General Specifications

Electrical Capacity (Resistive Load)

Logic Level: 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: Find additional explanation of operating range in Supplement section.

Other Ratings

Contact Resistance: 50 milliohms maximum
Insulation Resistance: 500 megohms minimum @ 500V DC
Dielectric Strength: 500V AC minimum between contacts for 1 minute minimum;
500V AC minimum between contacts & case for 1 minute minimum
Mechanical Life: 100,000 operations minimum for On-None-On & On-Off-On
50,000 operations minimum for other circuits
Electrical Life: 50,000 operations minimum
Nominal Operating Force: 1.47N (momentary); 1.18N (maintained) for .394" (10.0mm) toggles
2.73N (momentary); 1.84N (maintained) for all other toggles
Contact Timing: Nonshorting (break-before-make)
Angle of Throw: 26°

Materials & Finishes

Toggle: Glass fiber reinforced polyamide for antistatic; nickel plated brass for all others
Case Housing: Glass fiber reinforced polyamide
Support Bracket: Tin plated phosphor bronze
Movable Contact: Phosphor bronze with gold plating
Stationary Contacts: Brass with gold plating
Terminals: Brass with gold plating

Environmental Data

Operating Temperature Range: –30°C through +85°C (–22°F through +185°F)
Humidity: 90 ~ 95% humidity for 240 hours @ 40°C (104°F)
Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range
& returning in 1 minute; 3 right angled directions for 2 hours
Shock: 50G (490m/s^2) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

PCB Processing

Soldering: Wave Soldering Recommended. See Profile A in Supplement section.
Manual Soldering: See Profile B in Supplement section.
Cleaning: Automated cleaning. See Cleaning Specifications in Supplement section.

Standards & Certifications

The A Series toggles have not been tested for UL recognition or CSA certification.
These switches are designed for use in a low-voltage, low-current, logic-level circuit.
When used as intended in a logic-level circuit, the results do not produce hazardous energy.

Distinctive Characteristics

Subminiature size saves space on PC boards.

Specifically developed for logic-level applications.

Totally sealed body construction prevents contact contamination and allows time- and money-saving automated soldering and cleaning.

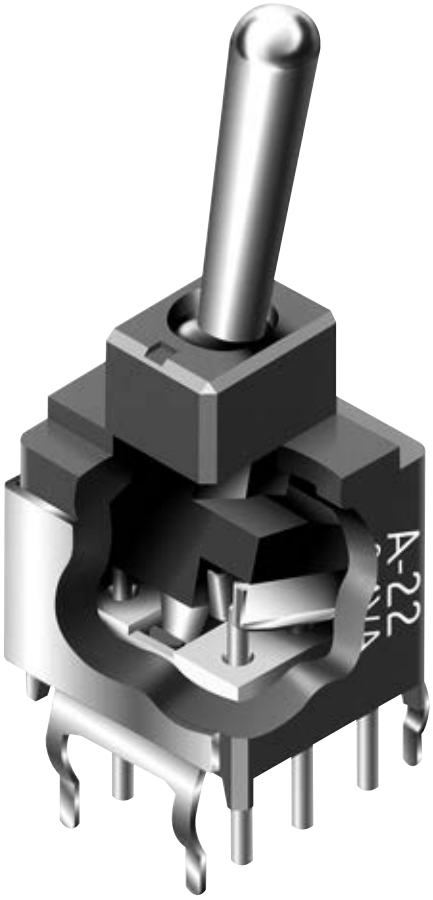
Award-winning STC contact mechanism with benefits unavailable in conventional mechanisms: smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability. (Additional STC details in Terms & Acronyms; see Supplement contents.)

Molded-in, epoxy sealed or ultrasonically welded terminals lock out flux, solvents, and other contaminants.

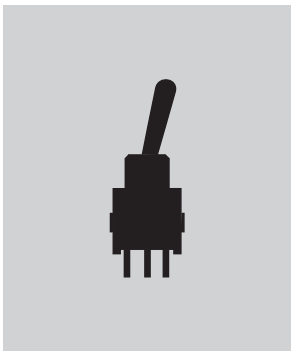
.100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing.

Toggle option in antistatic material available for dissipating electrostatic discharges.

Matching indicators available.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE

A [1] [2] [J] [V] — [ ] [ ]

Poles	
1	SPST SPDT
2	DPDT SP3T

Toggles	
A	.394″ (10.0mm) Bat
J	.248″ (6.3mm) Bat
J2	.248″ (6.3mm) Antistatic Bat
E	.394″ (10.0mm) Flatted
H	.248″ (6.3mm) Flatted
K	Snap Top for A or B Paddle

Optional Caps	
G	.394″ (10.0mm) Bat Lever Cap
J	.248″ (6.3mm) Bat Lever Cap

Paddles	
A	Short Paddle for K Toggle
B	Long Paddle for K Toggle

Circuits			
1	OFF	NONE	ON
2	ON	NONE	ON
3	ON	OFF	ON
5	ON	NONE	(ON)
R	(ON)	NONE	ON
8	(ON)	OFF	(ON)
9	ON	OFF	(ON)
S	(ON)	OFF	ON
*4	ON	ON	ON
*6	(ON)	ON	(ON)
*7	ON	ON	(ON)
( ) = Momentary			
*3-ON circuits			

PC Terminals	
P	Straight
B	Straight with Bracket
B1	Straight with Inline Bracket (Single Pole only)
H	Right Angle with Bracket
V	Vertical with Bracket
V1	Vertical with Inline Bracket (Single Pole only)

Cap Colors		Paddle Colors
A	Black	A
B	White	B
C	Red	C
---	Yellow	E
---	Green	F
---	Blue	G
---	Gray	H

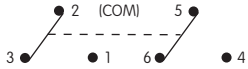
DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

A12JV

POLES & CIRCUITS

Pole	Model	Toggle Position ( ) = Momentary: Up (Slot)	Center	Down	Connected Terminals: Up (Slot)	Center	Down	Throw & Schematics
SP	**A11**	OFF	NONE	ON	OPEN	OPEN	3-1	SPST
SP	**A12** **A13** **A15** **A1R** **A18** **A19** **A1S**	ON ON ON (ON) (ON) ON (ON)	NONE OFF NONE NONE OFF OFF OFF	ON ON (ON) ON (ON) (ON) ON	2-3	OPEN	2-1	SPDT
DP	**A22** **A23** **A25** **A2R** **A28** **A29** **A2S**	ON ON ON (ON) (ON) ON (ON)	NONE OFF NONE NONE OFF OFF OFF	ON ON (ON) ON (ON) (ON) ON	2-3 5-6	OPEN	2-1 5-4	DPDT

Note: Terminal numbers are not actually on the switch.



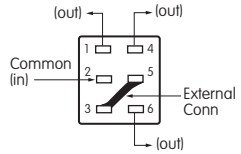
For 3 Throw (3-on)

Pole	Model	Connected Terminals & Schematics: Up	Center	Down
SP	**A24** **A26** **A27**	ON (ON) ON	ON ON ON	ON (ON) (ON)
		External Connection 2 (in) 5 — 1 (out) 3 4 (out) 6 (out)	External Connection 2 (in) 5 — 1 (out) 3 4 (out) 6 (out)	External Connection 2 (in) 5 — 1 (out) 3 4 (out) 6 (out)
		2-3 5-6	2-3 5-4	2-1 5-4

External Connection

The SP3T model utilizes a double pole base.

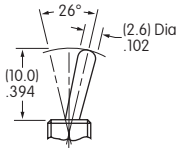
External connections must be made during field installation.



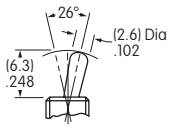
TOGGLES

Standard Material & Finish: Brass with Bright Nickel **Material & Finish for J2:** Matte finish black glass fiber reinforced polyamide

A **.394" (10.0mm) Bat**



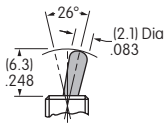
J **.248" (6.3mm) Bat**



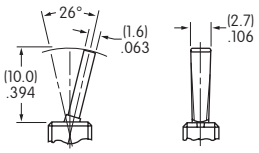
J2 **.248" (6.3mm) Antistatic Bat**

Dissipating 20Kv ESD: Straight PC

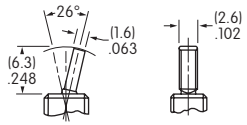
Dissipating 10Kv ESD: Straight PC with Bracket, Right Angle, & Vertical



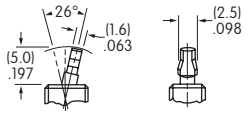
E **.394" (10.0mm) Flatted**



H **.248" (6.3mm) Flatted**



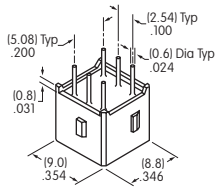
K **Snap Top for Paddles**



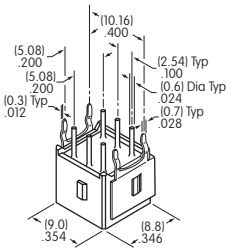
PC TERMINALS

Use of a support bracket is recommended to increase PCB mounting strength and stability.

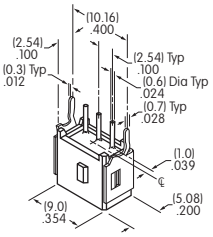
P **Straight**



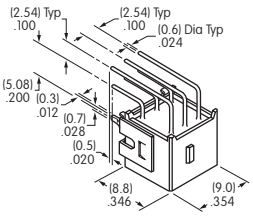
B **Straight with Bracket**



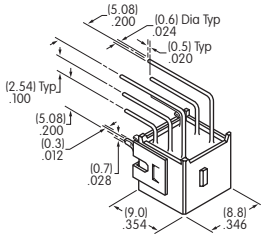
B1 **Straight with Inline Bracket**
Single Pole only



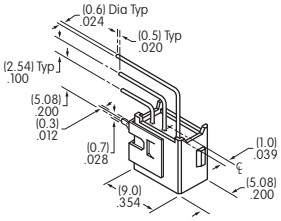
H **Right Angle with Bracket**



V **Vertical with Bracket**



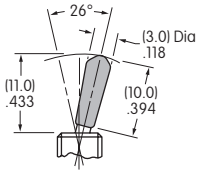
V1 **Vertical with Inline Bracket**
Single Pole only



CAPS & PADDLES

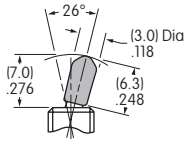
G **AT4003**
.394" (10.0mm) Bat Lever Cap

Material: PVC
Colors Available:
A, B, C



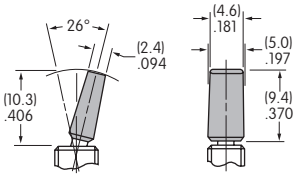
J **AT4064**
.248" (6.3mm) Bat Lever Cap

Material: PVC
Colors Available:
A, B, C



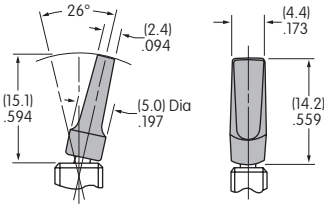
A **AT467**
Short Paddle

Material: Polyamide
Colors Available:
A, B, C, E, F, G, H



B **AT468**
Long Paddle

Material: Polyamide
Colors Available:
A, B, C, E, F, G, H

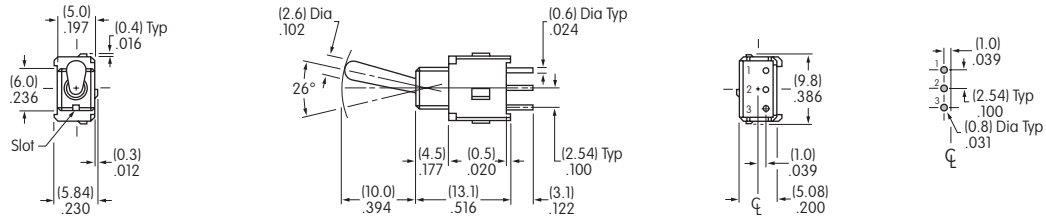


Color Codes:

A Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

TYPICAL SWITCH DIMENSIONS

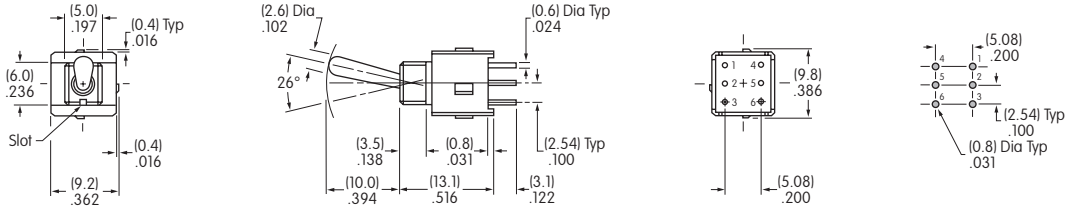
Single Pole — Straight PC



A11 models do not have Terminal 2

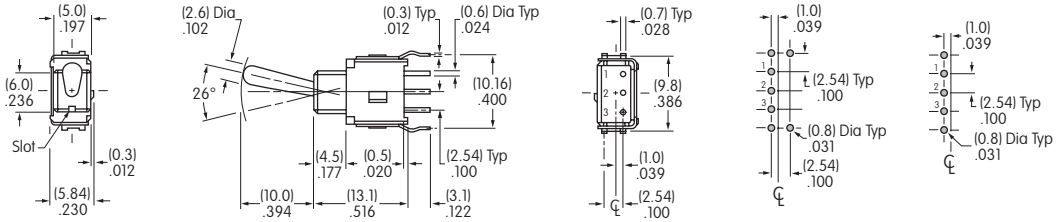
A12AP

Double Pole — Straight PC



A22AP

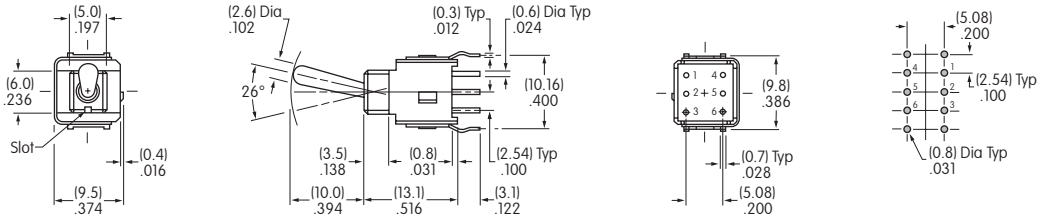
Single Pole — Straight PC • Bracket



B Terminals B1 Terminals

A12AB

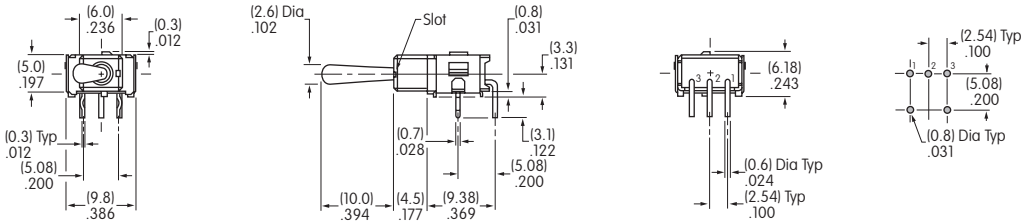
Double Pole — Straight PC • Bracket



A22AB

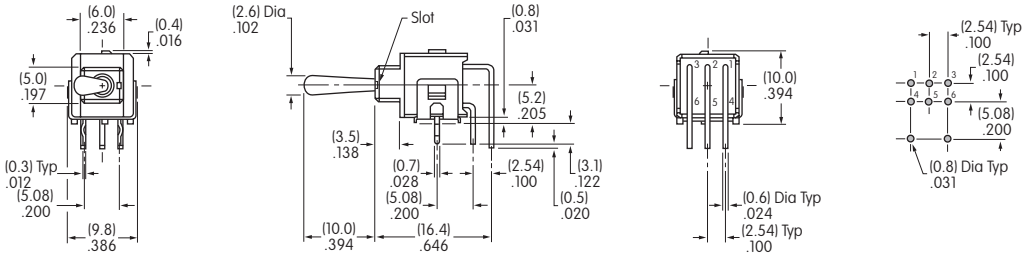
TYPICAL SWITCH DIMENSIONS

Right Angle PC — Single Pole



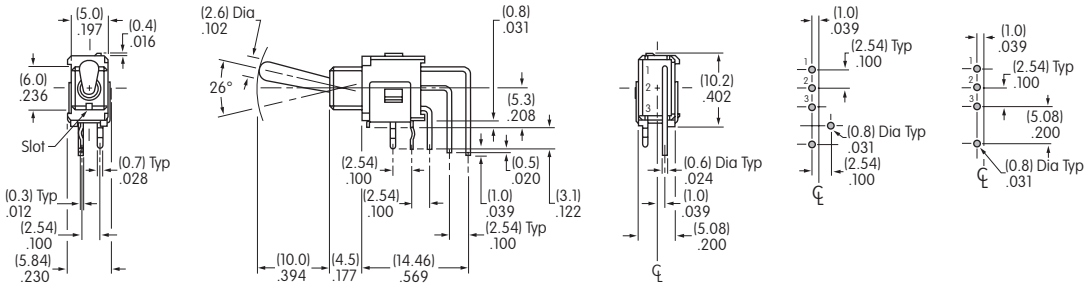
A12AH

Right Angle PC — Double Pole



A22AH

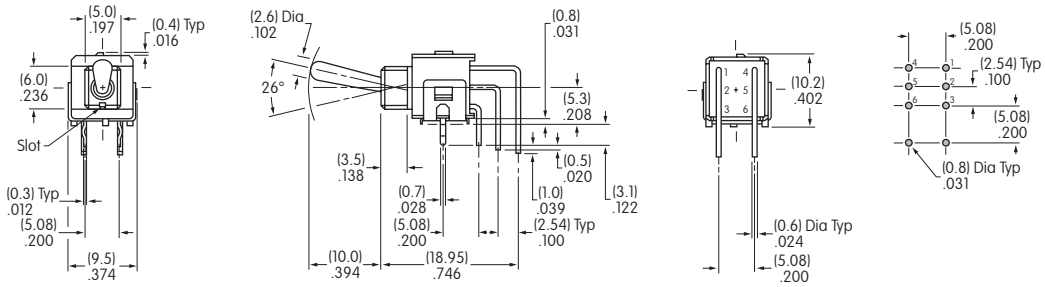
Vertical PC — Single Pole



A12AV

V Terminals V1 Terminals

Vertical PC — Double Pole



A22AV