

# 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.

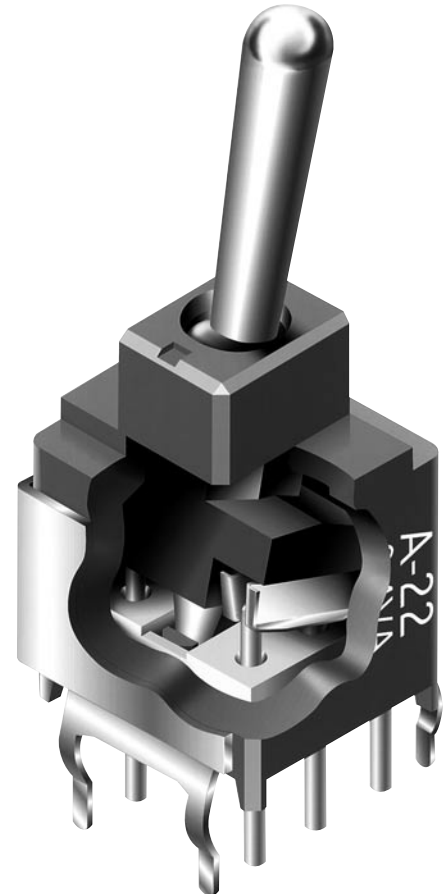
Award-winning STC contact mechanism with benefits unavailable in conventional mechanisms: smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability. (Additional STC details in Terms & Acronyms; see Supplement contents.)

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

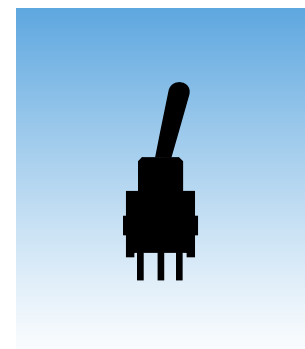
.100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing.

Toggle option in antistatic material available for dissipating electrostatic discharges.

Matching indicators available and shown at the end of Section M.



Actual Size



# 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<sup>2</sup>) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

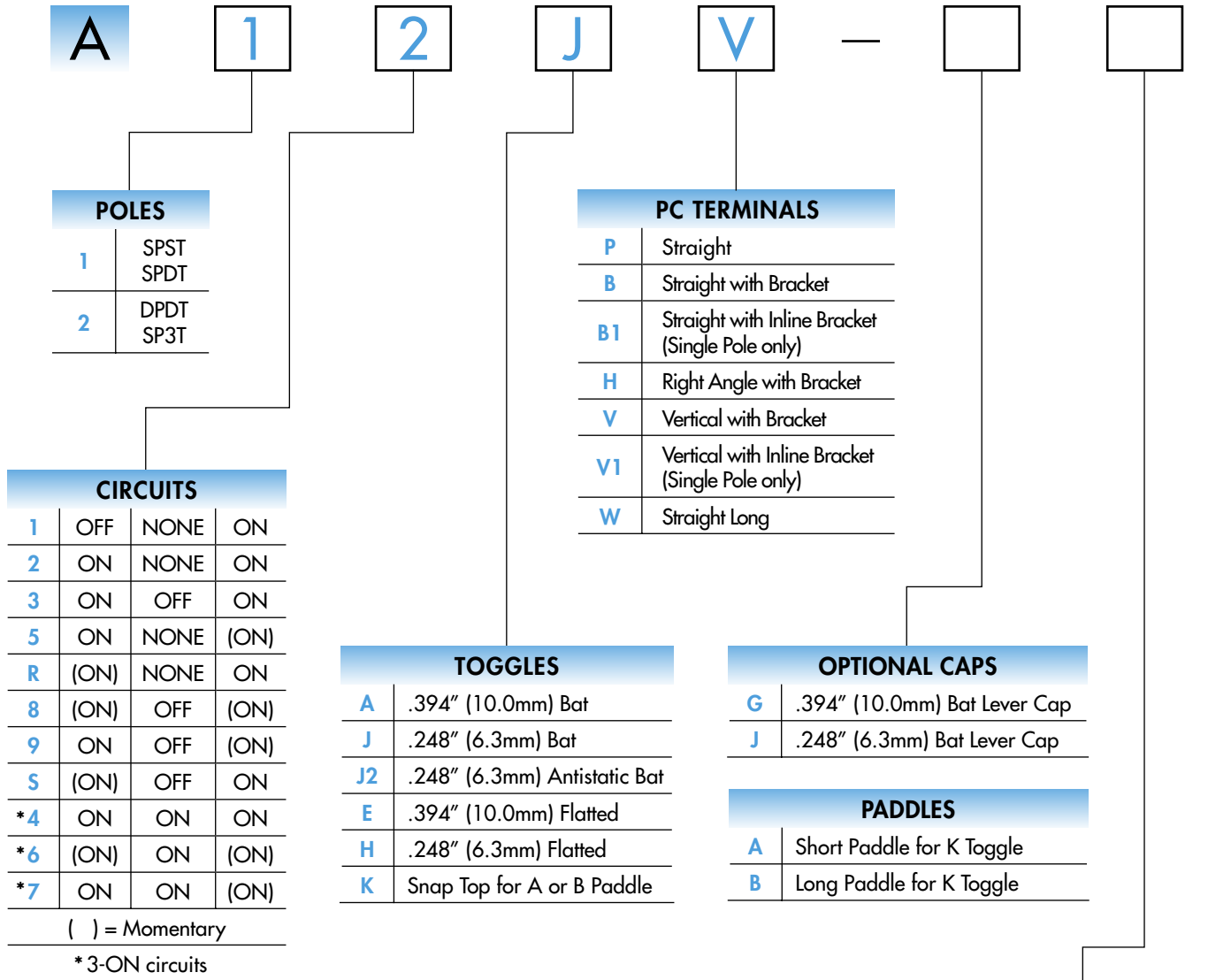
## PCB Processing

**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

**UL Recognition or CSA Certification:** 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.

### TYPICAL SWITCH ORDERING EXAMPLE

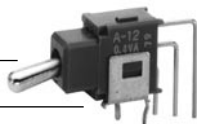


### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**A12JV**

.248" (6.3mm) Long  
Bat Toggle









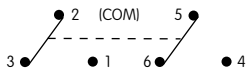
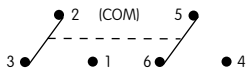


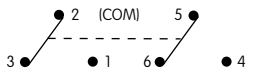
SPDT  
ON-NONE-ON Circuit



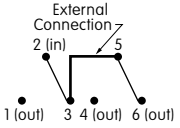
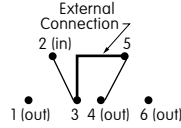
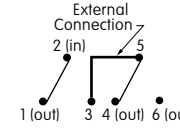
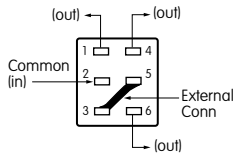
Vertical PC Terminals

CAP COLORS		PADDLE COLORS
A	Black	A
B	White	B
C	Red	C
---	Yellow	E
---	Green	F
---	Blue	G
---	Gray	H

### POLES & CIRCUITS

Pole	Model	Toggle Position ( ) = Momentary			Connected Terminals			Throw & Schematics
		Up 	Center 	Down 	Up 	Center 	Down 	
SP	<b>A11</b>	OFF 	NONE	ON 	OPEN 	OPEN 	3-1	SPST 
SP	<b>A12</b> <b>A13</b> <b>A15</b> <b>A1R</b> <b>A18</b> <b>A19</b> <b>A1S</b>	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	<b>A22</b> <b>A23</b> <b>A25</b> <b>A2R</b> <b>A28</b> <b>A29</b> <b>A2S</b>	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 

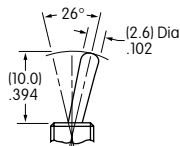
For 3 Throw (3-on)

Connected Terminals & Schematics					External Connection
Pole	Model	Up	Center	Down	
SP	<b>A24</b> <b>A26</b> <b>A27</b>	ON (ON) ON 	ON ON ON 	ON (ON) (ON) 	The SP3T model utilizes a double pole base.  External connections must be made during field installation. 

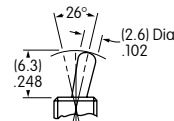
### TOGGLES

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

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

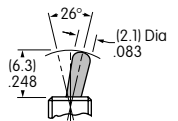


**J** .248" (6.3mm) Bat

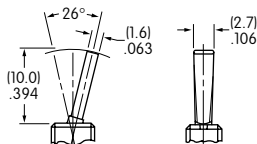


**J2** .248" (6.3mm) Antistatic Bat

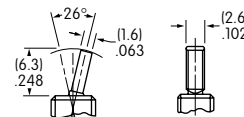
Dissipating 20Kv ESD: Straight PC  
Dissipating 10Kv ESD: Straight PC with Bracket, Right Angle, & Vertical



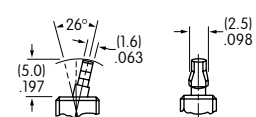
**E** .394" (10.0mm) Flatted



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



**K** Snap Top for Paddles

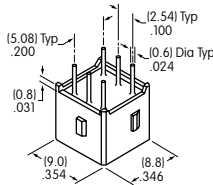


## PC TERMINALS

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

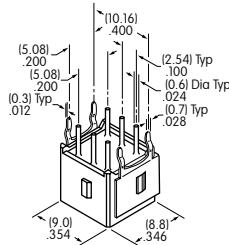
**P**

**Straight**



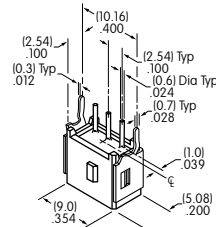
**B**

**Straight with Bracket**



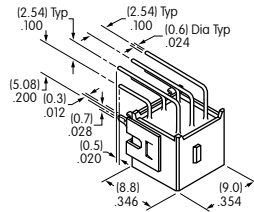
**B1**

**Straight with Inline Bracket  
Single Pole only**



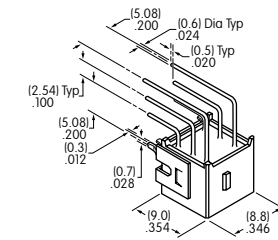
**H**

**Right Angle  
with Bracket**



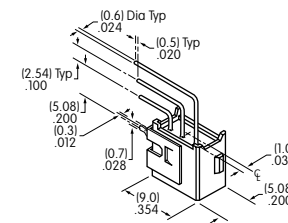
**V**

**Vertical with Bracket**



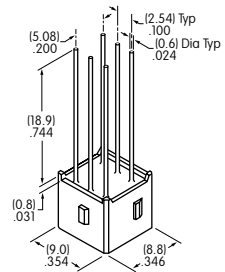
**V1**

**Vertical with Inline Bracket  
Single Pole only**



**W**

**Straight Long**

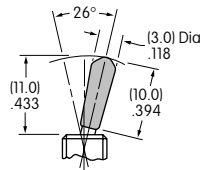


## CAPS & PADDLES

**G**

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

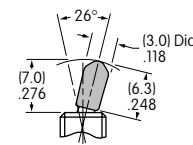
Material: PVC  
Colors Available:  
A, B, C



**J**

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

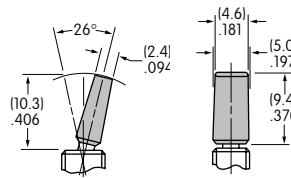
Material: PVC  
Colors Available:  
A, B, C



**A**

**AT467  
Short Paddle**

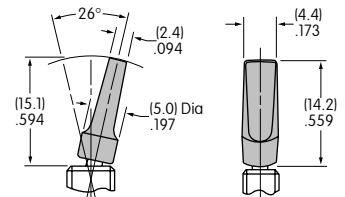
Material: Polyamide  
Colors Available:  
A, B, C, E, F, G, H



**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

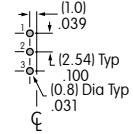
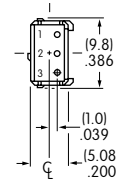
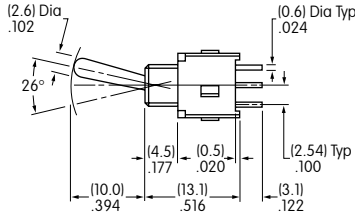
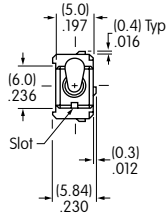
**H**

Gray

### TYPICAL SWITCH DIMENSIONS

#### Straight PC

#### Single Pole

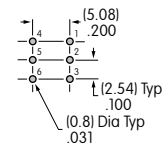
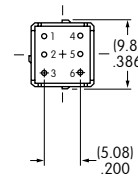
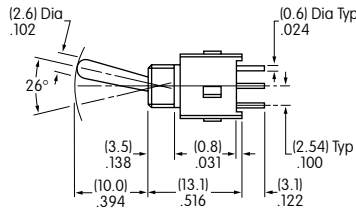
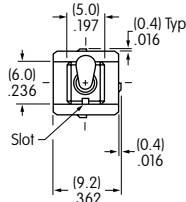


A12AP

A11 models do not have Terminal 2

#### Straight PC

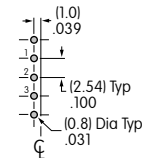
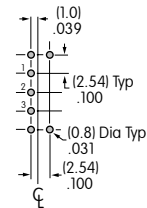
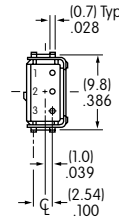
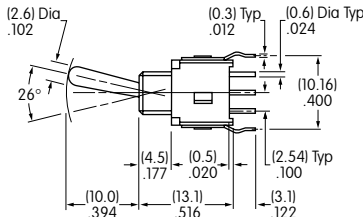
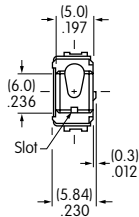
#### Double Pole



A22AP

#### Straight PC • Bracket

#### Single Pole



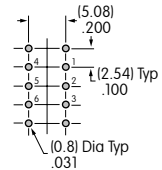
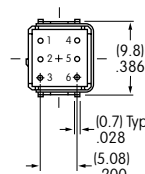
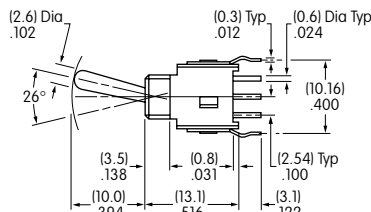
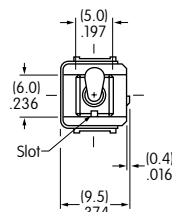
A12AB

B Terminals

B1 Terminals

#### Straight PC • Bracket

#### Double Pole

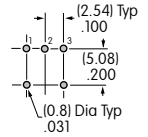
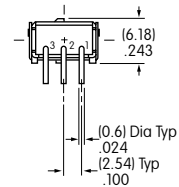
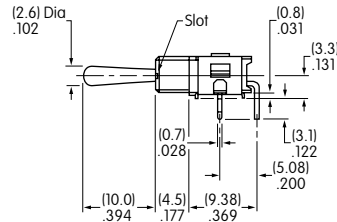
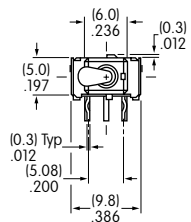


A22AB

### TYPICAL SWITCH DIMENSIONS

#### Right Angle PC

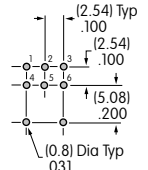
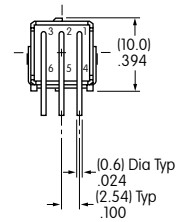
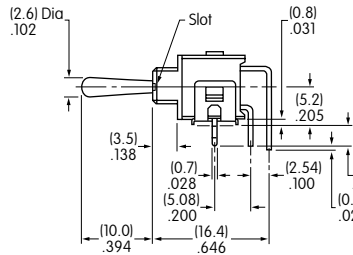
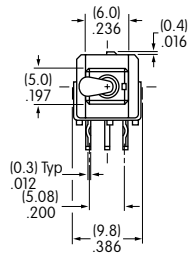
#### Single Pole



A12AH

#### Right Angle PC

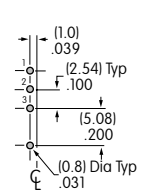
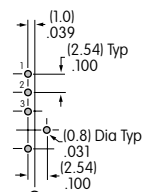
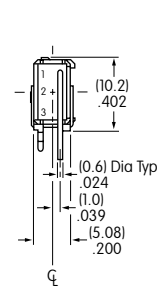
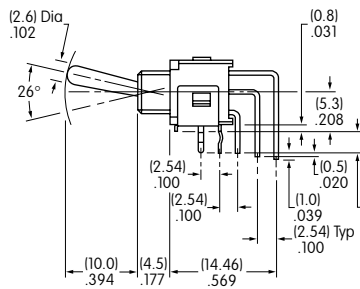
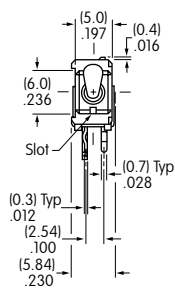
#### Double Pole



A22AH

#### Vertical PC

#### Single Pole



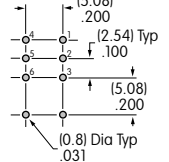
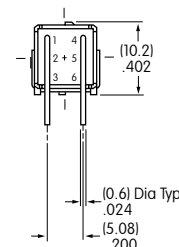
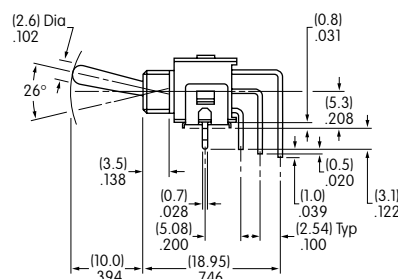
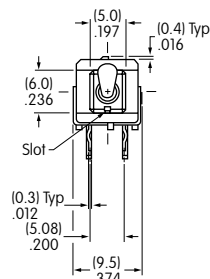
A12AV

V Terminals

V1 Terminals

#### Vertical PC

#### Double Pole



A22AV