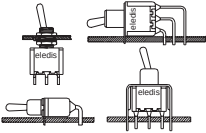




SERIES 1A

- Miniature toggle switches



AGENCY APPROVALS



File N° E195524



File N° E195524

CHARACTERISTICS

- The most comprehensive range of terminations, brackets, toggle sizes and bushings.
- Diallylphthalate case and stainless steel housing.

SPECIFICATIONS

Contact Rating: S (silver) - 5A with resistive load @ 125 VAC or 28 VDC - 2A with resistive load @ 250 VAC

Electrical life: 50,000 make and break cycles at full load

Contact Resistance: 10 mΩ max. initial @ 2-4 VDC, 100 mA for both coin 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: diallylphthalate (DAP)

Toggle handle: Brass, chrome plated

Bushing: Brass, nickel plated

Housing: Stainless Steel

HOW TO ORDER

1 A - - - - -

N° OF POLES

- | | |
|---|------|
| 1 | SPDT |
| 2 | DPDT |
| 3 | 3PDT |
| 4 | 4PDT |

ACTUATORS

- | | |
|---------|---------------|
| N | Round (std) |
| N2 | Short round |
| L1 | Long 13.97 |
| L2 | Long 16.26 |
| L3 | Long 21.32 |
| L4 | Long 15.75 |
| L5 | Long 18.08 |
| P | Flat |
| PS | Flat Short |
| C (◇) | Plastic |
| G | Large |
| GX | Extra large |
| LK (Δ) | Locking lever |
| LK1 (Δ) | Locking lever |

TERMINATIONS

- | | |
|--------|--------------------|
| PC | PCB |
| W1 | Wire wrap 19.05mm |
| W3 | Wire wrap 10.80mm |
| ST | Solder tag |
| H9 | 90° horizontal |
| V9 | 90° vertical |
| U2 | U bracket 11.68 mm |
| U3 | U bracket 16.00 mm |
| U4 (Δ) | U bracket 11.68 mm |
| U5 (Δ) | U bracket 16.00 mm |
| QC | Quick connect |

COLOUR OPTIONS

For C Plastic actuator

- | | |
|-------|-------------|
| 1 | White |
| 2 | Black (std) |
| 3 | Red |
| 4 (Δ) | Orange |
| 5 (Δ) | Yellow |
| 6 (Δ) | Green |
| 7 (Δ) | Blue |
| 8 (Δ) | Brown |
| 9 (Δ) | Gray |

ELECTRICAL FUNCTIONS

- | | on | none | on |
|-------|------|------|------|
| 1 | on | none | on |
| 2 | on | none | (on) |
| 3 | on | off | on |
| 4 | (on) | off | (on) |
| 5 | on | off | (on) |
| 6 (*) | on | on | on |

BUSHING

- | | |
|--------|--------------------|
| F1 | Threaded standard |
| F2 | Unthreaded |
| F3 | Threaded |
| F4 | Unthreaded |
| F5 | High torque flat |
| F6 | High torque |
| F7 | Long thread |
| F8 | Metric |
| F9 (◇) | Splash proof |
| F0 | Large |
| FS (◇) | Large Splash proof |
| FA | Non Threaded (std) |
| FB | Metric |
| FG | Non Thread |
| FK | For LK Act. Only |

SEALING

- | | |
|---|------|
| E | Seal |
|---|------|

CONTACT MATERIAL

- | | |
|---|----------------|
| S | Silver (std) |
| A | Gold |
| G | Gold on silver |

STANDARD HARDWARE

- | | |
|---|--------------|
| 2 | Nuts |
| 1 | Locking Ring |
| 1 | Lockwasher |

(*) 3-way external wiring required - Please enquire

(Δ) Min qty required

(◇) Please enquire

SERIES 1A

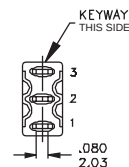
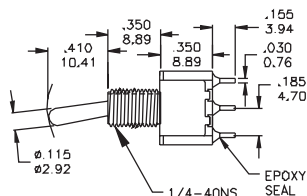
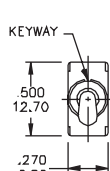
ELECTRICAL FUNCTIONS

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.

1 3 •

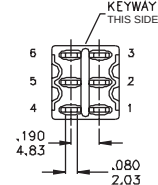
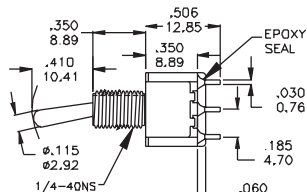
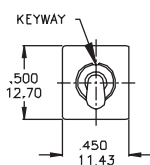


Part N° shown: 1A11-NF1STSE

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
	2-3, 5-6	open	2-1, 5-4

2 Comm. 5 Comm.

1 3 • - 4 6 •

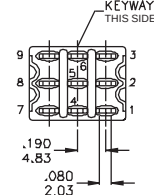
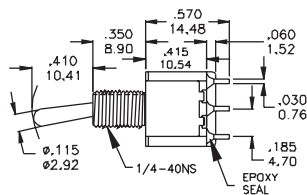
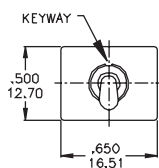


Part N° shown: 1A21-NF1STSE

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
	8-9		8-7

2 Comm. 5 Comm. 8 Comm.

1 3 • - 4 6 • - 7 9 •

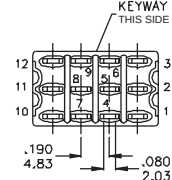
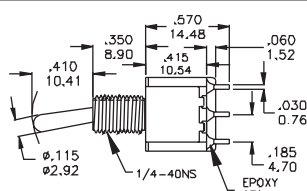
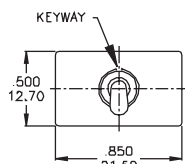


Part N° shown: 1A31-NF1STSE

4PDT			
1	on	none	on
2	on	none	(on)
3	on	off	on
4	(on)	none	(on)
5	on	none	(on)
6 (*)	on	on	on
	2-3, 5-6	open	2-1, 5-4
	8-9, 11-12		8-7, 11-10

2 Comm. 5 Comm. 8 Comm. 11 Comm.

1 3 • - 4 6 • - 7 9 • - 10 12 •



Part N° shown: 1A41-NF1STSE

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



SERIES 1A

ACTUATORS

N (std)	N2	L1	L2	L3	
P (only available with F6 & FG bushing)	PS (※)		G	GX	
C (◇)	COLOURS 1 White 2 Black (std) 3 Red 4 (Δ) Orange 5 (Δ) Yellow 6 (Δ) Green 7 (Δ) Blue 8 (Δ) Brown 9 (Δ) Gray			LK	LK1

For H9 - V9 - right angle version & All U - Brackets

N2 (◇)	N	L4	L5
----------------------	-----------------	------------------	------------------

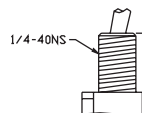
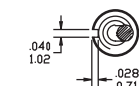
(◇) Please enquire

(Δ) Min qty required

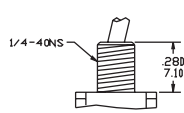
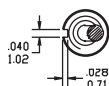
(*) Only available 1A11 model (on - on)

SERIES 1A

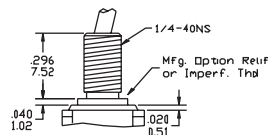
BUSHING



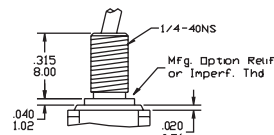
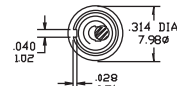
F1 Threaded (STD)
F2 Non Threaded



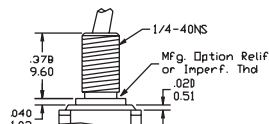
F3 Threaded
F4 Non Threaded



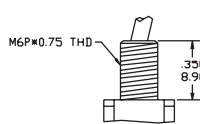
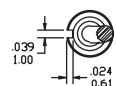
F5 High Torque
FA Non Threaded (STD)
FB Metric



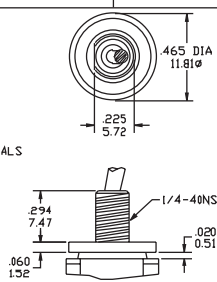
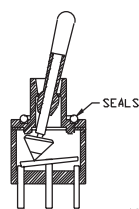
F6 High Torque
FC Metric
FG Non Threaded



F7 (Δ) Long
FD (Δ) Non Threaded
FE (Δ) Metric

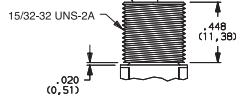
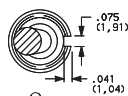


F8 Metric



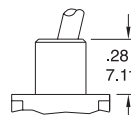
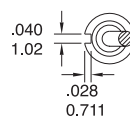
F9 Splash-proof

Available only for **on-on** and **on-off-on** functions - Only for "**N**" Actuator

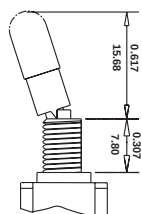


FO (Δ) Not splashproof
FS (Δ) Splashproof. (Available only for **on-on** functions)

For H9 - V9 - right angle version & All U - Brackets



F4 Standard



FK (Δ) Threaded,
only for locking lever

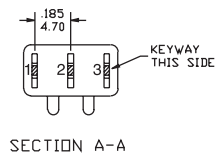
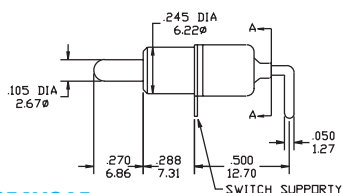
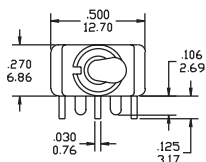
(Δ) Min qty required



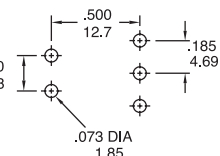
SERIES 1A

TERMINATIONS

H9 SPDT

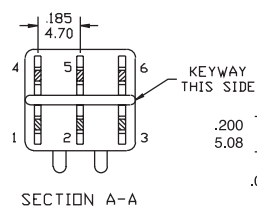
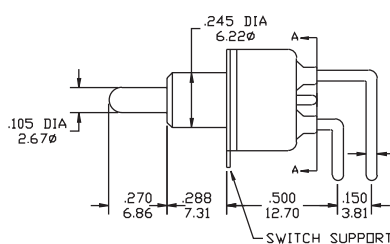
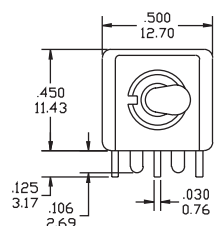


P.C. LAYOUT

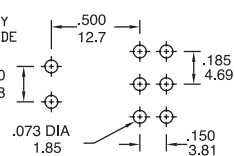


Part N° shown: 1A11-N2F4H9AE

H9 DPDT

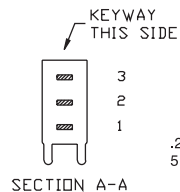
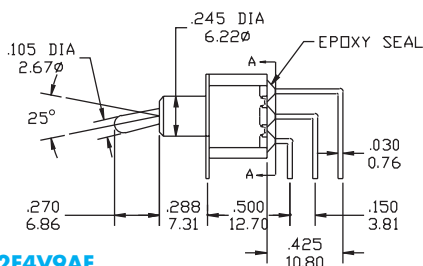
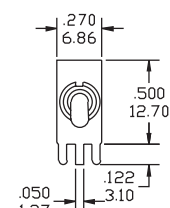


P.C. LAYOUT

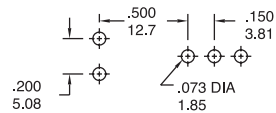


Part N° shown: 1A21-N2F4H9AE

V9 SPDT

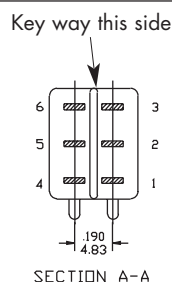
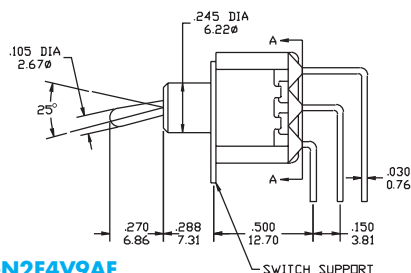
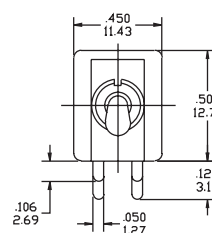


P.C. LAYOUT

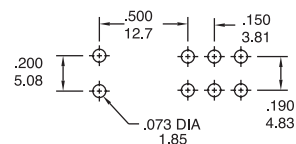


Part N° shown: 1A11-N2F4V9AE

V9 DPDT

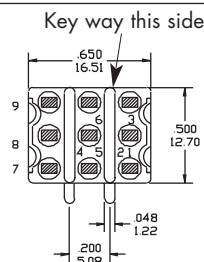
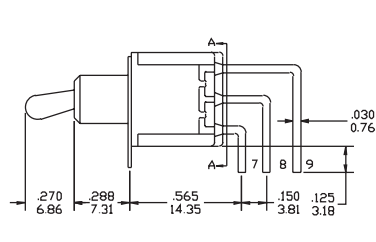
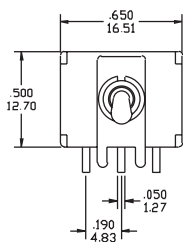


P.C. LAYOUT

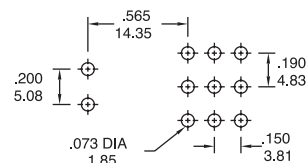


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V9 3PDT



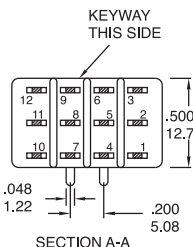
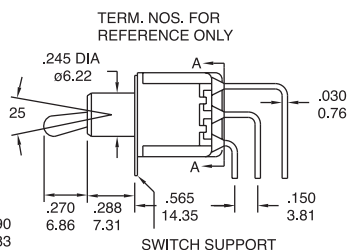
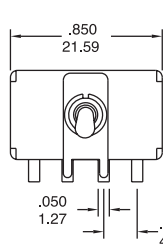
P.C. LAYOUT



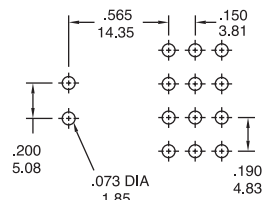
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SERIES 1A

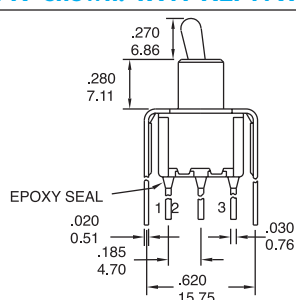
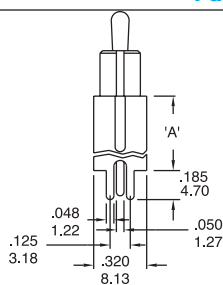
TERMINATIONS

V9
4PDT


P.C. LAYOUT

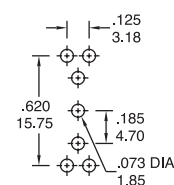


Part N° shown: 1A41-N2F4V9AE

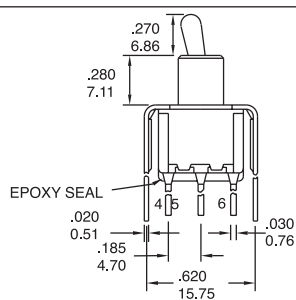
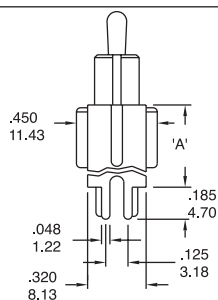
U2 U3
SPDT


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

P.C. LAYOUT

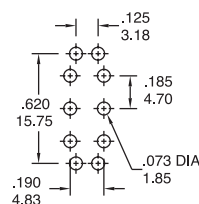


Part N° shown: 1A11-N2F4U_SE

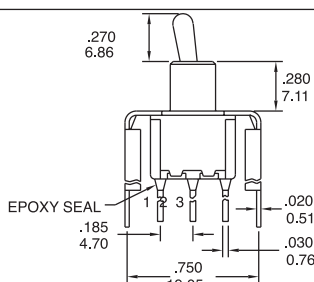
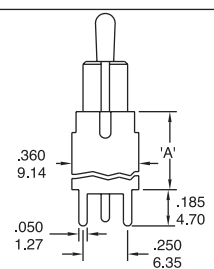
U2 U3
DPDT


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

P.C. LAYOUT

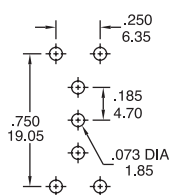


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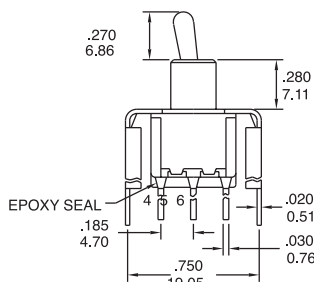
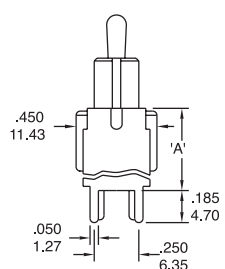
U4 U5
SPDT


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

P.C. LAYOUT

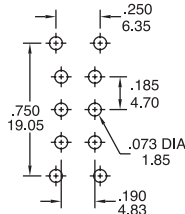


Part N° shown: 1A11-N2F4U_SE

U4 U5
DPDT


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

P.C. LAYOUT



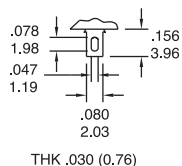
Part N° shown: 1A21-N2F4U_SE

(Δ) Min qty required

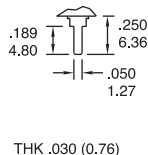


SERIES 1A

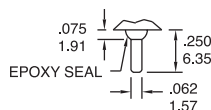
TERMINATIONS



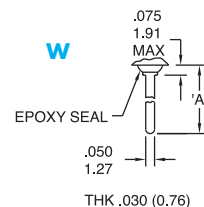
ST



PC



QC Quick Connect



W

EPOXY SEAL

THK .030 (0.76)

Dim. A

W1 .750 (19.05)

W3 .425 (10.80)

SEALING



E



E

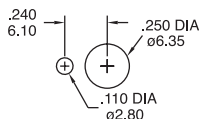
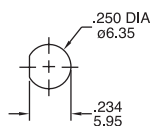
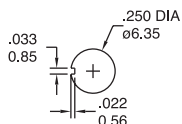
CONTACT MATERIALS

CONTACT RATINGS

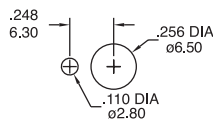
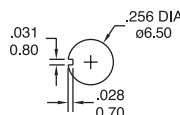
- S (std)** **Moving Contacts:** silver plated brass
Terminals: silver plated brass
Rating: 2 Amps with resistive load @ 250 VAC
 5 Amps with resistive load @ 125 VAC or 28 VDC
- A** **Moving Contacts:** gold plating over nickel plated brass
Terminals: gold plating over nickel plated brass
Rating: 0.4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

PANEL CUT-OUT

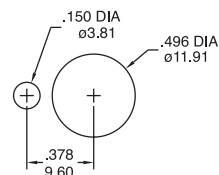
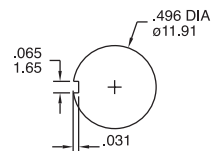
1/4 IN.BUSHING



METRIC BUSHING



15/32 IN.BUSHING

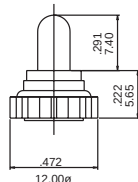


SERIES 1A

ACCESSORIES

SEALINGS

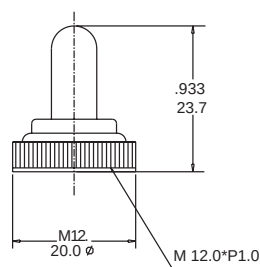
Rubber Hood sealing
for toggle "N"



1AK1 Metric

1AE1 Inch (STD)

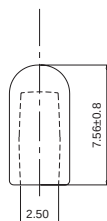
Rubber Hood sealing
for toggle "G" and "GX"



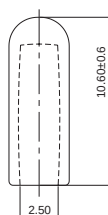
1AF0

TOGGLE CAPS

C1



C2



TOGGLE CAPS COLOUR

1	White	6 (Δ)	Green
2	Black (std)	7 (Δ)	Blue
3	Red	8 (Δ)	Brown
4 (Δ)	Orange	9 (Δ)	Gray
5 (Δ)	Yellow		

Part Number

Colour

PACKAGING

Transparent Trays 15x21x4 cm



Qty per tray: (ST, PC Terminals)

Series 1A1x 200 pcs

1A2x 100 pcs

1A3x 100 pcs

1A4x 50 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: ELFNC.: Q.TY: DATE CODE: Remarks	 Made in Taiwan
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A Bar code indicating Model, Quantity, Date Code enables easy traceability.

(Δ) Min qty required