

# 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.

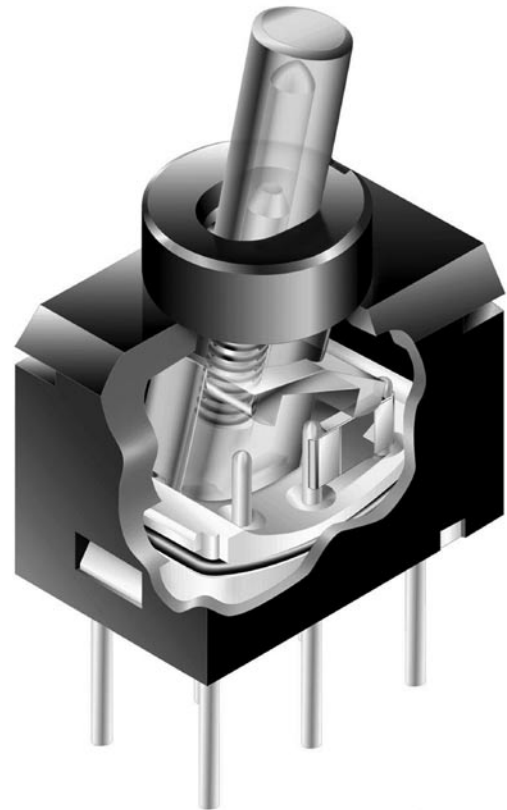
Totally sealed body construction prevents contact contamination and allows time- and money-saving automated soldering and cleaning.

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

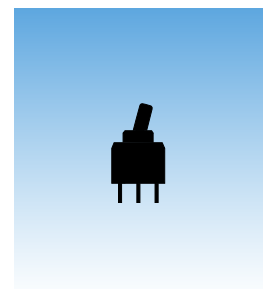
Award-winning STC contact mechanism with benefits unavailable in conventional mechanisms: smooth, positive detent actuation, increased contact stability, and unparalleled logic-level reliability. (Additional STC details in Terms & Acronyms; see Supplement section.)

.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.

Nonilluminated toggles available and shown in the Toggle section.



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:** 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)

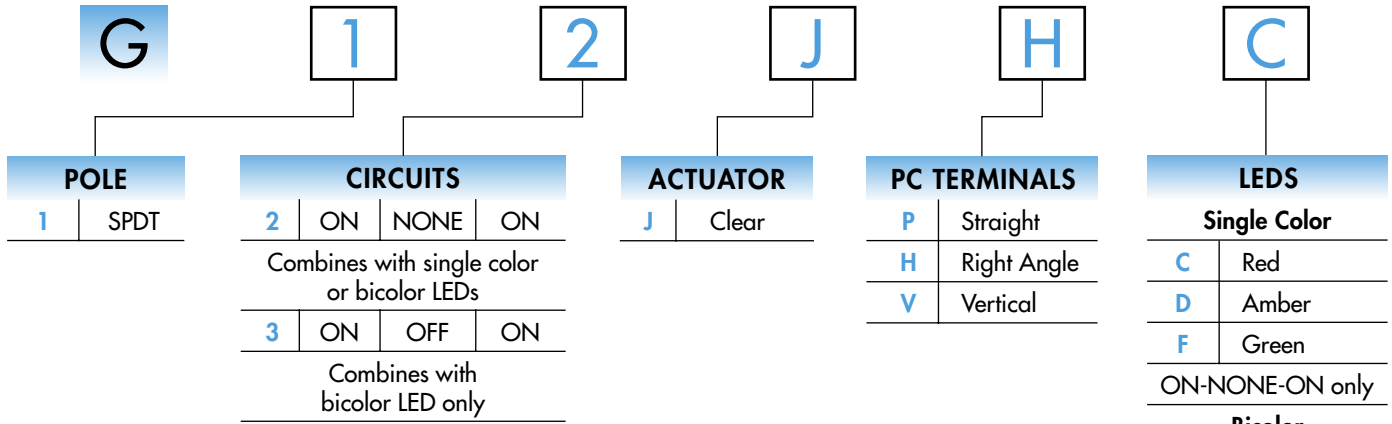
## PCB Processing

**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

**UL Recognition or CSA Certification:** 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.

### TYPICAL SWITCH ORDERING EXAMPLE



#### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**G12JHC**

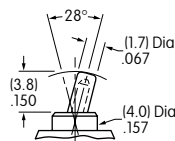


### POLES & CIRCUITS

Pole Throw	Model	Toggle Position			Connected Terminals			Schematics
		Up	Center	Down	Up	Center	Down	
SPDT	G12 G13	ON	NONE	ON	2-3	NONE	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>
		ON	OFF	ON	2-3	OPEN	2-1	

### ACTUATOR

**J** Clear Toggle



### LED COLORS & SPECIFICATIONS

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.

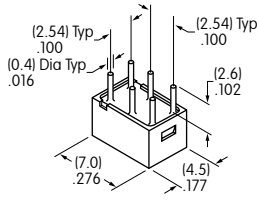
If the source voltage exceeds the rated voltage, a ballast resistor is required.

The resistor value can be calculated by using the formula in the Supplement; see Supplement Index.

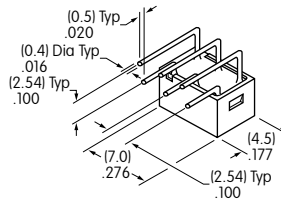
	Colors	Single Color			Bicolor
		C	D	F	CF
		Red	Amber	Green	Red/Green
Forward Peak Current	$I_{FM}$	25mA	25mA	25mA	25mA/25mA
Continuous Forward Current	$I_F$	20mA	20mA	20mA	20mA/20mA
Forward Voltage	$V_F$	2.0V	2.1V	2.1V	2.0V/2.1V
Reverse Peak Voltage	$V_{RM}$	4V	4V	4V	4V/4V
Current Reduction Rate Above 25°C	$\Delta I_F$	0.33mA/°C			
Ambient Temperature Range		-25° ~ +55°C			

### PC TERMINALS

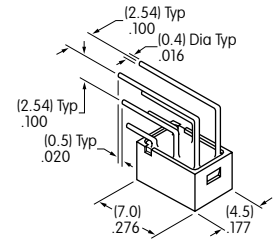
**P** Straight



**H** Right Angle

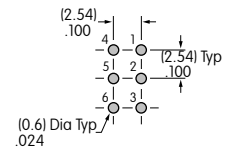
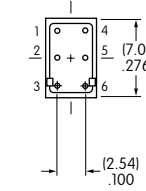
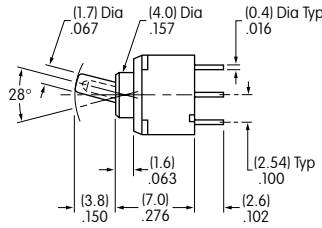
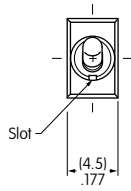


**V** Vertical



### TYPICAL SWITCH DIMENSIONS

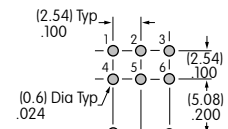
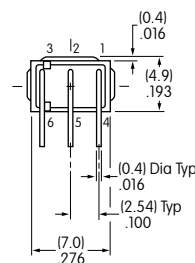
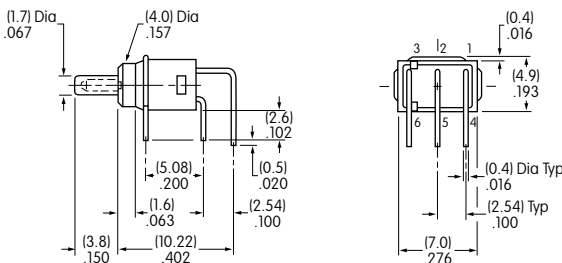
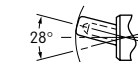
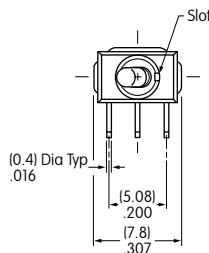
#### Straight PC



**G12JP**

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

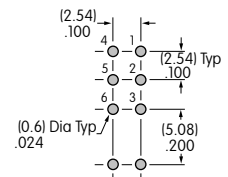
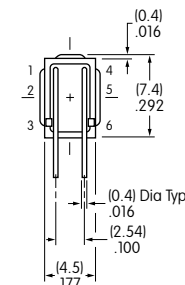
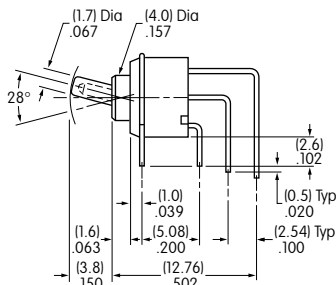
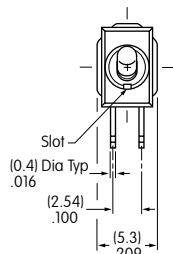
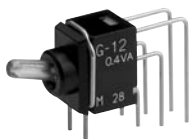
#### Right Angle PC



**G12JHD**

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

#### Vertical PC



**G12JVCF**

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