

# General Specifications

## Electrical Capacity (Resistive Load)

**Power Level (silver):** 3A @ 125V AC for low & medium security; 1A @ 250V AC for low security

## Other Ratings

**Contact Resistance:** 10 milliohms maximum  
**Insulation Resistance:** 1,000 megohms minimum @ 500V DC  
**Dielectric Strength:** 1,000V AC minimum between contacts for 1 minute minimum;  
 1,500V AC minimum between contacts & case for 1 minute minimum  
**Mechanical Life:** 30,000 cycles minimum  
**Electrical Life:** 10,000 cycles minimum  
**Nominal Operating Torque:** .026Nm (.234 lb•in) for low & medium security  
**Contact Timing:** Break-before-make  
**Angle of Throw:** 90° for 2-position & 45° for 3-position

## Materials & Finishes

**Key:** Zinc alloy with chrome plating (matte) for low security models;  
 brass with nickel plating (shiny) for medium security models  
**Tumbler Barrel:** Zinc alloy with chrome plating (matte) for low security models;  
 zinc alloy with chrome plating (shiny) for medium security models  
**Housing/Bushing:** Zinc alloy with chrome plating (matte) for low security models;  
 zinc alloy with chrome plating (shiny) for medium security models  
**Base:** Phenolic resin (thermoset)  
**Movable Contactor:** Silver  
**Stationary Contacts:** Silver capped copper with silver plating  
**Terminals:** Copper or brass with silver plating

## Environmental Data

**Operating Temperature Range:** -25°C through +70°C (-13°F through +158°F)  
**Humidity:** 90 ~ 95% humidity for 96 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)

## Installation

**Mounting Torque:** 1.5Nm (13.28 lb•in) maximum  
**Soldering Time & Temperature:** Manual Soldering: See Profile A in Supplement section.

## Standards & Certifications

**UL:** **File No. E44145 - Recognized only when ordered with marking on switch.**  
 Add "/U" or "/CUL" to end of part number to order UL recognized switch.  
 All low security models recognized at 3A @ 125V AC or 1A @ 250V AC  
 & all medium security models recognized at 3A @ 125V AC  
**CSA:** **File No. 023535\_0\_000 - Certified only when ordered with marking on switch.**  
 Add "/C" to end of part number to order CSA certified switch.  
 All low security models certified at 3A @ 125V AC or 1A @ 250V AC

# Distinctive Characteristics

12mm diameter bushing for easy panel cutout preparation and high density mounting.

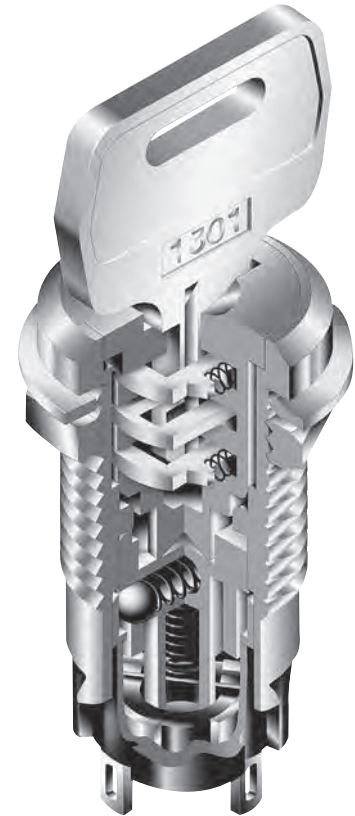
Epoxy sealed terminals prevent entry of flux and other contaminants.

Short behind panel dimension - only 1.063" (27.0mm).

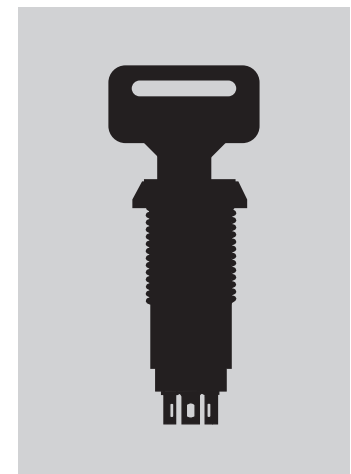
High dielectric strength of 1,500 volts between contacts and case.

Detent mechanism gives crisp, positive action for accurate switch setting.

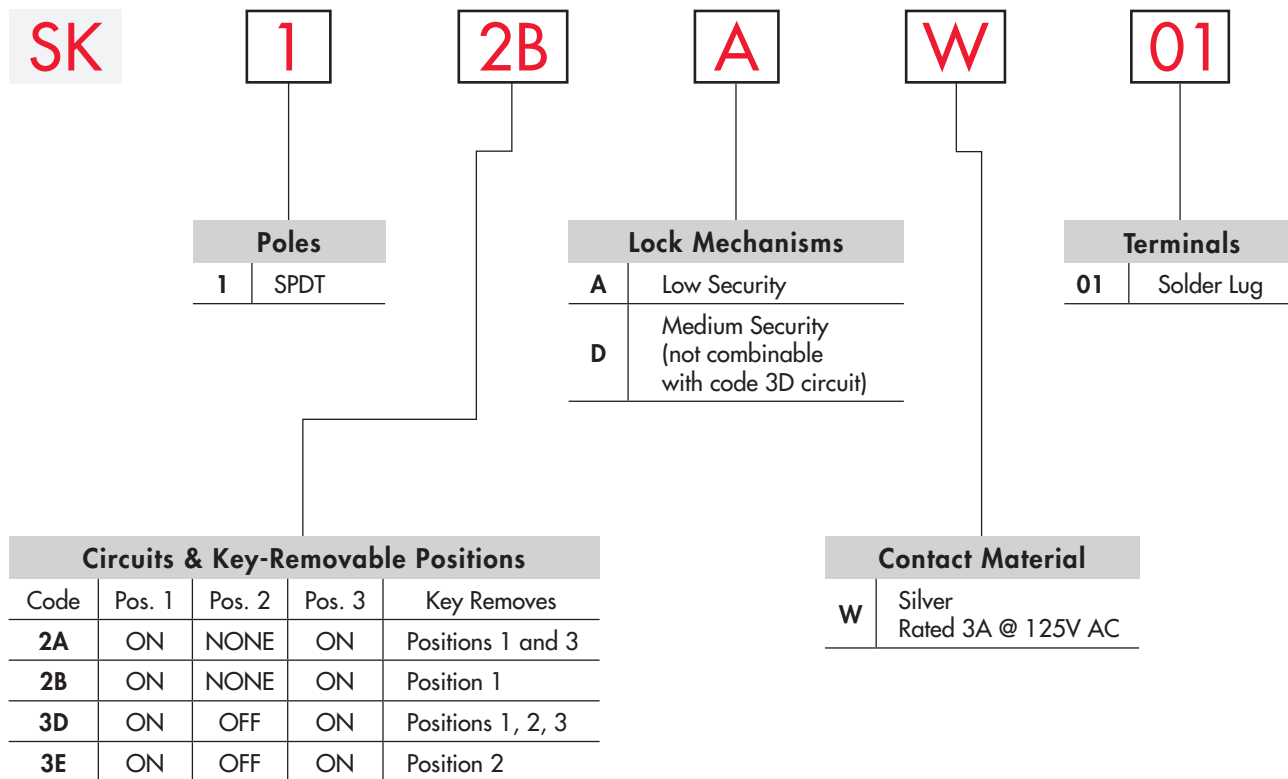
Dust resistant interior construction protects contacts.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE



**IMPORTANT:**



Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on the General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**SK12BAW01**



### POLES, CIRCUITS & KEY-REMOVABLE POSITIONS

Pole & Throw	Model	Key Positions			Connected Terminals (Terminal numbers are on switch)			Schematic	⊙ = Key Removable • = Not Removable ✓ = Maximum Arc
		Pos 1	Pos 2	Pos 3	Pos 1	Pos 2	Pos 3		
SPDT	SK12A	ON	NONE	ON	COM-1	—	COM-2		
SPDT	SK12B	ON	NONE	ON	COM-1	—	COM-2		
SPDT	*SK13D	ON	OFF	ON	COM-1	OPEN	COM-2		
SPDT	SK13E	ON	OFF	ON	COM-1	OPEN	COM-2		

\* Available with low security only

### KEY REMOVABLE

**A** Positions 1 & 3  
90° Angular Throw

**B** Position 1  
90° Angular Throw

**D** Positions 1, 2 & 3  
45° Angular Throw

**E** Position 2  
45° Angular Throw

### LOCK MECHANISMS & KEYS

**A** Low Security Mechanism

Zinc Alloy with Chrome Plating (matte finish)

Two keys provided with each switch  
(no master key available)

For ordering additional keys:  
AT4081 for SK12A and SK12B, marked "1201"  
AT4082 for SK13D and SK13E, marked "1301"

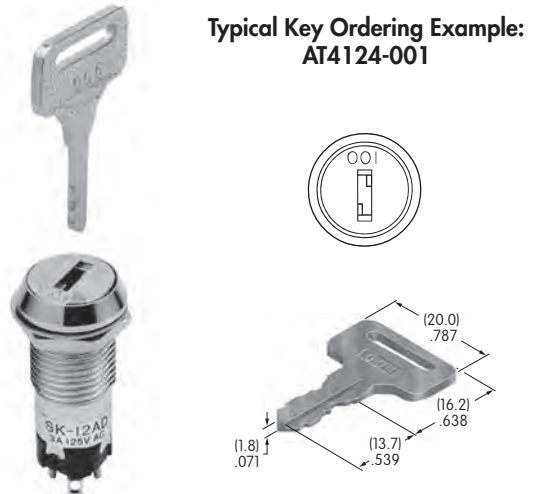
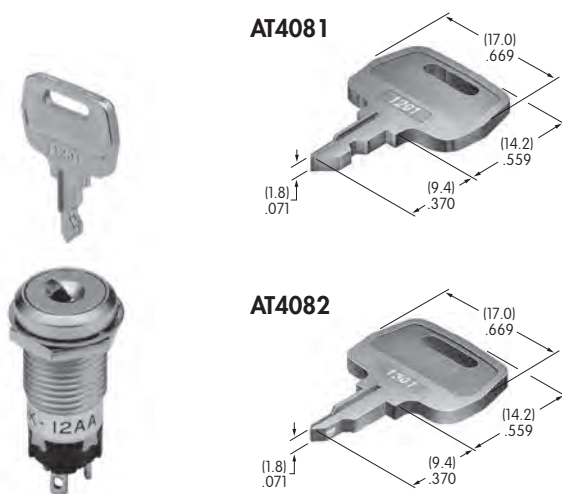
**D** Medium Security Mechanism

Brass with Nickel Plating (shiny finish)

One key provided with each switch  
(no master key available)

For ordering additional keys, indicate the same key number that is engraved on the face of your switch.

Key numbers (001 through 010) randomly assigned.



## CONTACT MATERIALS, RATINGS, & TERMINALS

**W**

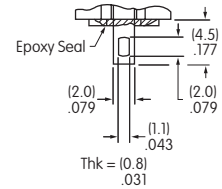
Silver over Silver

Power Level

3A @ 125V AC

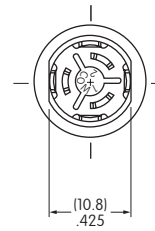
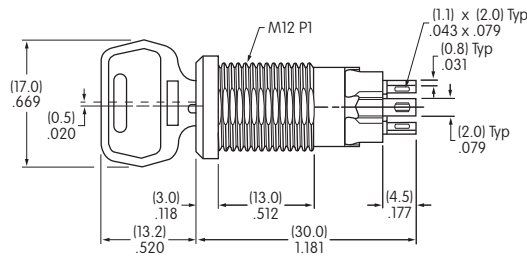
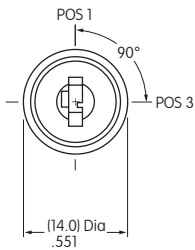
**01**

Solder Lug Terminals



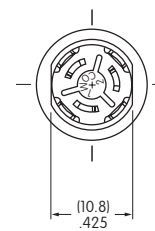
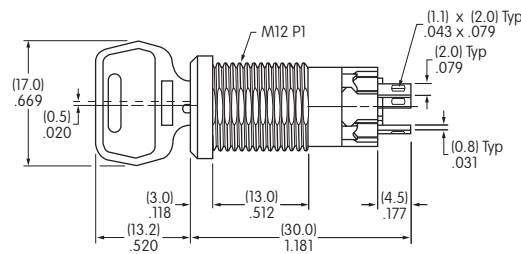
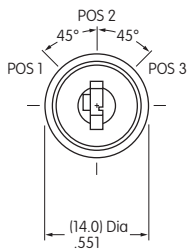
## TYPICAL SWITCH DIMENSIONS

### Low Security • 90° Angular Throw



**SK12BAW01**

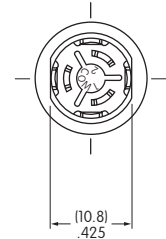
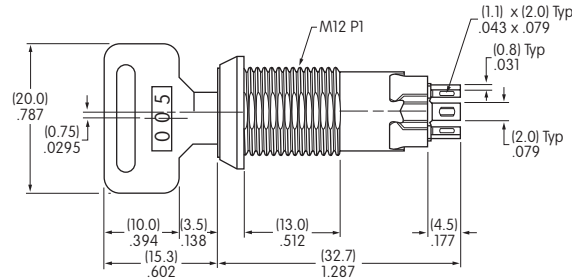
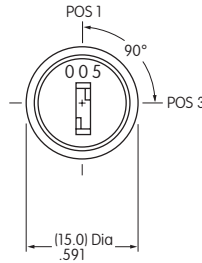
### Low Security • 45° Angular Throw



**SK13EAW01**

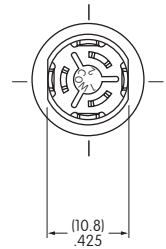
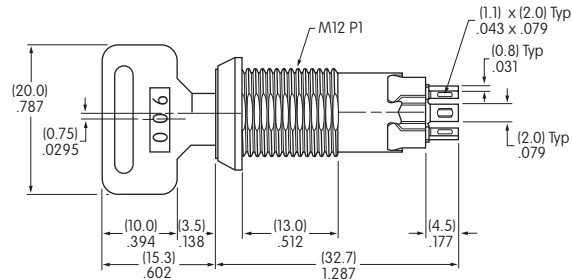
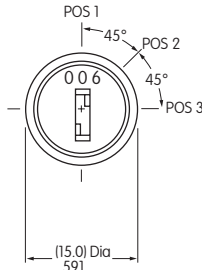
### TYPICAL SWITCH DIMENSIONS

#### Medium Security • 90° Angular Throw



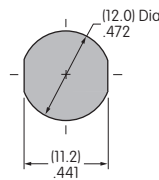
SK12ADW01

#### Medium Security • 45° Angular Throw



SK13EDW01

### PANEL CUTOUT & THICKNESS



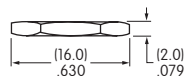
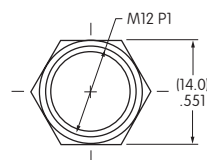
The 12mm bushing is .512" (13.0mm) long. It allows mounting these devices in a maximum effective panel thickness of .315" (8.0mm).

### STANDARD HARDWARE

#### AT527M Hex Mounting Nut

1 included with each switch

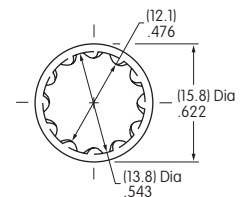
Steel with nickel plating



#### AT508 Internal Tooth Lockwasher

1 included with each switch

Steel with zinc/chromate plating



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

# 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:** 100 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum for 1 minute minimum  
**Mechanical Life:** 30,000 cycles minimum  
**Electrical Life:** 20,000 cycles minimum  
**Static Capability:** Withstands 15 kilovolts ESD  
**Nominal Operating Torque:** .0002Nm (.0017 lb•in)  
**Contact Timing:** Break-before-make  
**Angle of Throw:** 45° for 3-position & 5-position

## Materials & Finishes

**Key:** Polyacetal  
**Housing/Bushing:** Glass fiber reinforced polyester (PBT)  
**Base:** Glass fiber reinforced polyamide  
**Rotor & Stopper:** Polyacetal  
**Tumbler Plate:** Brass  
**Movable Contactor:** Beryllium copper with gold plating  
**Stationary Contacts:** Phosphor bronze with gold plating  
**Terminals:** Phosphor bronze with gold plating  
**Mounting Bracket:** Steel with tin plating

## Environmental Data

**Operating Temperature Range:** -25°C through +70°C (-13°F through +158°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 A in Supplement section.  
**Cleaning:** Automated cleaning. See Cleaning specifications in Supplement section.

## Standards & Certifications

The SK Series devices 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

Housing and bushing of high insulating material withstands over 15 kilovolts of electrostatic discharge, thus providing antistatic protection.

Totally sealed construction with internal o-ring, with gasket between base and housing, and with insert-molded terminals, gives protection for automated processing techniques.

Subminiature size allows high density mounting.

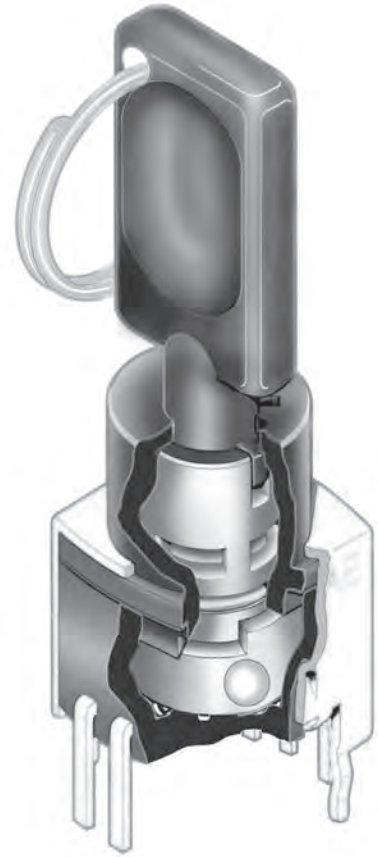
Molded-in terminals prevent entry of flux and other contaminants.

Crimped bracket legs ensure secure PCB mounting and prevent dislodging during automated wave soldering.

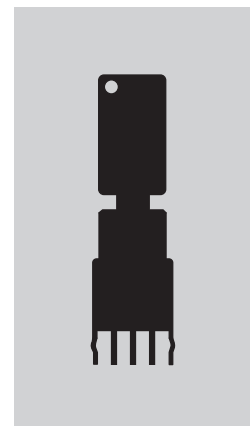
Bifurcated, self-wiping contact mechanism provides unequalled logic-level reliability and smoother, positive detent actuation.

Detent mechanism, with its spring-operated steel ball, gives distinct feel and crisp actuation for accurate switch setting.

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

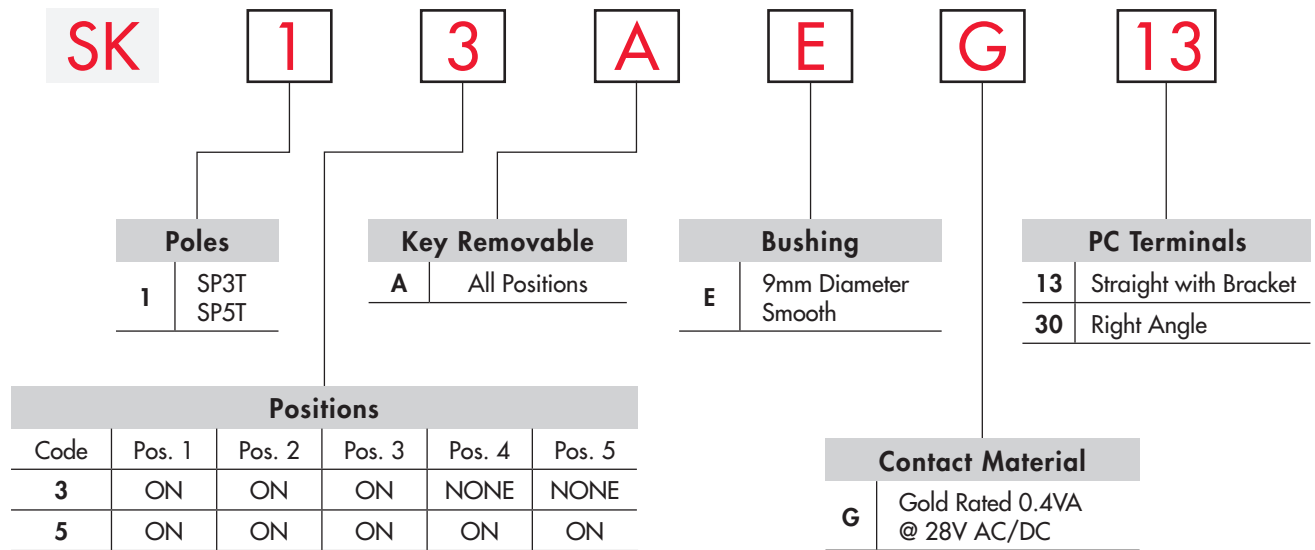


Actual Size



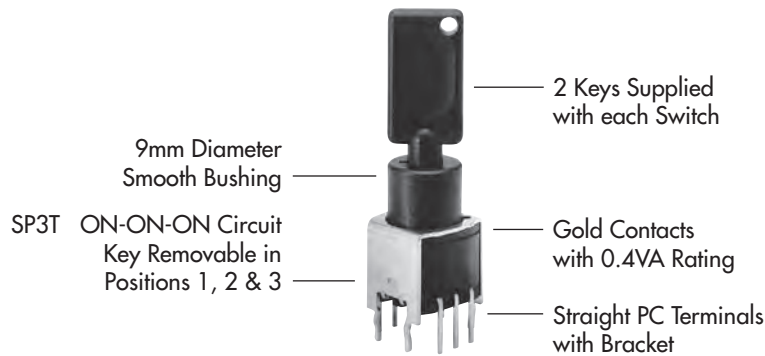


TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

SK13AEG13



POLES, CIRCUITS & KEY-REMOVABLE POSITIONS

Pole & Throw	Model	Key Positions					Connected Terminals (Terminal numbers are not on switch)					Schematic	⊙ = Key Removable ● = Not Removable ✓ = Maximum Arc
		Pos 1	Pos 2	Pos 3	Pos 4	Pos 5	Pos 1	Pos 2	Pos 3	Pos 4	Pos 5		
SP3T	SK13A	ON	ON	ON	----	----	C1-2	C1-3	C1-4	----	----		
SP5T	SK15A	ON	ON	ON	ON	ON	C1-1	C1-2	C1-3	C1-4	C1-5		

KEY REMOVABLE

BUSHING

**A** All Positions  
45° Angular Throw

**E** 9mm Diameter Smooth

## CONTACT MATERIAL & RATING

**G**

Gold over Bronze or Copper

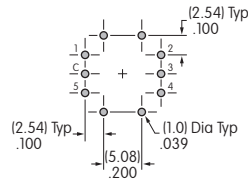
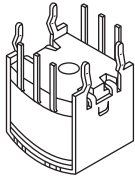
Logic Level

0.4VA @ 28V AC/DC maximum

## TERMINALS

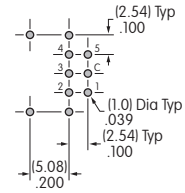
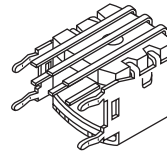
**13**

Straight PC with Bracket



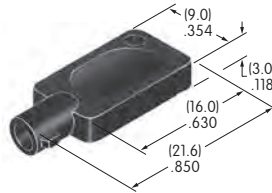
**30**

Right Angle PC



## KEY

**AT4094**  
Tubular Key

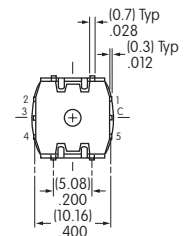
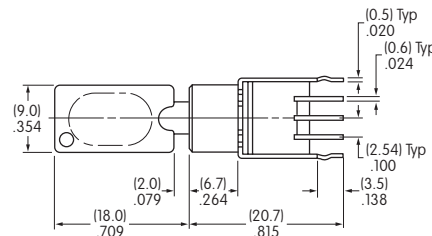
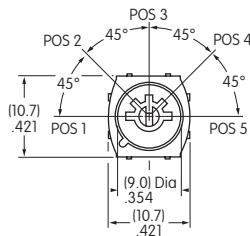
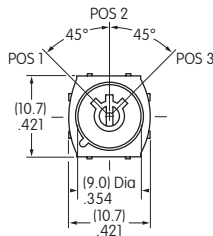


Material: Polyacetal

2 keys provided with each switch

## TYPICAL SWITCH DIMENSIONS

Straight PC with Bracket



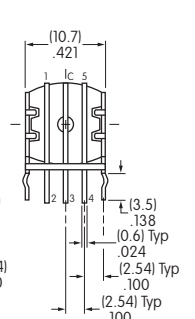
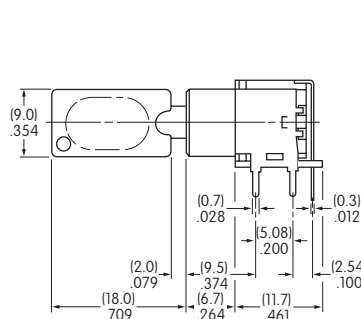
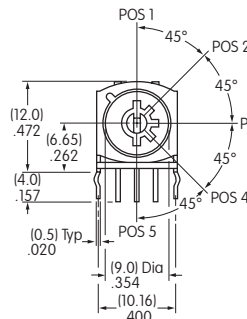
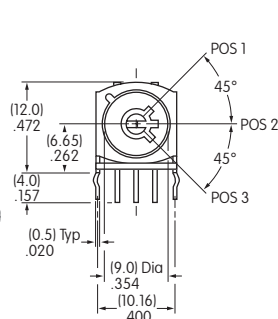
**SK13AEG13**

**3 Position**

**5 Position**

On 3-position models terminals 1 & 5 are support pins.

Right Angle PC



**SK15AEG30**

**3 Position**

**5 Position**

On 3-position models terminals 1 & 5 are support pins.

# General Specifications

## Electrical Capacity (Resistive Load)

**Logic Level:** 0.4VA maximum @ 28V AC/DC maximum  
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)  
See Supplement section to find explanation of operating range

## Other Ratings

**Contact Resistance:** 80 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum for 1 minute minimum  
**Mechanical Life:** 30,000 cycles minimum  
**Electrical Life:** 10,000 cycles minimum  
**Nominal Operating Torque:** .026Nm (.234 lb•in) for momentary action models  
 .020Nm (.182 lb•in) for maintained action models  
**Contact Timing:** Break-before-make  
**Angle of Throw:** 90° for 2-position & 45° for 3-position

## Materials & Finishes

**Boot:** Polyvinyl chloride  
**Key:** Brass alloy with bright nickel plating;  
 brass alloy with bright nickel plating & ABS resin handle  
**Tumbler Barrel:** Polyacetal  
**Bushing:** Zinc alloy with nickel plating  
**Bracket:** Steel with tin plating  
**Base:** Glass fiber reinforced polyamide  
**Movable Contactor:** Beryllium copper with gold plating  
**Stationary Contacts:** Copper with gold plating  
**Terminals:** Brass with tin plating

## Environmental Data

**Operating Temperature Range:** -25°C through +70°C (-13°F through +158°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 B in Supplement section.  
 Manual Soldering: See Profile B in Supplement section.  
**Cleaning:** Automated cleaning. Boot must be on switch during processing.  
 See Cleaning specifications in Supplement section.

## Standards & Certifications

These SK Series devices 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

Sealed body construction plus disposable boot protect contacts and allow automated processing.

Molded-in terminals seal out flux, solvents, and other contaminants.

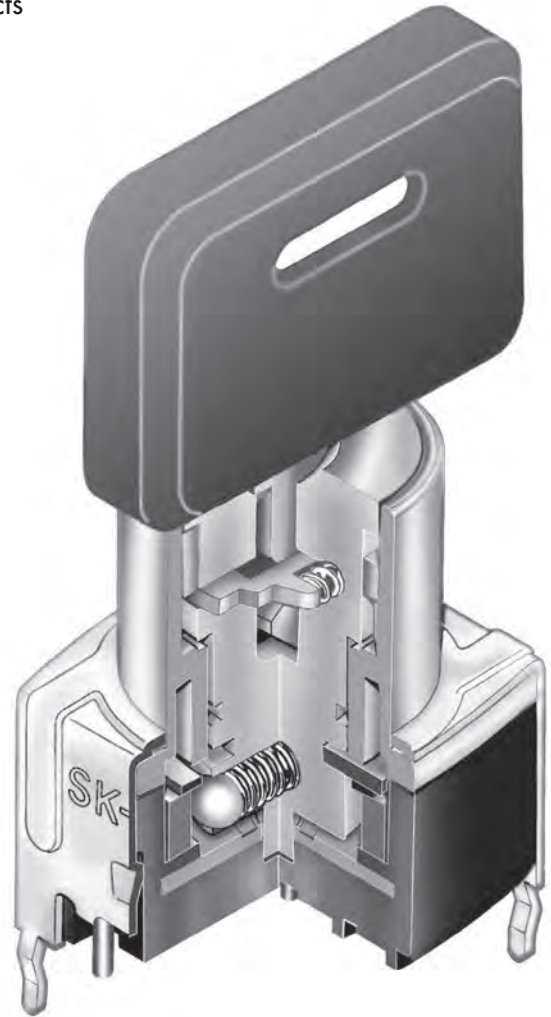
Short body size for space-saving, behind panel dimensions.

Detent mechanism, with its spring-operated steel ball, gives crisp, positive action for accurate switch setting.

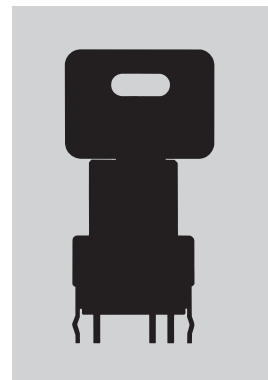
Bifurcated, self-wiping contact mechanism provides unequalled logic-level reliability and smoother, positive detent actuation.

Crimped bracket legs ensure secure PCB mounting and prevent dislodging during automated wave soldering.

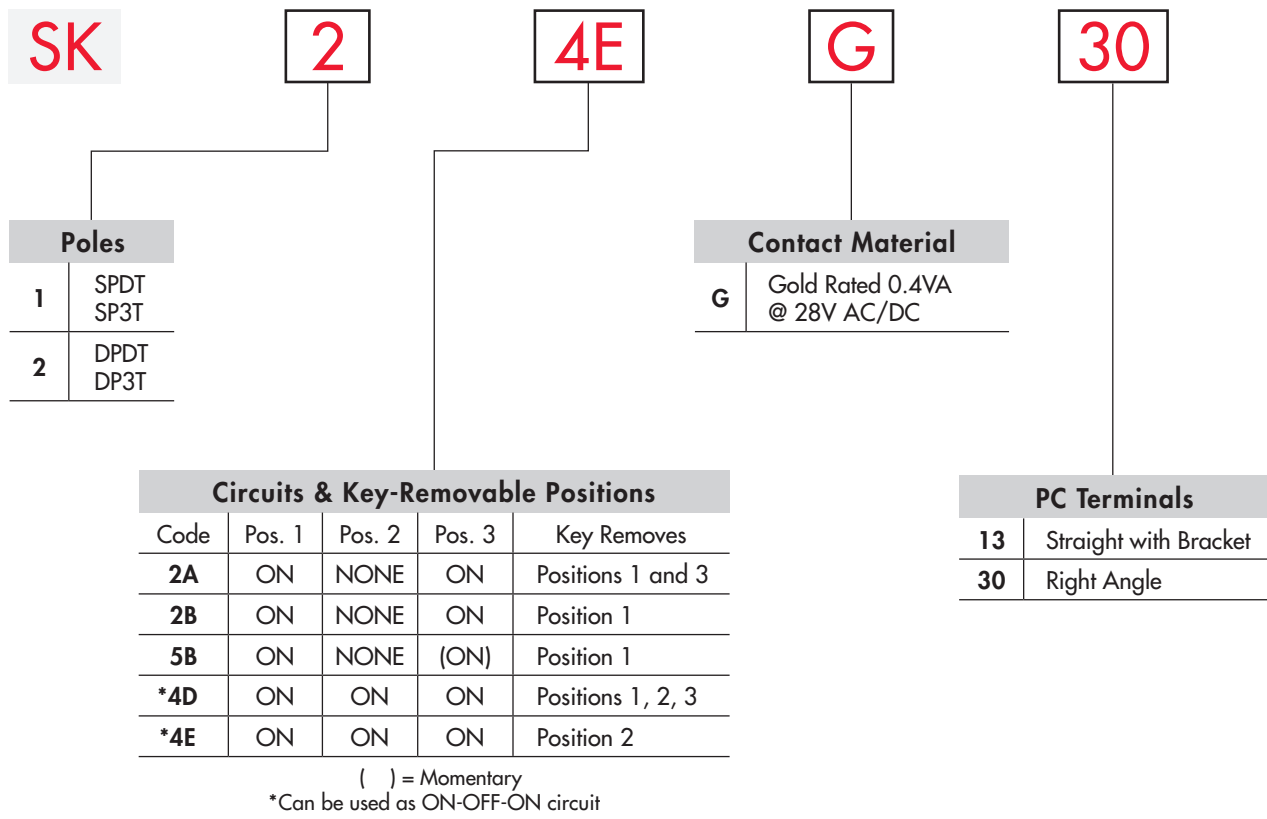
.100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

SK24EG30



### POLES, CIRCUITS & KEY-REMOVABLE POSITIONS

Pole & Throw	Model	Key Positions			Connected Terminals (Terminal numbers are not on switch)			Schematic	⊙ = Key Removable ● = Not Removable ✓ = Maximum Arc
		Pos 1	Pos 2	Pos 3	Pos 1	Pos 2	Pos 3		
SPDT	SK12A	ON	NONE	ON	C1-1	—	C1-2		
SPDT SPDT	SK12B SK15B	ON ON	NONE NONE	ON (ON)	C1-1	—	C1-2		
DPDT	SK22A	ON	NONE	ON	C1-1 C2-4	—	C1-2 C2-5		
DPDT DPDT	SK22B SK25B	ON ON	NONE NONE	ON (ON)	C1-1 C2-4	—	C1-2 C2-5		
SP3T	SK14D	ON	ON	ON	C1-1	C1-2	C1-3		
SP3T	SK14E	ON	ON	ON	C1-1	C1-2	C1-3		
DP3T	SK24D	ON	ON	ON	C1-1 C2-4	C1-2 C2-5	C1-3 C2-6		
DP3T	SK24E	ON	ON	ON	C1-1 C2-4	C1-2 C2-5	C1-3 C2-6		

### KEY REMOVABLE

**A** Positions 1 & 3  
90° Angular Throw

**B** Position 1  
90° Angular Throw

**D** Positions 1, 2 & 3  
45° Angular Throw

**E** Position 2  
45° Angular Throw

### CONTACT MATERIAL & RATING

**G** Gold over Copper

Logic Level

0.4VA maximum @ 28V AC/DC maximum

### TERMINALS

**13** Straight PC Terminals with Bracket

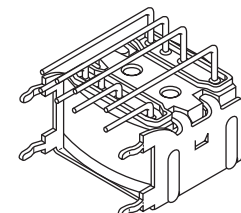
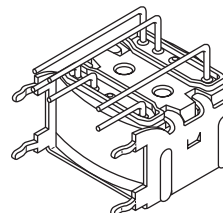
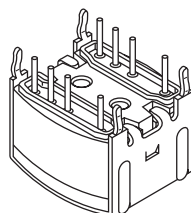
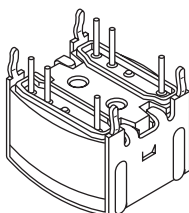
**30** Right Angle PC Terminals

Double Throw Model

Three Throw Model

Double Throw Model

Three Throw Model

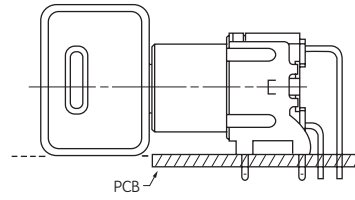
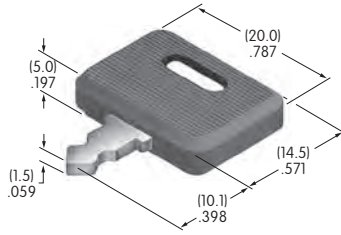


KEYS

**AT4080 Standard**  
**Antistatic Plastic Handle**

Brass Alloy with Bright Nickel Plating  
& ABS Resin Handle

2 keys supplied with each switch

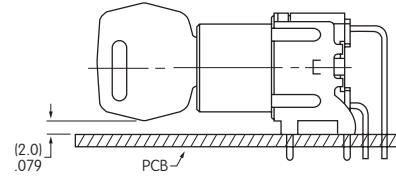
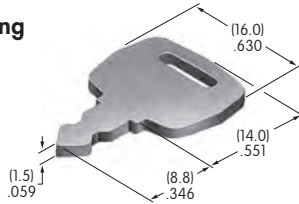


Suitable for all Straight PCB mount and for Right Angle PCB mount where clearance for key is obtainable.

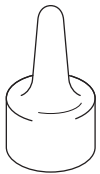
**AT4079 for Right Angle Mid-board Mounting**  
**(Optional) All Metal**

Brass Alloy with Bright Nickel Plating

Contact factory if metal keys needed



**Disposable Boot**



Each switch is supplied with a boot that provides protection from automated soldering and the cleaning process. Attach the boot without the key installed in the switch.

The boot is not reusable; discard after the washing procedure.

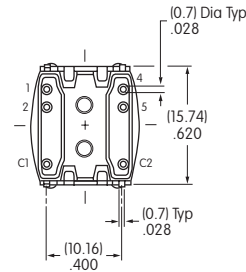
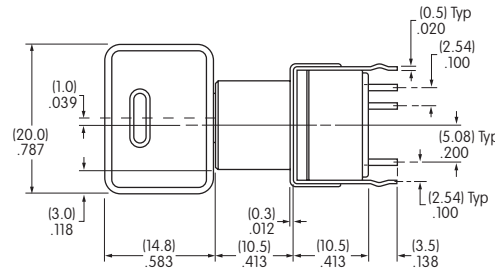
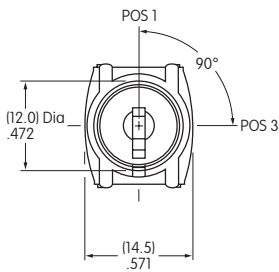
Polyvinyl Chloride



TYPICAL SWITCH DIMENSIONS

Single & Double Pole

Straight PC with Bracket • Double Throw

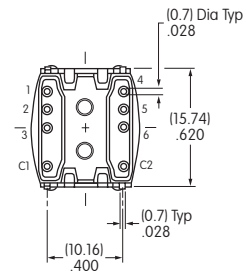
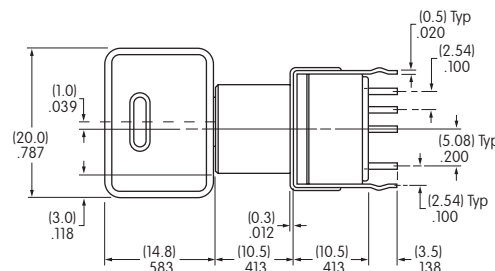
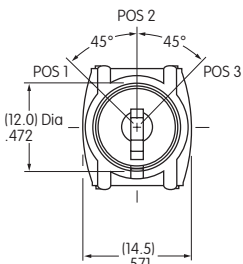


Single Pole models have only terminals 1, 2 & C1

**SK12AG13**

Single & Double Pole

Straight PC with Bracket • Three Throw

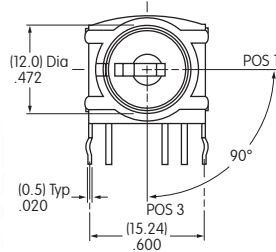


Single Pole models have only terminals 1, 2, 3 & C1

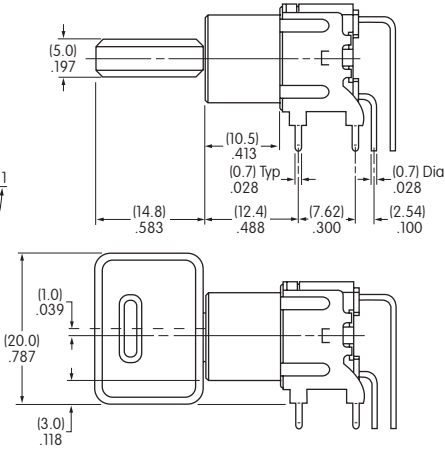
**SK24DG13**

## TYPICAL SWITCH DIMENSIONS

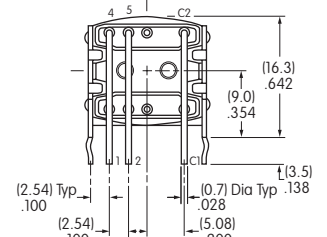
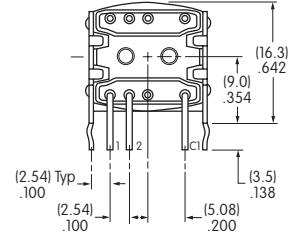
Right Angle  
PC Terminals  
Double Throw



Key in Position 1

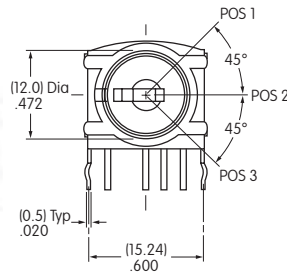


Single Pole

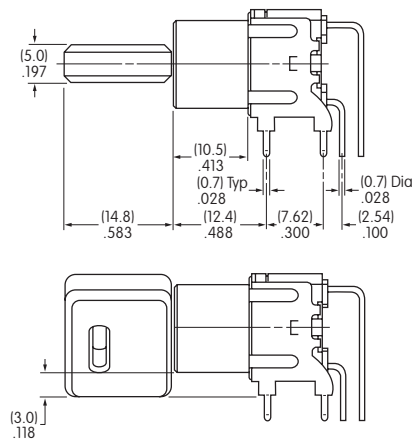


**SK15BG30**

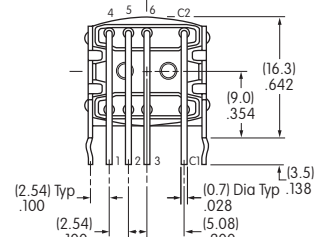
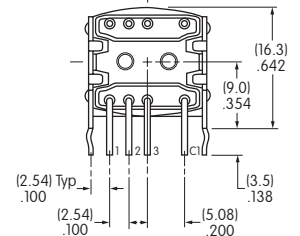
Right Angle  
PC Terminals  
Three Throw



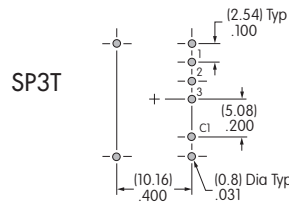
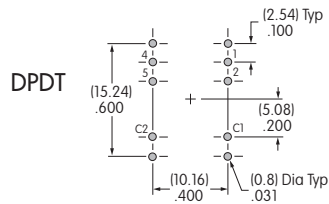
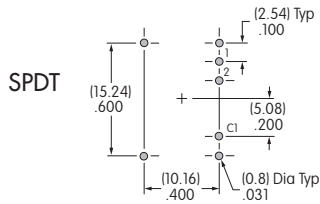
Key in Position 2



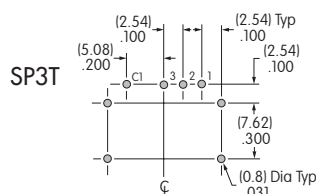
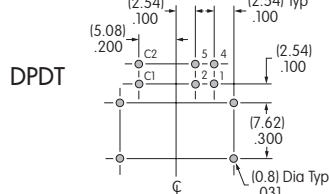
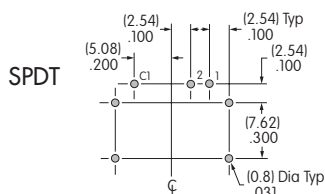
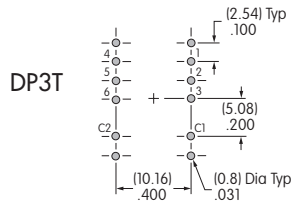
Single Pole



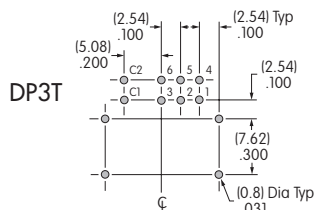
**SK24EG30**



Straight PC Footprints



Right Angle PC Footprints



Toggle

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement



# General Specifications

Part Number: SK14DGMG01

## Electrical Capacity (Resistive Load)

Logic Level: 0.4VA maximum @ 28V AC/DC maximum  
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)

## Other Ratings

**Contact Resistance:** 100 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum between contacts for 1 minute minimum  
**Mechanical Life:** 30,000 operations minimum  
**Electrical Life:** 10,000 operations minimum  
**Static Capability:** Withstands 15 kilovolts ESD  
**Nominal Operating Force:** 0.02Nm (0.18 lb•in)  
**Contact Timing:** Break-before-make  
**Angle of Throw:** 45°

## Materials & Finishes

**Key:** Brass alloy with bright nickel plating and ABS resin handle  
**Housing:** Polyamide  
**Base:** Glass fiber reinforced polyamide  
**Rotor:** Glass fiber reinforced polyamide  
**Tumbler Plate:** Brass  
**Movable Contacts:** Beryllium copper with gold plating  
**Stationary Contacts:** Brass with gold plating  
**Switch Terminals:** Brass with gold plating

## Environmental Data

**Operating Temperature Range:** -40°C through +85°C (-40°F through +185°F)  
**Humidity:** 90 ~ 95% humidity for 240 hours @ 60°C (140°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:** Manual Soldering: lead-free, see profile below. Do not exceed these specifications.  
**Cleaning:** Hand clean locally using alcohol based solution.

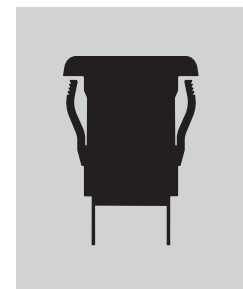
Solder Iron Tip Temperature 370°C  
 Time on Terminal 4 seconds  
 Cycles 2

## Standards & Certifications

These devices have not been tested for UL recognition or CSA certification.  
 These devices 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.



Actual Size



Toggle

Rockers

Pushbuttons

Illuminated PB

Programmable

**F** Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

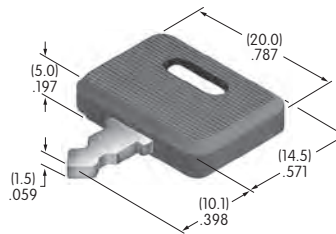
## POLES, CIRCUITS & KEY-REMOVABLE POSITIONS

Pole & Throw	Key Positions			Connected Terminals (Terminal numbers are on switch)			Schematic	⊙ = Key Removable ✓ = Maximum Arc
	Pos 1	Pos 2	Pos 3	Pos 1	Pos 2	Pos 3		
SP3T	ON	ON	ON	C-1	C-2	C-3		

## KEY

### AT4080 Standard Antistatic Plastic Handle

Material:  
Brass Alloy with Bright Nickel Plating  
& ABS Resin Handle



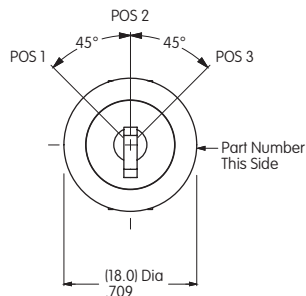
2 keys supplied with each switch

## TYPICAL SWITCH DIMENSIONS

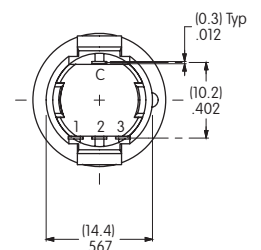
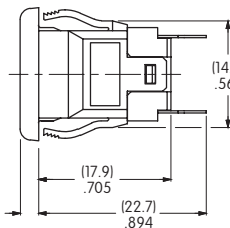
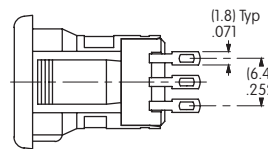
### Antistatic Snap-in • Flat Key



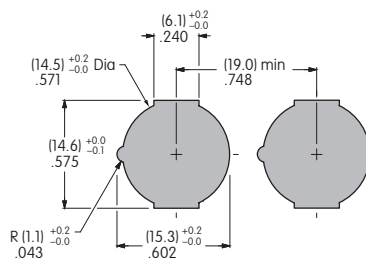
SK14DGMG01



### Single Pole Three Throw



## PANEL CUTOUT



Panel Thickness Range  
.039" ~ .079"  
(1.0mm ~ 2.0mm)