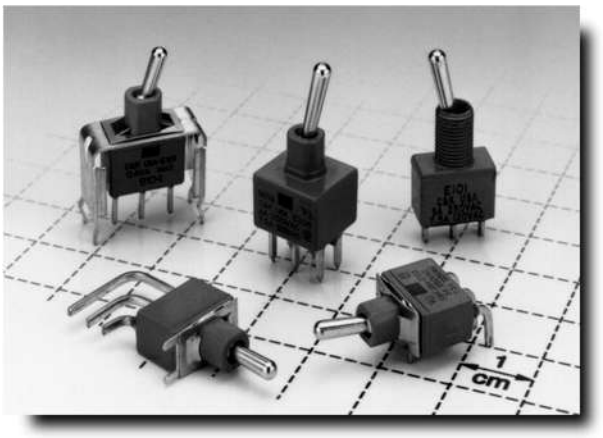
Models Available

Features/Benefits

- *Sealed against solder and cleaning process contaminants*
- *UL 94V-0 Nylon case and bushing*
- *Multi-positions*
- *ESD protection available*

Typical Applications

- *Telecommunications*
- *Instrumentation*
- *Medical equipment*



Build-A-Switch

Our easy Build-A-Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box. Switches with standard options are shown on pages A-20 thru A-22. Available options are shown and described on pages A-22 thru A-30. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Typical Example: E 1 0 1 — S — D 1 — C — B — E —

Switch Function
- **E101 (STD.) SP, On-None-On**
- **E103 (STD.) SP, On-Off-On**
- **E201 (STD.) DP, On-None-On**
- **E203 (STD.) DP, On-Off-On**
- **E211 (STD.) DP, On-On-On**
- **E301 (STD.) 3P, On-None-On**
- E105 SP, Mom.-Off-Mom.
- E107 SP, On-Off-Mom.
- E108 SP, On-None-Mom.
- E205 DP, Mom.-Off-Mom.
- E207 DP, On-Off-Mom.
- E208 DP, On-None-Mom.
- E213 DP, On-On-Mom.
- E215 DP, Mom.-On-Mom.
- E303 3P, On-Off-On
- E305 3P, Mom.-Off-Mom.
- E307 3P, On-Off-Mom.
- E308 3P, On-None-Mom.

Actuator
- **M (STD.) .300" high**
- **S (STD.) .500" high**
- L3 Plastic, .940" high

Bushing
- **D1 (STD.) .250" high**
- **F1 (STD.) Conductive, .250" high**
- D9 .280" high
- Y Threaded, .350" high

Terminations
- **A (STD.) Right angle, PC thru-hole**
- **AV2 (STD.) Vertical right angle, PC thru-hole**
- **C (STD.) PC Thru-hole**
- **V3 (STD.) .460" high, V-bracket**
- **Z (STD.) Solder lug**
- A3 Right angle, PC thru-hole
- AV3 Vertical right angle, PC thru-hole
- AW Right angle, extended, PC thru-hole
- AW1 Right angle, extended, PC thru-hole
- AW3 Right angle, extended, PC thru-hole
- AW4 Right angle, extended, PC thru-hole
- AW5 Right angle, extended, PC thru-hole
- R Right angle with PCB
- R2 Right angle with PCB
- V2 .555" high, V-bracket
- V4 .630" high, V-bracket
- V6 .460" high, V-bracket
- V7 .630" high, V-bracket
- V8 .953" high, V-bracket
- V9 1.150" high, V-bracket
- V21 .555" high, snap-in V-bracket
- V31 .460" high, snap-in V-bracket
- V41 .630" high, snap-in V-bracket
- V61 .460" high, snap-in V-bracket
- V71 .630" high, snap-in V-bracket
- V81 .953" high, snap-in V-bracket
- V91 1.150" high, snap-in V-bracket
- W .750" long, wire wrap
- W1 .964" long, wire wrap
- W3 .425" long, wire wrap
- W4 1.062" long, wire wrap
- W5 1.305" long, wire wrap
- Z3 Quick connect

Contact Material
- **B (STD.) Gold**
- K Gold
- Q Silver
- M Silver
- G Gold over silver
- L Gold over silver

Seal
- **E (STD.) Epoxy**

Plastic Actuator Color
- **2 (STD.) Black**
- 1 White
- 3 Red

C&K E Series
Sealed Miniature Toggle Switches

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-30 for additional ratings.

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 milliohms typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 ohms min.

ELECTROSTATIC DISCHARGE (ESD) OPTION: F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

DIELECTRIC STRENGTH: 1000 V RMS min. @ sea level.

OPERATING TEMPERATURE: –30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: Brass, chrome plated with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-30 for additional contact materials.

TERMINAL SEAL: Epoxy.

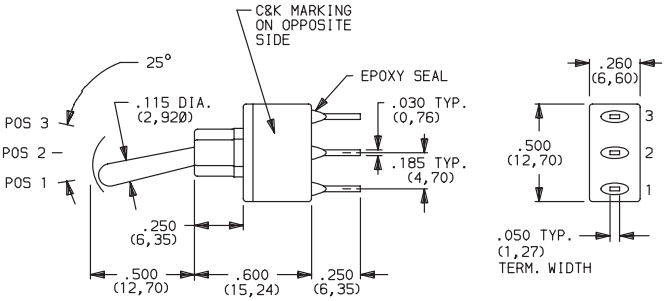
HARDWARE: Nut & Locking ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

SWITCHES WITH STANDARD OPTIONS



E101SD1CBE
SPDT



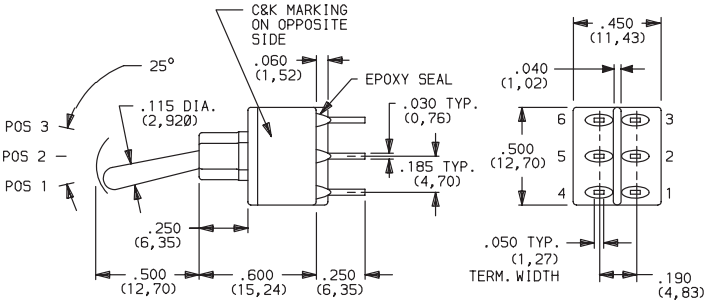
PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E101SD1CBE	SPDT	ON	NONE	ON
E103SD1CBE		ON	OFF	ON
E105SD1CBE		MOM.	OFF	MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-24.



E201SD1CBE
DPDT



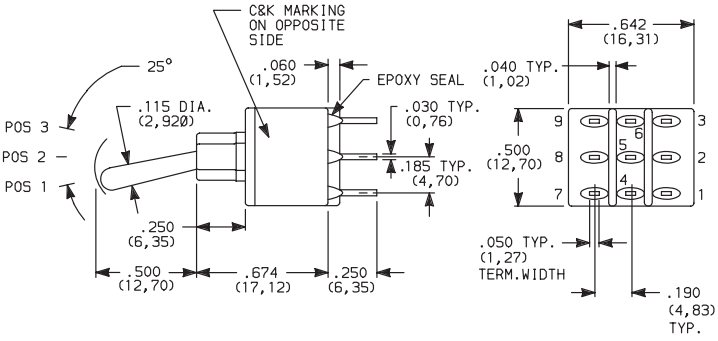
PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E201SD1CBE	DPDT	ON	NONE	ON
E203SD1CBE		ON	OFF	ON
E205SD1CBE		MOM.	OFF	MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-24.



E301SD1CBE
3PDT



PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E301SD1CBE	3PDT	ON	NONE	ON
E303SD1CBE		ON	OFF	ON
E305SD1CBE		MOM.	OFF	MOM.

MOM. = Momentary

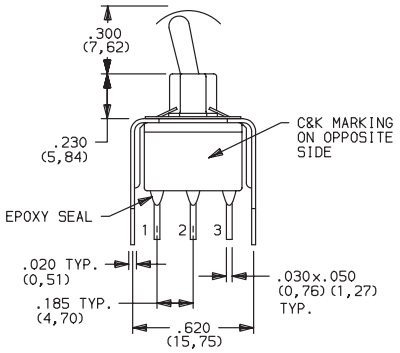
NOTE: For PC mounting information, see page A-24.

SWITCHES WITH STANDARD OPTIONS

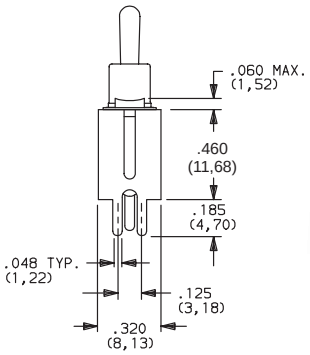
PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E101MD1V3BE E103MD1V3BE E105MD1V3BE	SPDT	ON ON MOM.	NONE OFF OFF	ON ON MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-29.



Actuator Shown In Pos. 1



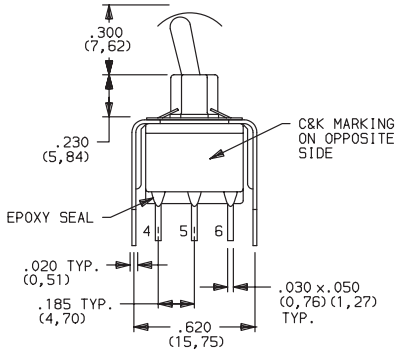


E101MD1V3BE
SPDT

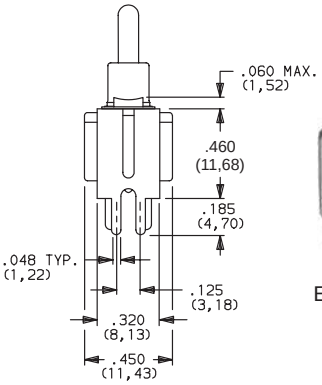
PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E201MD1V3BE E203MD1V3BE E205MD1V3BE	DPDT	ON ON MOM.	NONE OFF OFF	ON ON MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-29.



Actuator Shown In Pos. 1



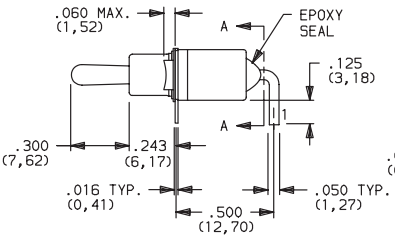


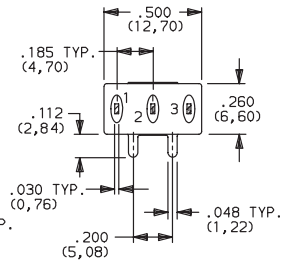
E201MD1V3BE
DPDT

PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E101MD1ABE E103MD1ABE E105MD1ABE	SPDT	ON ON MOM.	NONE OFF OFF	ON ON MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-24.





SECTION A-A

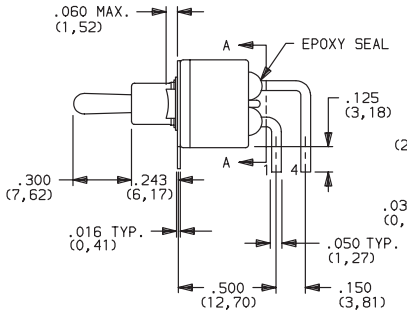


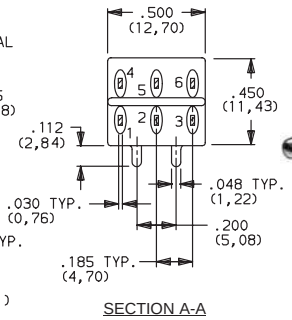
E101MD1ABE
Horizontal Actuation
SPDT

PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E201MD1ABE E203MD1ABE E205MD1ABE	DPDT	ON ON MOM.	NONE OFF OFF	ON ON MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-25.





SECTION A-A

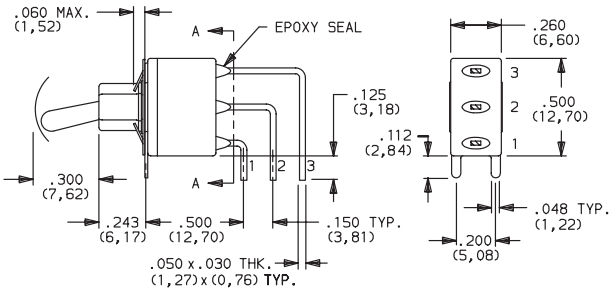


E201MD1ABE
Horizontal Actuation
DPDT

SWITCHES WITH STANDARD OPTIONS



E101MD1AV2BE
Vertical Actuation
SPDT



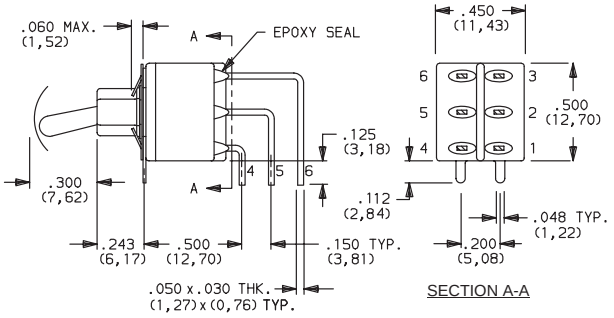
PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E101MD1AV2BE	SPDT	ON	NONE	ON
E103MD1AV2BE		ON	OFF	ON
E105MD1AV2BE		MOM.	OFF	MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-26.



E201MD1AV2BE
Vertical Actuation
DPDT

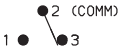
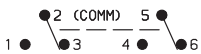


PART NUMBER	NO. POLES	POS. 1	POS. 2	POS. 3
E201MD1AV2BE	DPDT	ON	NONE	ON
E203MD1AV2BE		ON	OFF	ON
E205MD1AV2BE		MOM.	OFF	MOM.

MOM. = Momentary

NOTE: For PC mounting information, see page A-26.

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
SP	E101 (STD.)	ON	NONE	ON	2-3	OPEN	2-1	
	E103 (STD.)	ON	OFF	ON				
	E105	MOM.	OFF	MOM.				
	E107	ON	OFF	MOM.				
	E108	ON	NONE	MOM.				SPDT
DP	E201 (STD.)	ON	NONE	ON	2-3,5-6	OPEN	2-1,5-4	
	E203 (STD.)	ON	OFF	ON				
	E205	MOM.	OFF	MOM.				
	E207	ON	OFF	MOM.				
	E208	ON	NONE	MOM.				
	E211 (STD.)**	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
	E213**	ON	ON	MOM.				
	E215**	MOM.	ON	MOM.				DPDT

MOM. = Momentary

** Wiring for 3-way switch, see page L-29.

All models with all options when ordered with G, L, M or Q contact material.

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
3P	E301 (STD.)	ON	NONE	ON	2-3,5-6,8-9	OPEN	2-1,5-4,8-7	3PDT
	E303	ON	OFF	ON				
	E305	MOM.	OFF	MOM.				
	E307	ON	OFF	MOM.				
	E308	ON	NONE	MOM.				

MOM. = Momentary

All models with all options when ordered with G, L, M or Q contact material.

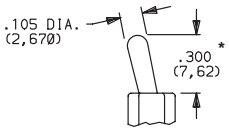
** Wiring for 3-way switch, see page L-29.

ACTUATOR

ACTUATOR COLOR

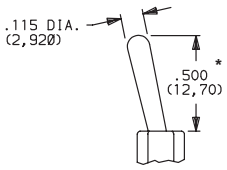
ACTUATOR

M **(STD.) .300" HIGH**



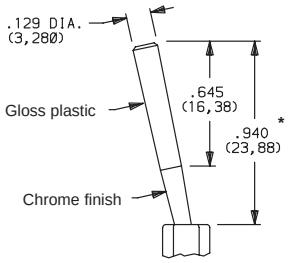
Standard when ordered with
A, A3, AV2, AV3, AW-AW5, R, R2,
V2-V91 terminations.
Finish: Chrome.

S **(STD.) .500" HIGH**



Standard when ordered with
C, Z, Z3, W-W5 terminations.
Finish: Chrome

L3 PLASTIC, .940" HIGH



OPTION CODE	L3 ACTUATOR COLOR
2	(STD.) BLACK
1	WHITE
3	RED

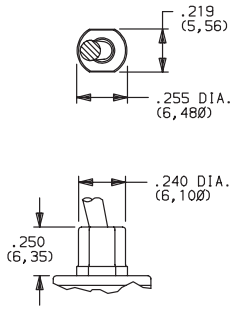
Other colors available, consult Customer Service Center. No color choice required for S & M actuators.

***** Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

BUSHING

D1 **(STD.) .250" HIGH, UNTHREADED**

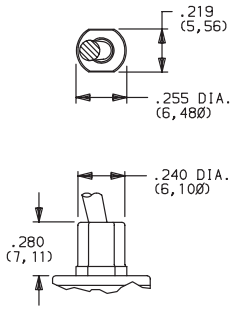
F1 **(STD.) ESD CONDUCTIVE BUSHING, .250" HIGH, UNTHREADED**



ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

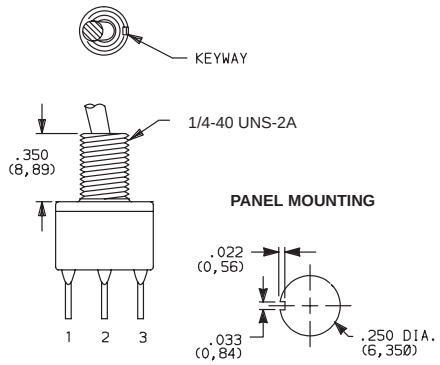
Available with M & S actuator options and A, A3, AW-AW5, AV2, AV3, R, R2, V2-V91 termination options.

D9 .280" HIGH, UNTHREADED



E3XX models not available with D9 bushing.

Y THREADED, INSULATED, .350" HIGH WITH KEYWAY

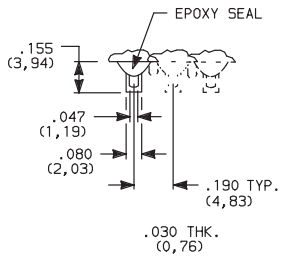


Available only with C, Z, Z3, W-W5 terminations. Hardware: One dress nut part number 780701201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard.

NOTE: Internal o-ring actuator seal standard for all bushing options.

TERMINATIONS

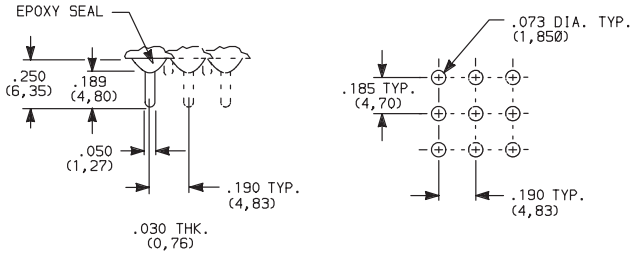
Z (STD.) SOLDER LUG



SPDT thru 3PDT

Not available with F1 conductive bushing or K, L or M contact material.

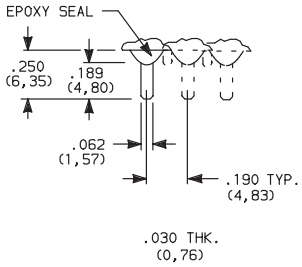
C (STD.) PC THRU-HOLE



SPDT thru 3PDT

Not available with F1 conductive bushing.

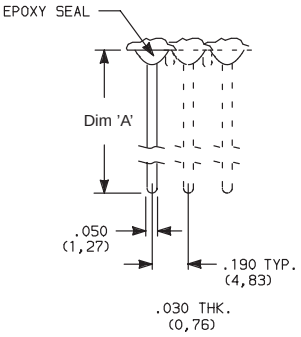
Z3 QUICK CONNECT



SPDT thru 3PDT

Not available with F1 conductive bushing or K, L or M contact material. Mating quick connector available, see section L, part number 530100000.

W, W1, W3, W4, W5 WIRE WRAP



OPTION CODE	DIM 'A'
W	.750 (19,05)
W1	.964 (24,49)
W3	.425 (10,80)
W4	1.062 (26,97)
W5	1.305 (33,15)

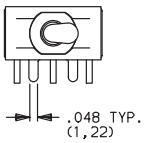
SPDT thru 3PDT

Not available with F1 conductive bushing.

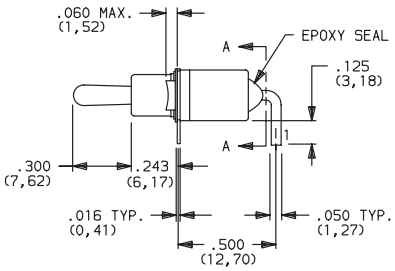
A (STD.) RIGHT ANGLE, PC THRU-HOLE

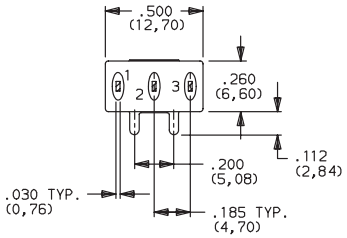


E101MD1ABE
Horizontal Actuation
SPDT



Actuator Shown In Pos. 1

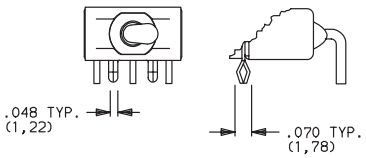




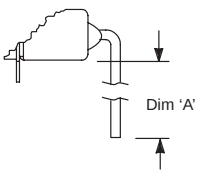
SECTION A-A

Terminal Nos. For Reference Only

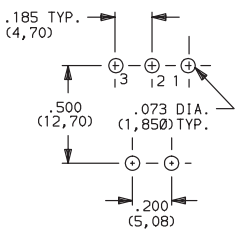
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



AW, AW1, AW3, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



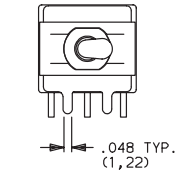
OPTION CODE	DIM 'A'
AW	.50 (12,7)
AW1	.72 (18,3)
AW3	.20 (5,1)
AW4	.83 (21,1)



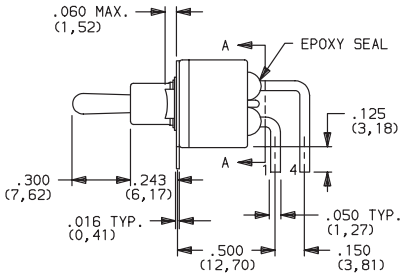
Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

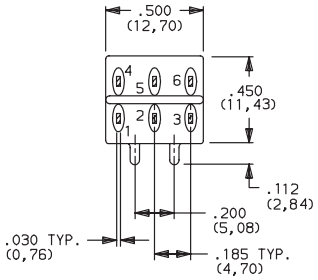
TERMINATIONS

A (STD.) RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1





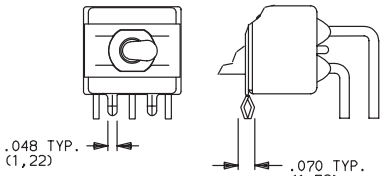
SECTION A-A

Terminal Nos. For Reference Only

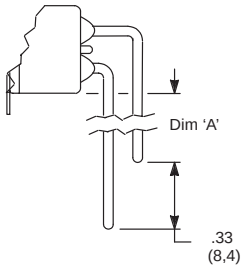


E201MD1ABE
Horizontal Actuation
DPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

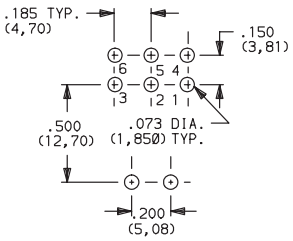


AW, AW1, AW4 RIGHT ANGLE, EXTENDED



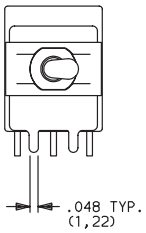
OPTION CODE	DIM 'A'
AW	.21 (5,3)
AW1	.42 (10,7)
AW4	.52 (13,2)

PC MOUNTING

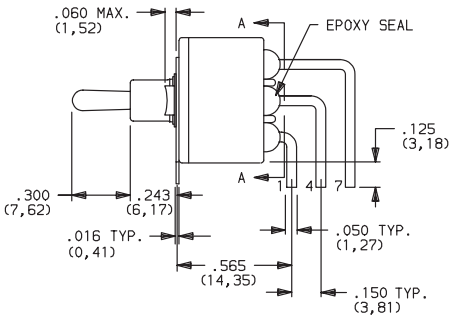


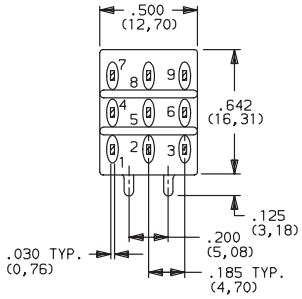
Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

A (STD.) RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1





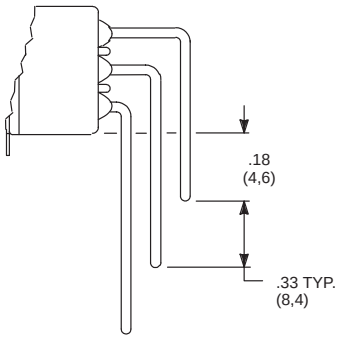
SECTION A-A

Terminal Nos. For Reference Only

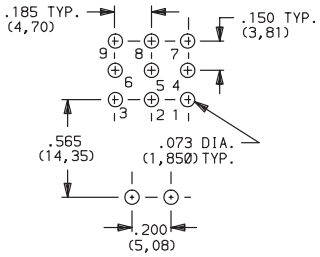


E301MD1ABE
Horizontal Actuation
3PDT

AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



PC MOUNTING



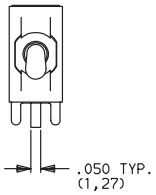
Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

TERMINATIONS

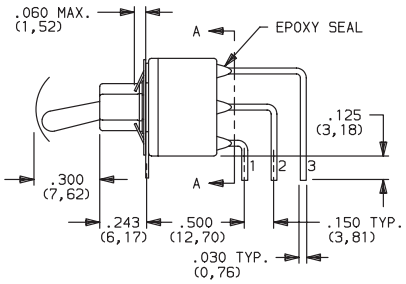
AV2 (STD.) VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

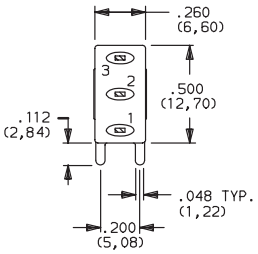


E101MD1AV2BE
Vertical Actuation
SPDT



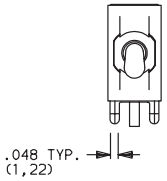
Actuator Shown In Pos. 1

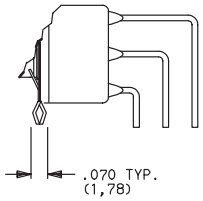




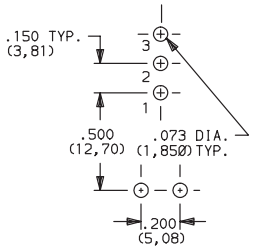
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





PC MOUNTING

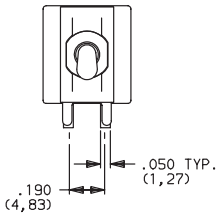


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

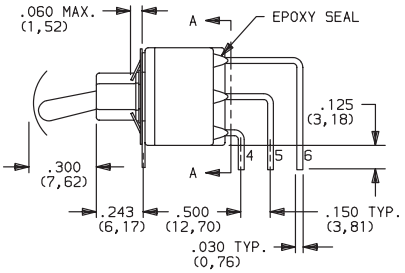
AV2 (STD.) VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

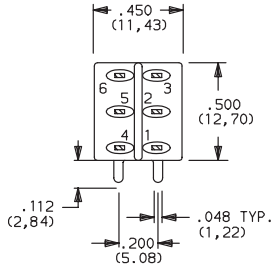


E201MD1AV2BE
Vertical Actuation
DPDT



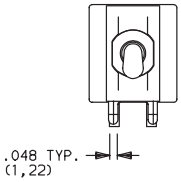
Actuator Shown In Pos. 1

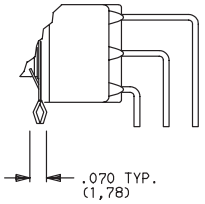




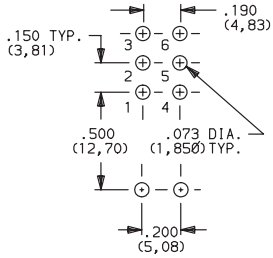
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





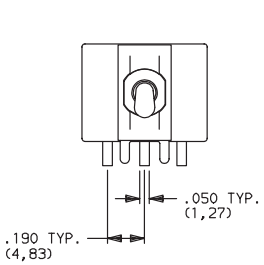
PC MOUNTING



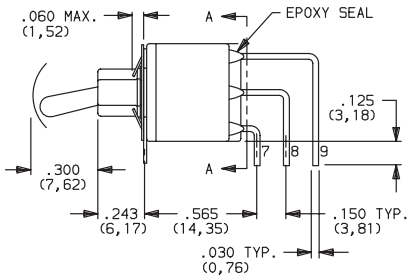
Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

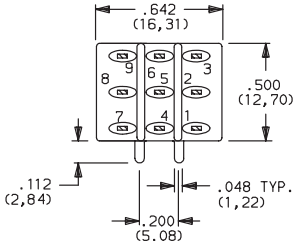
TERMINATIONS

AV2 (STD.) VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



Actuator Shown In Pos. 1



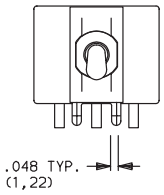


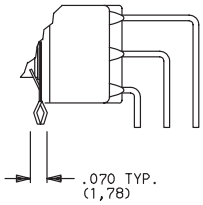
SECTION A-A



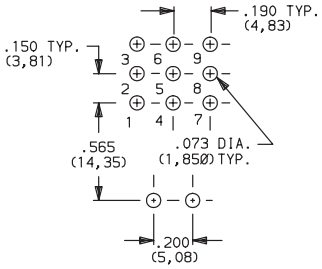
E301MD1AV2BE
Vertical Actuation
3PDT

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



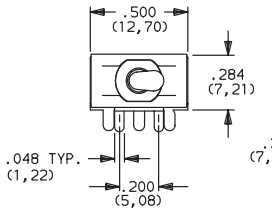


PC MOUNTING

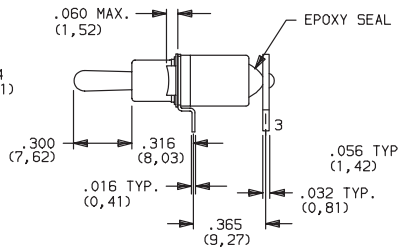


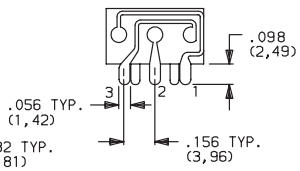
Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

R RIGHT ANGLE WITH PCB



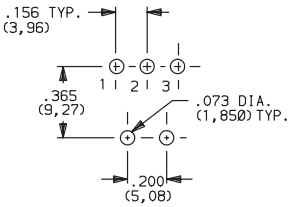
Actuator Shown In Pos. 1





Terminal Nos.
For Reference Only

PC MOUNTING

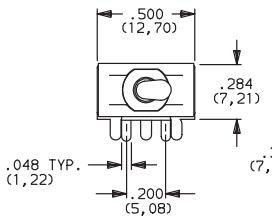




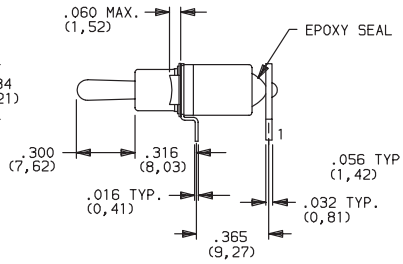
E101MD1RBE
Horizontal Actuation
SPDT

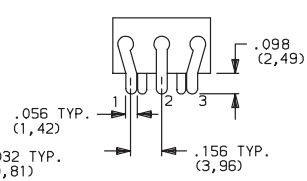
Not available with Y bushing. Contact makes on same side actuator thrown. Available with B contact material only.

R2 RIGHT ANGLE WITH PCB



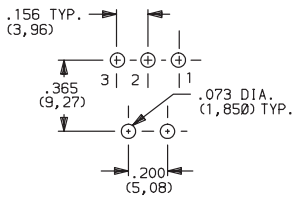
Actuator Shown In Pos. 1





Terminal Nos.
For Reference Only

PC MOUNTING





E101MD1R2BE
Horizontal Actuation
SPDT

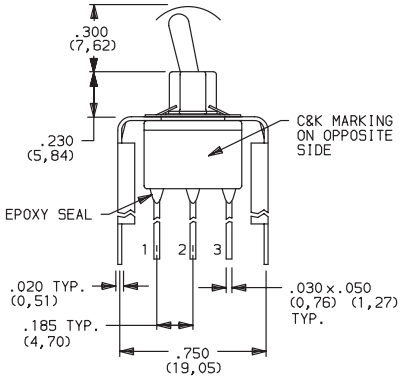
Not available with Y bushing. Contact makes on opposite side actuator thrown. Available with B contact material only.

TERMINATIONS

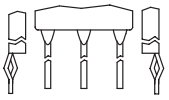
V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V61, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



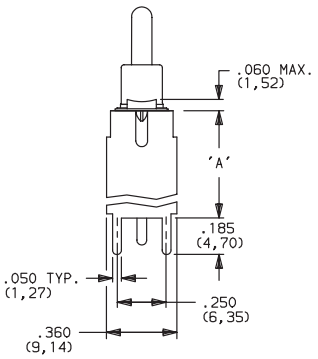
E101MD1__BE
SPDT



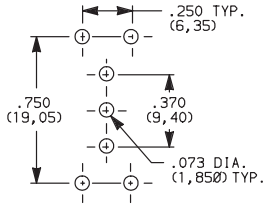
Actuator Shown In Pos. 1



SNAP-IN



PC MOUNTING



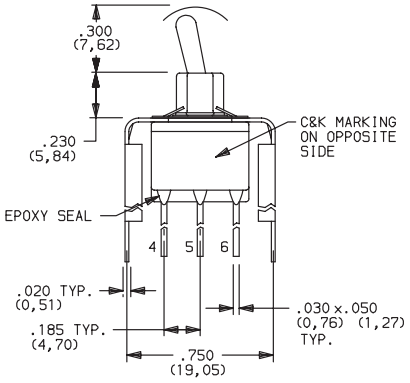
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11, 68)
V7, V71	.630 (16, 00)
V8, V81	.953 (24, 21)

Not available with Y bushing.

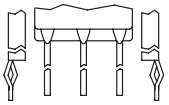
V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V61, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



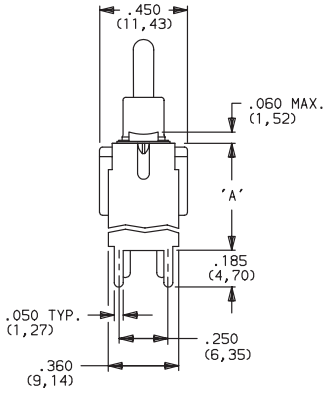
E201MD1__BE
DPDT



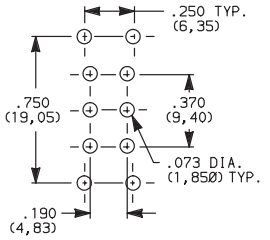
Actuator Shown In Pos. 1



SNAP-IN



PC MOUNTING



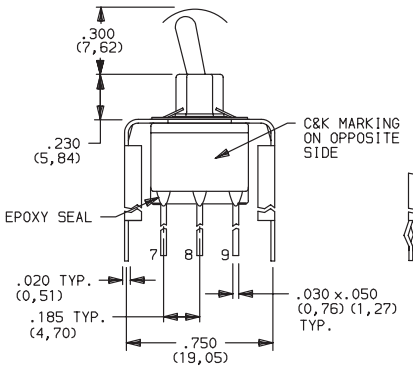
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11, 68)
V7, V71	.630 (16, 00)
V8, V81	.953 (24, 21)

Not available with Y bushing.

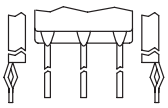
V2, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



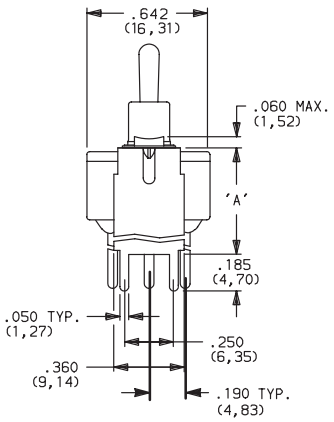
E301MD1__BE
3PDT



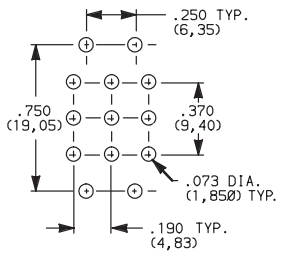
Actuator Shown In Pos. 1



SNAP-IN



PC MOUNTING

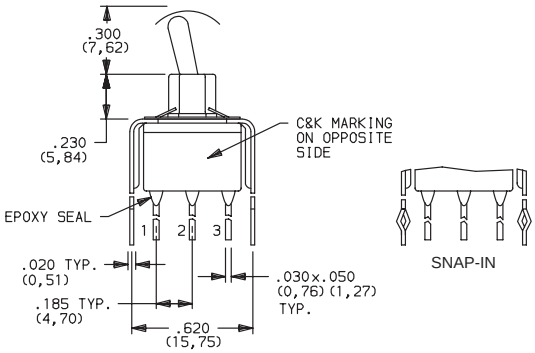


OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16, 00)
V8, V81	.953 (24, 21)

Not available with D9 & Y bushings.

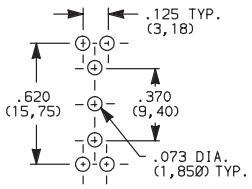
TERMINATIONS

V3 (STD.), V4, V9 VERTICAL MOUNT, V-BRACKET
V31, V41, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

PC MOUNTING



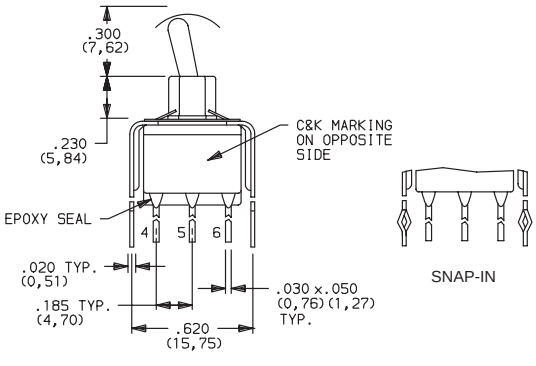


E101MD1__BE
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9, V91	1.150 (29,21)

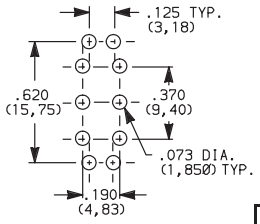
Not available with Y bushing.

V3 (STD.), V4, V9 VERTICAL MOUNT, V-BRACKET
V31, V41, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

PC MOUNTING



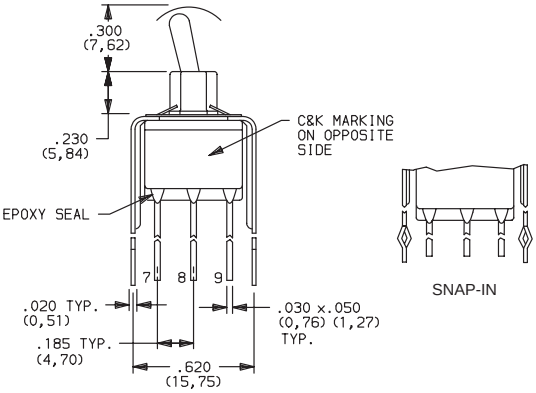


E201MD1__BE
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9, V91	1.150 (29,21)

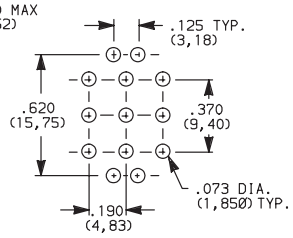
Not available with Y bushing.

V4, V9 VERTICAL MOUNT, V-BRACKET
V41, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

PC MOUNTING





E301MD1__BE
3PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9, V91	1.150 (29,21)

Not available with D9 & Y bushings.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B (STD.)	GOLD [1]	GOLD [1]	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
K		TIN-LEAD [6]		
Q	SILVER [4,5]	SILVER [5]	POWER	E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
M		TIN-LEAD [6]		
G	GOLD OVER SILVER [2,3]	GOLD [3]	LOW LEVEL/DRY CIRCUIT OR POWER	E1XX AND E2XX MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
L		TIN-LEAD [6]		

CONTACT MATERIAL/APPLICATION RECOMMENDATIONS–SEE CHART, PAGE L-31.

[1] CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

[2] END CONTACTS: Coin silver, with gold plate over nickel plate.

[3] CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

[4] END CONTACTS: Coin silver, silver plated.

[5] CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

[6] TERMINALS: Copper alloy, with tin-lead alloy over nickel plate.

All models with all options when ordered with G, L, M or Q contact material.

B contact material standard with all terminations.

B contact material must be ordered with R & R2 terminations.

K, L & M contact materials not available with Z & Z3 terminations.

SEAL

E **(STD.) EPOXY SEAL**

