

General Specifications

B Electrical Capacity (Resistive Load)

Power Level (silver): 6A @ 125V AC or 3A @ 250V AC or 3A @ 30V DC
Logic Level (gold): 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: 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

Nominal Operating Force:		On-to-On Position	
		On-to-On Position	Off-to-On Position
Paddles	Single Pole	3.19N	3.92N
	Double Pole	4.41N	7.06N
Rockers	Single Pole	6.37N	9.80N
	Double Pole	13.73N	17.65N

Angle of Throw: 20°

Materials & Finishes

Housing: Stainless steel
Mounting Bracket: Stainless steel
Movable Contacts: Silver alloy or copper with gold plating
Stationary Contacts: Silver alloy with silver plating or copper or brass with gold plating
Lamp Contacts: Phosphor bronze
Base: Diallyl phthalate resin (UL94V-0)
Switch Terminals: Brass or copper with silver or gold plating
Lamp Terminals: Brass or copper with silver or gold plating

Environmental Data

Operating Temp Range: -10°C through +55°C (+14°F through +131°F) for rockers
 -25°C through +70°C (-13°F through +158°F) for paddles
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 2 hours
Shock: 500m/s² acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

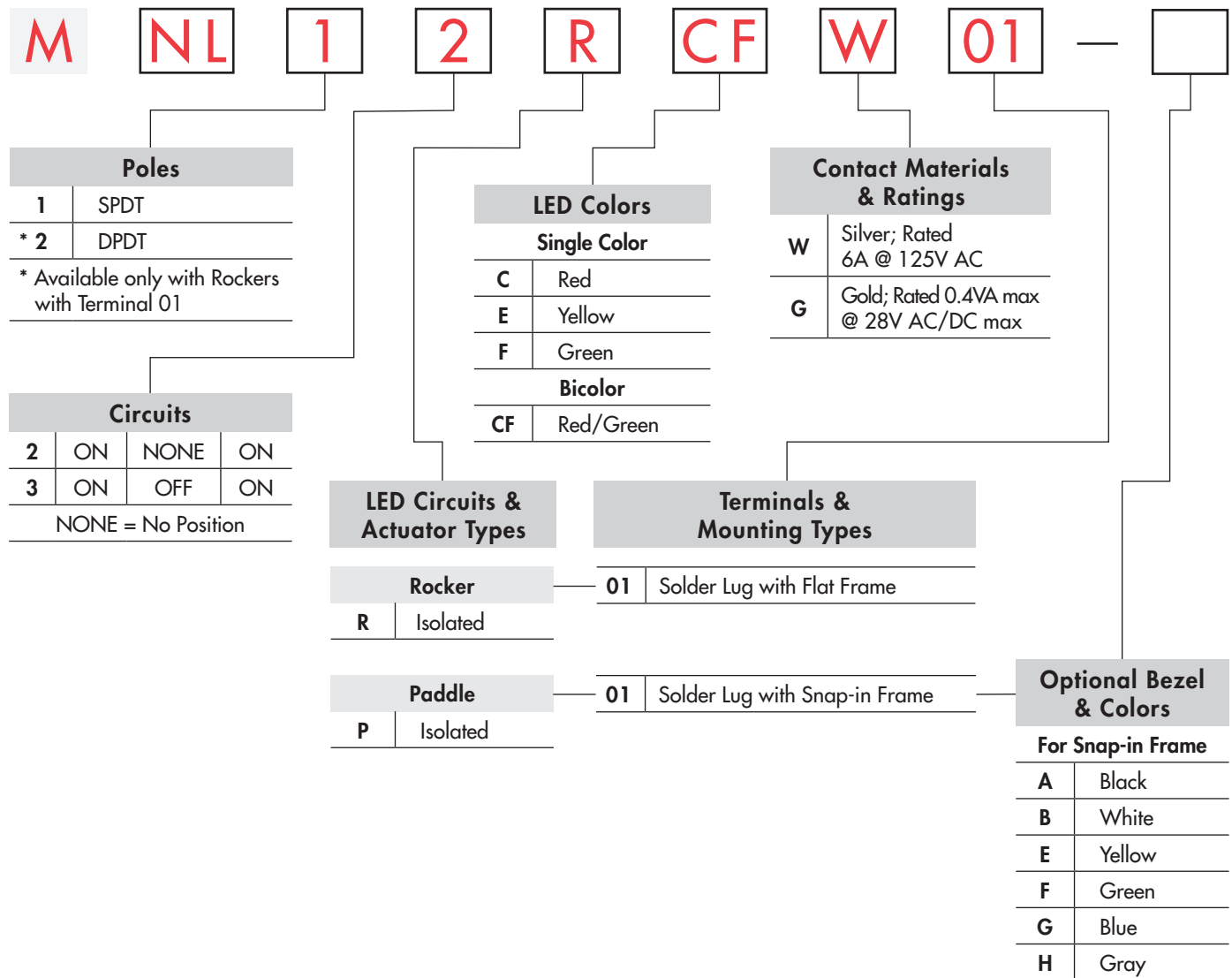
Installation

Soldering Time & Temp: Wave Soldering (PC version): See Profile B in Supplement section.
 Manual Soldering: See Profile B in Supplement section.
 Note: Lever must be in center position while soldering.
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications

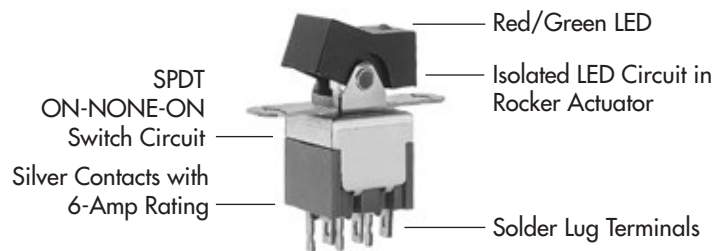
Flammability Standards: UL94V-0 base

TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MNL12RCFW01



Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

Toggles

Rockers **B**

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt




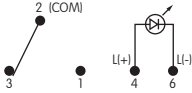
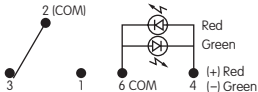

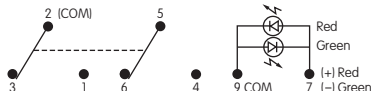
Touch

Indicators

Accessories

Supplement

POLES & CIRCUITS & LED ILLUMINATION

Model	Pole & Throw	Rocker Position & Terminal Numbers NONE = No Position			Schematics
		Down 	Center 	Up 	
MNL12 Connected Power Terminals	SPDT	ON 2-3	NONE NONE	ON 2-1	Notes: Terminal numbers are not actually on the switch. LEDs require an external power source.
LED Circuit Isolated LEDs (see schematics) Connected LED Terminals		ON 4-6	NONE NONE	ON 4-6	
MNL13 Connected Power Terminals	SPDT	ON 2-3	OFF OPEN	ON 2-1	Isolated Single Color LED 
LED Circuit Isolated LEDs (see schematics) Connected LED Terminals		ON 4-6	ON 4-6	ON 4-6	
MNL22 Connected Power Terminals	DPDT	ON 2-3 5-6	NONE NONE	ON 2-1 5-4	Isolated Single Color LED 
LED Circuit Isolated LEDs (see schematics) Connected LED Terminals		ON 7-9	NONE NONE	ON 7-9	
MNL23 Connected Power Terminals	DPDT	ON 2-3 5-6	OFF OPEN	ON 2-1 5-4	Isolated Bicolor LED 
LED Circuit Isolated LEDs (see schematics) Connected LED Terminals		ON 7-9	ON 7-9	ON 7-9	
					Isolated Bicolor LED 

LED COLORS & SPECIFICATIONS

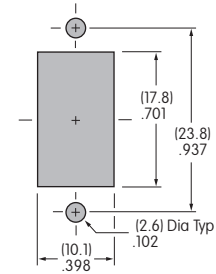
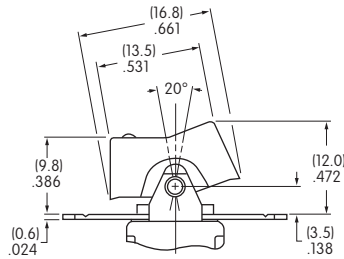
The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires an external power source. If the source voltage exceeds the rated voltage, a ballast resistor is required. The resistor value can be calculated by using the formula in Supplement Section. The LED is an integral part of the switch and not available separately. Bicolor LED is translucent white when unlit.

		Rockers				Paddles				Units
		Single Color		Bicolor	Single Color		Bicolor			
		C Red	E Yellow	F Green	CF Red/Green	C Red	E Yellow	F Green	CF Red/Green	
Maximum Forward Current	I_{FM}	30	30	30	25	30	30	30	30/25	mA
Typical Forward Current	I_F	20	20	20	20	20	20	20	20/20	mA
Forward Voltage	V_F	2.2	2.1	2.2	1.7/2.0	2.1	2.1	2.2	2.0/2.2	V
Maximum Reverse Voltage	V_{RM}	4	4	4	—	5	5	5	—	V
Current Reduction Rate Above 25°C	ΔI_F	0.38	0.38	0.38	0.33/0.33	0.40	0.40	0.40	0.43/0.38	mA/°C
Ambient Temperature Range		-10° ~ +55°C				-25° ~ +70°C				

LED CIRCUIT, ROCKER, & MOUNTING TYPE COMBINATIONS

R Rocker with Isolated LED Circuit

Material: Polyamide
 Finish: Matte
 Color: Black



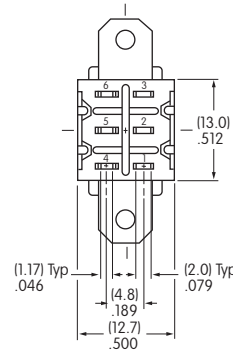
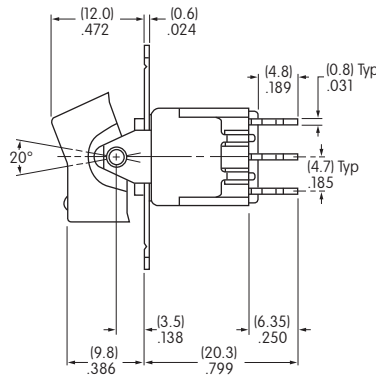
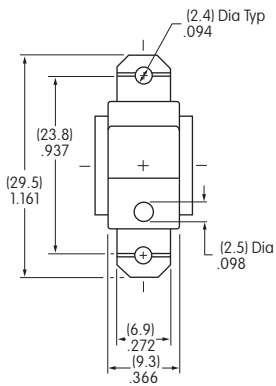
Flat Frame combines with Terminal code 01.

Maximum Panel Thickness .126" (3.2mm)

TYPICAL ROCKER SWITCH DIMENSIONS

Single Pole

Solder Lug

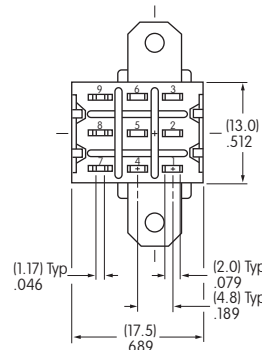
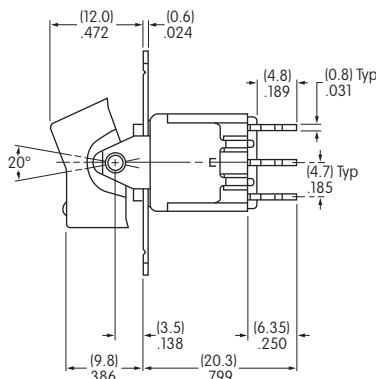
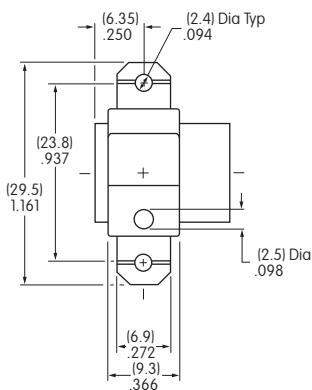


Single color LED switch does not have terminal 5.

MNL12RCFW01

Double Pole

Solder Lug



Single color LED switch does not have terminal 8.

MNL22RCFW01

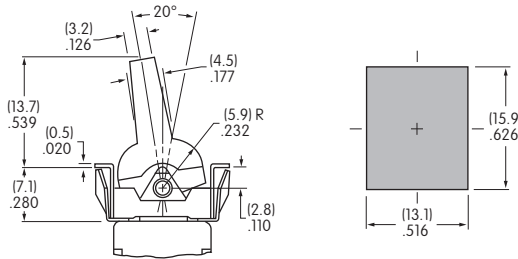
LED CIRCUIT, PADDLE, & MOUNTING TYPE COMBINATION

P

Paddle with Isolated LED Circuit

Material: Polyamide
Finish: Matte
Color: Black

Snap-in combines with Terminal code 01

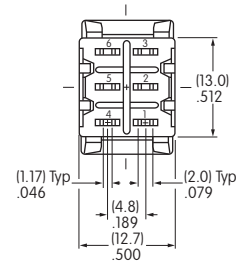
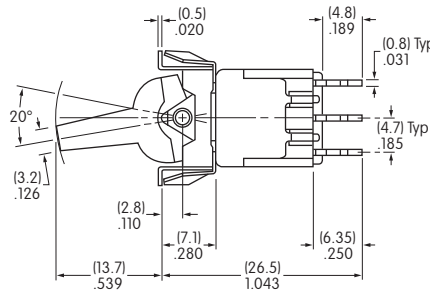
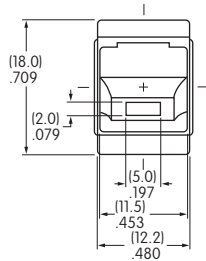


Maximum Panel Thickness
.039" ~ .126" (1.0 ~ 3.2mm) without Bezel
.039" ~ .098" (1.0 ~ 2.5mm) with Bezel

TYPICAL PADDLE SWITCH DIMENSIONS

Solder Lug • Snap-in

Single Pole Only



MNL12PCFW01

Single color LED switch does not have terminal 5.

CONTACT MATERIALS & RATINGS

W

Silver

Power Level

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

G

Gold

Logic Level

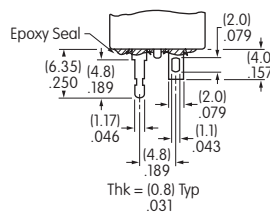
0.4VA maximum @ 28V AC/DC maximum

Complete explanation of operating range in Supplement section.

TERMINALS

01

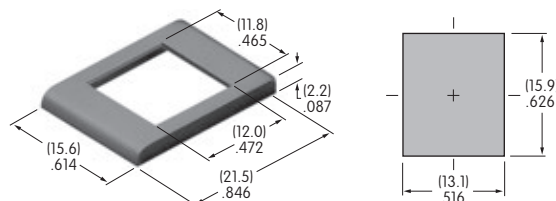
Solder Lug with Turret LED Terminal



OPTIONAL BEZEL & COLORS

AT2107 Bezel for Snap-in Panel Frame

Material: Polyamide
Finish: Matte



Colors Available:

- | | | |
|----------------|----------------|-----------------|
| A Black | B White | E Yellow |
| F Green | G Blue | H Gray |

