SERIES 97
Half-Pitch

FEATURES
- Low Profile
- Half the Size of Standard DIP Switches
- 2, 4, 6, 8 &10 Positions Available
- Less Mass for Easy Vacuum Pick & Place

APPLICATIONS
Used in any DIP application where space is at a premium such as notebook computers, hand-held radios, industrial control products, CD-ROM drives, cellular base stations and coin changers.

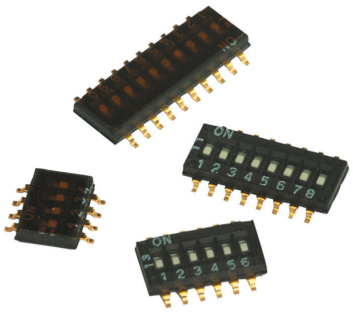


Fig. 1 Series 97C DIMENSIONS in inches (and millimeters)

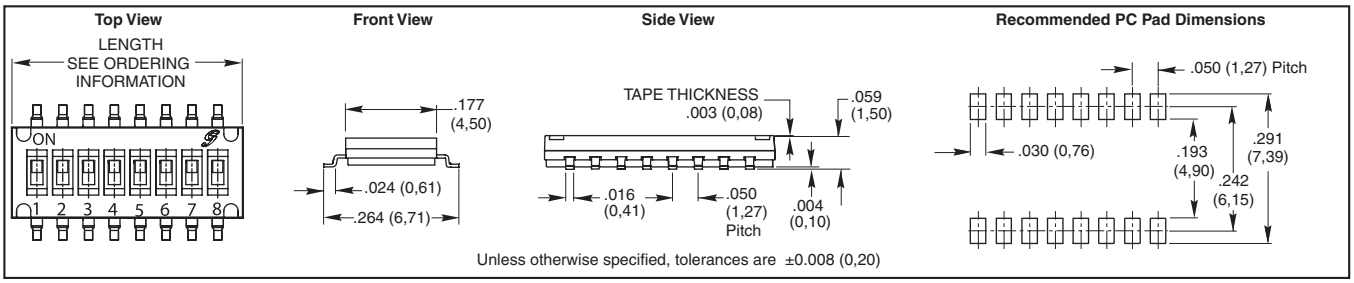
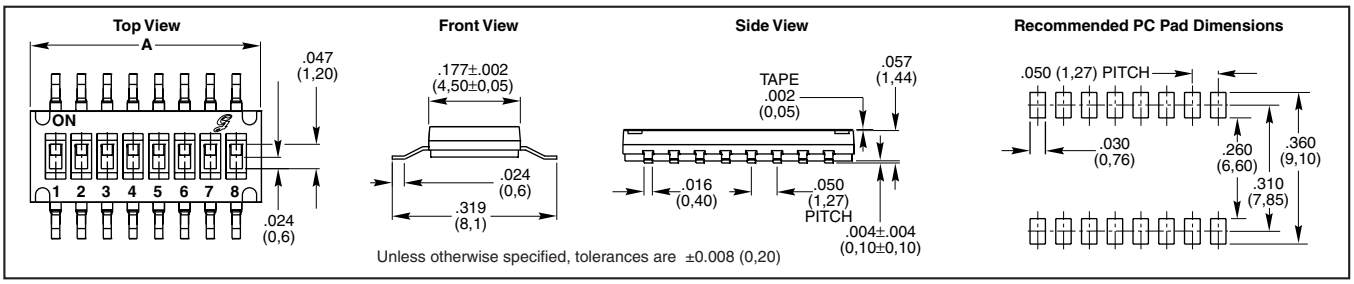


Fig. 2 Series 97R DIMENSIONS in inches (and millimeters)



SPECIFICATIONS

Electrical Ratings
Contact Rating: 25 mA at 24 Vdc switching; 100 mA at 50 Vdc non-switching
Contact Resistance: 100 mΩ max, initially
Insulation Resistance: 100 MΩ minimum at 100 Vdc
Dielectric Strength: 300 Vac for one minute
Switch Capacitance: 5pF maximum
Contact Arrangement: SPST

Mechanical Ratings
Life: 1,000 cycles minimum
Operation Force: 500 gF
Mechanical Shock: MIL-STD-202F, Method, 213B, Test Condition A. Gravity: 50G's (peak value), 11 m/sec. Direction and times: 6 sides and 3 times in each direction.
Vibration: MIL-STD-202F, Method 201A. Passed 6 hours (2 hours in each) of three perpendicular planes at a cycle of 10-55-10Hz/1 minute.

Operating Temperature Range: -40 to 85°C
Storage Temperature Range: -40 to 85°C

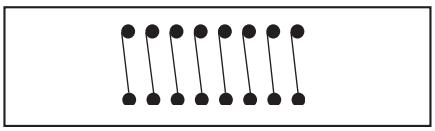
Materials
Base and Cover: UL94V-0 Nylon, black
Actuators: UL94V-0 Nylon thermoplastic, white
Base Contacts: Alloy copper with gold-plating over nickel
Terminals: Brass with gold-plating
Tape Seal: Kapton

Soldering Information
Vapor phase and IR-reflow soldering can be applied. With stands 255°C peak temperature.

Cleaning: Tape sealed versions are capable of withstanding washing processes using alcohol-based solvents only. Water or other water-based solvent washing processes are not recommended. Care should be taken to avoid flux adhering to the switch body from the circuit board soldering process. The switch should be allowed to cool for at least 3 minutes between the end of the solder process and the beginning of the wash process. The solvent stage of the cleaning process is not to exceed 1 minute and the whole wash process is not to exceed 3 minutes. Ultrasonic or pressure wash cleaning is not recommended.

Actuation: Switch slides should be actuated from a low angle in the intended direction of travel. The application of excess force from a high angle can cause permanent damage to the contact system. Tape seals must be removed to properly actuate the switches.

CIRCUITRY



ORDERING INFORMATION

97C06SRT

Series: 97C see fig. 1, 97R see fig. 2
Positions: 02 = .148 (3,76), 04 = .248 (6,30), 06 = .348 (8,84), 08 = .448 (11,38), 10 = .548 (13,92)

T= RoHS compliant
Packaging: Blank = Tube, R = Tape and Reel (see pkg note)
Seal: Blank = Unsealed, S = Top Tape Seal

Packaging Information
Tube: 125 pcs/tube (2 positions), 75 pcs/tube (4 positions), 54 pcs/tube (6 positions), 40 pcs/tube (8 positions), 33 pcs/tube (10 positions).
Tape and Reel: 97C: 4,000 pcs/reel (all positions). 97R: 2500 pcs/reel (all positions).

DIP switches are shipped in the "ON" position.

Grayhill DIP Switch Processing Information

The information provided within is intended as processing guidelines for the assembly, soldering, cleaning, and use of Grayhill DIP switches. This information supersedes any other process information that is available in Grayhill Inc. catalogs or data sheets as related to Grayhill Inc. standard DIP switch products. Please contact Grayhill Inc. for any questions related to the information in this document.

Mounting
Unless otherwise noted, Grayhill DIP switches are shipped with slides or rockers in the ON position and rotary DIP switches are shipped with the actuators in the 0 position. It is recommended that they be solder processed in those positions to ensure proper performance without issue.

Soldering
WAVE SOLDER: Switches that can be processed using wave solder equipment (thru hole soldering) are as follows:

Grayhill Series 76SB, 76PSB, 76PSB, 76RSB, 76SC, 76RSC, 76RSD, 76SD, 76STC, 76STD, 78B, 78RB, 78F, 78G, 78H, 78J, 78K, 90B, 94H (thru hole models), and 94R

Wave soldering guidelines: Solder wave temperature is 260°C. max. for 5 seconds max. (0.063" thick PCB). Exposure to flux should be kept to a minimum.

Manual soldering guidelines (for thru hole switches): Soldering temperature is 350C for soldering iron tip with 3 seconds maximum of dwell time.

REFLOW SOLDER: Switches that can be processed using reflow process equipment are as follows:

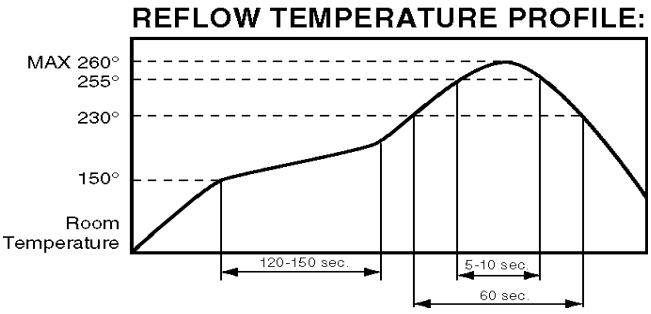
Grayhill Series 76HP, 78HF, 78HJ, 90B, 90HB, 94H, 94R, 97C, and 97R

Reflow soldering guidelines: Soldering temperature is 260C max. for 5 seconds, with a maximum of two reflow cycles at the maximum conditions. Switches should be allowed to cool for 3 to 5 minutes between reflow cycles. Reflow soldering should not be done to any Grayhill DIP switch products not listed directly above as the exposure to higher surface temperatures could cause permanent deformation of the plastic materials.

Recommended Maximum Soldering Conditions:

Reflow Soldering Profile:

(260°C Peak Temperature)



PCB Cleaning
In-line DIP switches that are tape sealed can be processed using certain washing processes as described below. Tape sealed switches can typically be identified by a suffix of ST or PT that follows after the series, switch style, and number of position identifiers (i.e., 76SB08ST). Non-tape sealed switches should not be subjected to any washing processes as they can introduce contaminants into the contact area of the switches. Rotary DIP products (94H & 94R) are internally sealed and can be processed the same as tape sealed products.

Tape sealed and rotary DIP switch products are qualified for immersion cleaning processes using alcohol or detergent based cleaning solvents at temperatures up to 140°F. maximum. Tape seal products must have the tape seal undisturbed until after any cleaning process. Cleaning processes that use ultrasonic agitation or that use pressurized sprays can defeat the tape and / or internal seals and allow contamination of the switches. They are not recommended for use on inline or rotary DIP products. Switches should not be washed directly after a soldering process. There should be a delay of at least three minutes to allow adequate time for cooling after soldering.

Tape seal integrity: Inline DIP products that are tape sealed are tested to meet and pass a gross leak test using 125°C Fluorinert for 20 seconds minimum. Reference MIL-202, Method 112.

Tape seal material:

76,78: Polyester film, rated to 170°F. maximum temperature

90: Polyimide film, rated to 260°C. maximum temperature