New! TL SERIES - SMT WASHABLE TINY TOGGLE SWITCHES

DESIGNED EXCLUSIVELY FOR SURFACE MOUNTING

SMT TL Series switches incorporate many desireable features that include:

- **Tape & reel packaging**
  This type of packaging is recommended for:
  - economy
  - suitability for automated placement
  - handling of large quantities of components per packaging unit
  - positive component positioning
  - protection of terminals against damage during handling
  - high static resistance

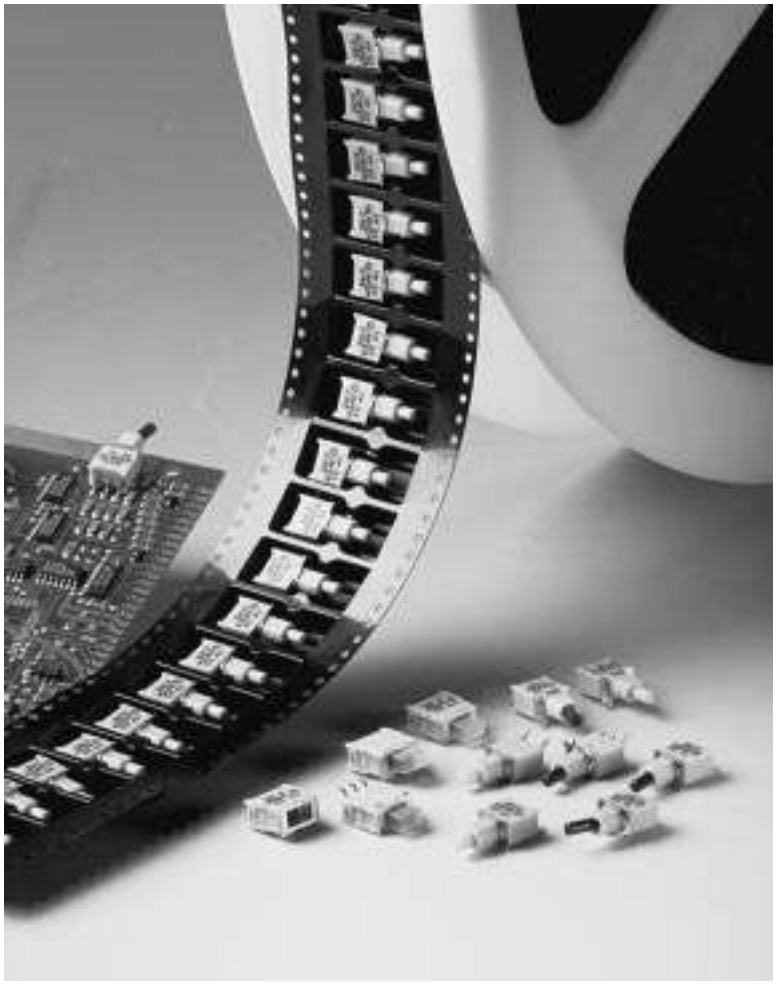
- **Reflow solderable**
  - High temperature plastic materials
  - Tin plated grounding brackets
  - Tin-lead alloy over nickel terminal plating
  - Terminals turned outward to prevent the shadow effect in infrared soldering and to permit visual inspection of the solder joints
  - .021" (0.55mm) air gap between p.c. board and switch case
  - End stackable with .400" (10.16mm) pitch
  - Available with positioning pins to assure correct switch orientation during the reflow process and provide additional mechanical integrity

- **Protected against electrostatic discharges (ESD) up to 10 KV.**

- **Washable**
  Switches are designed to withstand cleaning processes, including hot water under pressure.

Surface mount devices (SMD) are subject to more stringent constraints of temperature, solderability, sealing and space savings than through-hole components.

To meet these requirements, APEM has designed a family of tiny surface mount switches that include TP Series pushbutton switches, TG Series slide switches and TL Series toggle switches. See Pushbutton & Slide switch sections of catalog for TP & TG Series respectively.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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ELECTRICAL SPECIFICATIONS

Contact ratings (resistive lds.):	0.4 VA at 20 V max. (AC or DC)
Minimum load:	10 mA at 50 mV or 10µA at 5 VD
Initial contact resistance:	20 milliohms maximum
Insulation resistance:	1000 MΩ min. at 500 VDC
Dielectric strength:	1000 V rms between terminals & frame. 500 V rms between terminals
Electrical life (at full load):	2 position switches: 60,000 cycles 3 position switches: 30,000 cycles
Static resistance:	10 KV (Schaffner equipment)

GENERAL SPECIFICATIONS

Operating temperature range:	-40°C to +85°C
Moisture resistance:	21 days per IEC 512-6 test 11c
Vibration resistance:	10-500 Hz/10g per IEC 512-4 test 6d
Shock resistance:	50 g per IEC 512-4 test 6c

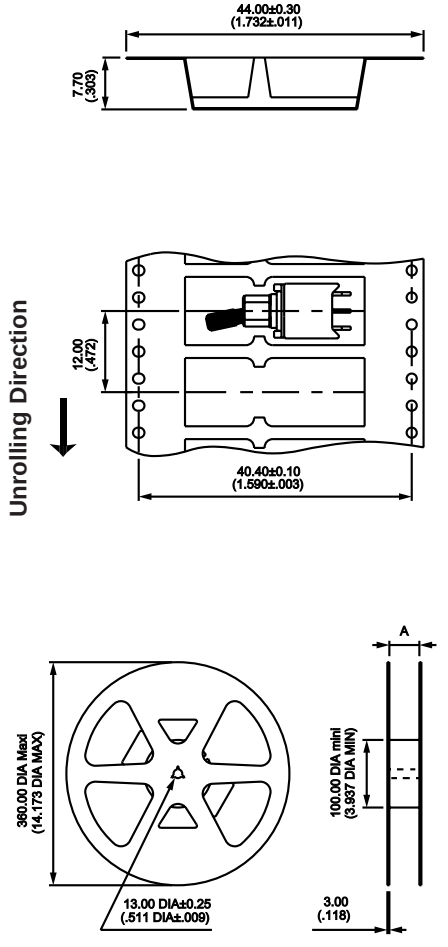
MATERIALS

Case:	High temperature plastic UL94V-0
Actuator:	Nickel plated brass with high temperature plastic UL94V-0 cap
Grounding brackets:	Tin plated steel (includes positioning pins)
Contacts:	Gold plated brass
Terminals:	Brass with tin-lead alloy over nickel plate

SOLDERING AND CLEANING

Reflow soldering:	Infrared, vapor phase and infrared convection
Washable:	Per IEA-RS448-2: water and detergent preferred. Solvents.

PACKAGING



Standard packaging unit:
700 pieces
Tape meeting international standard IEC Publication 286-3 (EIA481A)
Start leader: 15.7" (400mm) min.
Dimension 'A': 1.732" (44.00mm)

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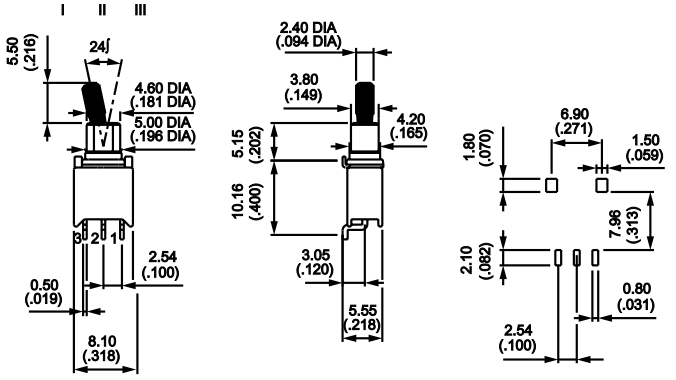
Single pole toggle switches



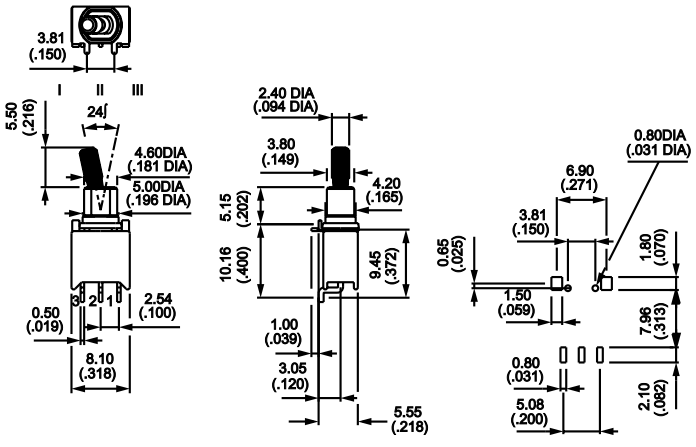
MODEL NO.	CIRCUIT		
TL36WS84000	ON	-	ON
TL39WS84000	ON	OFF	ON
TL37WS84000	MOM	OFF	MOM
TL38WS84000	ON	OFF	MOM
TL32WS84000	ON	-	MOM
Handle position:	III	II	I



Single pole toggle switches with positioning pins

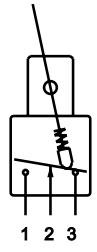


MODEL NO.	CIRCUIT		
TL36WS84065	ON	-	ON
TL39WS84065	ON	OFF	ON
TL37WS84065	MOM	OFF	MOM
TL38WS84065	ON	OFF	MOM
TL32WS84065	ON	-	MOM
Handle position:	III	II	I

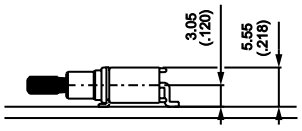


SWITCH ACTION

ON - ON Model shown



P.C. BOARD DIMENSIONS



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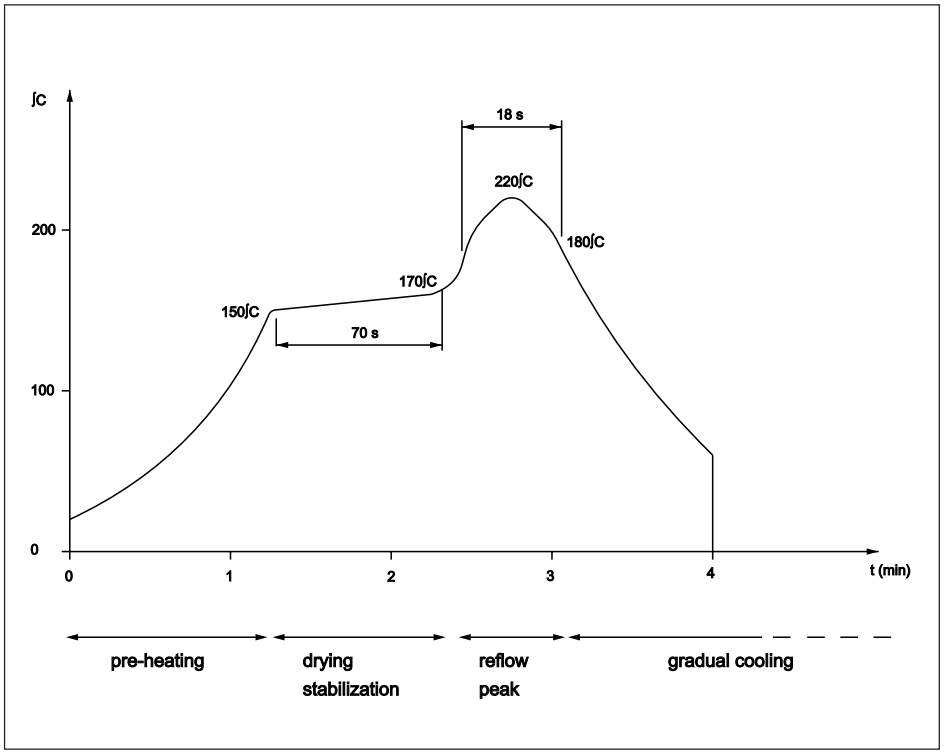
REFLOW SOLDERING - STANDARD PROFILE

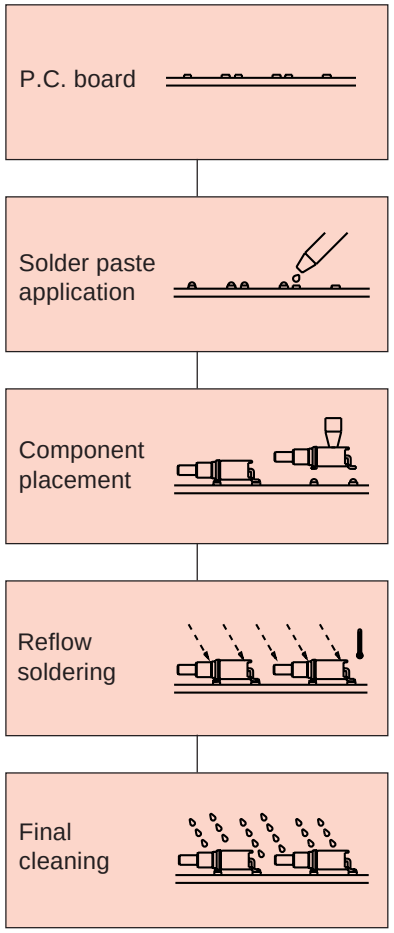
The printed circuit board, carried by a conveyor belt, travels through the reflow soldering oven and experiences the following programmed cycles:

a. pre-heat to a maximum of 200°C for 30 seconds
b. reflow at a maximum of 245°C for 10 seconds
c. final cleaning

TEMPERATURE/TIME PROFILE (typical)

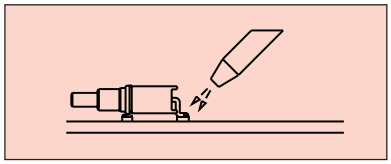


PROCESSING STEPS



P.C. BOARD REWORK RECOMMENDATIONS

Hot air reflow technique is preferred. Avoid the use of a soldering iron.



Caution: Excessive and/or repeated high temperature exposure may affect switch performance & reliability.

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