

# Distinctive Characteristics

Choice of long or short toggles in translucent colors combine with bright LEDs available in red, amber, and green, plus super bright LEDs available in white, green, and blue.

Black face nut enhances front panel appearance.

Antistatic material used for toggle withstands 20 kilovolts electrostatic discharge.

Panel seal, achieved with use of optional exterior o-ring, conforms to IP65 of IEC529 Standards.

Interior o-ring protects contacts from oil, dust, water, and other contaminants.

UL94V-0 flammability rated for base.

High insulating barriers protect against crossover.

Terminals are molded in and epoxy sealed to lock out flux, dust, and other contaminants.



Actual Size



# General Specifications

## Electrical Capacity (Resistive Load)

**Power Level (code W):** 6A @ 125V AC or 3A @ 250V AC for silver  
**Logic Level (code G):** 0.4VA maximum @ 28V AC/DC maximum for gold  
 (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)  
 Note: See Supplement Index (page Z2) to find explanation of operating range.

## Other Ratings

**Contact Resistance:** 10 milliohms maximum for silver; 20 milliohms maximum for gold  
**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:** 50,000 operations minimum  
**Electrical Life:** 25,000 operations minimum for silver; 50,000 operations minimum for gold  
**Static Capability:** Withstands 20 kilovolts ESD minimum  
**Nominal Operating Force:** 1.9N for 17.5mm toggle; 2.5N for 11.0mm toggle  
**Angle of Throw:** 25°

## Materials & Finishes

**Toggle:** Polycarbonate  
**Housing:** Glass fiber reinforced polyamide  
**Sealing Ring:** Nitrile butadiene rubber  
**Base:** Diallyl phthalate (UL94V-0)  
**Movable Contact:** Phosphor bronze with silver or gold plating  
**Movable Contacts:** Silver alloy or copper with gold plating  
**Stationary Contact:** Silver plus copper with silver plating or copper with gold plating  
**Lamp Contacts:** Beryllium copper with silver plating  
**Power Terminals:** Copper with silver or gold plating  
**Lamp Terminals:** Brass with silver plating

## Environmental Data

**Operating Temp Range:** -10°C through +55°C (+14°F through +131°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 1.75 hours  
**Shock:** 50G (490m/sec<sup>2</sup>) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

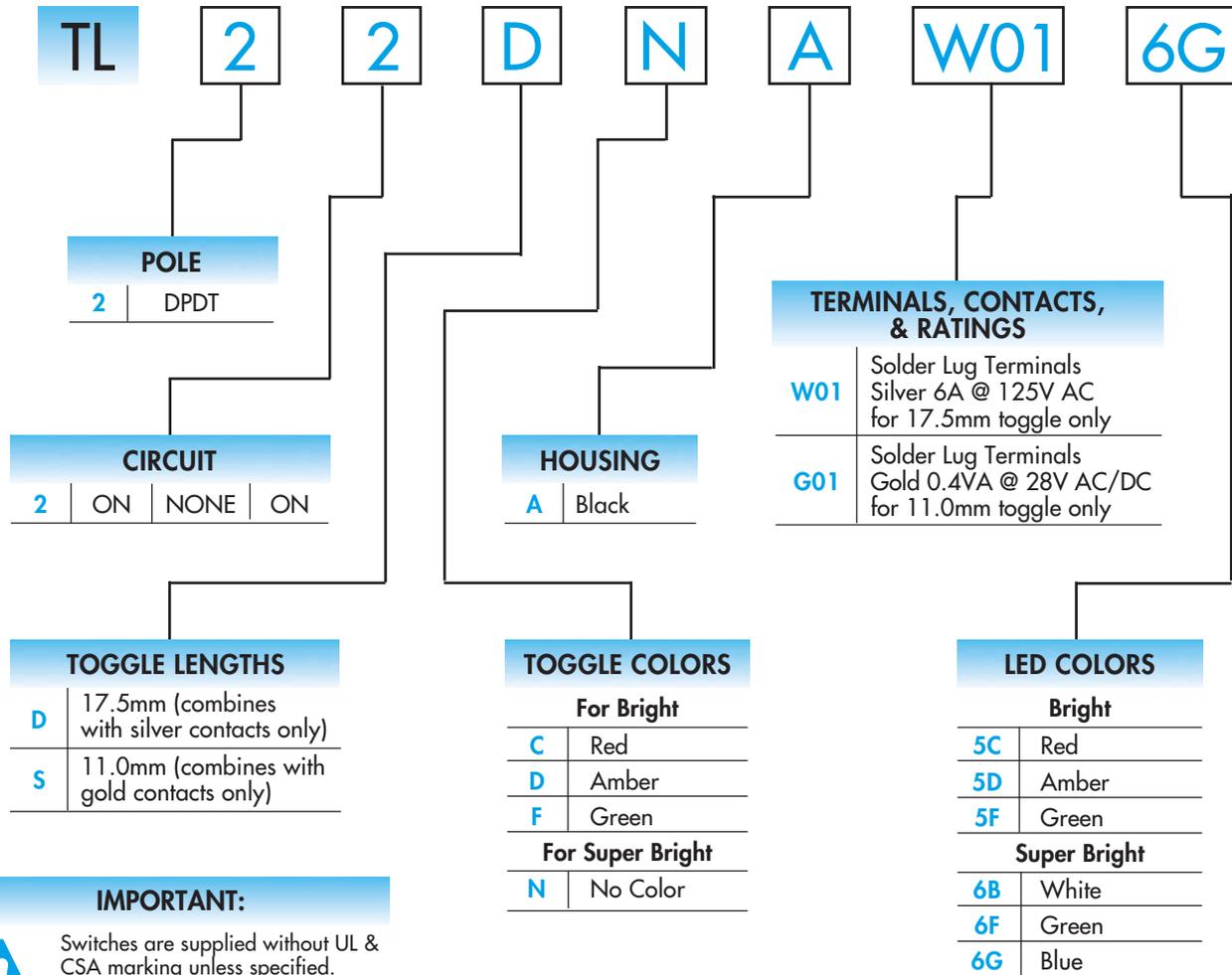
## Installation

**Mounting Torque:** .98Nm (8.67 lb•in) maximum  
**Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C  
**Process Seal:** Not available

## Standards & Certifications

**Flammability Standards:** UL94V-0 base

## TYPICAL SWITCH ORDERING EXAMPLE



### IMPORTANT:



Switches are supplied without UL & CSA marking unless specified. Specific models & ratings noted on General Specifications page.

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

#### TL22DNAW016G



## POLE & CIRCUIT

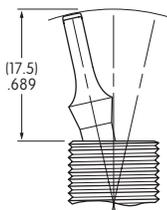
Pole	Model	Toggle Position			Connected Terminals			Throw & Power/Lamp Schematics
		Down <small>Keyway</small>	Center	Up	Down <small>Keyway</small>	Center	Up	
DP	TL22	ON	NONE	ON	1-1b 2-2b	OPEN	1-1a 2-2a	Notes: Terminal numbers are actually on the switch. Lamp circuit is isolated & requires an external power source. 

## TOGGLE LENGTHS & COLORS

**D** 17.5mm

Material:  
Polycarbonate

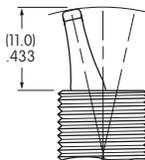
Combines only  
with silver



**S** 11.0mm

Material:  
Polycarbonate

Combines only  
with gold



Colors Available for Bright LED:

**C** Red **D** Amber **F** Green

Color Available for Super Bright LED:

**N** No Color (Appearance is matte finish of clear material.)

## HOUSING

**A** Black

The housing consists of the 1-piece bushing/case of glass fiber reinforced polyamide in black color only.

The glass fiber reinforced polyamide material used for the housing is UL flammability rated 94V-0.

## CONTACT MATERIALS, RATINGS, & TERMINALS

**W** Silver Contacts

Power Level  
6A @ 125V AC & 3A @ 250V AC

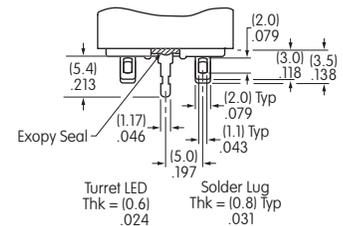
**G** Gold Contacts

Logic Level  
0.4VA maximum @ 28V AC/DC

See Supplement Index (page Z2) for complete explanation of operating range.

**01** Solder Lug

The .043" x .079" oblong hole accommodates one solid 18-gauge wire or two solid or stranded 20-gauge wires.



## LED CODES & SPECIFICATIONS

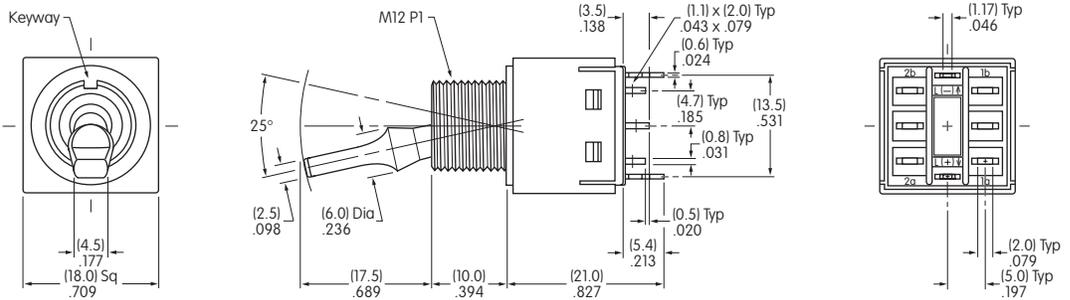
Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement Index (page Z2).

	For Colored Toggles				For Clear Toggles		
	<b>5</b> Bright			<b>6</b> Super Bright			
	Color	<b>C</b> Red	<b>D</b> Amber	<b>F</b> Green	<b>B</b> White	<b>F</b> Green	<b>G</b> Blue
LED factory assembled <b>Not Available Separately</b>							
Forward Peak Current	$I_{FM}$	30mA	30mA	50mA	30mA	30mA	30mA
Continuous Forward Current	$I_F$	20mA	20mA	20mA	20mA	20mA	20mA
Forward Voltage	$V_F$	2.0V	2.1V	2.27V	3.6V	3.3V	3.4V
Reverse Peak Voltage	$V_{RM}$	4V	4V	4V	5V	5V	5V
Current Reduction Rate Above 25°C	$\Delta I_F$	0.32mA/°C	0.32mA/°C	0.50mA/°C	0.50mA/°C	0.40mA/°C	0.40mA/°C
Ambient Temperature Range		-10°C ~ +55°C			-10°C ~ +55°C		

## TYPICAL SWITCH DIMENSIONS



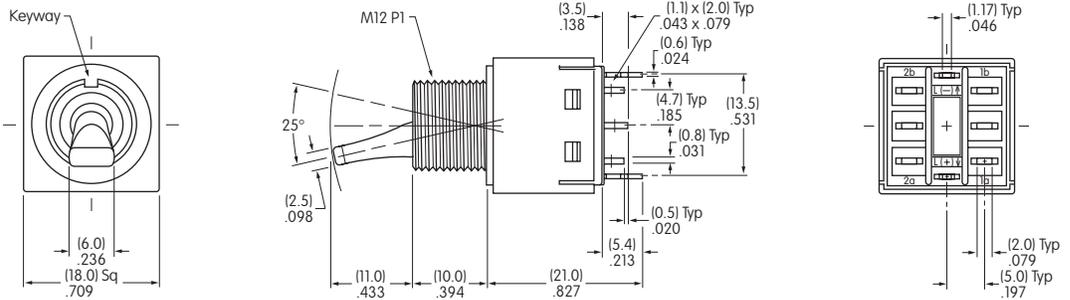
TL22DNAW016G



17.5mm Toggle



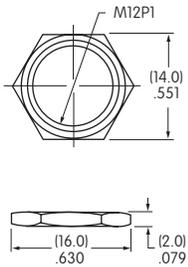
TL22SCAG015C



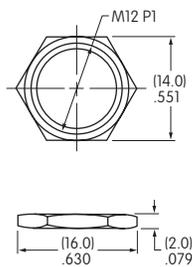
11.0mm Toggle

## STANDARD HARDWARE

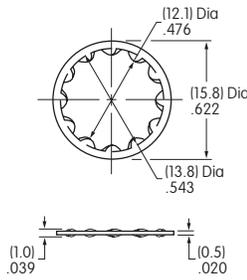
1 AT527MA  
Black Hex Nut  
Used as Face Nut  
Chrome/Steel



1 AT527M  
Hex Nut  
Used as Backup Nut  
Nickel/Steel

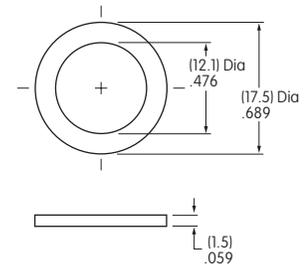


1 AT508  
Lockwasher  
Should Not Be Used w/Panel Seal  
Steel with Chromate/Zinc



## OPTIONAL HARDWARE

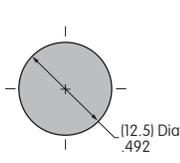
AT401P  
O-ring  
Used for Panel Seal  
Natural Rubber



Hardware details in Accessories & Hardware section.

## Panel Cutouts

Maximum Panel Thickness  
With Standard Hardware  
4.0mm (.157")



Maximum Panel Thickness  
With Standard Hardware  
& AT401P O-ring.  
6.0mm (.236")

