

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.

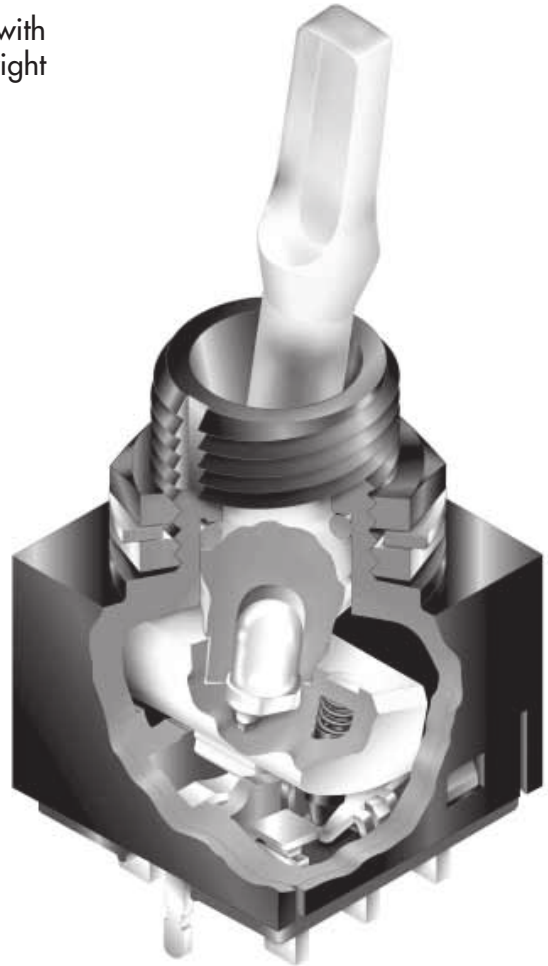
Panel seal, achieved with use of optional exterior o-ring, conforms to IP65 of IEC529 Standards.

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

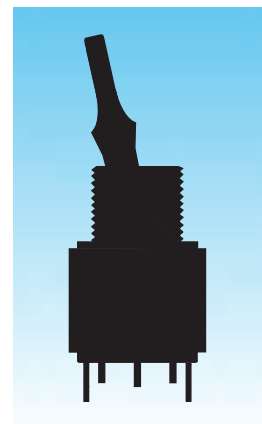
UL94V-0 flammability rated for base.

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/sec²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

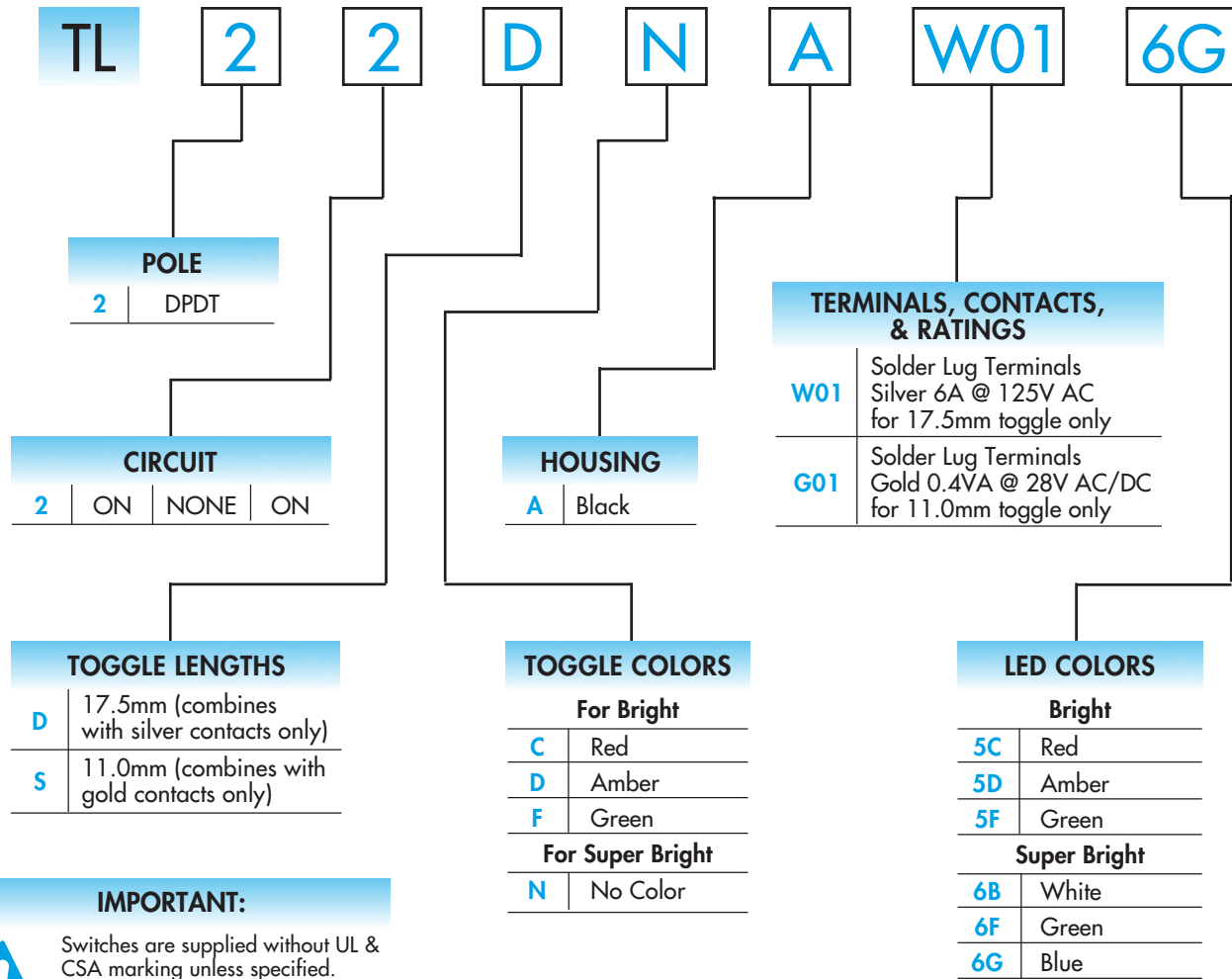
Installation

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



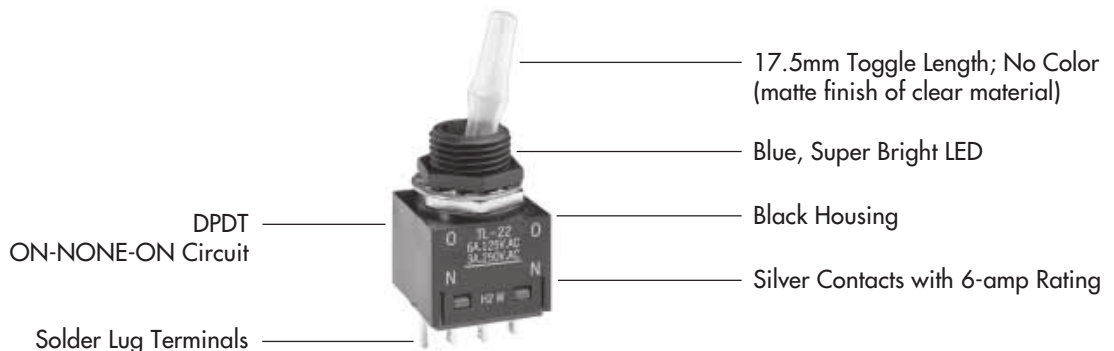
IMPORTANT:



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

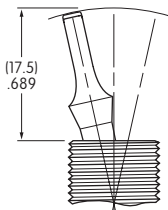
Pole	Model	Toggle Position			Connected Terminals			Throw & Power/Lamp Schematics
		Down Keyway	Center	Up	Down Keyway	Center	Up	
DP	TL22	ON	NONE	ON	1-1b 2-2b	OPEN	1-1a 2-2a	Notes: Terminal numbers are actually on the switch. Lamp circuit is isolated & requires an external power source.

TOGGLE LENGTHS & COLORS

D 17.5mm

Material:
Polycarbonate

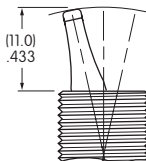
Combines only
with silver



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

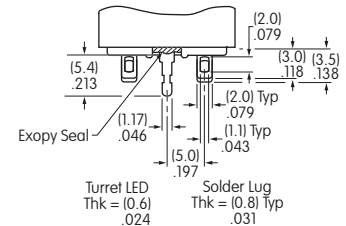
G Gold Contacts

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

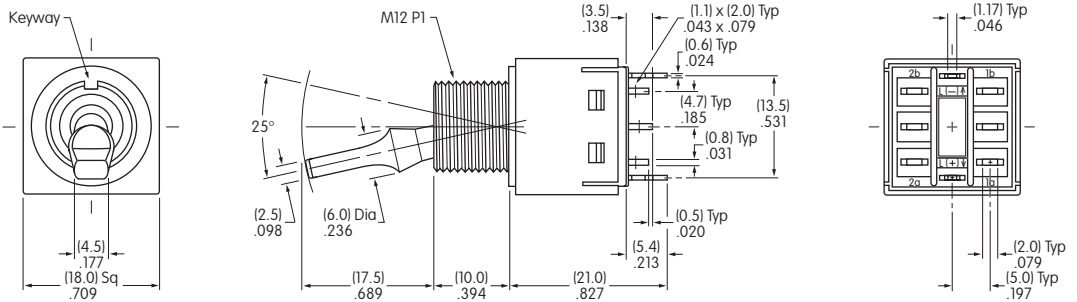
Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement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

LED factory assembled Not Available Separately	Color	For Colored Toggles			For Clear Toggles		
		5 Bright			6 Super Bright		
		C Red	D Amber	F Green	B White	F Green	G Blue
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	ΔI_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



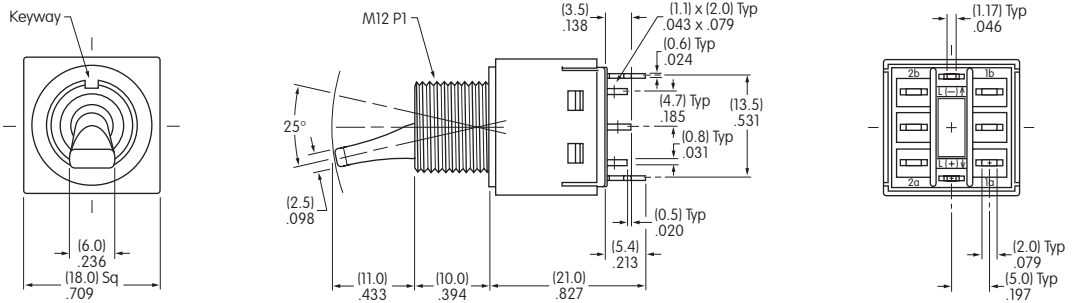
TL22DNAW016G



17.5mm Toggle



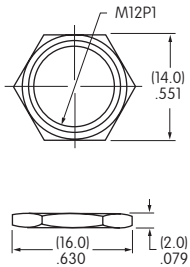
TL22SCAG015C



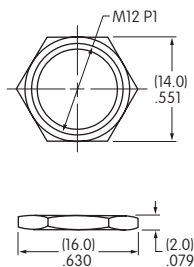
11.0mm Toggle

STANDARD HARDWARE

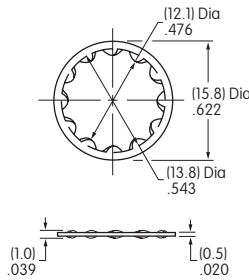
1 AT527MA
Black Hex Nut
Used as Face Nut
Chrome/Steel



1 AT527M
Hex Nut
Used as Backup Nut
Nickel/Steel

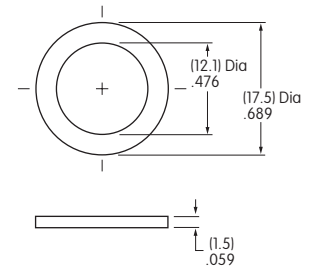


1 AT508
Lockwasher
Should Not Be Used w/Panel Seal
Steel with Chromate/Zinc



OPTIONAL HARDWARE

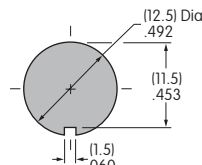
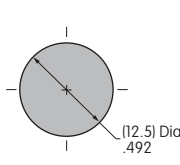
AT401P
O-ring
Used for Panel Seal
Natural Rubber



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")