

## FEATURES

- RoHS and Lead-Free compliance
- Wide variety of switching functions: SPDT, DPDT
- Vertical, right angle and vertical right angle mounting brackets
- Customization available

## RS PRO Miniature Toggle Switches

RS Stock No.: 209935, 2099372, 2099366, 2099363, 2099360, 2099354, 2099364, 2099373, 2099358, 2099365, 2099356, 2099367, 2099374, 2099357, 2099352, 2099369, 2099370, 2099351, 2099375, 2099359, 2099371, 2099368, 2099362



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

# Miniature Toggle Switches

## Similar Products

Stock No.	Brand	Switch Function	Terminal Type	Terminal Plating	Actuator Type	Bushing Type
2099360	RS PRO	SP ON-ON	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099362	RS PRO	SP ON-ON	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099363	RS PRO	SP ON-ON	Right Angle PC thru-hole	GOLD	10.41 High	5.59 High, Flat (no-thd)
2099364	RS PRO	SP ON-ON	Right Angle PC thru-hole	GOLD	7.37 High	5.59 High, Flat (thd)
2099365	RS PRO	SP ON-ON	PC thru-hole	GOLD	10.41 High	6.60 High, Keyway (thd)
2099366	RS PRO	SP ON-(ON)	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099367	RS PRO	SP ON-(ON)	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099368	RS PRO	SP ON-(ON)	Right Angle PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099369	RS PRO	SP ON-(ON)	PC thru-hole	GOLD	10.41 High	6.60 High, Keyway (thd)
2099370	RS PRO	SP ON-OFF-ON	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099371	RS PRO	SP ON-OFF-ON	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099372	RS PRO	SP ON-OFF-ON	Right Angle PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099373	RS PRO	SP (ON)-OFF-(ON)	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099374	RS PRO	SP (ON)-OFF-(ON)	Right Angle PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099375	RS PRO	SP ON-OFF-(ON)	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099351	RS PRO	DP ON-ON	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099352	RS PRO	DP ON-ON	Right Angle PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099353	RS PRO	DP ON-ON	Right Angle PC thru-hole	GOLD	7.37 High	5.59 High, Flat (thd)
2099354	RS PRO	DP ON-ON	PC thru-hole	GOLD	10.41 High	6.60 High, Keyway (thd)
2099356	RS PRO	DP ON-(ON)	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099357	RS PRO	DP ON-OFF-ON	Solder Lug	SILVER	9.40 High	5.59 High, Flat (thd)
2099358	RS PRO	DP ON-OFF-ON	PC thru-hole	GOLD	5.33 High	5.59 High, Flat (no-thd)
2099359	RS PRO	DP ON-OFF-ON	PC thru-hole	GOLD	10.41 High	6.60 High, Keyway (thd)

NO. POLES	UL/CSA MODEL NO.	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS / SCHEMATIC		
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3
SP	Q2211	2MS1	ON	NONE	ON	2-3	N/A	2-1
	Q2212	2MS2	ON	NONE	(ON)			
	Q2213	2MS3	ON	OFF	ON		OPEN	
	Q2214	2MS4	(ON)	OFF	(ON)			
	Q2215	2MS5	ON	OFF	(ON)	OPEN	N/A	3-1
	Q2216	2MS6	OFF	NONE	ON			
DP	Q2221	2MD1	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4
	Q2222	2MD2	ON	NONE	(ON)			
	Q2223	2MD3	ON	OFF	ON		OPEN	
	Q2226	2MD6	ON	ON	ON			

# Miniature Toggle Switches

## Product Description

2M series sub-miniature toggle switches offer in both SPDT and DPDT, including multiple actuator, bushing and termination options, and contact rating up to 3A. The operating temperature range between -40°C and 85°C. Now available with a locking toggle.

Applications of Dailywell 2M series toggle switches include telecommunications, instrumentation and medical equipment.

### APPLICATIONS:

- telecommunications and networking equipment (wireless network cards, handheld devices, reset switches)
- instrumentation (shut-off switches, controllers)
- industrial controls (grips, joysticks, power supplies)
- test and measurement equipment
- elevator controls
- food processing equipment
- boat and marine control panels
- medical equipment (wheelchair motor switch)
- off-highway and construction equipment
- security systems and metal detectors

## Specifications

### SPECIFICATIONS

**CONTACT RATING:** Dependent upon contact material See Page

**MECHANICAL LIFE:** 30,000 make-and-break cycles.

**CONTACT RESISTANCE:** 20 mΩ max. initial @ 2-4VDC  
100mA for both silver and gold plated contacts.

**INSULATION RESISTANCE:** 1,000 MΩ min.

**DIELECTRIC STRENGTH:** 1,000 Vrms min. @sea level.

**OPERATING TEMPERATURE:** -40°C to 85°C.

### MATERIALS

**CASE:** Diallyl phthalate (DAP) (UL94v-0).

**ACTUATOR:** Brass, chrome plated.

**BUSHING:** Brass or zinc, nickel plated.

**HOUSING:** Stainless Steel.

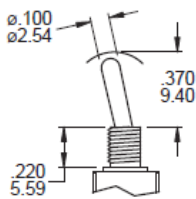
**SWITCH SUPPORT:** Brass, tin plated.

**TERMINAL/CONTACT:** Brass or copper alloy, with Silver or gold

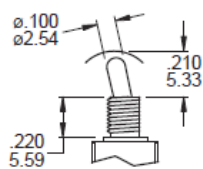
# Miniature Toggle Switches

## Actuator Options

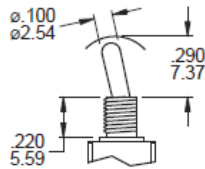
T1



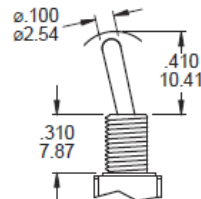
T2



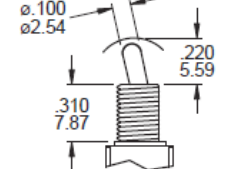
T3



T4

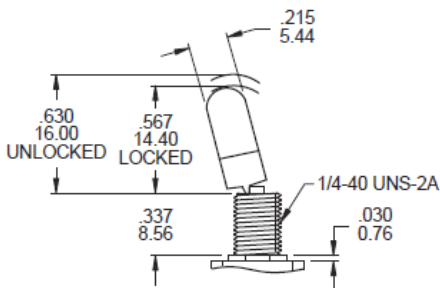


T5

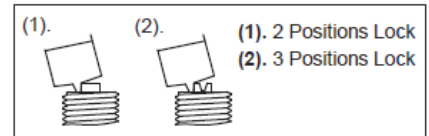
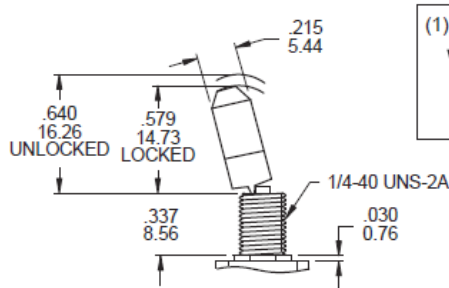


NONE: T1,T2,T3 Actuator shown with B1 to B4 bushing, subtract 0.09 ( 2.29 ) for B5 bushing, subtract 0.04 ( 1.02 ) for B7 bushing.  
 T4,T5 Actuator shown with B5,B6 bushing, add 0.09 ( 2.29 ) for B1 to B3 bushing, add 0.05 ( 1.27 ) for B7 bushing.  
 Std for M1,M2 Terminal sub .016(.040) for M6,M7,VSX

TL1B25

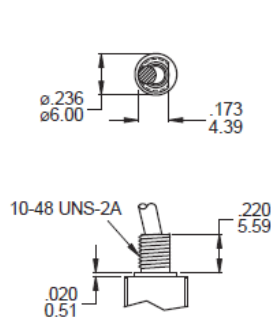


TL2B25

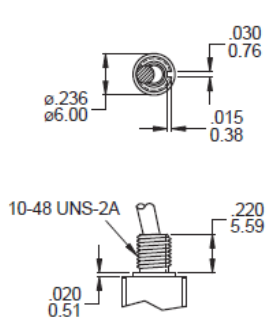


## BUSHING OPTIONS

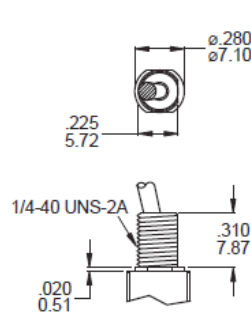
B1 THD  
B2 NON-THD



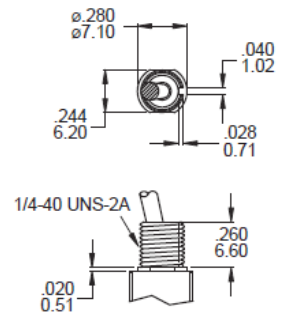
B3 THD  
B4 NON-THD



B5 THD  
B6 NON-THD

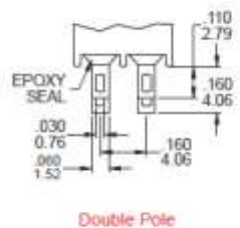
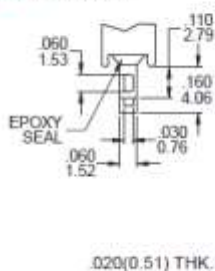


B7 THD  
B8 NON-THD



## TERMINATION OPTIONS

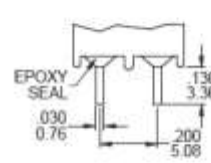
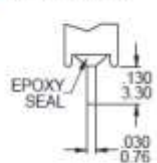
M1 Solder lug



Double Pole

.020(0.51) THK.

M2 PC Thru-hole

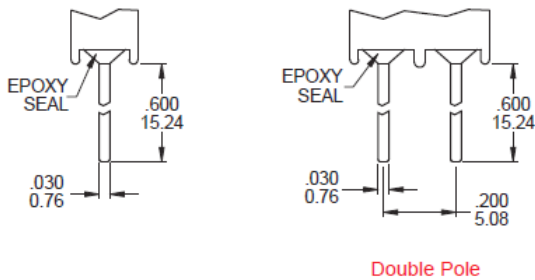


Double Pole

.020(0.51) THK.

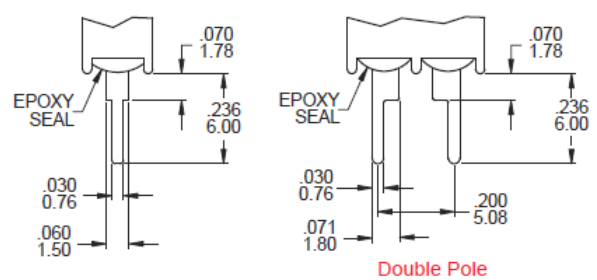
# Miniature Toggle Switches

## M51 Wire Wrap



.020(0.51) THK.

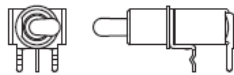
## M52 Wire Wrap



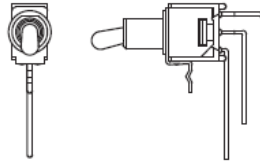
.020(0.51) THK.

## SNAP-IN TERMINATION OPTIONS

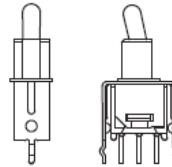
### M6N



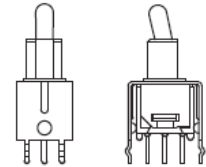
### M7N



### V2N



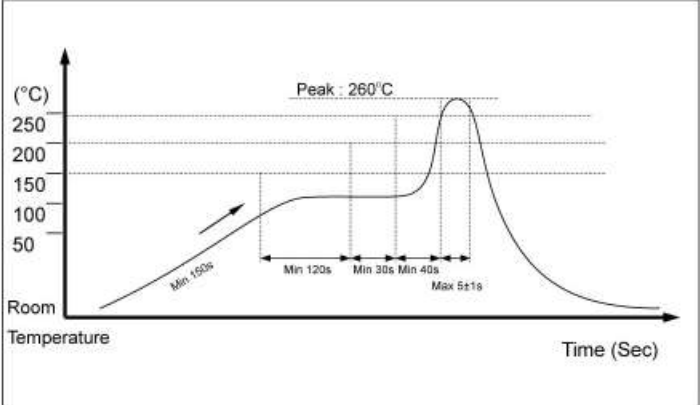
### V3N



## Reliability Performance

<p><b>Resistance Humidity</b></p>	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made:</p> <ul style="list-style-type: none"> <li>➤ Temperature: <math>40 \pm 2^\circ\text{C}</math></li> <li>➤ Relative Humidity: 90~95%</li> <li>➤ Time: 96 hours.</li> </ul>
<p><b>The Salt Testing</b></p>	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made :</p> <ul style="list-style-type: none"> <li>➤ Temperature : <math>35 \pm 2^\circ\text{C}</math>.</li> <li>➤ The ratio of salt-water : 5%.</li> <li>➤ The spray amount of salt- water : 1~2 ml/h.</li> <li>➤ Time : 48 hours.</li> </ul>
<p><b>Shock Test</b></p>	<p>Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F</p> <ul style="list-style-type: none"> <li>➤ Acceleration; 50g</li> <li>➤ Action time: <math>11 \pm 1\text{m}</math> seconds.</li> <li>➤ Testing Direction: 6 sides.</li> <li>➤ Test Cycle: 3 times in each direction.</li> </ul>

# Miniature Toggle Switches

<p><b>Operating Life</b></p>	<p>Measurements shall be made following the test forth below:</p> <ul style="list-style-type: none"> <li>➤ 3A@120VAC resistive load – silver plated.</li> <li>1A@250VAC resistive load – silver plated.</li> <li>0.4VA max@ 20VAC max resistive load – gold plated.</li> <li>➤ Rate of Operation: 6-8operation cycles per minute.</li> <li>➤ Electronics Life Test: 6,000 cycles.</li> </ul> <p>Mechanical Life Test: 30,000 cycles.</p>
<p><b>Soldering Temperature</b></p>	<p>1. Manual Soldering : Soldering Temperature : Max.350°C Continuous Soldering Time : Max. 5 seconds.</p> <p>2. WAVE Soldering : Soldering Temperature:260±5°C. Duration of Solder Immersion: 5 ±1 seconds</p> <p style="text-align: center;">Temperature Profile</p>  <p>3. Frequency of Soldering Process 2 times max.(PCB is 1.6mm in thickness)  <span style="background-color: black; color: black;">■</span> Precautions in Handling            Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.</p>

## Additional Information

<b>Custom Tariff Number</b>	8536500000
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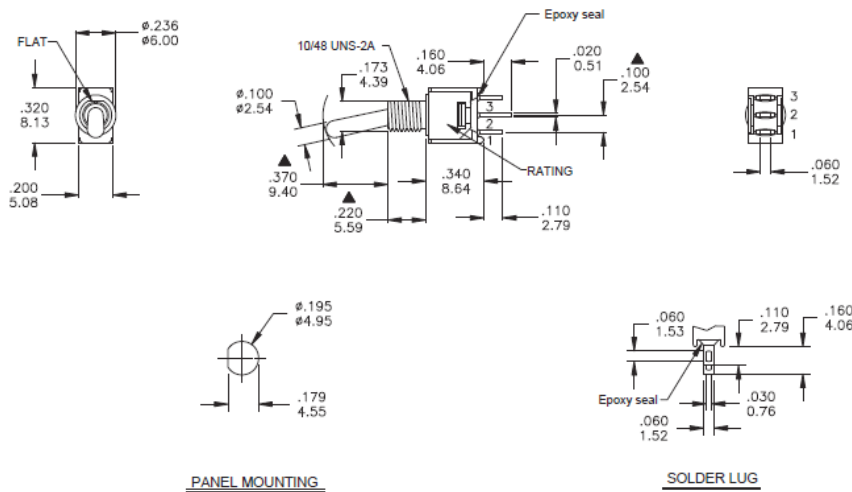
## Approvals

<b>Hazardous Area Certification</b>	RoHS 2011/65/EU & 2015/863
<b>Standards Met</b>	IP 67

# Miniature Toggle Switches

**Stock No.** 2099360

**Drawing:**



Model No.	POS.1	POS.2	POS.3
2MS1	ON	NONE	ON
Term. Comm.	2-3	N/A	2-1
SCHEMATIC			

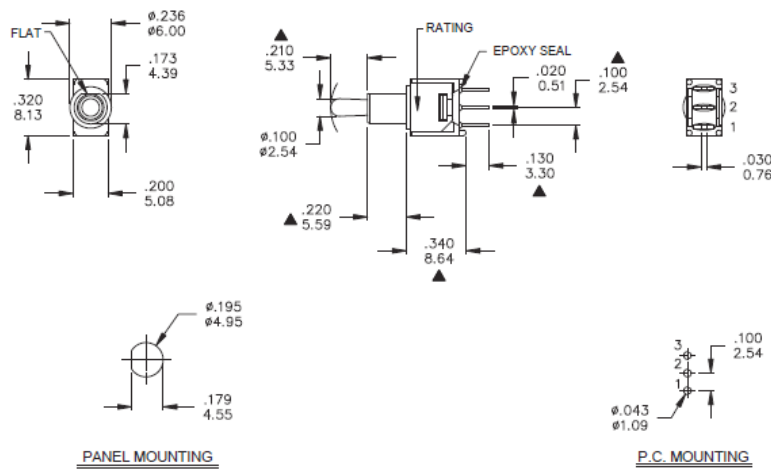
**SWITCH FUNCTION**

PART NO.	PART NAME	QTY	
1	MNU-2M01	10-48 INCH NUTS	2
2	MNU-2M03	LOCKWASHER	1

FILE NAME: HARDWARE-0003

**Stock No.** 2099374

**Drawing:**



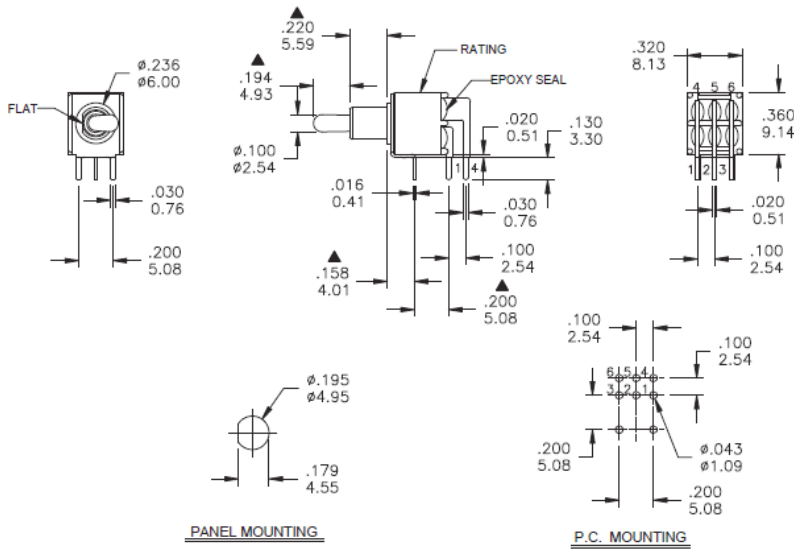
Model No.	POS.1	POS.2	POS.3
2MS4	MOM	OFF	MOM
Term. Comm.	2-3	OPEN	2-1
SCHEMATIC			

**SWITCH FUNCTION**

# Miniature Toggle Switches

**Stock No.** 2099352

**Drawing:**



Model No.	POS.1	POS.2	POS.3
2MD1	ON	NONE	ON
Term. Comm.	2-3,5-6	N/A	2-1,5-4
SCHEMATIC		N/A	

SWITCH FUNCTION

Accessories / Illustrations