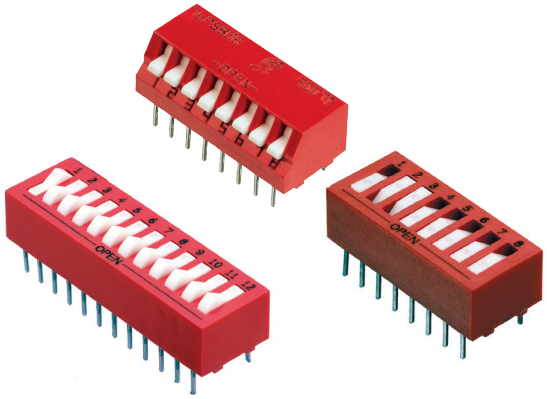
Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

SERIES 76

SPST Rocker

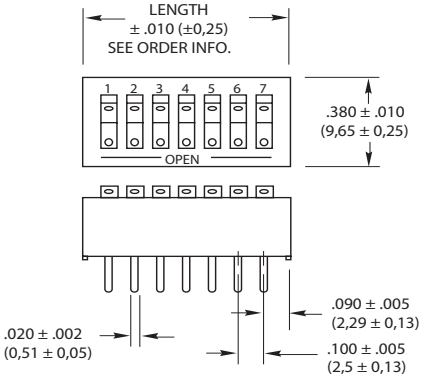
FEATURES

- Raised and Recessed, Rocker and PIANO-DIP® Styles
- Sealed Base Standard
- Spring and Ball Contact
- Top Tape Seal Option

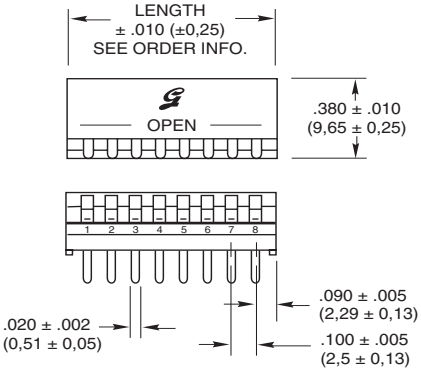


DIMENSIONS in inches (and millimeters)

Rocker and Recessed Rocker

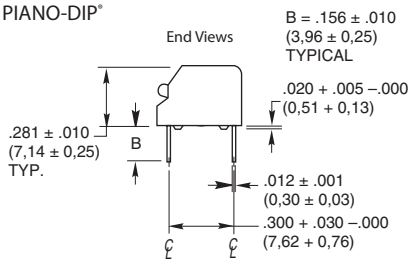


See also end view.

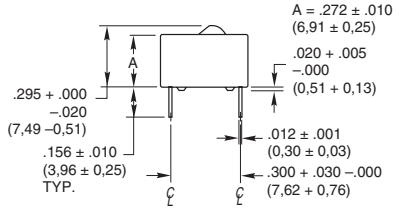


See also end view.

PIANO-DIP®



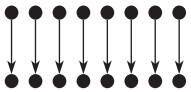
Rocker



For recessed rockers, delete .295 dimension.

CIRCUITRY

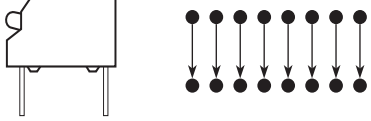
Styles 76SB and 76RSB



Typical circuit diagram with actuator in the closed position.

Style 76PSB

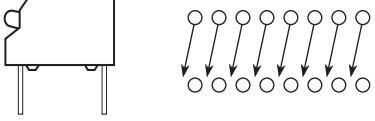
UP IS OPEN (OFF)



Actuator shown in the down position.

Styles 76PRB

UP IS CLOSED (ON)



Actuator shown in the down position.

ORDERING INFORMATION

76RSB04ST

- Series
- Switch Style: SB = Raised Rocker; RSB = Recessed Rocker; PSB = Piano-DIP (Up is Off); PRB = Piano-DIP (Up is On)
- T = RoHS compliant
- Sealed*: S = Tape Seal
- Number of Positions: 02 through 10, 12

No. of Pos.	Length (Inches)	Length (Metric)	No./Tube
2	0.280"	7,1 mm	35
3	0.380"	9,7 mm	27
4	0.480"	12,2 mm	21
5	0.580"	14,7 mm	18
6	0.680"	17,3 mm	15
7	0.780"	19,8 mm	13
8	0.880"	22,4 mm	12
10	1.080"	27,4 mm	9
12	1.280"	32,5 mm	8

*A top tape seal is required for switches that are machine soldered or heavily cleaned after hand soldering. To order top seal versions, add "S" to the Grayhill part number.

Available from your local Grayhill Distributor.
For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

SPECIFICATIONS: Standard Styles

Ratings	76	78	90B
Mechanical Life: Operations per switch position	2,000	2,000	2,000
Make-and-break Current Rating: Operations per switch position at these resistive loads			
1 mA, 5 Vdc; 50 mA, 30 Vdc; or 150 mA, 30 Vdc:	2,000	2,000	—
10 mA, 30 Vdc; or 10 mA, 50 mVdc:	—	—	2,000
10 mA, 50 mVdc; or 25 mA, 24 Vdc; or 100 mA, 6 Vdc:	—	—	2,000
Contact Resistance: Initially:	≤ 30 mΩ	≤ 30 mΩ	≤ 20 mΩ
After life, at 10 mA, 50 mVdc, open circuit:	≤ 100 mΩ	≤ 100 mΩ	≤ 100 mΩ
Insulation Resistance: Minimum, at 100 Vdc between adjacent closed contacts and also across open switch contacts			
Initially (Mohms):	5,000	5,000	5,000
After life (Mohms):	1,000	1,000	1,000
Dielectric Strength: Minimum voltage (AC, RMS) measured between adjacent closed contacts and also across open switch contacts.			
Initially:	750 V	750 V	500 V
After life:	500 V	500 V	500 V
Current Carry Rating: Maximum rise of 20°C	5 A	4 A	3 A
Switch Capacitance: At 1 megahertz	2 pF	2 pF	2 pF
Operating Temperature Range:	-40°C to + 85°C	-40°C to + 85°C	-40°C to + 85°C
Storage Temperature Range:	-55°C to + 85°C	-55°C to + 85°C	-55°C to + 85°C

Mechanical Ratings

Vibration Resistance: Per Method 204, Test Condition B, 1 mS opening (10 mS allowed)
Mechanical Shock: Per Method 213, Test Condition A. 1 mS opening (10 mS allowed)
Thermal Shock Resistance: Per specification; no failures; passes contact resistance.
Terminal Strength: Per specification
Thermal Aging: 1,000 hours at 85°C; no failures.

Environmental Ratings

Meets all requirements of MIL- S-83504.**
Where Grayhill performance is superior, the MIL spec is listed in parentheses.
Moisture Resistance: Per MIL-STD-202, Method 106.

Soldering Information

Series 90 MIDIP and Series 76 recessed rocker (76RSB style) sealed switches have been tested to EIA Standard RS-448-2. Similar performance can be expected from other sealed Series 76 and 78 DIP switches.
Solderability: Per MIL-STD-202, Method 208
Resistance to Soldering Heat: 76RSB: Passes EIA Standard using two, four, and six second soldering time. 90: Per MIL-S-83504, six second test.
Fluxing: Per EIA RS-448-2 with flux touching switch body.
Cleaning: 76, 78 and 90 series tape sealed products: Passes immersion test using water/detergent. Acceptable solutions include 1-1-1 trichlorethane, freon, (TF, TE, or TMS), isopropyl alcohol, detergent (140°F maximum). Terpene acceptable for Series 90 only. Solutions which are not recommended include acetone, methylene chloride, freon TMC.

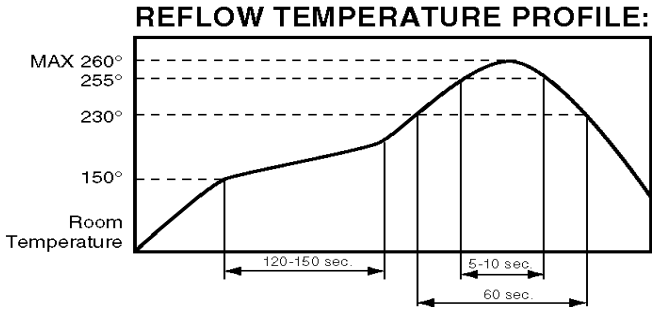
Materials and Finishes

Shorting Member (Ball): Brass, gold-plated over nickel barrier.
Base Contacts: Copper alloy, gold-plated over nickel barrier.
Terminals: Copper alloy, matte tin plated over nickel barrier.
Non-Conductive Parts: Thermoplastic (UL94V-O)
Potting Material: Epoxy, 76,78 only.
Protective Cover: 76,78, only-Polycarbonate.
Tape Seal:
76, 78: Polyester film
90: Polyimide film
Tape Seal Integrity: Passes gross leak test using 125°C flourinert for 20 seconds minimum. Reference MIL-STD-202, Method 112.

Recommended Soldering Conditions:

Reflow Soldering Profile:

(260°C Peak Temperature)



WAVE SOLDERING: 260°C maximum solder temperature for 5 seconds max.
** Note: 100% matte tin terminal plating does not meet MIL-S-83504 for lead content.

Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

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:

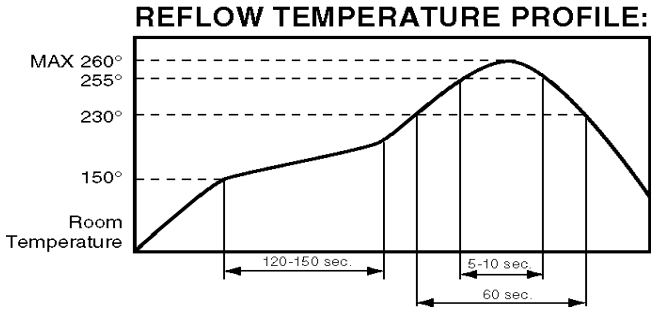
Grayhill Series 76HP, 78HF, 78HJ, 90B, 90HB, 94H, 94R, 97C, and 97R

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

Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

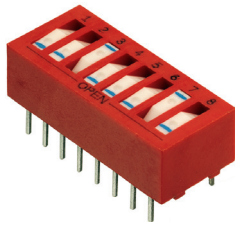
OPTIONS

Position Identification Line Option

For Series 76RSB, 76RSC, 76RSD, & 90B
A line can be added to the recessed rocker or Series 90 slide actuator to provide positive identification of the actuator position. To order, add L as a final suffix to the part number. For example, 76RSB08 becomes 76RSB08L; and, 90B08S becomes 90B08SL.
Available from a local Grayhill Distributor.

Other Switch Markings

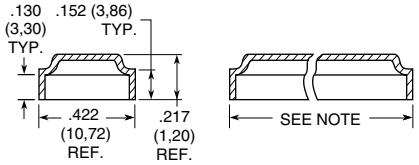
For Series 76, 78, & 90
We can mark your part number or other wording on the switch, often at no charge. For some markings there will be a nominal charge for tooling plus a set-up charge. In addition, there is a marking charge per side per switch. Add it to the unit price and discount it accordingly.
To order, contact Grayhill.



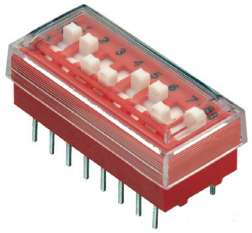
ACCESSORIES

Protective Cover Accessory

For Series 76, & 78
Rigid, clear plastic cover fits all but toggle actuated switches. It provides a top cover for less strenuous cleaning, serves as a dust cover in dirty environments, and provides protection against accidental actuation.
Material: 76,78, only-Polycarbonate.
Purchase as a separate item. Check length of the desired DIP Switch, and then select from the ordering information on this page.
Available from a local Grayhill Distributor.



Note: For length, add .042 "(1,07 MM) to length of DIP switch.



DIPSTICK Accessory

For all series
Pen-sized plastic DIPSTICK has a tapered end for actuating DIP Switches.

Part Number **90-DIPSTICK**

Available from a local Grayhill Distributor

ORDERING INFORMATION

Length Inches	Protective Cover Part Number
0.280	**76P02**
0.380	**76P03**
0.480	**76P04**
0.580	**76P05**
0.680	**76P06**
0.780	**76P07**
0.880	**76P08**
0.980	**76P09**
1.080	**76P10**
1.180	**79P10**
1.780	**79P16**

Available from your local Grayhill Distributor.
For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.