

# 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

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.

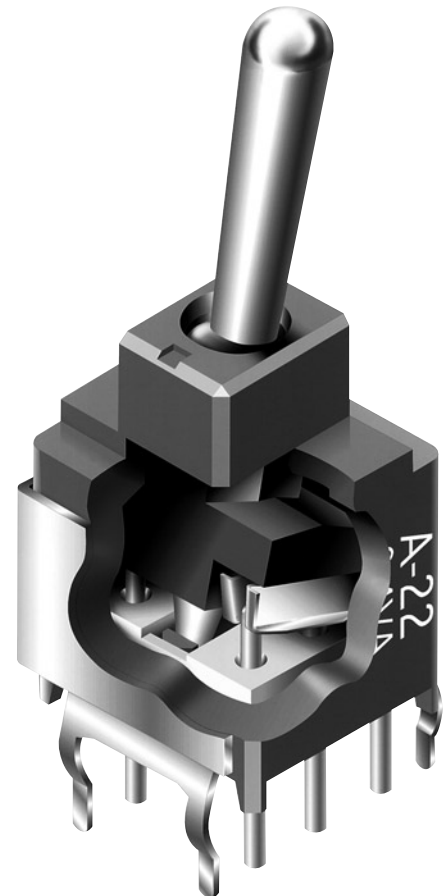
Award-winning STC contact mechanism with benefits unavailable in conventional mechanisms: smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability. (Additional STC details in Terms & Acronyms; see Supplement contents.)

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



A  
Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

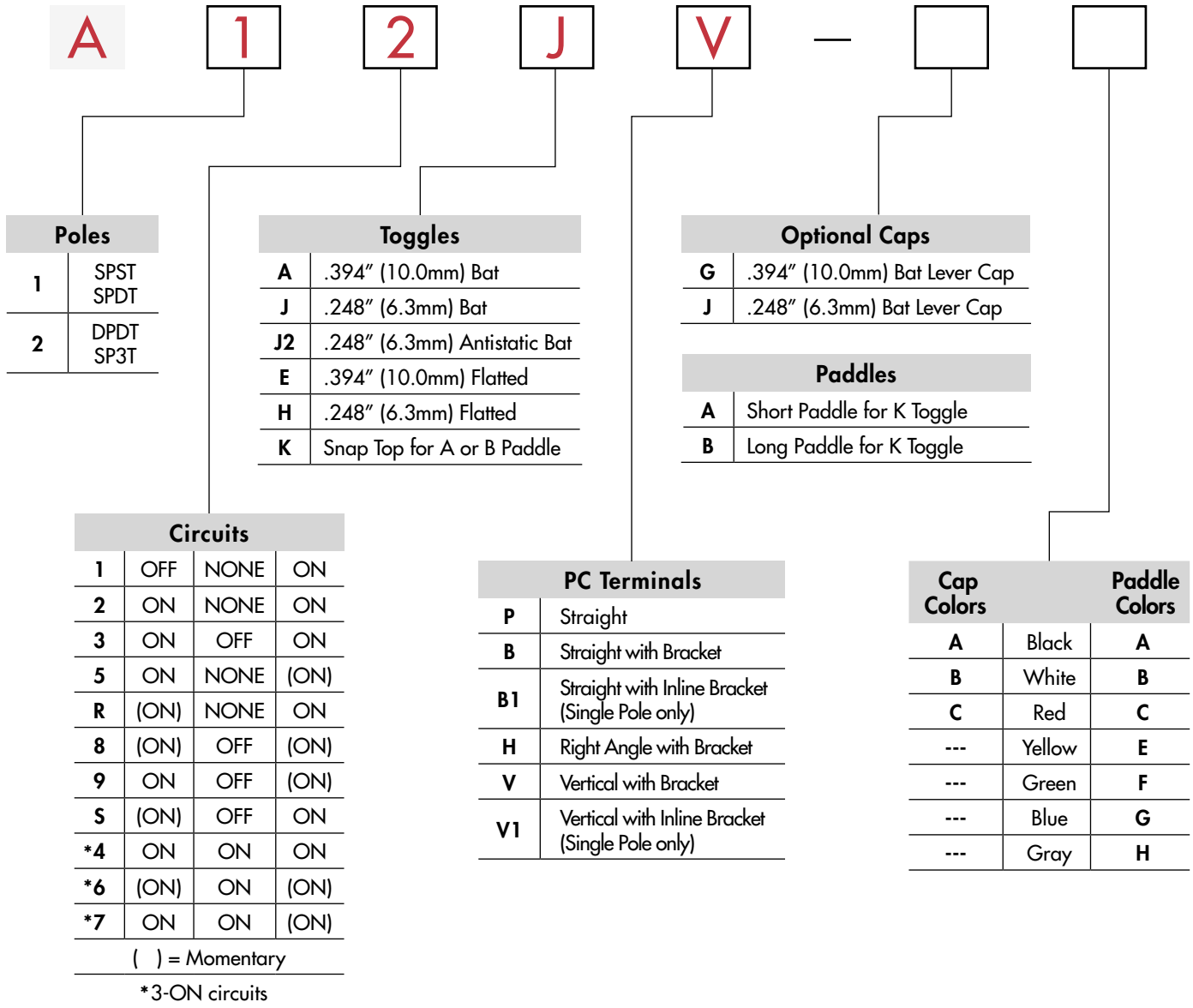
Touch

Indicators

Accessories

Supplement









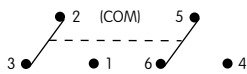
### TYPICAL SWITCH ORDERING EXAMPLE



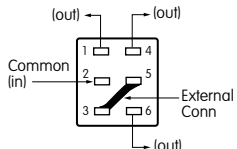
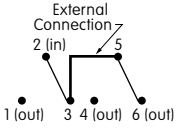
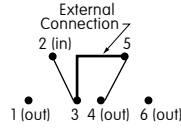
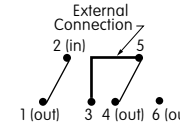
### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

#### A12JV



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

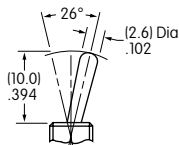
For 3 Throw (3-on)

| Connected Terminals & Schematics |                   |  |  |  | External Connection  |
|----------------------------------|-------------------|--|--|--|--|
| Pole                             | Model             | Up   | Center   | Down   |  |
| SP                               | A24<br>A26<br>A27 | ON<br>(ON)<br>ON   | ON<br>ON<br>ON   | ON<br>(ON)<br>(ON)   | <p>The SP3T model utilizes a double pole base.</p> <p>External connections must be made during field installation.</p>  |
|                                  |                   | <br>2-3 5-6 | <br>2-3 5-4 | <br>2-1 5-4 |  |

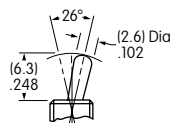
## TOGGLES

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

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

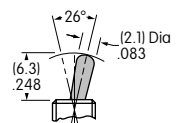


**J** .248" (6.3mm) Bat

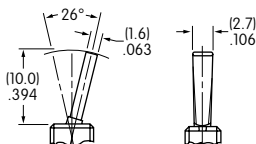


**J2** .248" (6.3mm) Antistatic Bat

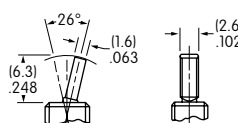
Dissipating 20Kv ESD: Straight PC  
Dissipating 10Kv ESD: Straight PC with Bracket, Right Angle, & Vertical



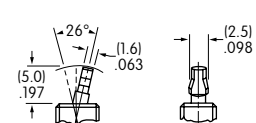
**E** .394" (10.0mm) Flatted



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



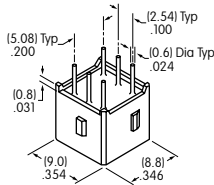
**K** Snap Top for Paddles



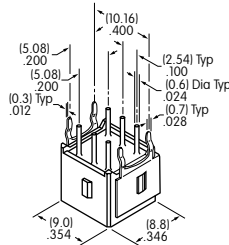
## PC TERMINALS

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

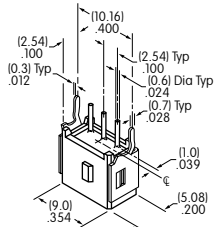
**P** Straight



**B** Straight with Bracket



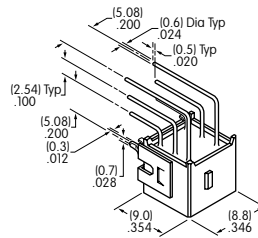
**B1** Straight with Inline Bracket  
Single Pole only



**H** Right Angle  
with Bracket



**V** Vertical with Bracket



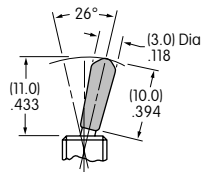
**V1** Vertical with Inline Bracket  
Single Pole only



## CAPS & PADDLES

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

Material: PVC  
Colors Available:  
A, B, C



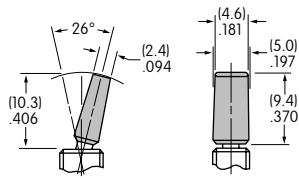
**J** AT4064  
.248" (6.3mm) Bat Lever Cap

Material: PVC  
Colors Available:  
A, B, C



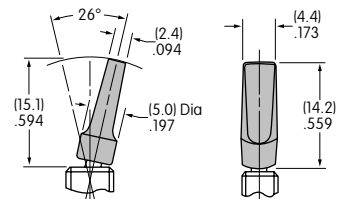
**A** AT467  
Short Paddle

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

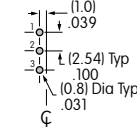


### Color Codes:

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

## TYPICAL SWITCH DIMENSIONS

### Single Pole



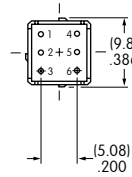
### Straight PC



A11 models do not have Terminal 2

**A12AP**

### Double Pole

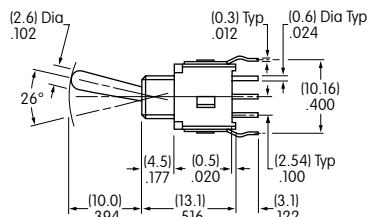


### Straight PC



**A22AP**

### Single Pole



### Straight PC • Bracket

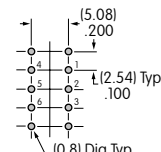
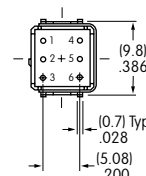
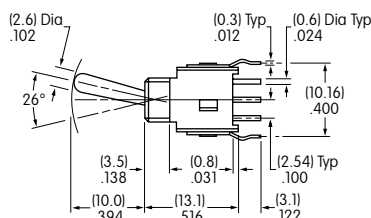
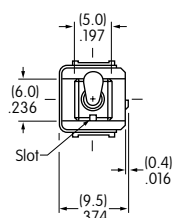


B Terminals

B1 Terminals

**A12AB**

### Double Pole



### Straight PC • Bracket

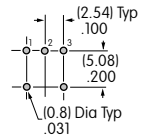
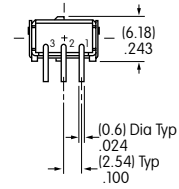
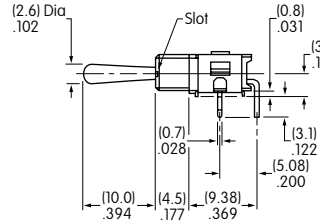
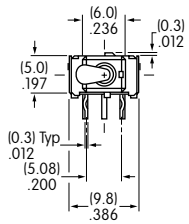


**A22AB**

## TYPICAL SWITCH DIMENSIONS

### Right Angle PC

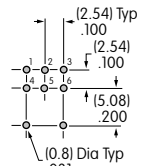
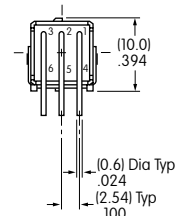
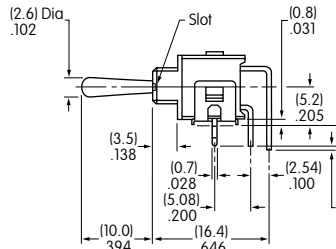
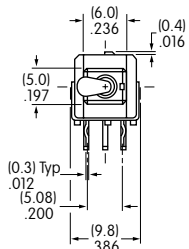
### Single Pole



A12AH

### Right Angle PC

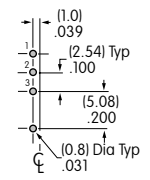
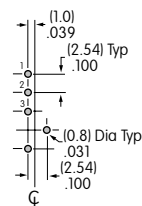
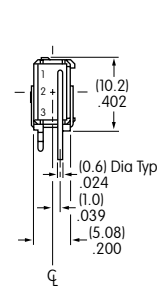
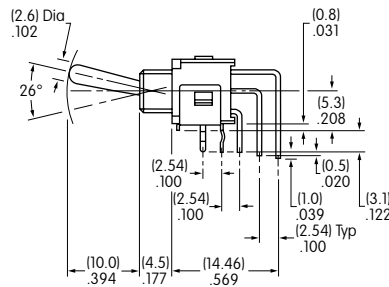
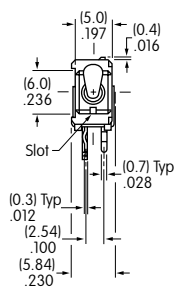
### Double Pole



A22AH

### Vertical PC

### Single Pole



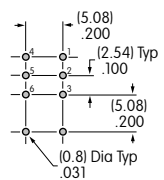
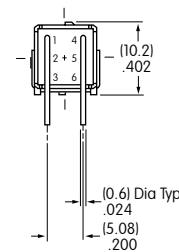
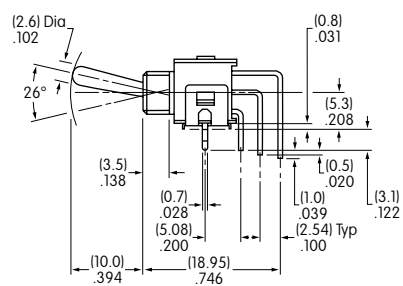
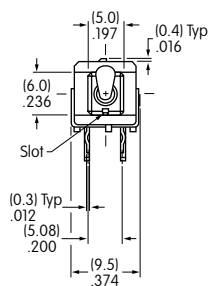
A12AV

V Terminals

V1 Terminals

### Vertical PC

### Double Pole



A22AV

Toggles A  
 Rockers  
 Pushbuttons  
 Illuminated PB  
 Programmable  
 Keylocks  
 Rotaries  
 Slides  
 Tactiles  
 Tilt  
 Touch  
 Indicators  
 Accessories  
 Supplement