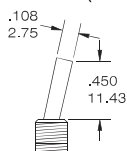
Y HANDLE COLOR NO.	COLOR
1	White
2	Black(std.)
3	Red

the height of actuator is with bushing "E". It will be difference with other bushing option

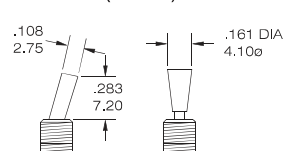
Now the available color is "2". If you need the others, please inquire first.

Flatted Actuator (ONLY APPLY "H""H1""H2" BUSHING)

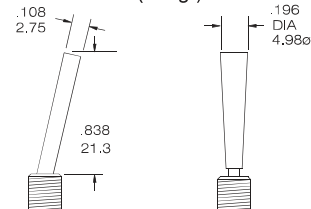
U (standard)



U1 (short)

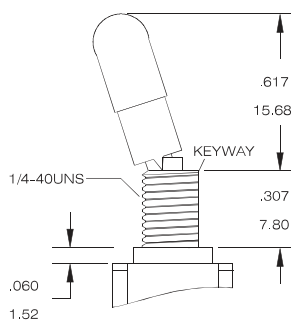


U2 (long)

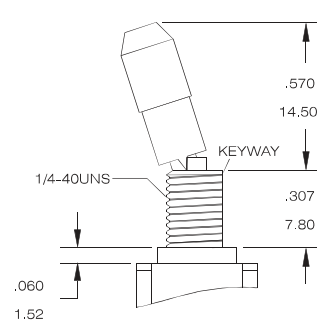


Locking Lever

LK (round top)



LK1(flat top)

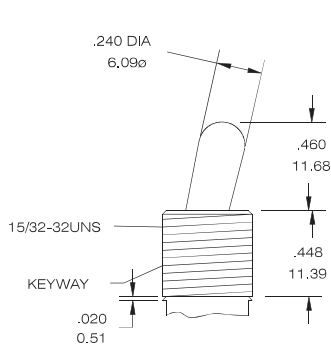


Bushing Option Code not required unless

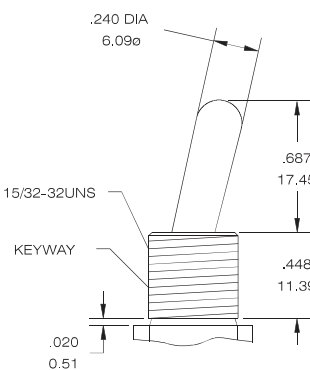
(1) " L " splashproof bushing ordered -- LKL / LK1L

(2) non-thread ordered, choose the bushing code "N" -- LKN / LK1N

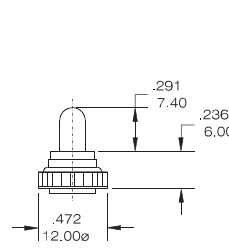
Z LARGE TOGGLE
Z4 ANTIROTATION



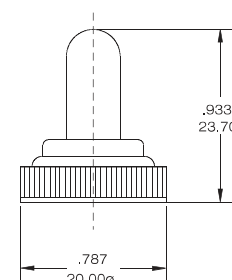
Z1 LARGE TOGGLE
Z3 ANTIROTATION



Rubber Hood Sealing



K1=METRIC
E1=INCH
E1-L=INCH

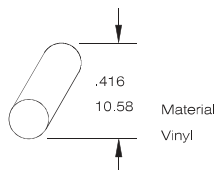


E2 for the large toggle
(15/32-32UNS)

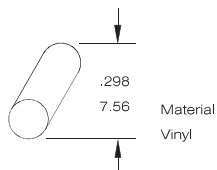
Bushing Option Code not required unless " L " splashproof bushing ordered.

Toggle Cap Option

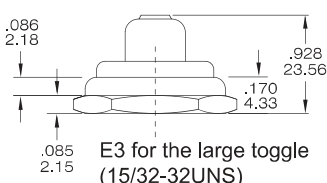
T1 for actuator "S" only



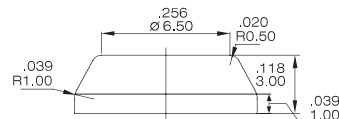
T2 for actuator "T"



code	color	code	color	code	color	code	color
0	transparent	1	white	2	black	3	red
4	orange	5	yellow	6	green	7	blue



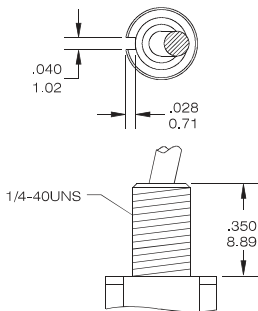
E3 for the large toggle
(15/32-32UNS)



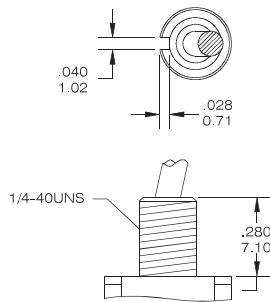
E6 O RING

Bushing Option

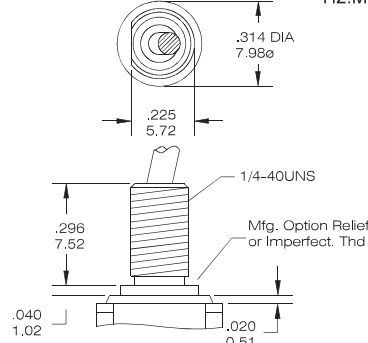
**E THD STD. TYPE
M NON-THD**



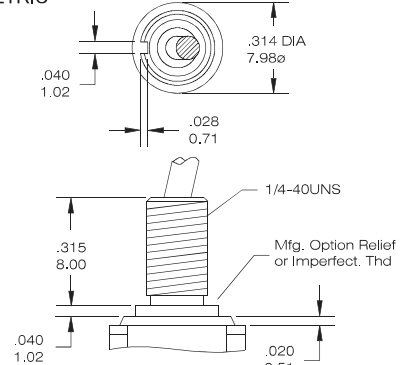
**F THD.
N NON-THD**



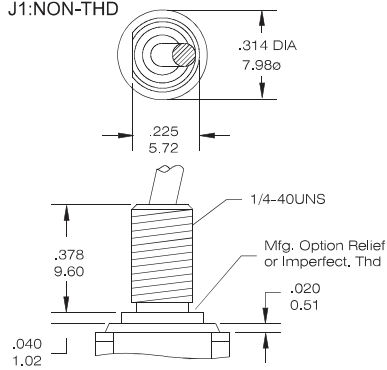
**HIGH TORQUE
G:THD STD.TYPE
G1:NON-THD**



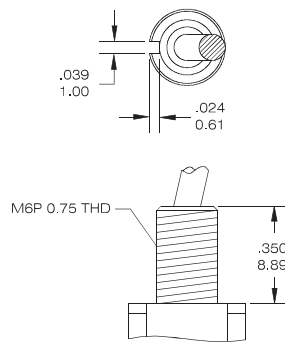
**HIGH TORQUE
H:THD STD.TYPE
H1:NON-THD
H2:METRIC**



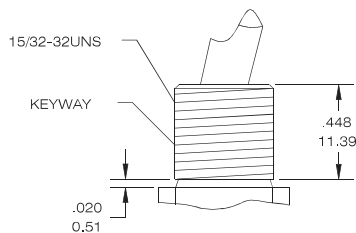
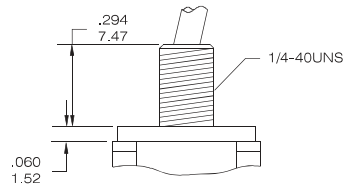
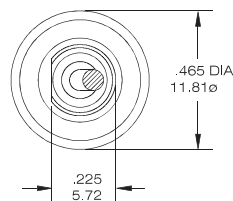
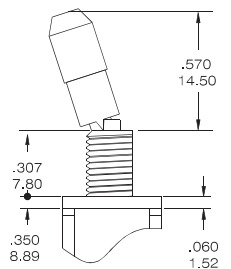
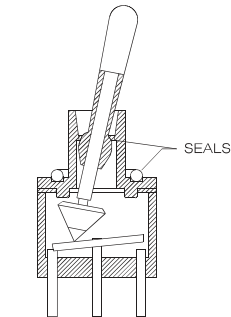
**LONG
J:THD STD.TYPE
J1:NON-THD**



K METRIC



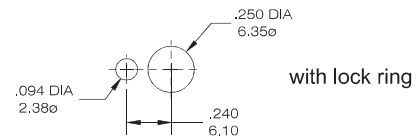
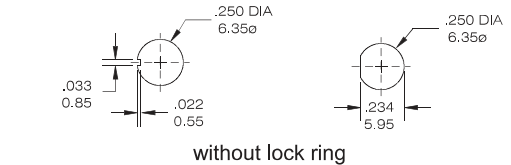
Splash water proof Solution L SPLASH-PROOF



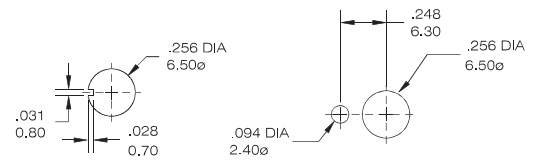
For the Large toggle (Z / Z1 option), the internal actuator seal standard. External bushing seal washer available from:
Multi-Flex Seals Inc.,
Hackensack,NJ. Part
no:MFS-60064

Panel Mounting

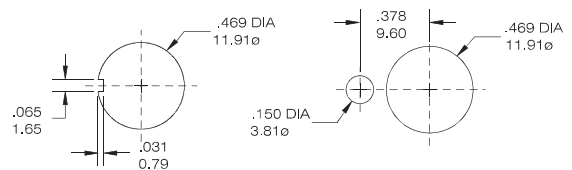
1/4 IN. BUSHING



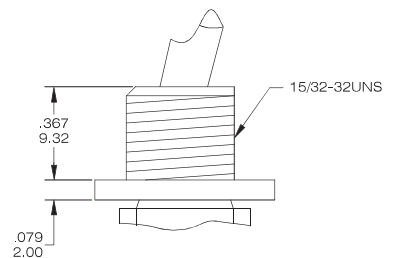
METRIC BUSHING



15/32 IN. BUSHING



W SPLASH-PROOF



TERMINAL OPTION (ONLY FOR THE STRAIGHT TYPE T8013~T8401)

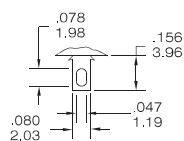
TERMINAL SEAL OPTION

B SOLDER LUG

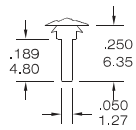
C PRINTED CIRCUIT

D QUICK CONNECT

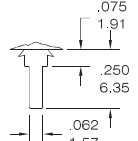
WIREWRAP



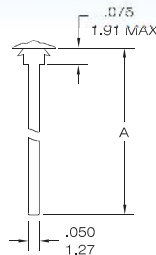
THK 0.76 (.030)



THK 0.76 (.030)



THK 0.76 (.030)



THK 0.76 (.030)

CODE	"A" dimension
D1	.750 (19.05)
D3	.425 (10.8)

E TERMINAL SEAL



EPOXY SEAL

CONTACT MATERIAL OPTIONS

CODE	CONTACT MATERIAL	TERMINAL MATERIAL	RATING
Q	Silver plated	Silver plated	5 A @ 125 V AC or 28 V DC; 3 A @ 250 VAC
R	Gold plated over nickel plated	Gold plated over nickel plated	0.4VA MAX @ 20 V AC or DC MAX
G	Gold plated over silver plated	Gold plated over silver plated	0.4 VA MAX @ 20 V AC or DC MAX or 5 A @ 125V AC or 28 VDC; 3 A @ 250 VAC
K	Gold plated over nickel plated	Tin over nickel plated	0.4VA MAX @ 20 V AC or DC MAX

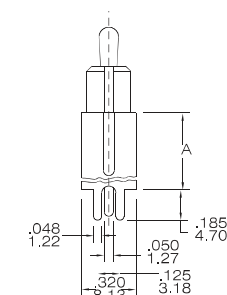
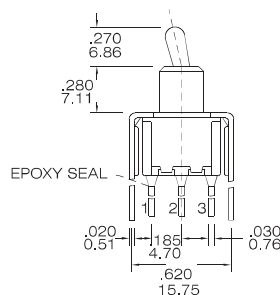
* The K option is only for some special item. Please inquire first when you need the "K" option

VERTICAL SUPPORT BRACKET OPTION

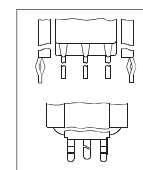
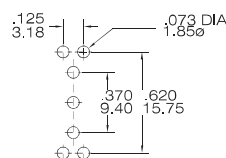
(only apply the straight type terminal -page A12. Please build the terminal option "c" code)

SPDT

S20/S25/V20/V25



P.C. MOUNTING

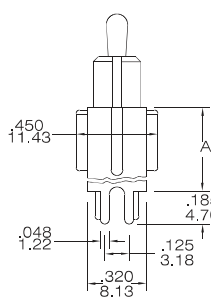
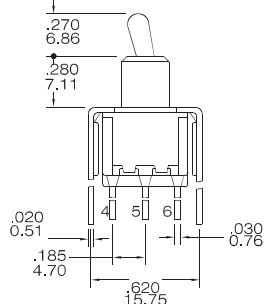
SNAP-IN
V20/ V25

CODE	"A" dimension
S20/V20	.460 (11.68)
S25/V25	.630 (16.00)
V20/V25	the snap-in type

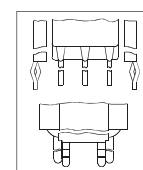
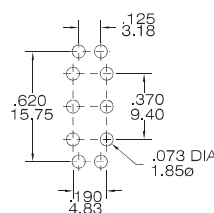
T8013 - TNCQ-S20(S25)

DPDT

S20/S25/V20/V25



P.C. MOUNTING

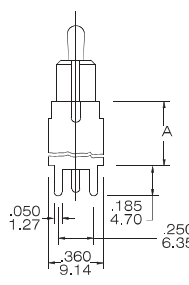
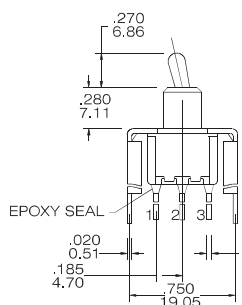
SNAP-IN
V20/ V25

CODE	"A" dimension
S20/V20	.460 (11.68)
S25/V25	.630 (16.00)
V20/V25	the snap-in type

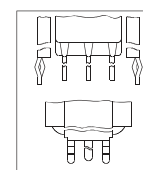
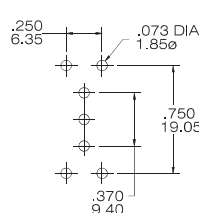
T8011 - TNCQ-S20(S25)

SPDT

S35/S40/V35/V40



P.C. MOUNTING

SNAP-IN
V35/ V40

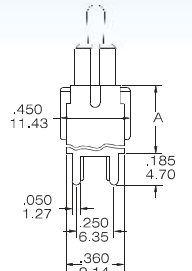
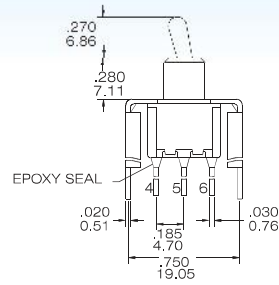
CODE	"A" dimension
S35/V35	.460 (11.68)
S40/V40	.630 (16.00)
V35/V40	the snap-in type

T8013 - TNCQ-S35(S40)

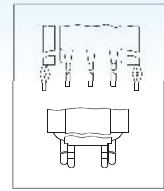
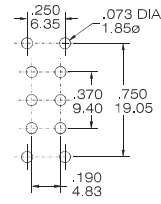
S35 / S40/ V35/V40



DPDT



P.C. MOUNTING



SNAP-IN
V35/ V40

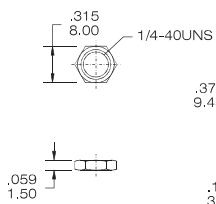
CODE	"A" dimension
S35/V35	.460 (11.68)
S40/V40	.630 (16.00)
V35/V40 : the snap-in type	

T8011 - TNCQ-S35(S40)

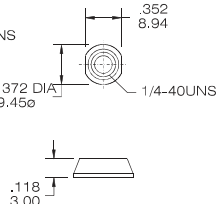
The hardware of T80-T TOGGLE SWITCHES

NUT

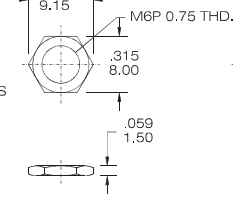
STD.



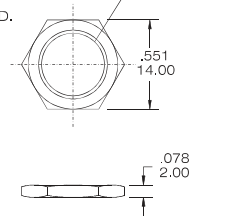
DRESS NUT



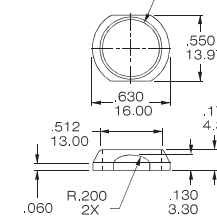
METRIC NUT



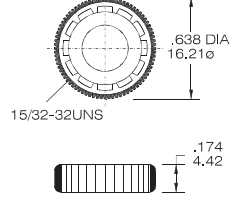
STD. FOR Z Z1



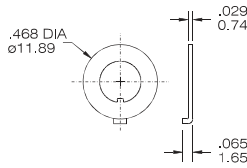
DRESS NUT FOR Z Z1



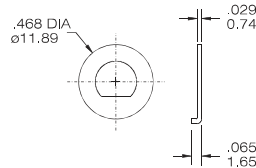
KNURLED NUT



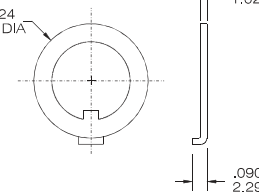
STD



LOCKING RING

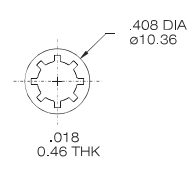


STD. FOR Z Z1

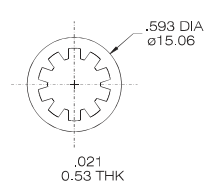


LOCK WASHER

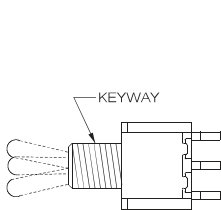
STD.



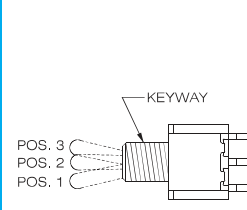
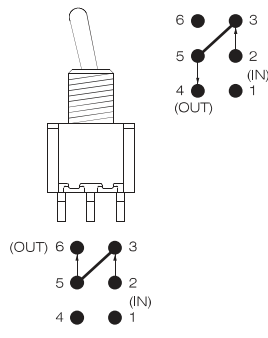
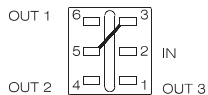
STD. FOR Z Z1



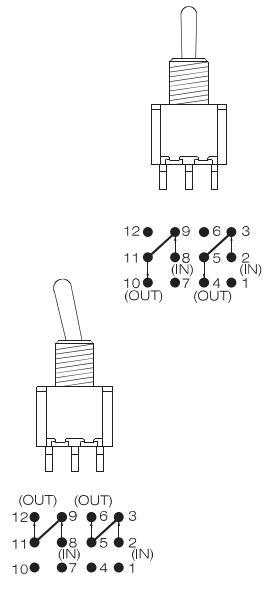
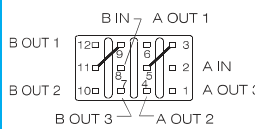
The information of 3-way toggle switches



SINGLE POLE, 3 POSITION



DOUBLE POLE, 3 POSITION



SP3T

DP3T

FEATURE

1. Sealed construction
2. Ultraminiature size
3. High temperature materials (UL 94V-0)

SPECIFICATIONS

CONTACT RATING: max 0.4 VA max @ 28 VDC

Min . 1 μ A /20 mVDC

ELECTRICAL LIFE:10,000 make-and-break cycles at full load

CONTACT RESISTANCE: 100 m Ω max. initial @2-4 VDC,100 mAINSULATION RESISTANCE: 500 M Ω min.

DIELECTRIC STRENGTH: 250 VAC, 50 Hz for the duration of 1 minute.

OPERATING TEMPERATURE: -30°C to +85°C

M1



MATERIALS

CASE - nylon 4/6

ACTUATOR - nylon

FRAME - nylon 4/6

TERMINAL - bronze, gold-plated or tin plated

CONTACT - phosphor bronze, silver plated

LOOP SEALING - rubber

How do you modify the switches you need!!

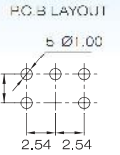
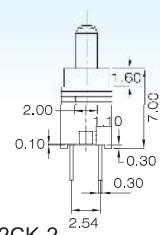
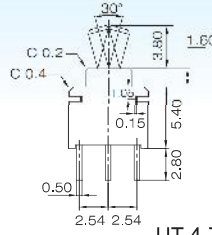
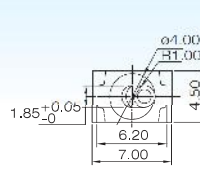
U T - 4 - T 2 C K - 2 - -

Switches Function		Actuator		Termination		Contact Material		Actuator color		Case color	
UT-4	SP on-none-on	T2	3.80	C	PC (straight type)	K	(std) gold / tin plated	1	white		: white (std.)
UT-4A	SP on-off-on			S	PC (snap-in type)	R	gold plated	2	black	2	: black
UT-5	DP on-none-on			H	horizon						
UT-5A	DP on-off-on			V	vertical						
				M	SMT						
				M1	SMT						
										RoHS code	
										H = RoHS Compliant	

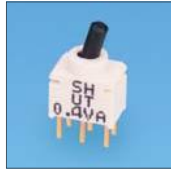


SPDT 1 2 Comm 3

Model No.	Switching position		
	ON	none	ON
UT-4	ON	none	ON
UT-4A	ON	OFF	ON
Term. Comm.	2-3	open	2-1

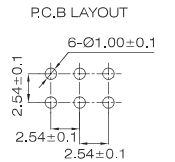
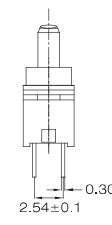
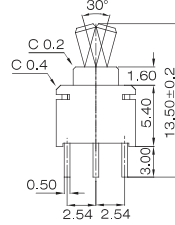
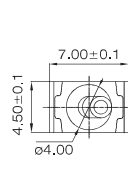


UT-4-T2CK-2



DPDT 1 2 Comm 3 4 5 Comm 6

Model No.	Switching position		
	ON	none	ON
UT-5	ON	none	ON
UT-5A	ON	OFF	ON
Term. Comm.	2-3,5-6	open	2-1,5-4

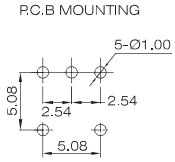
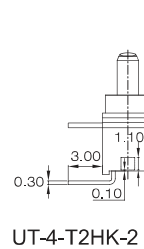
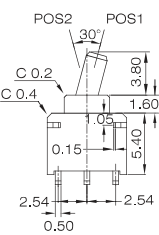
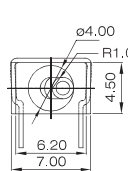


UT-5-T2CK-2



SPDT 1 2 Comm 3

Model No.	Switching position		
	ON	none	ON
UT-4	ON	none	ON
UT-4A	ON	OFF	ON
Term. Comm.	2-3	open	2-1

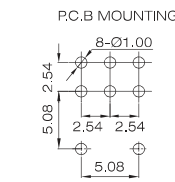
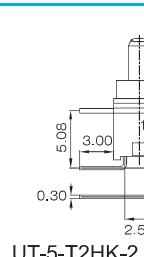
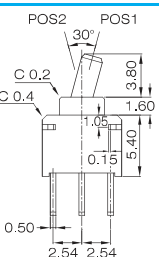
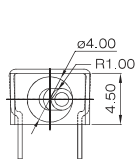


UT-4-T2HK-2



DPDT 1 2 Comm 3 4 5 Comm 6

Model No.	Switching position		
	ON	none	ON
UT-5	ON	none	ON
UT-5A	ON	OFF	ON
Term. Comm.	2-3,5-6	open	2-1,5-4

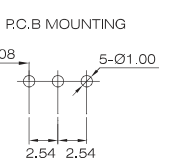
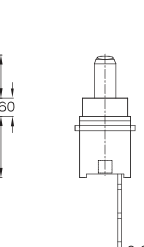
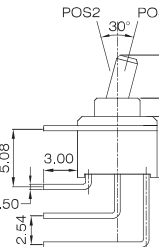
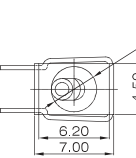


UT-5-T2HK-2



SPDT 1 2 Comm 3

Model No.	Switching position		
	ON	none	ON
UT-4	ON	none	ON
UT-4A	ON	OFF	ON
Term. Comm.	2-3	open	2-1

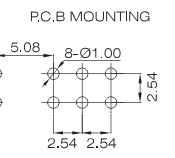
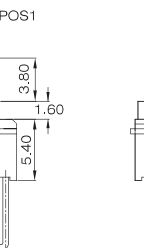
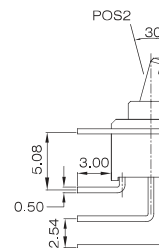
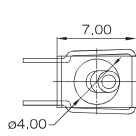


UT-4-T2VK-2



DPDT 1 2 Comm 3 4 5 Comm 6

Model No.	Switching position		
	ON	none	ON
UT-5	ON	none	ON
UT-5A	ON	OFF	ON
Term. Comm.	2-3,5-6	open	2-1,5-4

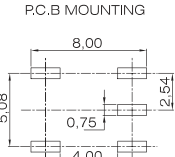
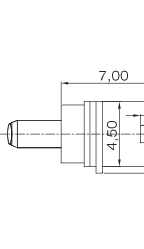
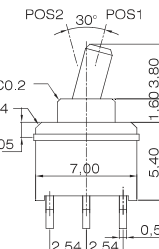
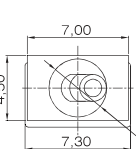


UT-5-T2VK-2



SPDT 1 2 Comm 3

Model No.	Switching position		
	ON	none	ON
UT-4	ON	none	ON
UT-4A	ON	OFF	ON
Term. Comm.	2-3	open	2-1



UT-4-T2MK-2

FEATURE

1. Metal Bushing
2. Sealed construction available
3. DPDT / 2.54 mm pitch

SPECIFICATIONS

CONTACT RATING: max 0.4 VA max @ 48 V AC or DC

Min . 1 μ A /20 mV AC or DC

ELECTRICAL LIFE:50,000 make-and-break cycles at full load

CONTACT RESISTANCE: 50 m Ω max. initial @2-4 VDC,100 mAINSULATION RESISTANCE: 500 M Ω min.

DIELECTRIC STRENGTH: 500 V RMS @ sea level.

OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

Actuator - Copper alloy , chrome plated,internal o-ring seal are available

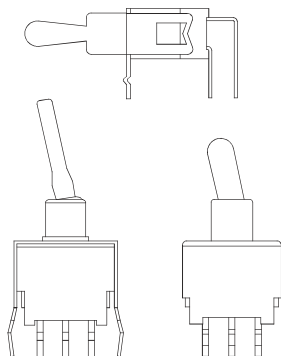
Bushing and Housing - Stainless Steel

CASE - glass filled nylon 4/6,flame retardant heat stabilized (UL94V-0)

CONTACT – phosphor bronze gold-plated over nickel plated

TERMINAL - phosphor bronze tin plated over nickel plated

TERMINAL SEAL - Epoxy



How do you modify the switches you need!!

E T - 4 - T 2 C K - A 5 S - T 4 - 3 -

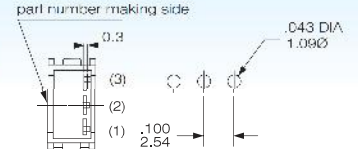
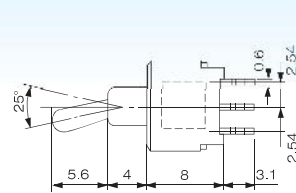
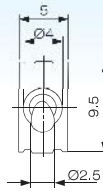
Switches Function			Actuator		Contact Material		Toggle cap		RoHS code	
washable	Non-washable		T2	6.10	K	(std) gold / tin	T4	6.60	H = RoHS Compliant	
ET-4	ETN-4	SP on-none-on	U	flat 10.00	R	gold plated				
ET-4A	ETN-4A	SP on-off-on	Termination		Vertical support Bracket		color			
ET-4I	ETN-4I	SP on-off-(on)								
ET-5	ETN-5	DP on-none-on								
ET-5A	ETN-5A	DP on-off-on								
ET-5I	ETN-5I	DP on-off-(on)	C	P.C	(none)	Vertical bracket	1	white		
			C1	P.C	A5S		2	black		
			H	horizon			3	red		
			V	vertical						

* Vertical right angle type is on pending. For further information, please inquire our office.



SPDT
1 2 Comm 3

Model No.	Switching position		
ET-4	ON	none	ON
ET-4A	ON	OFF	ON
ET-4I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1



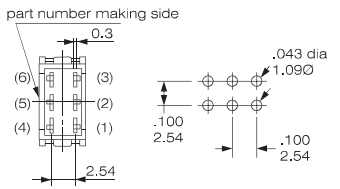
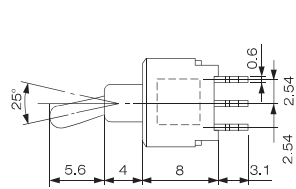
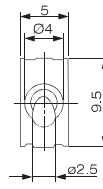
ET-4-T2CK

PC MOUNTING



DPDT
1 2 Comm 3 4 5 Comm 6

Model No.	Switching position		
ET-5	ON	none	ON
ET-5A	ON	OFF	ON
ET-5I	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4



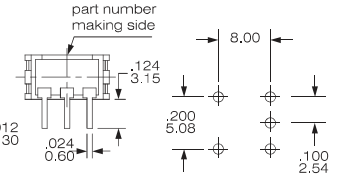
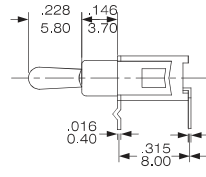
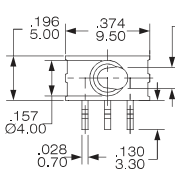
ET-5-T2CK

PC MOUNTING



SPDT
1 2 Comm 3

Model No.	Switching position		
ET-4	ON	none	ON
ET-4A	ON	OFF	ON
ET-4I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1



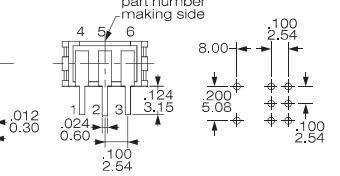
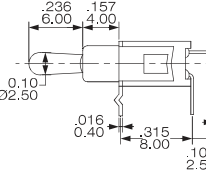
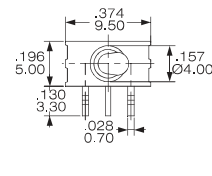
ET-4-T2HK

PC MOUNTING



DPDT
1 2 Comm 3 4 5 Comm 6

Model No.	Switching position		
ET-5	ON	none	ON
ET-5A	ON	OFF	ON
ET-5I	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4



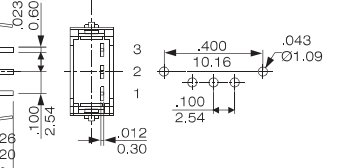
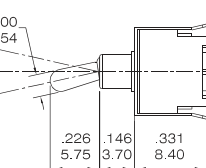
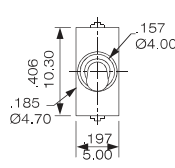
ET-5-T2HK

PC MOUNTING



SPDT
1 2 Comm 3

Model No.	Switching position		
ET-4	ON	none	ON
ET-4A	ON	OFF	ON
ET-4I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

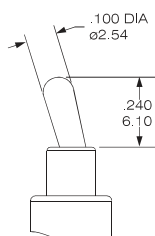


ET-4-T2CK-A5S

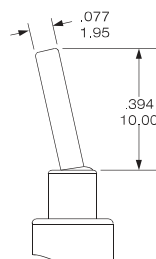
PC MOUNTING

Actuator Option

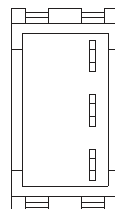
T2



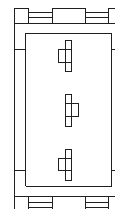
U



C



C1



The bottom view of switch

Toggle cap option

T4



code	color
1	white
2	black
3	red

FEATURE

1. Sealed construction - internal actuator o-ring and epoxy terminal seal standard
2. Carry the IP67 approvals
3. The ESD protection available - Anti-static plastic actuator -9000 V DC static resistance between toggle and terminal.
4. Surface mounting (SMT)
5. Tape and Reel package



SPECIFICATIONS

CONTACT RATING:R- 0.4 VA max @ 20 V AC or DC
 ELECTRICAL LIFE:30,000 make-and-break cycles at full load
 CONTACT RESISTANCE: 20 mΩ max. initial @2-4 VDC,100 mA
 INSULATION RESISTANCE: 1,000 MΩ min.
 DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.

ESD Resistant Option :

P2 insulating actuator only:9,000 VDC min. @ sea level,actuator to terminals.

DEGREE OF PROTECTION : IP67

OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

CASE and BUSHING - glass filled nylon 4/6,flame retardant heat stabilized (UL94V-0)

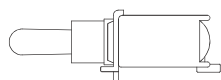
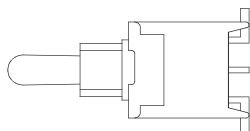
Actuator - Copper alloy , chrome plated,internal o-ring seal standard with all actuators

P2 / the anti-static actuator: Nylon 4/6,black standard(UL 94V-0)

CONTACT AND TERMINAL - Copper alloy , silver plated

SWITCH SUPPORT - Copper alloy , tin-plated

TERMINAL SEAL - Epoxy



How do you build the switches you need!!

E S - 3 - T 2 N R - T/R -

Switches Function	
ES-3	SP on-none-on
ES-3B	SP on-none-(on)
ES-3A	SP on-off-on
ES-3H	SP (on)-off-(on)
ES-3I	SP on-off-(on)

Actuator	
T1	10.16
T2	Std. 6.10
T3	8.13
T4	13.97
T5	3.5

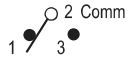
Terminal	
(none)	std
N	backward
M	backward

Contact Material	
Q	silver plated
R	gold plated
G	gold over silver
K	gold / tin

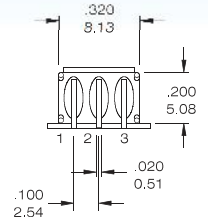
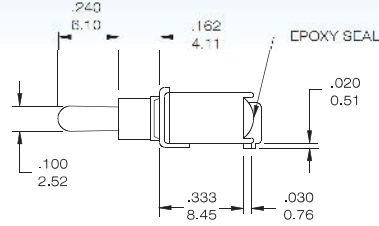
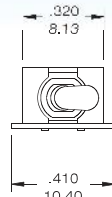
RoHS code
H = RoHS Compliant

ESD protection actuator	
P1	(black) 10.16
P11	(white) 10.16
P2	(std - black) 6.10
P21	(white) 6.10

Package	
(none)	polly bag
T/R	tape & reel

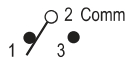


Model No.	Switching position		
ES-3	ON	none	ON
ES-3A	ON	OFF	ON
ES-3B	ON	None	(ON)
ES-3H	(ON)	OFF	(ON)
ES-3I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

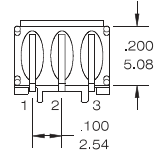
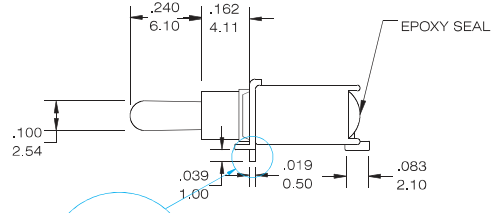
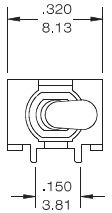


ES-3 - T2R

The M & N terminal type



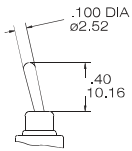
Model No.	Switching position		
ES-3	ON	none	ON
ES-3A	ON	OFF	ON
ES-3B	ON	None	(ON)
ES-3H	(ON)	OFF	(ON)
ES-3I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1



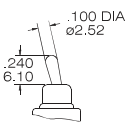
ES-3 - T2 MR

Actuator Option

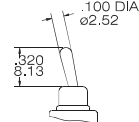
T1



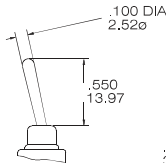
T2



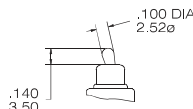
T3



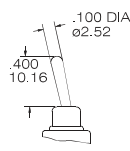
T4



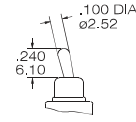
T5



P1



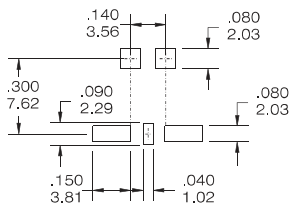
P2



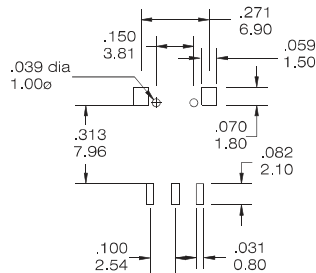
code	description
P1/P2	black(std.)
P11/P21	white

Material Nylon 4/6 (UL 94V-0), black std.
Static resistance: 9,000V DC min. @ sea level, actuator to terminals

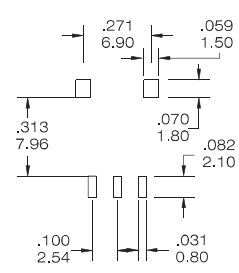
THE P.C.B MOUNTING



ES-3



ES-3- * -M



ES-3- * -N

CONTACT MATERIAL OPTIONS

CODE	CONTACT MATERIAL	TERMINAL MATERIAL	RATING
Q	Silver plated	Silver plated	3 A @ 120V AC or 28 V DC; 1.5 A @ 250 VAC
R	Gold plated over nickel plated	Gold plated over nickel plated	0.4VA MAX @ 20 V AC or DC MAX
G	Gold plated over silver plated	Gold plated over silver plated	0.4 VA MAX @ 20 V AC or DC MAX or 3 A @ 120V AC or 28 V DC; 1.5 A @ 250 VAC
K	Gold plated over nickel plated	Tin over nickel plated	0.4VA MAX @ 20 V AC or DC MAX

FEATURE

1. Sealed construction - internal actuator o-ring and epoxy terminal seal standard
2. Carry the IP67 approvals
3. The ESD protection available - Anti-static plastic actuator -9000 V DC static resistance between toggle and terminal.

SPECIFICATIONS

CONTACT RATING: R- 0.4 VA max @ 20 V AC or DC
ELECTRICAL LIFE: 30,000 make-and-break cycles at full load
CONTACT RESISTANCE: 20 mΩ max. initial @ 2-4 VDC, 100 mA
INSULATION RESISTANCE: 1,000 MΩ min.
DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.

ESD Resistant Option :

P2 insulating actuator only: 9,000 VDC min. @ sea level, actuator to terminals.

DEGREE OF PROTECTION : IP67

OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

CASE and BUSHING - glass filled nylon 6/6, flame retardant heat stabilized (UL94V-0)

Actuator - Copper alloy, chrome plated, internal o-ring seal standard with all actuators

P2 / the anti-static actuator: Nylon 4/6, black standard (UL 94V-0)

CONTACT AND TERMINAL - Copper alloy, silver plated

SWITCH SUPPORT - Copper alloy, tin-plated

TERMINAL SEAL - Epoxy

IP 67 protection degree

How do you build the switches you need!!

The ES-4 / ES-5, please see the (A) ;

The ES-6/ES-7/ES-8/ES-9, please see the (B)

(A) ES - 4 - P 2 C R - A 5 -

Switch Function		Actuator		Termination	Contact Material	Vertical support Bracket	RoHS code
ES-4	SP on-none-on	T1	Std. 10.16	C (std) P.C	Q silver plated	(none) A5 A5S straight type (std.) snap-in type	H = RoHS Compliant
ES-4B	SP on-none-(on)	T2	Std. 6.10		R gold plated		
ES-4A	SP on-off-on	T3	8.13		G gold over silver		
ES-4H	SP (on)-off-(on)	T4	13.97		K gold / tin		
ES-4I	SP on-off-(on)	T5	3.5				
ES-5	DP on-none-on	ESD protection actuator					
ES-5B	DP on-none-(on)						
ES-5A	DP on-off-on						
ES-5H	DP (on)-off-(on)						
ES-5I	DP on-off-(on)						
		P1	(black) 10.16				
		P11	(white) 10.16				
		P2	(std - black) 6.10				
		P21	(white) 6.10				

(B) ES - 6 - T 2 R - S -

Horizon Right Angle	Vertical Right Angle	Switches Function	Actuator	Contact Material	Support Bracket type
ES-6	ES-8	SP on-none-on	T1 10.16	Q silver plated	S (std.) Snap-in type (none) straight type
ES-6B	ES-8B	SP on-none-(on)	T2 Std. 6.10	R gold plated	
ES-6A	ES-8A	SP on-off-on	T3 8.13	G gold over silver	
ES-6H	ES-8H	SP (on)-off-(on)	T4 13.97	K gold / tin	
ES-6I	ES-8I	SP on-off-(on)	T5 3.5		
ES-7	ES-9	DP on-none-on	ESD protection actuator		RoHS code H = RoHS Compliant
ES-7B	ES-9B	DP on-none-(on)			
ES-7A	ES-9A	DP on-off-on			
ES-7H	ES-9H	DP (on)-off-(on)			
ES-7I	ES-9I	DP on-off-(on)			
			P1 (black) 10.16		
			P11 (white) 10.16		
			P2 (std - black) 6.10		
			P21 (white) 6.10		

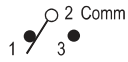


ES40-T

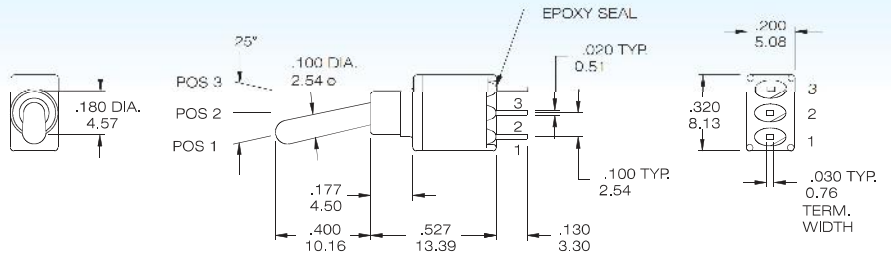
Sealed Sub-Miniature Toggle Switches



SPDT

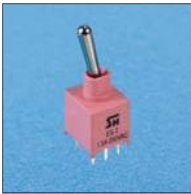


Model No.	Switching position		
ES-4	ON	none	ON
ES-4A	ON	OFF	ON
ES-4B	ON	None	(ON)
ES-4H	(ON)	OFF	(ON)
ES-4I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

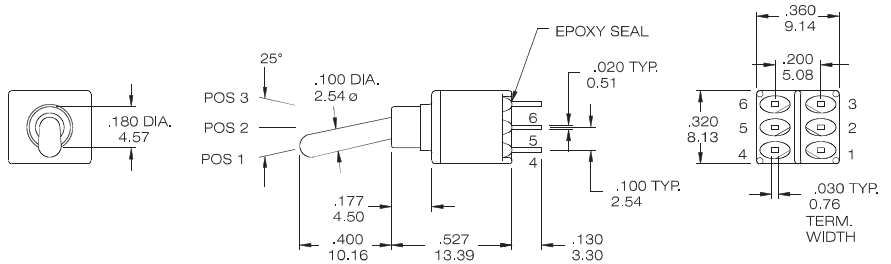


ES-4 - T1CR

DPDT

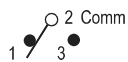


Model No.	Switching position		
ES-5	ON	none	ON
ES-5A	ON	OFF	ON
ES-5B	ON	None	(ON)
ES-5H	(ON)	OFF	(ON)
ES-5I	ON	OFF	(ON)
Term. Comm.	2-3-5-6	open	2-1-5-4

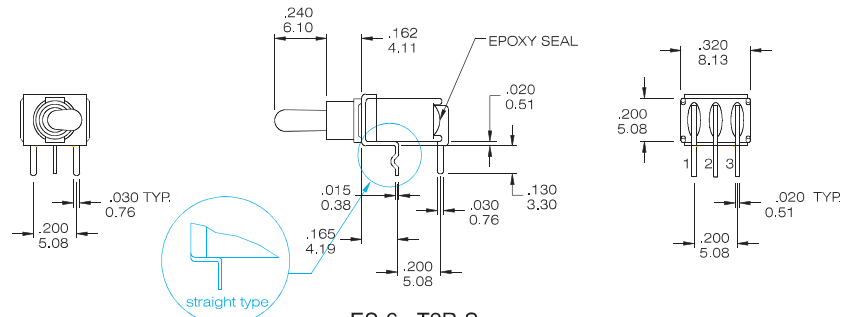


ES-5 - T1CR

SPDT

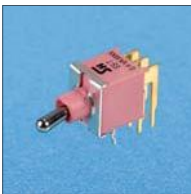


Model No.	Switching position		
ES-6	ON	none	ON
ES-6A	ON	OFF	ON
ES-6B	ON	None	(ON)
ES-6H	(ON)	OFF	(ON)
ES-6I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

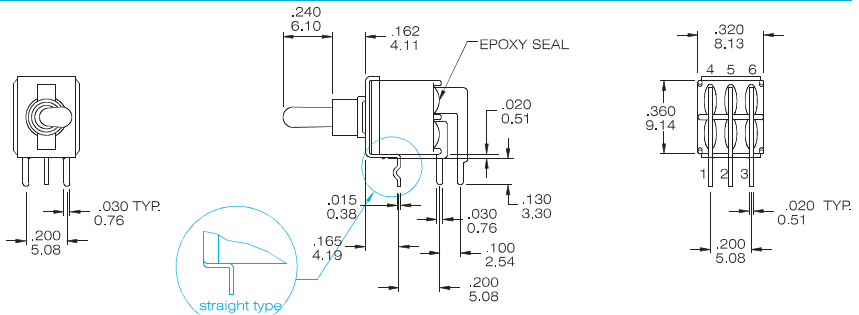


ES-6 - T2R-S

DPDT

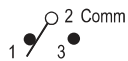
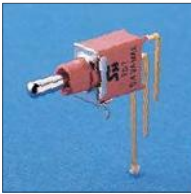


Model No.	Switching position		
ES-7	ON	none	ON
ES-7A	ON	OFF	ON
ES-7B	ON	None	(ON)
ES-7H	(ON)	OFF	(ON)
ES-7I	ON	OFF	(ON)
Term. Comm.	2-3-5-6	open	2-1-5-4

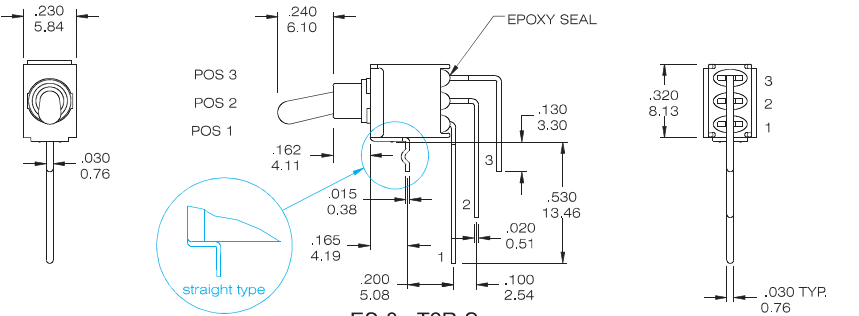


ES-7 - T2R-S

SPDT



Model No.	Switching position		
ES-8	ON	none	ON
ES-8A	ON	OFF	ON
ES-8B	ON	None	(ON)
ES-8H	(ON)	OFF	(ON)
ES-8I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

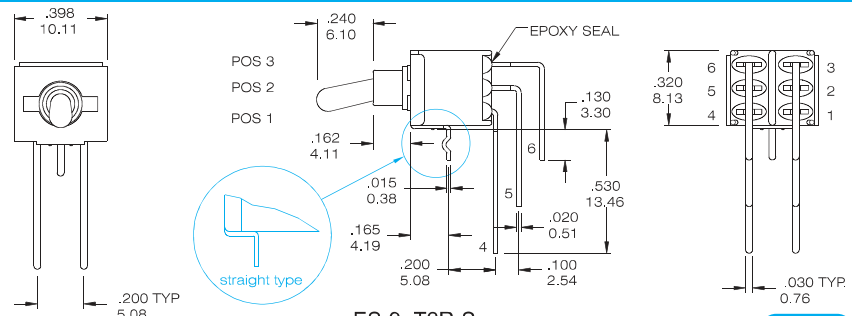


ES-8 - T2R-S

DPDT

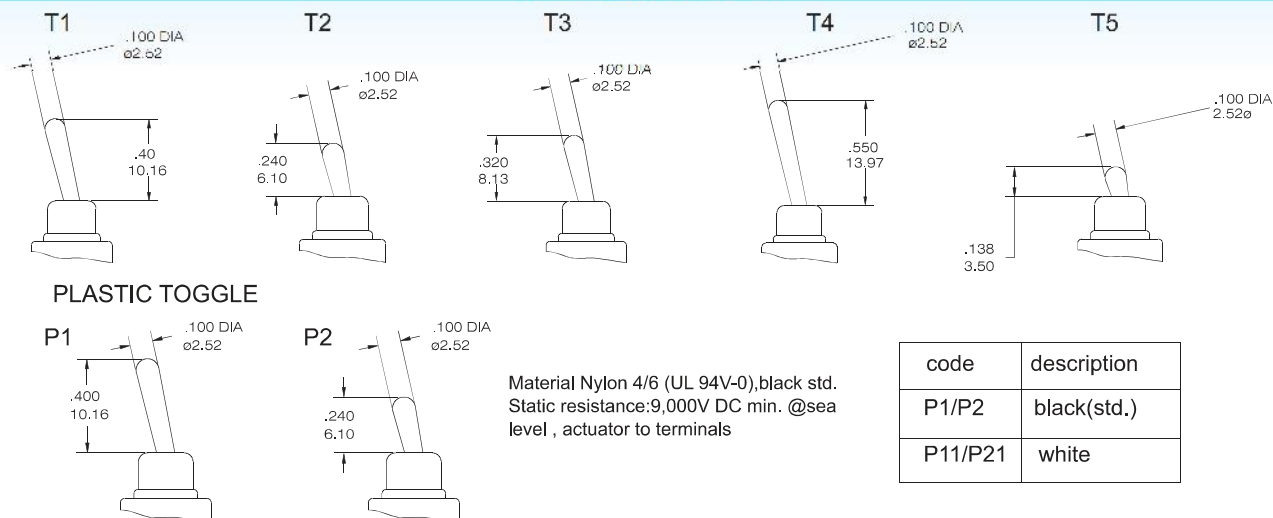
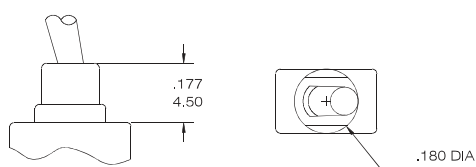
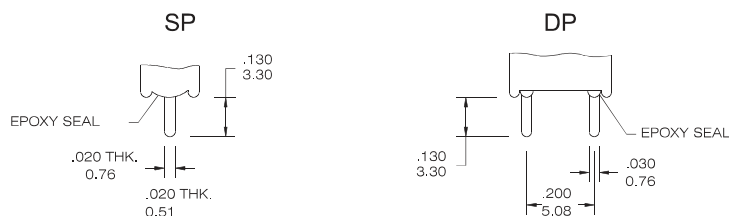
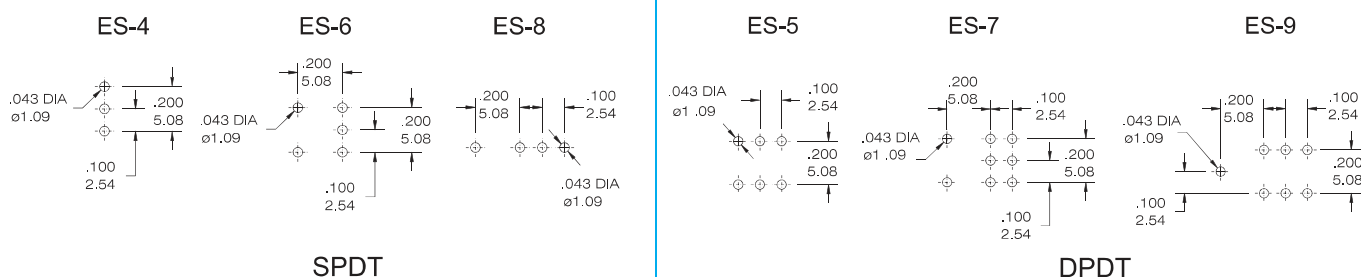


Model No.	Switching position		
ES-9	ON	none	ON
ES-9A	ON	OFF	ON
ES-9B	ON	None	(ON)
ES-9H	(ON)	OFF	(ON)
ES-9I	ON	OFF	(ON)
Term. Comm.	2-3-5-6	open	2-1-5-4



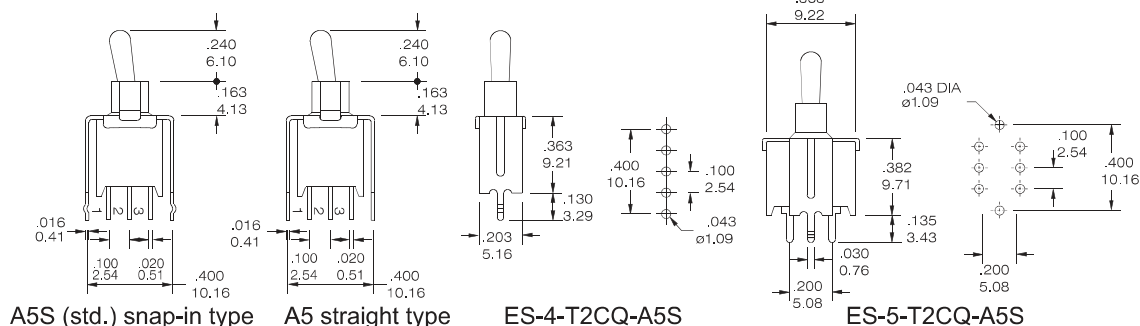
ES-9 - T2R-S

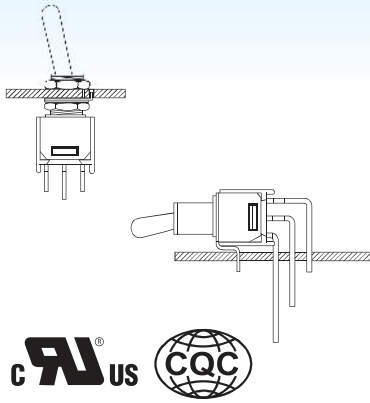
The dimensions in the catalogue and website are for reference only, not suitable for formal acknowledge.

**ES40-T****Sealed Sub-Miniature Toggle Switches****Actuator Option****Bushing dimension****Terminal dimension****P.C.B Mounting Dimension****CONTACT MATERIAL OPTIONS**

CODE	CONTACT MATERIAL	TERMINAL MATERIAL	RATING
Q	Silver plated	Silver plated	3 A @ 120V AC or 28 V DC; 1.5 A @ 250 VAC
R	Gold plated over nickel plated	Gold plated over nickel plated	0.4VA MAX @ 20 V AC or DC MAX
G	Gold plated over silver plated	Gold plated over silver plated	0.4 VA MAX @ 20 V AC or DC MAX or 3 A @ 120V AC or 28 V DC; 1.5 A @ 250 VAC
K	Gold plated over nickel plated	Tin over nickel plated	0.4VA MAX @ 20 V AC or DC MAX

* The "K" option is only for some special item. Please inquire first when you need the "K" option

VERTICAL SUPPORT BRACKET OPTION**A5**



SPECIFICATIONS

CONTACT RATING: 3A @125 VAC or 28 VDC (Q Contact)
ELECTRICAL LIFE:30,000 make-and-break cycles at full load
CONTACT RESISTANCE: 20 mΩ max. initial @2-4 VDC, 100 mA
INSULATION RESISTANCE: 1,000 MΩ min.
DIELECTRIC STRENGTH: 1,500 V RMS @ sea level.
OPERATING TEMPERATURE: -30°C to +85°C

MATERIALS

CASE - diallyl phthalate (DAP)
TOGGLE HANDLE - Copper alloy , chrome plated
BUSHING - Copper alloy , nickel plated
HOUSING - Stainless Steel
CONTACT AND TERMINAL - Copper alloy , silver plated
SWITCH SUPPORT - Copper alloy , tin-plated

How do you build the switches you need!!

The TS-4 / TS-5 , please see the (A) ;

The TS-6/TS-7/TS-8/TS-9, please see the (B)

(A) T S - 4 - S E B Q - E - A 5 - T 3 - 2 -

Switch Function	Actuator	Bushing	Termination	Vertical support Bracket	Cap color
TS-4 TS-4B TS-4A TS-4H TS-4I TS-5 TS-5B TS-5A TS-5H TS-5I TS-5C	SP on-none-on SP on-none-(on) SP on-off-on SP (on)-off-(on) SP on-off-(on) DP on-none-on DP on-none-(on) DP on-off-on DP (on)-off-(on) DP on-off-(on) DP on-on-on	For Bushing E/E1/F/F1 S 9.40 T 5.33 U 7.37 For Bushing G/G1/J/J1 V 10.41 X 5.59 Locking Lever LK Round top LK1 Flat top	The 10-48 uns thread E (std.) flat 5.59 F key-way 5.59 Non-thread E1 flat 5.59 F1 key-way 5.59 1/4-40 uns thread G flat 7.87 J key-way 6.60 Non-thread G1 flat 7.87 J1 key-way 6.60 None The actuator LK/LK1 No requirement to choose the bushing, unless the non-thd LKN / LK1N	B solder lug C P.C D wire wrap Contact Material Q silver plated R gold plated G gold over silver K tin plated Epoxy seal (none) none seal E epoxy seal	(none) A5 straight type A5S snap-in type A6 straight type A6S snap-in type Actuator Cap/ Rubber hood Sealing Actuator Cap T3 9.40 (for actuator S/V/X) Rubber Hood E1 for bushing G/J E7 for bushing E/F
					1 white 2 black 3 red 5 yellow 6 green 7 blue RoHS code H = RoHS Compliant

(B) T S - 6 - T E 1 Q - E - S - T 3 - 5 -

Horizon Right Angle	Vertical Right Angle	Switches Function	Actuator	Bushing	Contact Material	Actuator Cap
TS-6 TS-6B TS-6A TS-6H TS-6I TS-7 TS-7B TS-7A TS-7H TS-7I TS-7C	TS-8 TS-8B TS-8A TS-8H TS-8I TS-9 TS-9B TS-9A TS-9H TS-9I TS-9C TS-82 TS-82B TS-82A TS-82H TS-82I	SP on-none-on SP on-none-(on) SP on-off-on SP (on)-off-(on) SP on-off-(on) DP on-none-on DP on-none-(on) DP on-off-on DP (on)-off-(on) DP on-off-(on) DP on-on-on SP on-none-on SP on-none-(on) SP on-off-on SP (on)-off-(on) SP on-off-(on)	For Bushing E/E1/F/F1 S 9.40 T 5.33 U 7.37 For Bushing G/G1/J/J1 V 10.41 X 5.59	The 10-48 uns thread E flat 5.59 F key-way 5.59 Non-thread E1 (std.) flat 5.59 F1 key-way 5.59 1/4-40 uns thread G flat 7.87 J key-way 6.60 Non-thread G1 flat 7.87 J1 key-way 6.60	Q silver plated R gold plated G gold over silver K gold / tin Epoxy seal (none) none seal E epoxy seal Bracket type (none) std. Straight S Snap-in type	(none) T3 9.40 (actuator S/V/X) Cap color 1 white 2 black 3 red 5 yellow 6 green 7 blue RoHS code H = RoHS Compliant



TS40-T

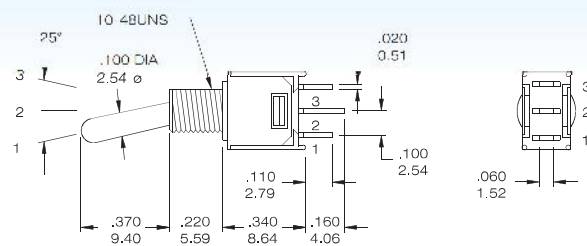
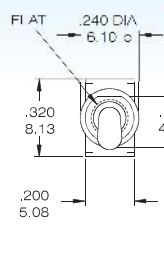
Sub-miniature Toggle Switches



SPDT



Model No.	Switching position		
TS-4	ON	none	ON
TS-4A	ON	OFF	ON
TS-4B	ON	None	(ON)
TS-4H	(ON)	OFF	(ON)
TS-4I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

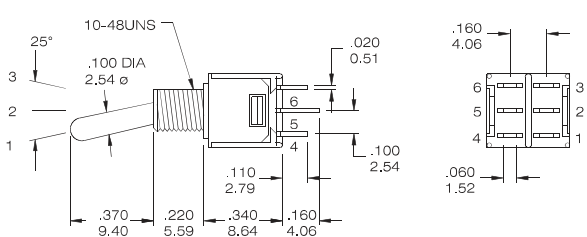
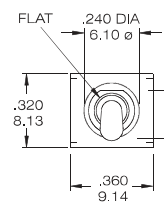


TS-4 - SEBQ

DPDT



Model No.	Switching position		
TS-5	ON	none	ON
TS-5A	ON	OFF	ON
TS-5B	ON	None	(ON)
TS-5H	(ON)	OFF	(ON)
TS-5I	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
TS-5C	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

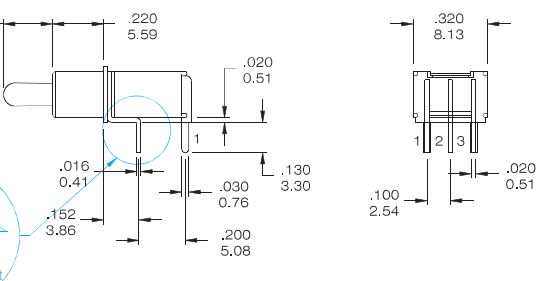
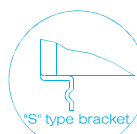
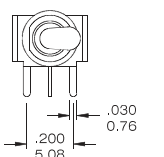


TS-5 - SEBQ

SPDT



Model No.	Switching position		
TS-6	ON	none	ON
TS-6A	ON	OFF	ON
TS-6B	ON	None	(ON)
TS-6H	(ON)	OFF	(ON)
TS-6I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

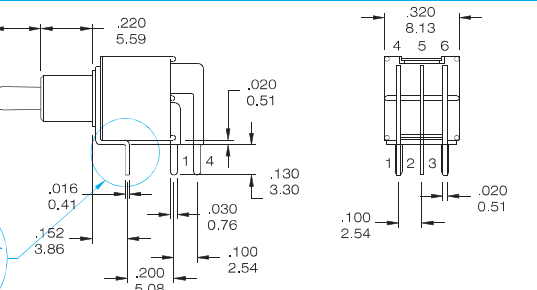
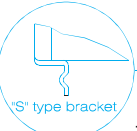
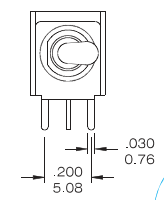


TS-6 - TE1Q / TS-6-TE1Q-S

DPDT



Model No.	Switching position		
TS-7	ON	none	ON
TS-7A	ON	OFF	ON
TS-7B	ON	None	(ON)
TS-7H	(ON)	OFF	(ON)
TS-7I	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
TS-7C	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

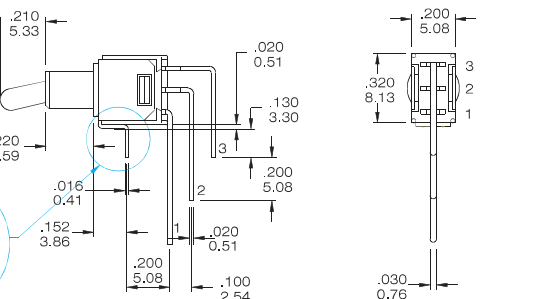
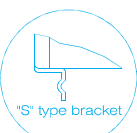
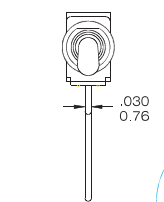


TS-7 - TE1Q / TS-7-TE1Q-S

SPDT



Model No.	Switching position		
TS-8	ON	none	ON
TS-8A	ON	OFF	ON
TS-8B	ON	None	(ON)
TS-8H	(ON)	OFF	(ON)
TS-8I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

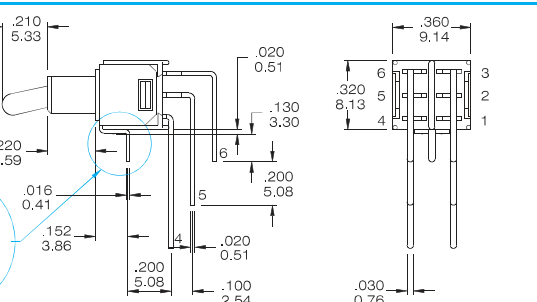
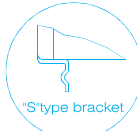
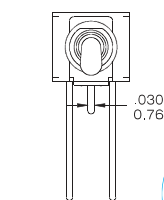


TS-8 - TE1Q / TS-8-TE1Q-S

DPDT



Model No.	Switching position		
TS-9	ON	none	ON
TS-9A	ON	OFF	ON
TS-9B	ON	None	(ON)
TS-9H	(ON)	OFF	(ON)
TS-9I	ON	OFF	(ON)
Term. Comm.	2-3,5-6	open	2-1,5-4
3 way switches (SP3T)			
TS-9C	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4

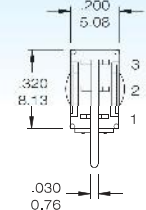
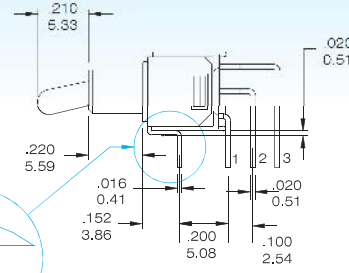
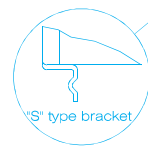


TS-9 - TE1Q / TS-9-TE1Q-S

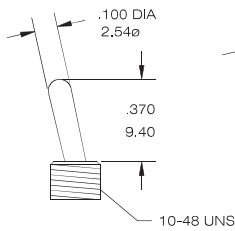
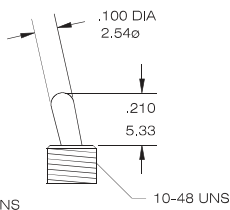
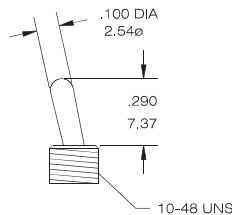
The dimensions in the catalogue and website are for reference only, not suitable for formal acknowledge.

**TS40-T****Sub-miniature Toggle Switches****SPDT**

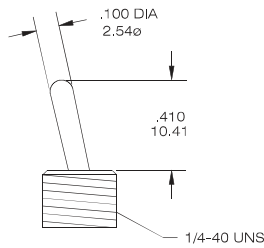
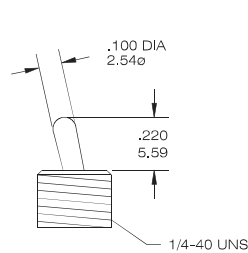
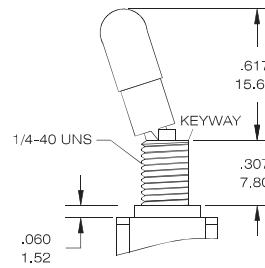
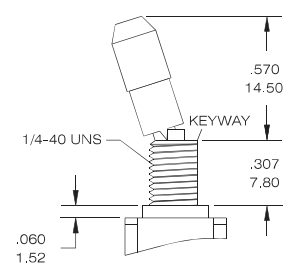
Model No.	Switching position		
TS-82	ON	none	ON
TS-82A	ON	OFF	ON
TS-82B	ON	None	(ON)
TS-82H	(ON)	OFF	(ON)
TS-82I	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

**TS-82- TE1Q / TS-82-TE1Q-S****Actuator Option**

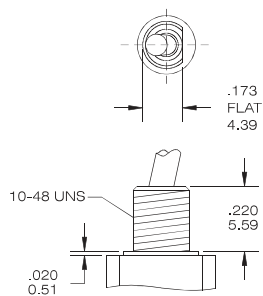
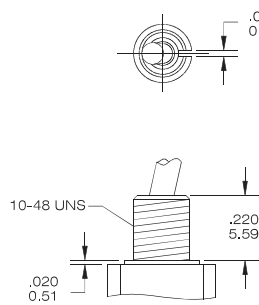
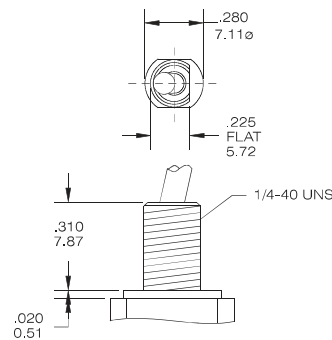
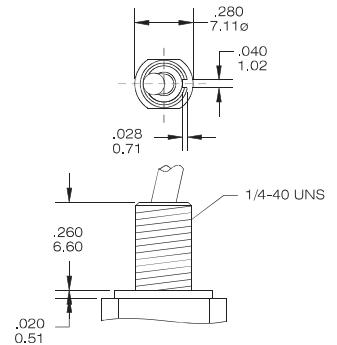
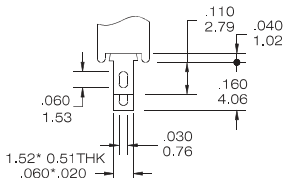
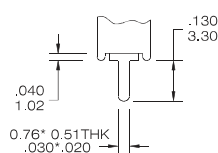
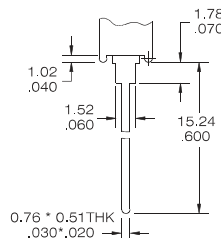
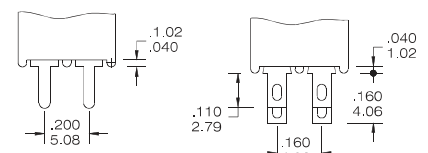
only applied for the bushing (E/E1/F/F1)

S STD**T STD.
ON P.C.Models****U**

only applied for the bushing (G/G1/J/J1)

V**X****Locking Lever****LK (round top)****LK1 (flat top)**

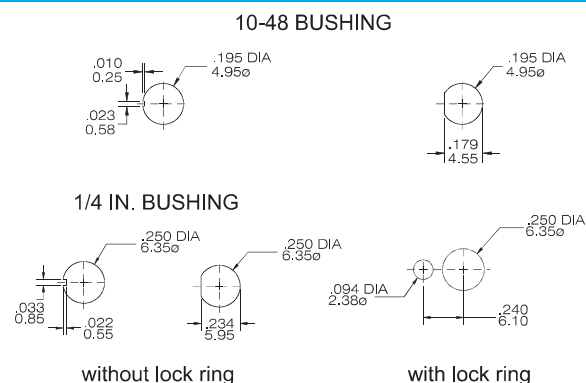
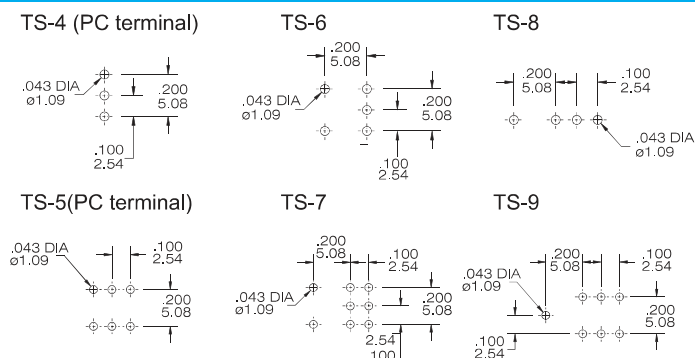
Bushing Option Code not required unless non-thread ordered, choose the bushing code "N" -- LKN / LK1N

Bushing Option
**E THD. STD.
E1 NON THD.
(STD. ON P.C.Model)**

**F THD
F1 NON THD**

**G THD
G1 NON THD**

**J THD
J1 NON THD**
**TERMINAL OPTION (ONLY FOR THE TS-4 / TS-5)****B Solder Lug(STD)****C PRINTED CIRCUIT****D Wire Wrap****DPDT**

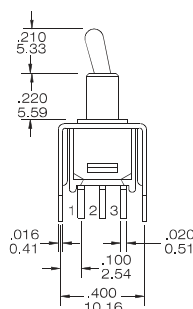
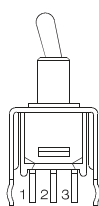
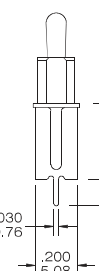
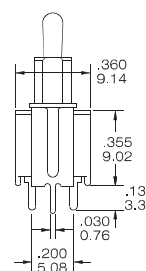
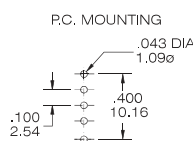
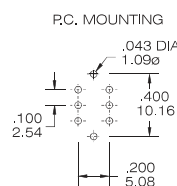
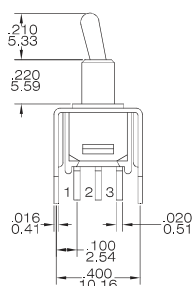
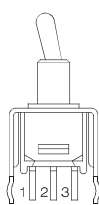
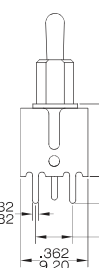
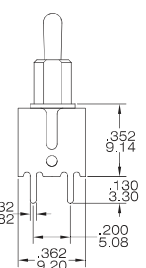
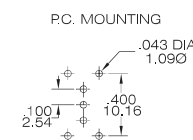
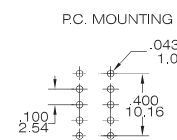
**TS40-T****Sub-miniature Toggle Switches****CONTACT MATERIAL OPTIONS**

CODE	CONTACT MATERIAL	TERMINAL MATERIAL	RATING
Q	Silver plated	Silver plated	3 A @ 125V AC or 28 V DC; 1.5 A @ 250 VAC
R	Gold plated over nickel plated	Gold plated over nickel plated	0.4VA MAX @ 20 V AC or DC MAX
G	Gold plated over silver plated	Gold plated over silver plated	0.4 VA MAX @ 20 V AC or DC MAX or 3 A @ 125V AC or 28 V DC; 1.5 A @ 250 VAC
K	Gold plated over nickel plated	Tin over nickel plated	0.4VA MAX @ 20 V AC or DC MAX

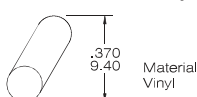
* THE K option is only for some special item. Please inquire first when you need the "K" option

P.C.B MOUNTING DIMENSION**PANEL MOUNTING DIMENSION****VERTICAL SUPPORT BRACKET OPTION**

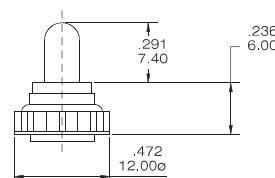
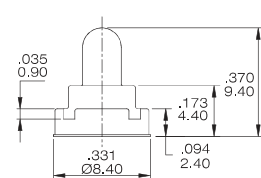
only for the TS-4/TS-5. If you need the vertical support bracket, please build the terminal option - "C" code

A5/ A5S**A5**
STD.**A5S**
Snap-in**TS-4-TE1CQ-A5****TS-5-TE1CQ-A5****A6/ A6S****A6**
Straight**A6S**
Snap-in**TS-4-TE1CQ-A6****TS-5-TE1CQ-A6****Toggle Cap Option****Rubber Hood Sealing**

T3 for actuator "S" only



code	color	code	color
1	white	5	yellow
2	black	6	green
3	red	7	blue

**E1 for bushing G/J**
(1/4 - 40UNS)**E7 for bushing E/F**
(10-48UNS special code)