Ultra-Miniature Fully Illuminated Toggles  
Series G

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.
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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/s²) 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.

Standards & Certifications

UL Recognition: The G Series toggles have not been tested for UL recognition or CSA certification.
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.
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TYPICAL SWITCH ORDERING EXAMPLE

POLE  CIRCUITS  ACTUATOR  PC TERMINALS  LEDS
1 SPDT  2 ON | NONE | ON  J Clear  P Straight  C Red
3 ON | OFF | ON  J Clear Toggle, Red LED  H Right Angle  D Amber

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

G12JHC

POLES & CIRCUITS

<table>
<thead>
<tr>
<th>Pole Throw</th>
<th>Model</th>
<th>Toggle Position</th>
<th>Connected Terminals</th>
<th>Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT</td>
<td>G12</td>
<td>ON NONE ON</td>
<td>2-3 NONE 2-1</td>
<td>Single Color</td>
</tr>
<tr>
<td></td>
<td>G13</td>
<td>ON OFF ON</td>
<td>2-3 OPEN 2-1</td>
<td>Single Color</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Colors</th>
<th>Single Color</th>
<th>Bicolor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C Red</td>
<td>25mA</td>
<td>25mA/25mA</td>
</tr>
<tr>
<td>D Amber</td>
<td>20mA</td>
<td>20mA/20mA</td>
</tr>
<tr>
<td>F Green</td>
<td>2.0V</td>
<td>2.0V/2.1V</td>
</tr>
<tr>
<td>CF Red/Green</td>
<td>4V</td>
<td>4V/4V</td>
</tr>
</tbody>
</table>

Forward Peak Current \( I_{FM} \)
Continuous Forward Current \( I_F \)
Forward Voltage \( V_F \)
Reverse Peak Voltage \( V_{RM} \)
Current Reduction Rate Above 25°C \( \Delta I_I \)
Ambient Temperature Range

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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.