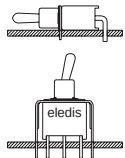




SERIES 1B

- Sealed miniature toggle switches



AGENCY APPROVALS



File N° E195524



File N° E195524

IP67

In conformity with:
 • EN 60529: 1991
 • IEC 529: 1989

CHARACTERISTICS

- Case and bushing in glass filled nylon with o-ring in the bushing for added seal.
- Many convenient options.

SPECIFICATIONS

Contact Rating: **S** (silver) - 5A with resistive load @ 125 VAC or 28 VDC - 2A with resistive load @ 250 VAC
A (gold) - 0.4 VA max @ 20 VAC or DC max
Electrical life: 50,000 make and break cycles at full load
Contact Resistance: 10 mΩ max. initial @ 2-4 VDC - 100 mA, for both silver and gold plated contacts
Insulation Resistance: 1000 MΩ min.
Dielectric Strength: 1500 VRMS @ sea level
Operating Temperature: -30°C to 85°C

MATERIALS

Case & bushing: Glass filled nylon 6/6, flame retardant, heat stabilized (UL94V-0)
Actuator: Black nylon-with internal o-ring seal std with all actuators
Switch support: Brass or steel, tin plated
Switch support retainer: Stainless steel
Terminal seal: Epoxy

HOW TO ORDER

1	B			-						E	
N° OF POLES		ACTUATORS				TERMINATIONS				SEALING	
1	SPDT	N	Round (std)	PC	PCB					E	Seal (std)
2	DPDT	N2	Short round	W1	Wire wrap 19.05 mm						
3	3PDT	ES	ESD plastic toggle 6.70 mm	W2	Wire wrap 24.48 mm						
		ES4	ESD plastic toggle 10.70 mm	W3	Wire wrap 10.80 mm						
				W4	Wire wrap 26.97 mm						
				ST	Solder tag						
				H9	90° horizontal						
				H9S	90° horizontal snap-in						
				V9	90° vertical						
				V9S	90° vertical snap-in						
				U2	U bracket 11.68 mm						
				U2S	U bracket snap-in 11.68 mm						
				U3	U bracket 16.00 mm						
				U3S	U bracket snap-in 16.00 mm						
				U4	U bracket 11.68 mm						
				U4S	U bracket snap-in 11.68 mm						
				U5	U bracket 16.00 mm						
				U5S	U bracket snap-in 16.00 mm						
				QC	U bracket sna						
ELECTRICAL FUNCTIONS		BUSHING				QUICK CONNECT					
1	on	none	on	F1	Threaded standard	S	Silver (std)				
2	on	none	(on)	F4	Unthreaded Std	A	Gold				
3	on	off	on			G	Gold on silver				
4	(on)	off	(on)			T(◇)	Tinned silver				
5	on	off	(on)			K(◇)	Tinned gold				
6 (※)	on	on	on			V(◇)	Tinned gold on silver				
7 (※)	(on)	on	(on)								
8 (※)	on	on	(on)								
				STANDARD HARDWARE							
				2				Nuts			
				1				Locking Ring			
				1				Lockwasher			

(※) 3-way external wiring required - Please Enquire
 (◇) Please enquire

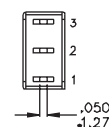
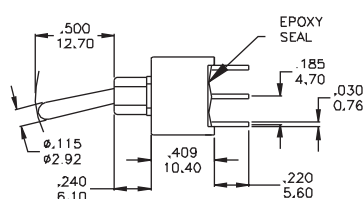
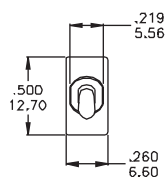
SERIES 1B

ELECTRICAL FUNCTIONS

DIMENSIONS

SPDT			
1	on	none	on
2	on	none	(on)
3	on	off	on
4	(on)	off	(on)
5	on	off	(on)
2 - 3	open	2 - 1	

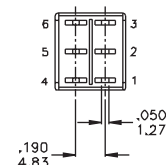
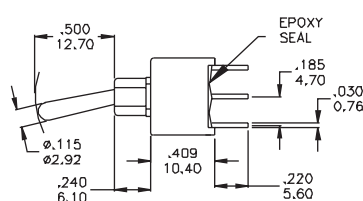
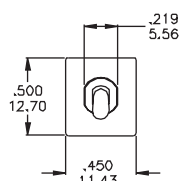
2 Comm.
 3 •



Part N° shown: 1B11-NF4PCAE

DPDT			
1	on	none	on
2	on	none	(on)
3	on	off	on
4	(on)	off	(on)
5	on	off	(on)
6 (*)	on	on	on
7 (*)	(on)	on	(on)
8 (*)	on	on	(on)
2-3, 5-6	open	2-1, 5-4	

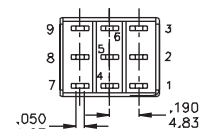
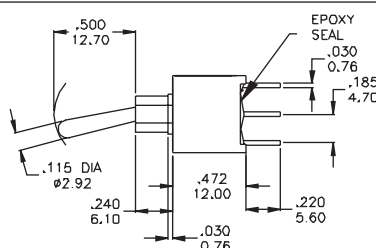
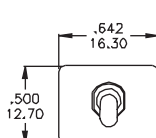
2 Comm. 5 Comm.
 3 • 4 • 6 •



Part N° shown: 1B21-NF4PCAE

3PDT			
1	on	none	on
2	on	none	(on)
3	on	off	on
4	(on)	off	(on)
5	on	off	(on)
2-3, 5-6	open	2-1, 5-4	

2 Comm. 5 Comm. 8 Comm.
 3 • 4 • 6 • 7 • 9 •

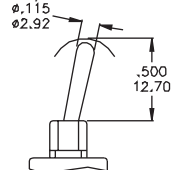


Part N° shown: 1B31-NF4PCAE

(*) See wiring for 3-Way Switching Functions pag. iii in the Technical Notations section

ACTUATORS

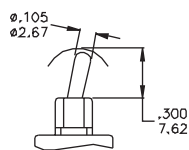
Standard when ordered with ST, PC terminations



Subtract 2.68 for F1 bushing

N

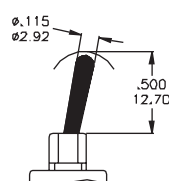
Standard when ordered with H9, V9, U2 terminations



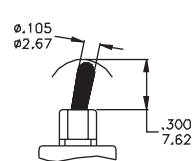
Subtract 2.68 for F1 bushing

N2

Antistatic Plastic Black Toggle



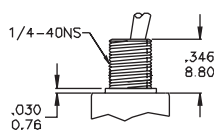
ES



ES4

Note: Static resistance 9000 VDC, between actuator and terminals.
 Not available with E1 conductive bushing

BUSHING



F1

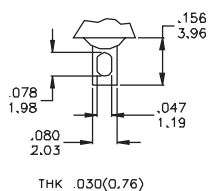
Standard with PC, H9, V9, U terminations



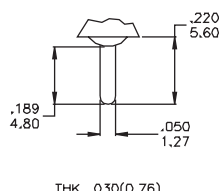
F4

SERIES 1B

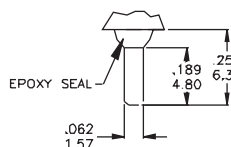
TERMINATIONS



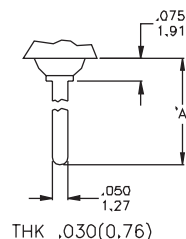
ST



PC



QC

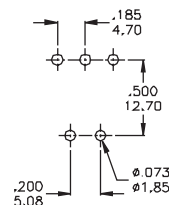
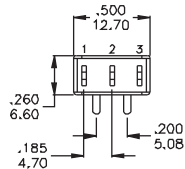
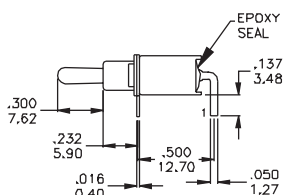
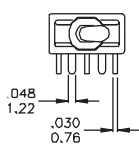


W

	Dim. A
W1	.750 (19.05)
W2	.964 (24.48)
W3	.425 (10.80)
W4	1.062 (26.97)

P.C. LAYOUT

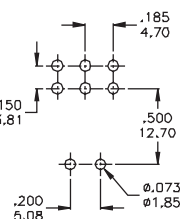
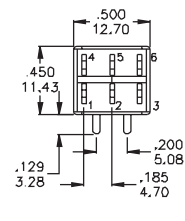
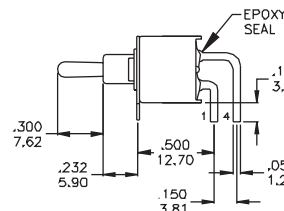
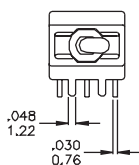
H9
SPDT



Part N° shown: 1B11-N2F4H9AE

P.C. LAYOUT

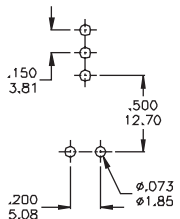
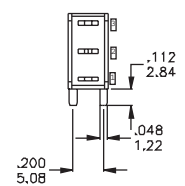
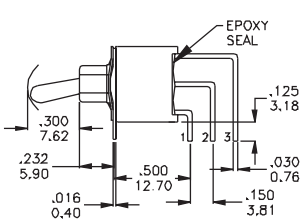
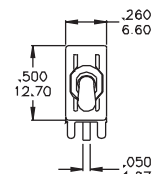
H9
DPDT



Part N° shown: 1B21-N2F4H9AE

P.C. LAYOUT

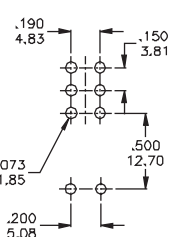
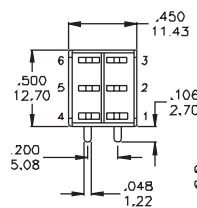
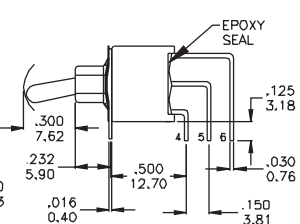
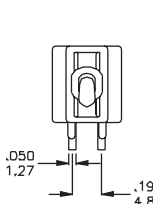
V9
SPDT



Part N° shown: 1B11-N2F4V9AE

P.C. LAYOUT

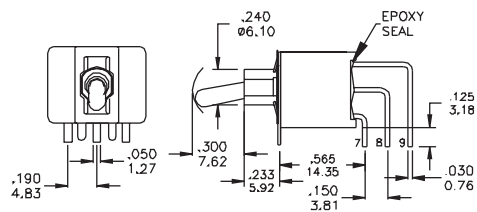
v9
DPDT



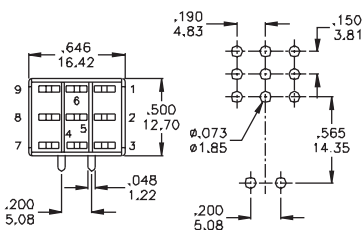
Part N° shown: 1B21-N2F4V9AE

SERIES 1B

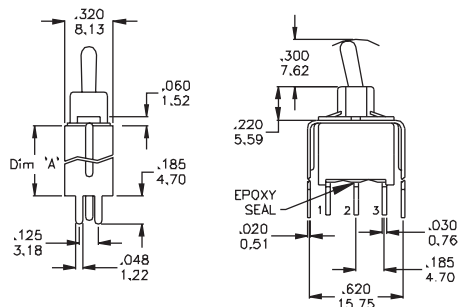
TERMINATIONS

V9
3PDT


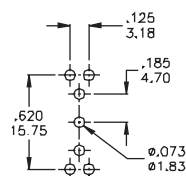
P.C. LAYOUT



Part N° shown: 1B31-N2F4V9AE

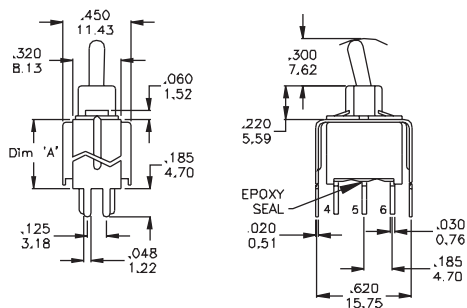
U2 U3
SPDT


P.C. LAYOUT

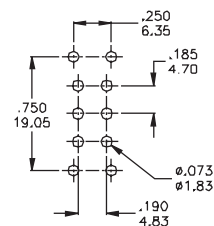


Dim. A	
U2	.460 (11.68)
U3	.630 (16.00)

Part N° shown: 1B11-N2F4U_AE

U4 U5
SPDT


P.C. LAYOUT



Dim. A	
U4	.460 (11.68)
U5	.630 (16.00)

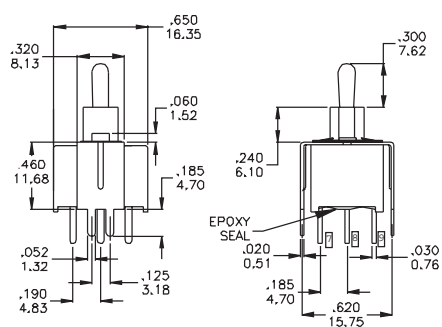
Part N° shown: 1B11-N2F4U_AE



SERIES 1B

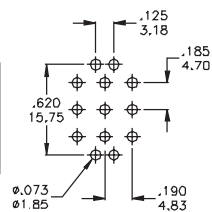
TERMINATIONS

U4 U5
3PDT



Dim. A	
U4	.460 (11.68)
U5	.630 (16.00)

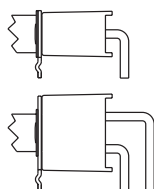
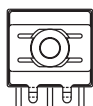
P.C. LAYOUT



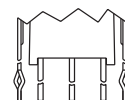
Part N° shown: 1B31-N2F4U_AE

Snap-in termination options

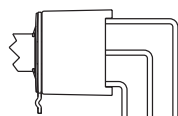
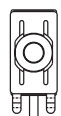
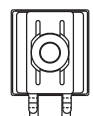
H9S



U2S
U3S



V9S



U4S
U5S



H9S, V9S, U2S, U3S, U4S, U5S have the same P.C layout but are supplied with snap-in bracket to grip onto the PCB



TOGGLE SWITCHES

SERIES 1B

CONTACT MATERIALS

CONTACT RATINGS

- S (std)** **Moving Contacts:** coin silver
Terminals: copper alloy, silver plated
Rating: 2 Amps with resistive load @ 250 VAC
 5 Amps with resistive load @ 125 VAC or 28 VDC
- A** **Moving Contacts:** copper alloy with gold plating over nickel plating
Terminals: copper alloy with gold plating over nickel plating
Rating: 0.4 Volts/Amps max @ 20 Volts max (AC or DC)
- G** **Moving Contacts:** gold plating over silver
End Terminals: gold plating over silver
Center Terminals: gold plating over copper alloy, silver plated
Note: G option used for either "high" (2 Amps @ 250 VAC) or "low" (0.4 Volts/Amps max) contact rating (one exclude the other)

PACKAGING

Transparent Trays 15x21x4 cm



Qty per tray: (ST, PC Terminals)
 Series 1B1x 200 pcs
 1B2x 100 pcs
 1B3x 100 pcs

MARKING (on products)

The switches are individually marked with the following information:

- Side 1** TRADE MARK
 SERIES AND MODEL
 DATE CODE
- Side 2** RATING
 CONTACTS

Note: Not all information may be available on some products.

LABELLING (on packaging)

The label on each tray gives full information on the products contained.

P/N: EL.FNC.: Q.TY: DATE CODE:	
Made in Taiwan	
Remarks	

A Bar code indicating Model, Quantity, Date Code enables easy traceability.