

# 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:** 80 milliohms maximum  
**Insulation Resistance:** 500 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum for 1 minute minimum  
**Mechanical Life:** 100,000 operations minimum  
**Electrical Life:** 100,000 operations minimum  
10,000 operations minimum @ 0.1A @ 28V AC/DC  
**Nominal Operating Force:** 1.30N  
**Angle of Throw:** 28°

## Materials & Finishes

**Actuator:** Polyamide  
**Case:** Glass fiber reinforced polyamide  
**Sealing Rings:** Nitrile butadiene rubber  
**Movable Contacts:** Phosphor bronze with gold plating  
**Stationary Contacts:** Phosphor bronze with gold plating  
**Base:** Glass fiber reinforced polyamide  
**Power Terminals:** Phosphor bronze with gold plating  
**Lamp Terminals:** Phosphor bronze with gold plating

## Environmental Data

**Operating Temperature Range:** -25°C through +55°C (-13°F through +131°F)  
**Humidity:** 90 ~ 95% humidity for 240 hours @ 40°C (104°F)  
**Vibration:** 10 ~ 500Hz 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 G 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

Fully illuminated toggle for highly visible status indication with LED in red, green, or amber for single color and red/green for bicolor.

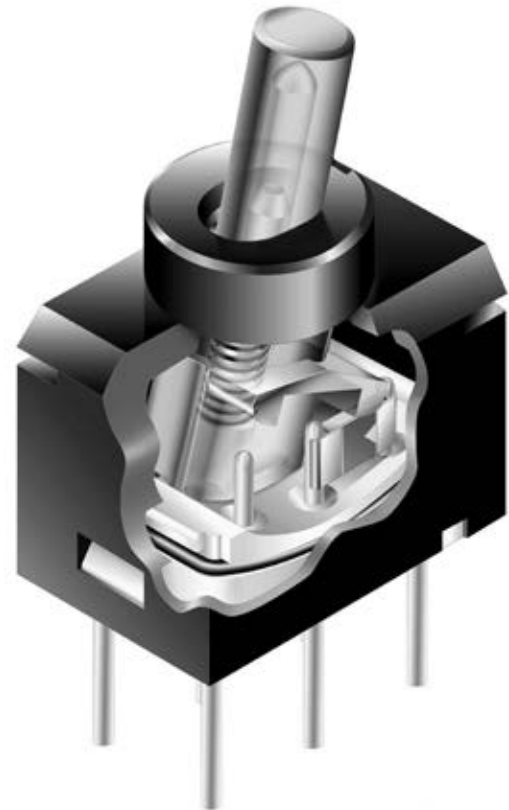
Ultra-miniature size allows high density mounting, and extremely light weight makes these switches ideal for handheld equipment.

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

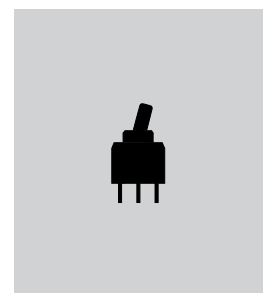
Molded-in, epoxy sealed terminals lock out flux, solvents, and other contaminants.

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

.100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing. Round terminals facilitate easier through-hole mounting on PC boards.



Actual Size

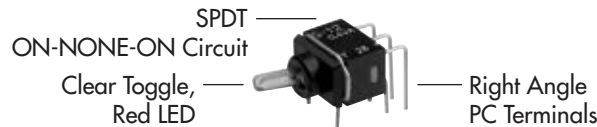


### TYPICAL SWITCH ORDERING EXAMPLE

|             |  |          |                 |                     |                        |
|-------------|--|----------|-----------------|---------------------|------------------------|
| <b>G</b>    | <b>1</b>                                   | <b>2</b> | <b>J</b>        | <b>H</b>            | <b>C</b>               |
| <b>Pole</b> | <b>Circuits</b>                            |          | <b>Actuator</b> | <b>PC Terminals</b> | <b>LEDS</b>            |
| 1   SPDT    | 2   ON   NONE   ON                         |          | J   Clear       | P   Straight        | <b>Single Color</b>    |
|             | Combines with single color or bicolor LEDs |          |                 | H   Right Angle     | C   Red                |
|             | 3   ON   OFF   ON                          |          |                 | V   Vertical        | D   Amber              |
|             | Combines with bicolor LED only             |          |                 |                     | F   Green              |
|             | NONE = No Position                         |          |                 |                     | ON-NONE-ON only        |
|             |  |          |                 |                     | <b>Bicolor</b>         |
|             |  |          |                 |                     | CF   Red/Green         |
|             |  |          |                 |                     | ON-NONE-ON & ON-OFF-ON |

#### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**G12JHC**

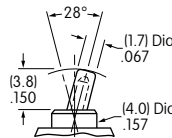


### POLES & CIRCUITS

| Pole Throw | Model                    | Toggle Position<br>NONE = No Position |             |          | Connected Terminals |              |            | Schematics  |
|------------|--------------------------|---------------------------------------|-------------|----------|---------------------|--------------|------------|---|
|            |                          | Up                                    | Center      | Down     | Up                  | Center       | Down       |   |
| SPDT       | <b>G12</b><br><b>G13</b> | ON<br>ON                              | NONE<br>OFF | ON<br>ON | 2-3<br>2-3          | NONE<br>OPEN | 2-1<br>2-1 | <p>Note: Terminal numbers are not actually on the switch. LED circuit is isolated and requires an external power source.</p> <p>Single Color</p> <p>Bicolor</p> |

### ACTUATOR

**J** Clear Toggle

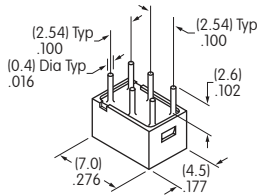


### LED COLORS & SPECIFICATIONS

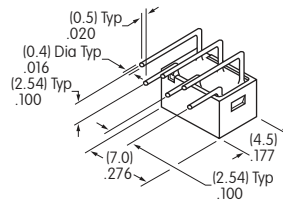
|   |                                   |              |  |          |           |           |
|---|-----------------------------------|--------------|--|----------|-----------|-----------|
| <p>LEDs are an integral part of the switch and not available separately. The electrical specifications shown are determined at a basic temperature of 25°C.</p> <p>If the source voltage exceeds the rated voltage, a ballast resistor is required.</p> <p>The resistor value can be calculated by using the formula in the Supplement; see Supplement Index.</p> | Colors                            | Single Color |  |          | Bicolor   |           |
|   |                                   | <b>C</b>     | <b>D</b>   | <b>F</b> | <b>CF</b> |           |
|   |                                   | Red          | Amber  | Green    | Red/Green |           |
|   | Maximum Forward Current           | $I_{FM}$     | 30mA   | 30mA     | 25mA      | 30mA/25mA |
|   | Typical Forward Current           | $I_F$        | 20mA   | 20mA     | 20mA      | 20mA/20mA |
|   | Forward Voltage                   | $V_F$        | 2.0V   | 2.0V     | 2.1V      | 2.0V/2.1V |
|   | Maximum Reverse Voltage           | $V_{RM}$     | 5V   | 5V       | 5V        | 5V/5V     |
|   | Current Reduction Rate Above 25°C | $\Delta I_F$ | 0 - No current Reduction Rate within Ambient Temperature Range |          |           |           |
| Ambient Temperature Range   |                                   | -25° ~ +55°C |  |          |           |           |

## PC TERMINALS

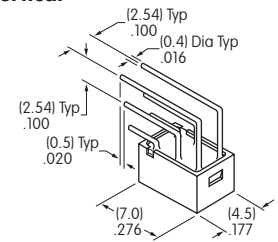
**P** Straight



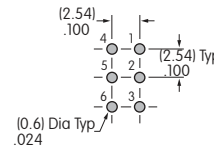
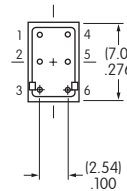
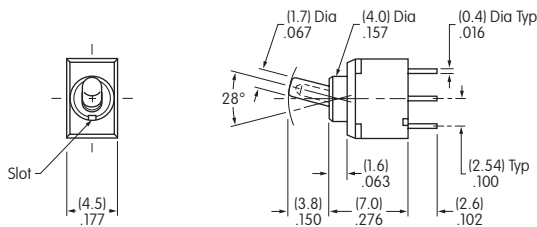
**H** Right Angle



**V** Vertical



## TYPICAL SWITCH DIMENSIONS



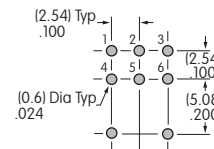
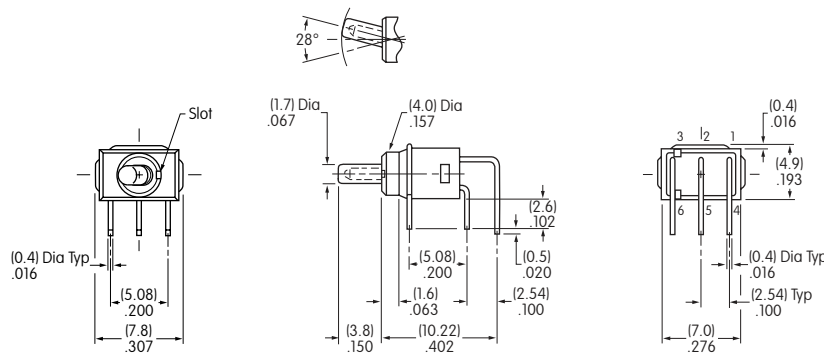
**Straight PC**



5 & 6 are LED terminals; 4 is a support pin on single color models & an LED terminal on bicolor models.

**G12JPC**

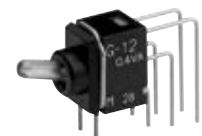
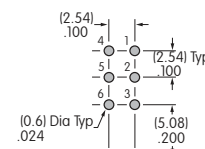
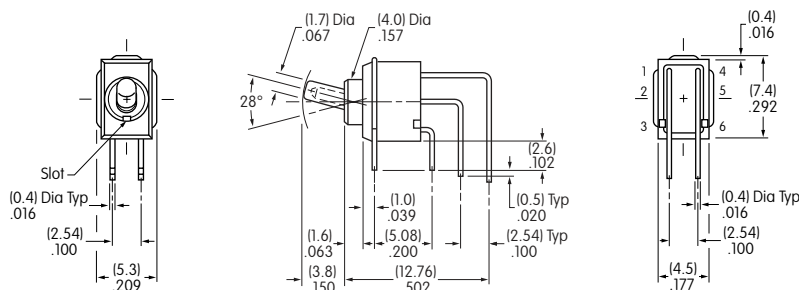
**Right Angle PC**



5 & 6 are LED terminals; 4 is a support pin on single color models & an LED terminal on bicolor models.

**G12JHD**

**Vertical PC**



5 & 6 are LED terminals; 4 is a support pin on single color models & an LED terminal on bicolor models.

**G12JVCF**