

# General Specifications

## Electrical Capacity (Resistive Load)

|                              |   |
|------------------------------|---|
| <b>Power Level (silver):</b> | 0.1A @ 30V DC   |
| <b>Logic Level (gold):</b>   | 0.4VA maximum @ 28V AC/DC maximum<br>(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V) |
|                              | Note: Find additional explanation of operating range in Supplement section.       |

## Other Ratings

|                               |  |
|-------------------------------|--|
| <b>Contact Resistance:</b>    | 20 milliohms maximum for power level; 40 milliohms maximum for logic level |
| <b>Insulation Resistance:</b> | 100 megohms minimum @ 500V DC  |
| <b>Dielectric Strength:</b>   | 500V AC minimum 1 minute minimum   |
| <b>Mechanical Life:</b>       | 10,000 operations minimum  |
| <b>Electrical Life:</b>       | 10,000 operations minimum  |
| <b>Contact Timing:</b>        | SS12S & SS22S – Shorting (make-before-break)                               |
| <b>Total Travel:</b>          | .079" (2.0mm)  |

## Materials & Finishes

|                           |   |
|---------------------------|---|
| <b>Actuator:</b>          | Polyamide   |
| <b>Upper Case:</b>        | Glass fiber reinforced polybutylene terephthalate for 3-On models; polyacetal for all other models                                      |
| <b>Lower Case:</b>        | Glass fiber reinforced polyester for 3-On models;<br>glass fiber reinforced polybutylene terephthalate (thermoplastic) for other models |
| <b>Movable Contactor:</b> | Phosphor bronze with silver plating (code 2) or<br>phosphor bronze with gold plating (code 4)   |
| <b>Interior Base:</b>     | Phenolic resin (thermoset)  |
| <b>Terminals:</b>         | Brass with silver plating over copper plating or brass with gold plating  |

## Environmental Data

|                              |  |
|------------------------------|--|
| <b>Operating Temp Range:</b> | -15°C through +60°C (+5°F through +140°F)  |
| <b>Humidity:</b>             | 90 ~ 95% humidity for 96 hours @ 40°C (104°F)  |
| <b>Vibration:</b>            | 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 |
| <b>Shock:</b>                | 50G (490m/s <sup>2</sup> ) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)                               |

## PCB Processing

|                   |   |
|-------------------|---|
| <b>Soldering:</b> | Wave Soldering: For non-supported through-hole, see Profile B in Supplement section.<br>For supported through-hole, 5 seconds maximum @ 250°C maximum.<br>Manual Solder: See Profile B in Supplement section. |
| <b>Cleaning:</b>  | These devices are not process sealed. Hand clean locally using alcohol based solution.  |

## Standards & Certifications

The SS series devices have not been tested for UL recognition and CSA certification. These switches are designed for use in a low-voltage, low-current circuit. When used as intended in a low-voltage, low-current circuit, the results do not produce hazardous energy.

# Distinctive Characteristics

Top or side actuation permits flexible board design.

Compact dimensions and low profile allow high density mounting and close stacking of PC boards.

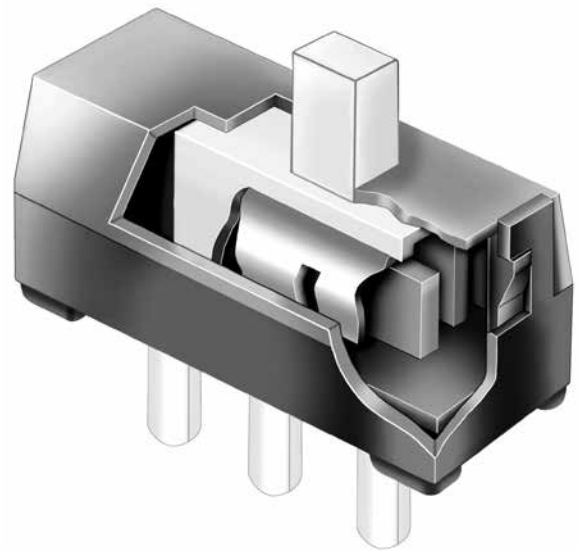
Crisp actuation positively indicates circuit status.

Double molded thermoset base and thermo-plastic housing prevent loosening of terminals due to high soldering temperatures.

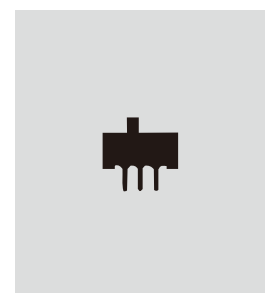
Award-winning STC mechanism with benefits unavailable in conventional mechanisms: smoother, positive detent actuation, increased contact stability, and unparalleled logic-level reliability. (Additional STC details in Terms and Acronyms in the Supplement section.)

Insert molded terminals lock out flux, solvents, and other contaminants.

Inch or metric terminal spacing for standard PC board grid (.100" x .100" or 2.0mm x 2.0mm).



Actual Size



### TYPICAL SWITCH ORDERING EXAMPLE

**SS**

**12S**

**D**

**P**

**2**

#### Poles & Circuits

| 12S                                      | SPDT | ON | NONE | ON |
|--|------|----|------|----|
| SS12S model has shorting contacts.       |      |    |      |    |
| * 14M                                    | SP3T | ON | ON   | ON |
| 22S                                      | DPDT | ON | NONE | ON |
| SS22S model has shorting contacts.       |      |    |      |    |
| See Poles & Circuits chart below.        |      |    |      |    |
| * 14M Circuit with silver contacts only. |      |    |      |    |

#### Terminal Spacing

|          |                      |
|----------|----------------------|
| <b>B</b> | Metric 2.0mm x 2.0mm |
| <b>D</b> | Inch .100" x .100"   |

#### Contact Material & Ratings



|                                  |  |
|----------------------------------|--|
| <b>2</b>                         | Silver Rated 0.1A @ 30V DC                   |
| * 4                              | Gold Rated 0.4VA maximum @ 28V AC/DC maximum |
| * Gold not available with SS14M. |  |

#### Actuation




|          |               |
|----------|---------------|
| <b>P</b> | Top Actuated  |
| <b>H</b> | Side Actuated |

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**SS12SDP2**

Top Actuated —  — SPDT ON-NONE-ON Circuit  
 Silver Contacts Rated 0.1A @ 30V DC —  — Terminals with .100" Spacing

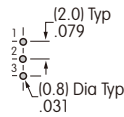
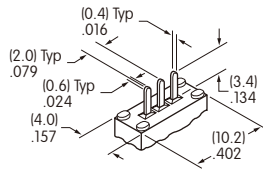
### POLES & CIRCUITS

| Pole | Model | Slide Position |        |      | Connected Terminals |        |         | Throw & Schematics   |
|------|-------|----------------|--------|------|---------------------|--------|---------|--|
|      |       | Right          | Center | Left | Right               | Center | Left    |  |
| SP   | SS12S | ON             | NONE   | ON   | 2-1                 | NONE   | 2-3     | SPDT<br>  |
| SP   | SS14M | ON             | ON     | ON   | 3-4                 | 3-2    | 3-1     | SP3T<br> ON-OFF-ON circuit can be created by not connecting terminal 2. |
| DP   | SS22S | ON             | NONE   | ON   | 2-1 5-4             | NONE   | 2-3 5-6 | DPDT<br>  |

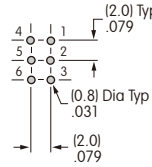
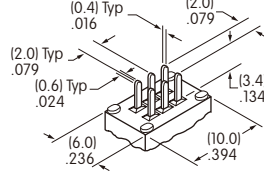
Toggles  
Rockers  
Pushbuttons  
Illuminated PB  
Programmable  
Keylocks  
Rotaries  
Slides  
Tactiles  
Tilt  
Touch  
Indicators  
Accessories  
Supplement

TERMINAL SPACING

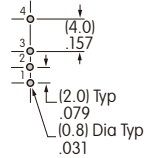
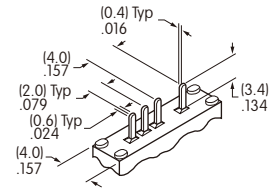
**B** Metric 2.0mm x 2.0mm with Black Base



On-None-On Single Pole Models

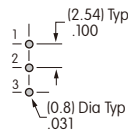
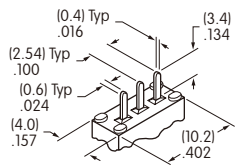


On-None-On Double Pole Models

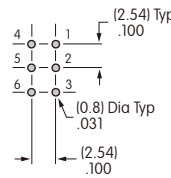
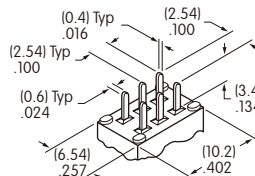


3-On Models

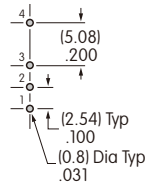
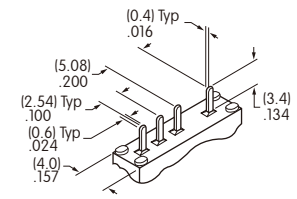
**D** Inch .100" x .100" with Gray Base



On-None-On Single Pole Models



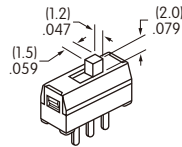
On-None-On Double Pole Models



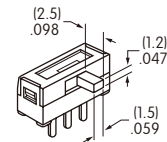
3-On Models

ACTUATION

**P** Top Actuated



**H** Side Actuated



CONTACT MATERIALS & RATINGS

**2** Silver over Phosphor Bronze

Power Level

0.1A @ 30V DC

**4** Gold over Silver/Phosphor Bronze

Logic Level

0.4VA max @ 28V AC/DC max

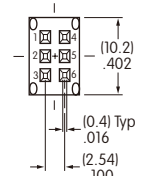
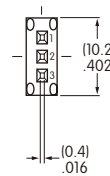
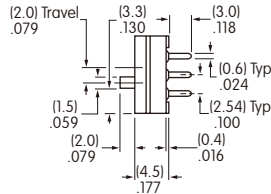
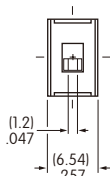
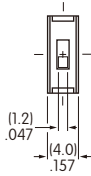
Complete explanation of operating range in Supplement section.

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

## TYPICAL SWITCH DIMENSIONS

### Top Actuated

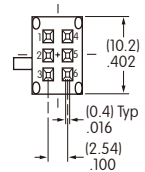
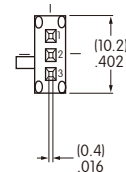
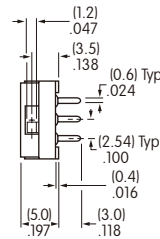
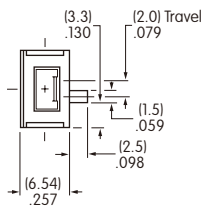
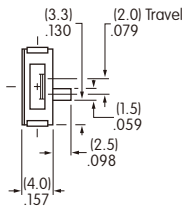
### Single & Double Pole



SS12SDP2

### Side Actuated

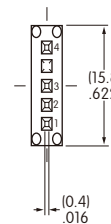
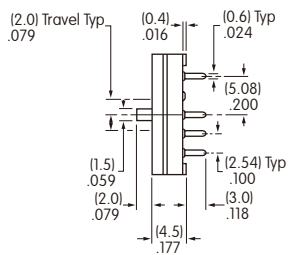
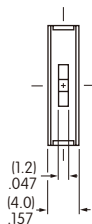
### Single & Double Pole



SS12SDH2

### 3-On Circuit • Top Actuated

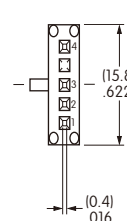
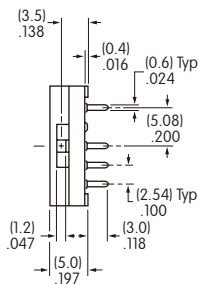
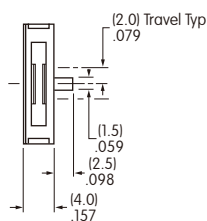
### Single Pole



SS14MDP2

### 3-On Circuit • Side Actuated

### Single Pole



SS14MDH2

# General Specifications

## Electrical Capacity (Resistive Load)

**Power Level:** 0.1A @ 30V DC

## Other Ratings

**Contact Resistance:** 20 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum 1 minute minimum  
**Mechanical Life:** 10,000 operations minimum  
**Electrical Life:** 10,000 operations minimum  
**Contact Timing:** Shorting (make-before-break)  
**Total Travel:** .079" (2.0mm)

## Materials & Finishes

**Actuator:** Polyacetal  
**Upper Case:** Polyacetal  
**Lower Case:** Glass fiber reinforced polybutylene terephthalate  
**Movable Contactor:** Phosphor bronze with silver plating  
**Interior Base:** Phenolic resin (thermoset)  
**Terminals:** Brass with silver plating over copper plating

## Environmental Data

**Operating Temp Range:** -15°C through +60°C (+5°F through +140°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)

## PCB Processing

**Soldering:** Wave Soldering: For non-supported through-hole, see Profile B in Supplement section. For supported through-hole, 5 seconds maximum @ 250°C maximum.  
 Manual Soldering: See Profile B in Supplement section.  
**Cleaning:** These devices are not process sealed. Hand clean locally using alcohol based solution.

## Standards & Certifications

The SS series devices have not been tested for UL recognition and CSA certification. These switches are designed for use in a low-voltage, low-current circuit. When used as intended in a low-voltage, low-current circuit, the results do not produce hazardous energy.

# Distinctive Characteristics

Top or side actuation permits flexible board design.

Bright, LED illumination at tip of actuator.

Compact dimensions and low profile allow high density mounting and close stacking of PC boards.

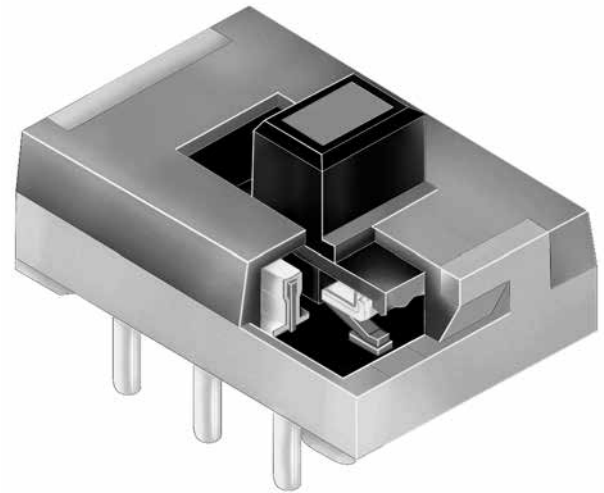
Crisp actuation positively indicates circuit status.

Double molded thermoset base and thermoplastic housing prevent loosening of terminals due to high soldering temperatures.

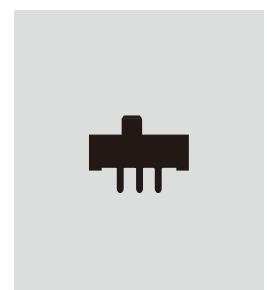
Sliding twin contact mechanism with self-cleaning action provides smooth actuation and produces high contact reliability.

Insert molded terminals lock out flux, solvents, and other contaminants.

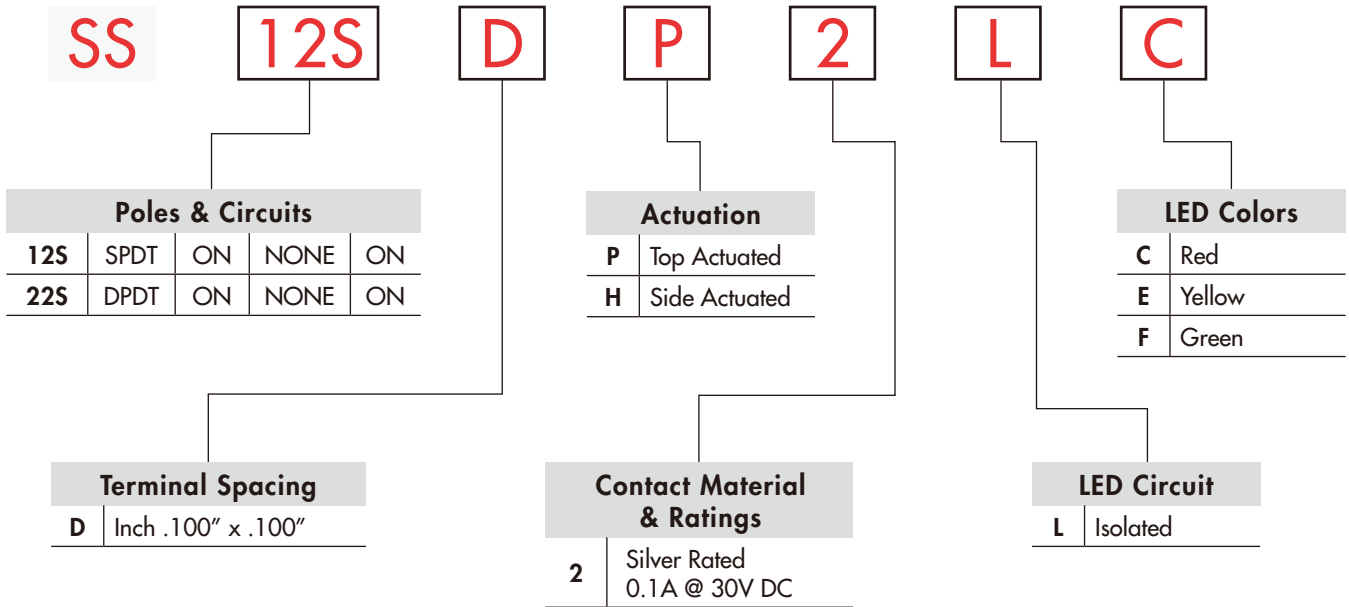
Inch terminal spacing for standard PC board grid (.100" x .100").



Actual Size

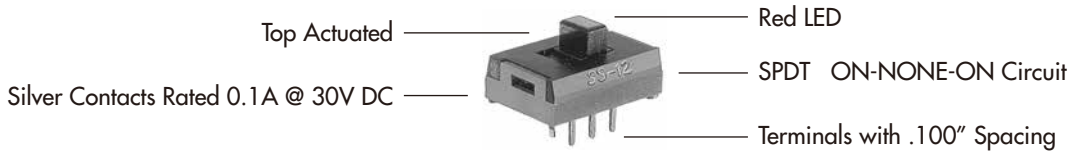


TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

SS12SDP2LC



POLES & CIRCUITS

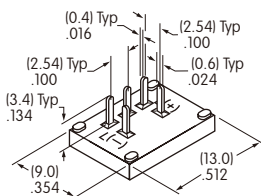
| Pole | Model | Slide Position |        |      | Connected Terminals |        |         | Throw & Schematics |
|------|-------|----------------|--------|------|---------------------|--------|---------|--------------------|
|      |       | Right          | Center | Left | Right               | Center | Left    |                    |
| SP   | SS12S | ON             | NONE   | ON   | 2-1                 | NONE   | 2-3     | SPDT               |
| DP   | SS22S | ON             | NONE   | ON   | 2-1 5-4             | NONE   | 2-3 5-6 | DPDT               |

Note: Terminal numbers are not actually on switch. Isolated LED circuit requires external power source.

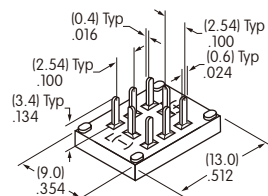
TERMINAL SPACING

**D** Inch .100" x .100"

Single Pole Models



Double Pole Models



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



## CONTACT MATERIALS & RATINGS

2

Silver over Phosphor Bronze

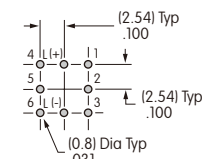
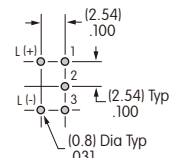
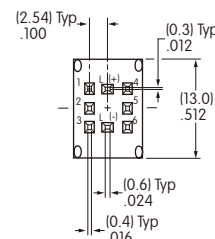
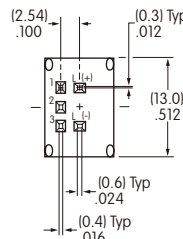
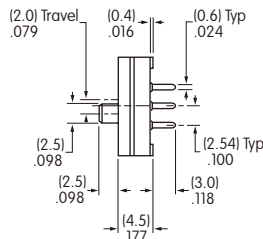
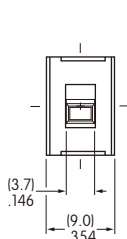
Power Level

0.1A @ 30V DC

## TYPICAL SWITCH DIMENSIONS

### Top Actuated

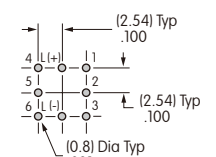
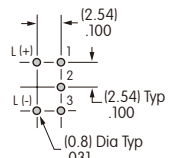
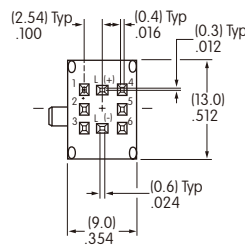
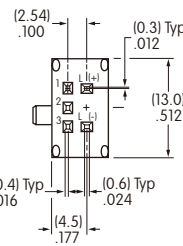
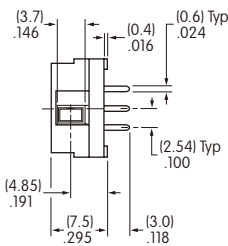
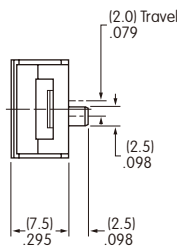
### Single & Double Pole



SS22SDP2LC

### Side Actuated

### Single & Double Pole



SS12SDH2LC

## LED COLORS & SPECIFICATIONS

LEDs are supplied as an integral part of the switch (not available separately). The lamp circuit is independent of switch operation. Electrical specifications shown are determined at a basic temperature of 25°C. If the source voltage exceeds the rated voltage, a ballast resistor is required. The resistor value can be calculated by using the formula given in the Supplement.

|                                   | <b>L</b> Isolated, 1-element |  | Color        | <b>C</b> Red | <b>E</b> Yellow | <b>F</b> Green |
|-----------------------------------|------------------------------|--|--------------|--------------|-----------------|----------------|
| Maximum Forward Current           |                              |  | $I_{FM}$     | 30mA         | 30mA            | 25mA           |
| Typical Forward Current           |                              |  | $I_F$        | 16mA         | 16mA            | 16mA           |
| Forward Voltage                   |                              |  | $V_F$        | 1.98V        | 2.06V           | 2.16V          |
| Maximum Reverse Voltage           |                              |  | $V_{RM}$     | 5V           | 5V              | 5V             |
| Current Reduction Rate Above 25°C |                              |  | $\Delta I_F$ | 0.40mA/°C    | 0.42mA/°C       | 0.33mA/°C      |
| Ambient Temperature Range         |                              |  |              | -15° ~ +60°C |                 |                |

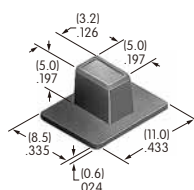
## OPTIONAL CAP

### AT4065 Slide Cap

Material: Polycarbonate

Cap can be assembled on request

Cap Color: Black only



Window color should match LED color.

Colors Available:

**C** Red    **E** Yellow    **F** Green