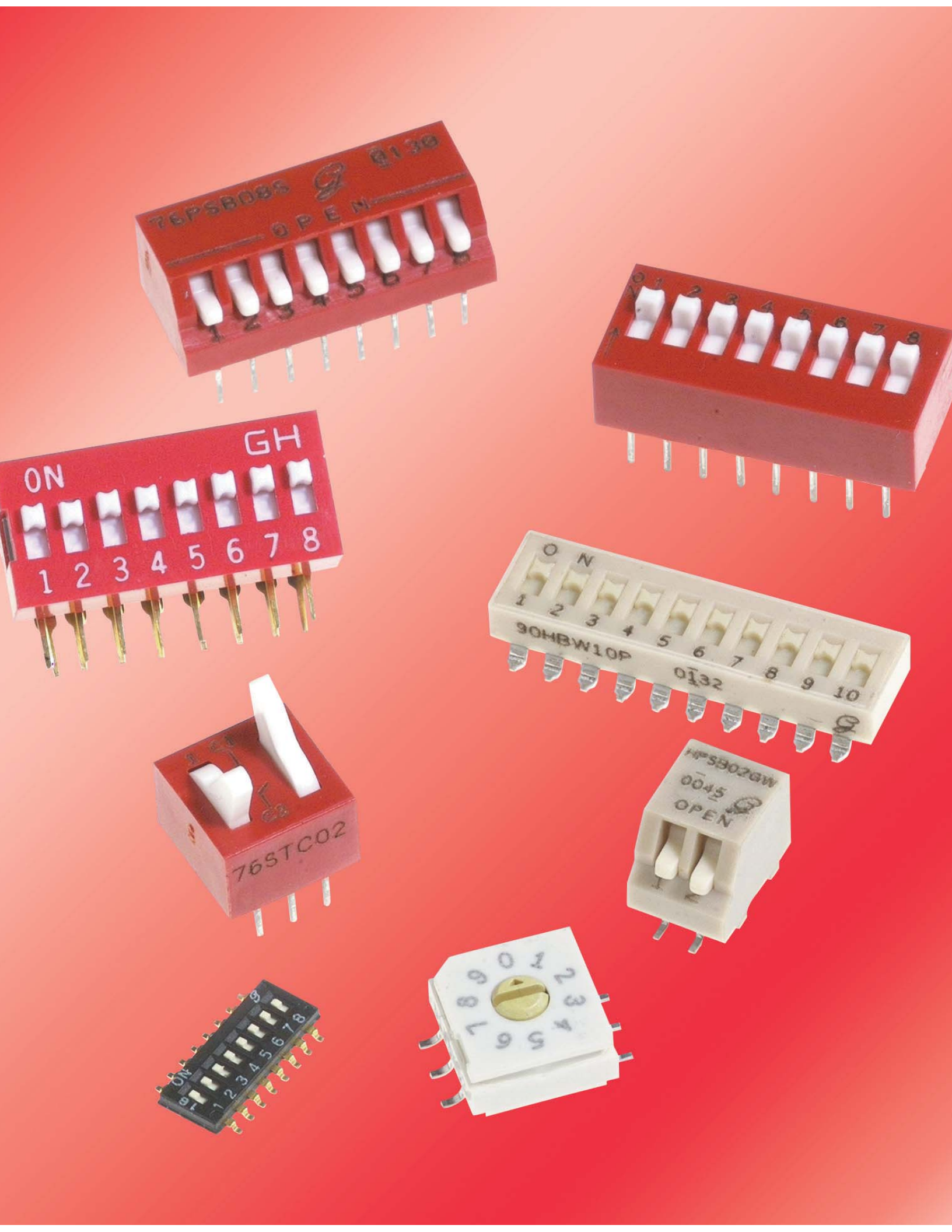
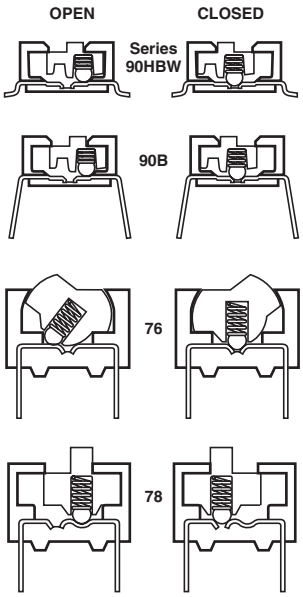

76PSB08S
OPEN
1 2 3 4 5 6 7 8
ON
GH
1 2 3 4 5 6 7 8
ON
90HBW10P
1 2 3 4 5 6 7 8 9 10
76STC02
HPSB02GW
OPEN
1 2
0 1 2 3 4 5 6 7 8 9
ON



SURFACE MOUNT SWITCHES
- Standard DIP Package Outline Includes PIANO-DIP®
- Tactile Feedback, Board Mount Switches

THRU-HOLE DIP SWITCHES
- Consistent High Contact Pressure With Spring and Ball Contact System
- Standard Base Seal; Optional Top Tape Seal
- Large Selection of Types and Styles Includes Military Qualified Switches
- RoHS Compliant

Page

SELECTION CHART 3

SURFACE MOUNT SWITCHES

Half-Pitch ..... Series 97 4
SPST, Low Profile ..... Series 90HB 5
SPDT and DPST ..... Series 78H 7
Side Actuated PIANO-DIP® ..... Series 76HP 8

THRU-HOLE DIP SWITCHES

Machine Insertable MIDIP® ..... Series 90B 9
SPST Rocker ..... Series 76 10
SPST to 4PST Slide ..... Series 78 11
SPDT ..... Series 76 & 78 12
DPDT ..... Series 76 & 78 13
Specifications ..... Series 76, 78, 90B 14
Linear Action Tap ..... Series 79A & 79C 15
Linear Action Coded Output ..... Series 79B 16
Right Angle Terminal Option ..... Series 78C 17

ROTARY DIP SWITCHES
Binary Coded ..... Series 94H 19
Economical Binary Coded ..... Series 94R 21

Options and Accessories 22

SURFACE MOUNT SWITCHES

Circuitry	Description	Type of Actuation	Series	No. of Positions Available	No. of Actuators	Page Number
Single Pole, Single Throw	Half-Pitch	Top Actuated, Recessed Slide	97	2, 4, 6, 8, 10	1/Station	4
	Standard DIP Package	Top Actuated, Recessed Slide	90	2-10	1/Station	5
	Standard DIP Package	Side Actuated	76	2-10 & 12	1/Station	8
SPDT, DPST	Standard DIP Package	Side Actuated, Top Actuated	78	1-5	1/Station	7
Standard, Complement Code	Octal, BCD & Hex	Rotary	94	8, 10 & 16	1	20

THRU-HOLE DIP SWITCHES

(Also see Series 76, 78 and 90 Surface Mount DIP Switches)

SINGLE THROW SWITCHES

Circuitry	Description	Type of Actuation	Series	No. of Positions Available	No. of Actuators	Page Number
Single Pole, Single Throw	Machine Insertable	Recessed Slide	90	2–10	1/Station	9
	Standard	Raised Rocker	76	2-10 & 12	1/Station	10
		Recessed Rocker	76	2-10 & 12	1/Station	10
		Side Actuated	76	2–10 & 12	1/Station	10
		Slide	78	2–10 & 12	1/Station	11
		Recessed Slide	78	2–10	1/Station	11
Multiple Pole, Single Throw	2PST	Slide*	78	1–5	1/Station	11
	3PST	Slide*	78	1–3	1/Station	11
	4PST	Slide*	78	1 & 2	1/Station	11
	5, 6, 7, 8, or 10PST	Slide*	78	1	1/Station	11

MULTIPLE THROW SWITCHES

Circuit Selector	1-of-10 Circuits	Linear Action Slide	79	10	1	15
	1-of-16 Circuits	Linear Action Slide	79	16	1	15
Single Pole, Multiple Throw	Standard	Raised Rocker	76	2–4	1/Station	10
		Recessed Rocker	76	2–4	1/Station	10
		Toggle	76	2–4	1/Station	10
		Slide	78	1–6	1/Station	10
Double Pole, Double Throw	Standard	Raised Rocker	76	1 & 2	1/Station	13
		Recessed Rocker	76	1 & 2	1/Station	13
		Toggle	76	1 & 2	1/Station	13
		Slide	78	1 & 2	1/Station	13

BINARY CODED OUTPUT SWITCHES

Standard Code	BCD & Hexadecimal	Linear Action Slide	79	10 & 16	1	16
	Octal, BCD, & Hex	Rotary	94	8, 10 & 16	1	20
Complement	Octal, BCD, & Hex	Rotary	94	8, 10 & 16	1	20

Grayhill Series 76 DIP switches are covered by one or more of the following patents pending: 4,031,345, Canada 1,035,820 (1978), and Canada 1,055,551 (1979). Series 79 switches are protected by patent number 4,491,703. Series 90 switches are protected by patent numbers 4,590,344 and 4,670,630.

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SERIES 97

Half-Pitch

FEATURES

- Half the Size of Standard DIP Switches
- Available in 2, 4, 6, 8, and 10 Positions
- Low Profile
- 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.

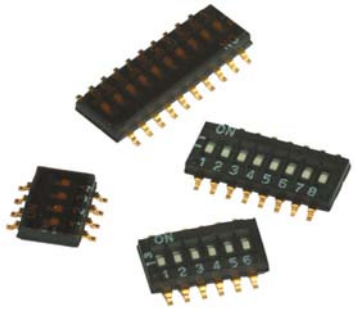


Fig. 1 Series 97C DIMENSIONS In inches (and millimeters)

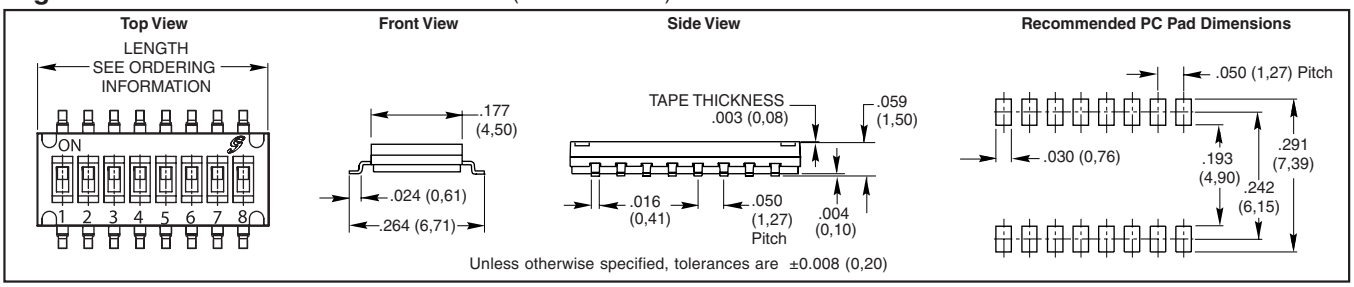
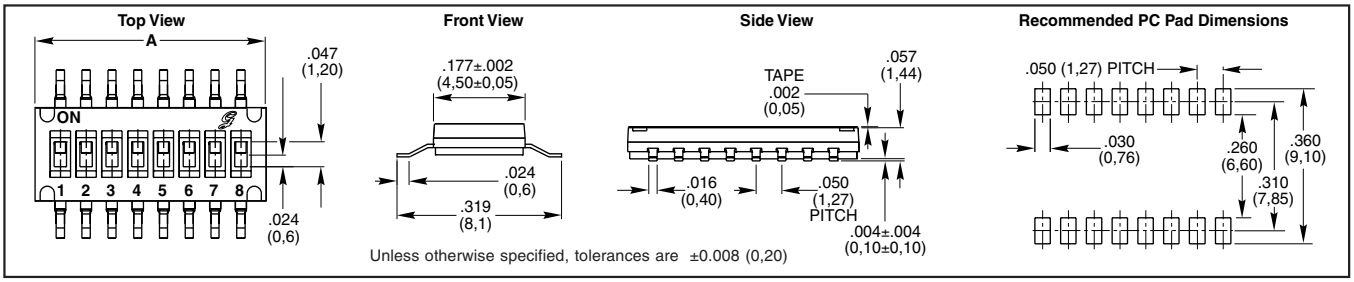


Fig. 2 Series 97R DIMENSIONS In inches (and millimeters)



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

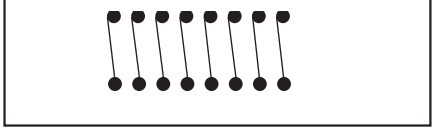
Base and Cover: UL94V-0 Nylon, black
Actuators: UL94V-0 Nylon thermoplastic, white
Base Contacts: Alloy copper with gold-plating over nickel
Terminals: Brass with gold-plating
Tape Seal: Kapton

Soldering Information

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

All DIP switches are shipped in the "ON" position.

CIRCUITRY



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.*

Packaging Information

Tube: 130 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).

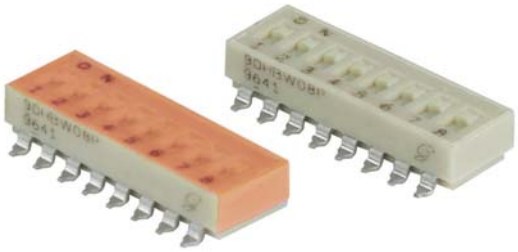
ORDERING INFORMATION

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

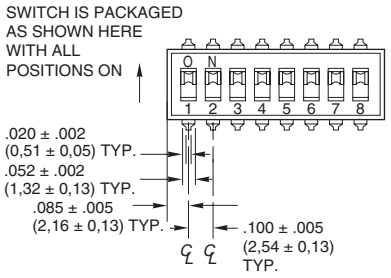
SERIES 90HB
SPST, Low Profile

FEATURES
- Compatible with SMT Assembly, Including Infrared Reflow and Vapor-Phase
- Reliable Spring and Ball Contact

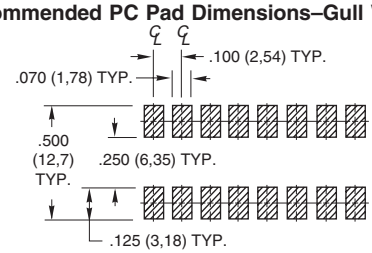


DIMENSIONS In inches (and millimeters)

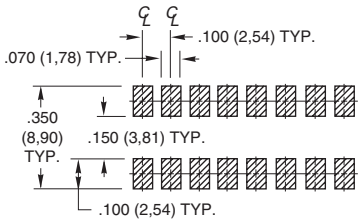
Top View–Gull Wing



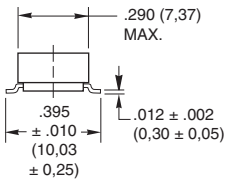
Recommended PC Pad Dimensions–Gull Wing

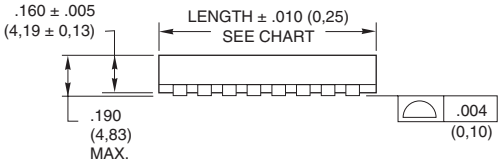


Recommended PC Pad Dimensions–J-Bend

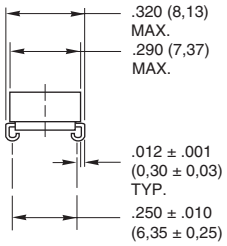


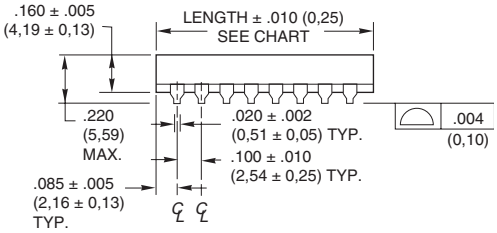
Gull Wing





J-Bend





CIRCUITRY

As viewed from the top of the switch in the positions shown in the drawi

SPECIFICATIONS

Electrical Ratings

Make-and-break Current Rating: 2,000 operations per switch position at these resistive loads:10 mA, 30 Vdc; or 10 mA, 50 mVdc; 10 mA, 50 mVdc; or 25 mA, 24 Vdc; or 100 mA,6 Vdc.
Contact Resistance: (measured at 10 mA, 50 mVdc). Initial: 20 mohms maximum, After Life: 100 mohms maximum
Insulation Resistance: Minimum, at 100 Vdc between adjacent closed contacts and also across open switch contacts.
Initial (Mohms): 5,000, After Life (Mohms): 1,000
Dielectric Strength: Minimum voltage (AC RMS) measured between adjacent closed contacts and also across open switch contacts.
Initial: 500 volts, After Life: 500 volts
Current Carry Rating: 3A maximum rise of 20°C
Switch Capacitance: 2 pF at 1 megahertz

Mechanical Ratings

Where Grayhill performance is superior, the MIL spec is listed in parentheses.
Mechanical Life: 2,000 operations per switch position
Vibration Resistance: Per Method 204, Test Condition B , 1mS opening (10 mS allowed)
Mechanical Shock: Per Method 213, Test Condition A. 1mS 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.
Operating Temperature Range: -40°C to + 85°C
Storage Temperature Range: -40°C to + 85°C
Moisture Resistance: Per MIL-STD-202, Method 106.

Soldering Information

Solderability: Per MIL-STD-202, Method 208
Soldering Heat Resistance: Per MIL-S-83504, six second test.
Recommended Processing Temperature: 220°C–230°C (1 pass—260°C maximum)
Processing Position: Switch is to be processed with all actuators in the closed (on) position as shipped.
Fluxing: Per EIA RS-448-2 with flux touching switch body.
Cleaning: 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. High pressure aqueous cleaning is not recommended.

Materials and Finishes

Shorting Member (Ball): Brass, gold-plate over nickel barrier.
Base Contacts: Copper alloy, gold-plate over nickel barrier.
Terminals: Copper alloy, matte tin plated over nickel barrier.
Non-Conductive Parts: Thermoplastic (UL94V-O)

Tape and Reel Packaging

Tape Seal Integrity: Passes gross leak test using 125°C flourinert for 20 seconds minimum. Reference MIL-STD-202, Method 112
Tape Seal: Polyimide film

ORDERING INFORMATION

90HBW02PRT

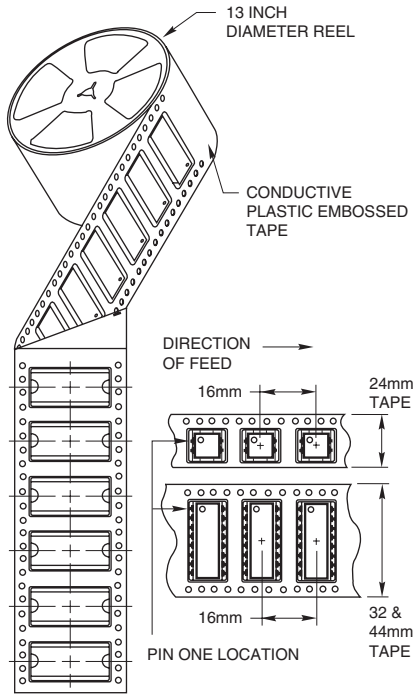
Series
Terminal Style: W = Gull Wing, J = J-Bend
RoHS compliant

Packaging: R = Tape and reel packaging (750 switches/reel)
Blank = Tube packaging (each tube is 19.5" long)
Seal: P = Polyimide Seal
Blank = No Seal
Number of Positions: 02 through 10

No. of Positions	Length Inches	Length Metric	Number Per Tube
2	.270"	6,9 mm	60
3	.370"	9,4 mm	47
4	.470"	11,9 mm	37
5	.570"	14,5 mm	31
6	.670"	17,0 mm	26
7	.770"	19,6 mm	23
8	.870"	22,1 mm	20
9	.970"	24,6 mm	18
10	1.070"	27,2 mm	16

TAPE AND REEL PACKAGING

Meets requirements of
EIA 481-2 or EIA 481-3

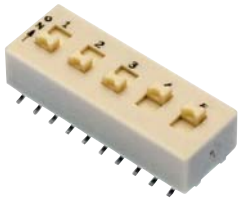


Each reel has a 15.750 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

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

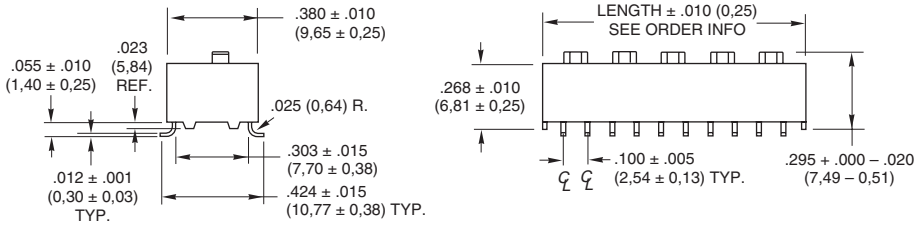
SERIES 78H
SPDT and DPST

FEATURES
- Compatible with SMT Assembly Including Infrared Reflow and Vapor-Phase
- Reliable Spring and Ball Contact

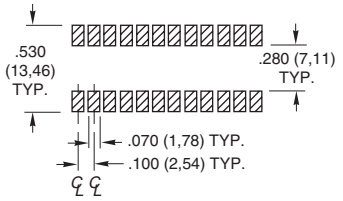


DIMENSIONS In inches (and millimeters)

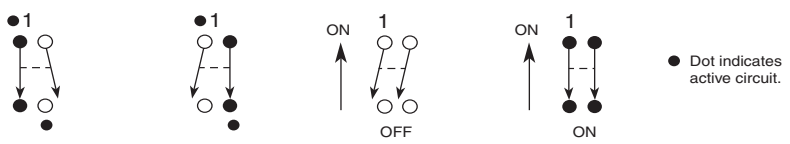
SPDT, DPST, Top Actuated, Slide Operated



Recommended PC Pad Dimensions



CIRCUITRY



SPECIFICATIONS

Electrical Ratings
Make-and-break Current Rating: 2,000 operations per switch position at 1 mA, 5 Vdc; 50 mA, 30 Vdc; or 150 mA, 30 Vdc
Contact Resistance: Initial: 30 mohms max. After Life: 100 mohms max. (10 mA at 50 Vdc, open circuit)
Insulation Resistance: Minimum, at 100 Vdc between adjacent closed contacts and also across open switch contacts. Initial: 2,000 Mohms; After Life: 1,000 Mohms
Dielectric Strength: Minimum voltage (AC, RMS) measured between adjacent closed contacts and also across open switch contacts. Initial: 750 volts; After Life: 500 volts
Current Carry Rating: 4 amps, maximum rise of 20°C
Switch Capacitance: 2 pF at 1megahertz

Mechanical Ratings
Mechanical Life: 2,000 operations per switch position
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)
Terminal Strength: Per specification
Thermal Aging: 1,000 hours at 85°C; no failures
Thermal Shock: Per specification; no failures; passes contact resistance

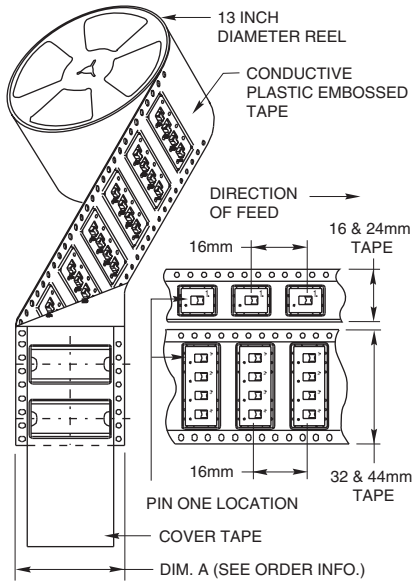
Environmental Ratings
Meets all requirements of MIL- S-83504. Where Grayhill performance is superior, the MIL spec is listed in parentheses.
Operating Temperature Range: -40°C to + 85°C
Storage Temperature Range: -55°C to + 85°C
Moisture Resistance: Per MIL-STD-202, Method 106

Soldering Information
Solderability: Per MIL-STD-202, Method 208
Soldering Heat Resistance: Per MIL-S-83504, six second test
Recommended Processing Temperature: 220°C–230°C (1 pass—260°C maximum)
Processing Position: Switch is to be processed with all actuators in the closed (on) position as shipped.

Materials and Finishes
Shorting Member: 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: Cover is natural color thermoplastic, actuators are white thermoplastic (UL94V-O)

TAPE AND REEL PACKAGING

Meets requirements of EIA 481-2 or EIA 481-3



Each reel has a 15.750 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

ORDERING INFORMATION: Tube Packaging

No. of Positions	Length (inches)	Length (metric)	Carrier Width Dim. A	Part Number* SPDT	Part Number* DPST
1	0.280"	7,1 mm	24 mm	**78HJ01GWT**	**78HF01GWT**
2	0.480"	12,2 mm	24 mm	**78HJ02GWT**	**78HF02GWT**
3	0.680"	17,3 mm	32 mm	**78HJ03GWT**	**78HF03GWT**
4	0.880"	22,4 mm	44 mm	**78HJ04GWT**	**78HF04GWT**
5	1.080"	27,4 mm	44 mm	**78HJ05GWT**	**78HF05GWT**

* Insert "R" before the "T" in the Grayhill part number for tape and reel packaging (500 switches/reel).

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

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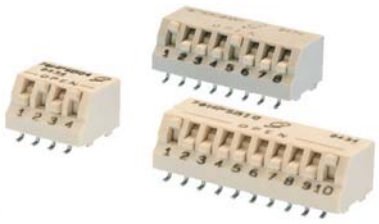
SERIES 76HP

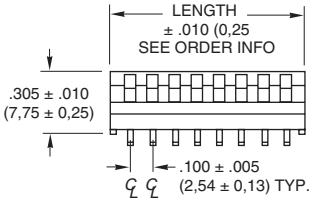
Side Actuated PIANO-DIP®

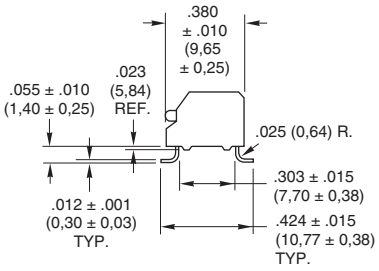
FEATURES

- Compatible with SMT Assembly Including Infrared Reflow and Vapor-Phase
- Easily Accessed when PC Boards are Racked
- Reliable Spring and Ball Contact

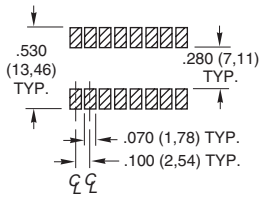


DIMENSIONS In inches (and millimeters)





Recommended PC Pad Dimensions`



CIRCUITRY

As viewed from the top of the switch in the positions shown in the drawing.

SPECIFICATIONS

Electrical Ratings

Make-and-break Current Rating: 2,000 operations per switch position at 1 mA, 5 Vdc; 50 mA, 30 Vdc; or 150 mA, 30 Vdc

Contact Resistance: Initial: 30 mohms maximum; After Life: 100 mohms maximum (10 mA at 50 Vdc, open circuit)

Insulation Resistance: Minimum, at 100 Vdc between adjacent closed contacts and also across open switch contacts. Initial: 2,000 Mohms

Dielectric Strength: Minimum voltage (AC RMS) measured between adjacent closed contacts and also across open switch contacts. Initial: 750 volts; After Life: 500 volts

Carry Rating: 5 amps, maximum rise of 20°C

Switch Capacitance: 2 pF at 1 megahertz

Mechanical Ratings

Mechanical Life: 2,000 operations per switch position

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.

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

Storage Temperature Range: -55°C to + 85°C

Moisture Resistance: Per MIL-STD-202, Method 106

Soldering Information

Solderability: Per MIL-STD-202, Method 208 Tested to EIA Standard RS-448-2.

Resistance to Soldering Heat: Per MIL-S-83504, six second test

Recommended Processing Temperature: 220°C–230°C (1 pass—260°C maximum)

Processing Position: Switch is to be processed with all actuators in the closed (on) position as shipped.

Materials and Finishes

Shorting Member: Brass, gold-plated over nickel barrier.

Base Contacts: Copper alloy, gold-plated, over nickel barrier.

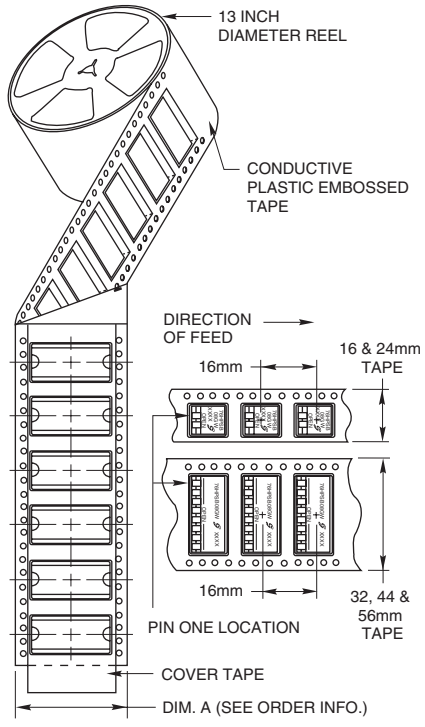
Terminals: Copper alloy, matte tin plated over nickel barrier.

Non-Conductive Parts: Cover is natural color thermoplastic, actuators are white thermoplastic (UL94V-O)

Tape Seal: Not available with Tape Seal.

TAPE AND REEL PACKAGING

Meets requirements of EIA 481-2 or EIA 481-3



Each reel has a 15.750 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

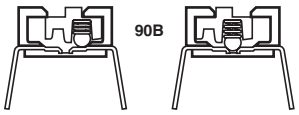
ORDERING INFORMATION: Tape and Reel Packaging (500 switches per reel)

No. of Positions*	Length (inches)	Length (metric)	Carrier Width Dim. A	Part Number
2	0.280"	7,1 mm	24 mm	**76HPSB02GWRT**
4	0.480"	12,2 mm	24 mm	**76HPSB04GWRT**
6	0.680"	17,3 mm	32 mm	**76HPSB06GWRT**
8	0.880"	22,4 mm	44 mm	**76HPSB08GWRT**
10	1.080"	27,4 mm	44 mm	**76HPSB10GWRT**

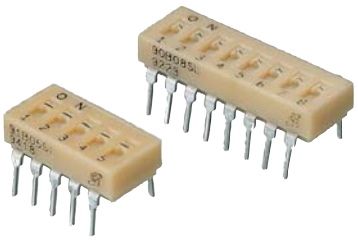
* For other lengths, contact Grayhill, Inc.

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

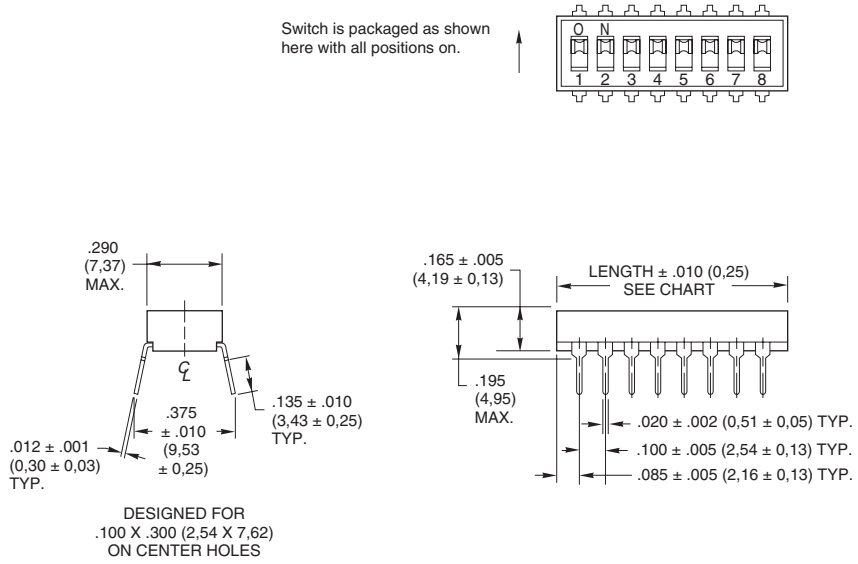
SERIES 90B
Machine Insertable MIDIP



FEATURES
- Tested for TO-116 Equipment
- Up to 10 Positions
- High Pressure, Reliable Contacts
- Molded (Sealed) Base and Optional Top Seal

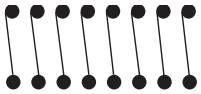


DIMENSIONS In inches (and millimeters)



CIRCUITRY

As viewed from the top of the switch in the positions shown in the drawing.



ORDERING INFORMATION: Tube Packaging (Each tube is 19.5 inches long)

No. of Positions	Length Inches	Length Metric	Number Per Tube	Part Number*
2	.270"	6,9 mm	60	**90B02PT**
3	.370"	9,4 mm	47	**90B03PT**
4	.470"	11,9 mm	37	**90B04PT**
5	.570"	14,5 mm	31	**90B05PT**
6	.670"	17,0 mm	26	**90B06PT**
7	.770"	19,6 mm	23	**90B07PT**
8	.870"	22,1 mm	20	**90B08PT**
9	.970"	24,6 mm	18	**90B09PT**
10	1.070"	27,2 mm	16	**90B10PT**

*The "P"in the part number denotes top tape seal versions. To order without top tape seal, leave the "P" off the part number when ordering.

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

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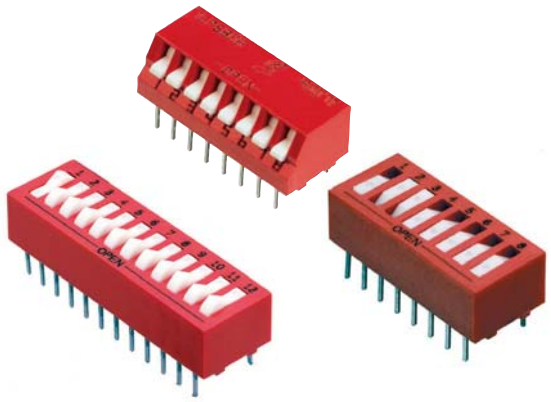
SERIES 76

SPST Rocker

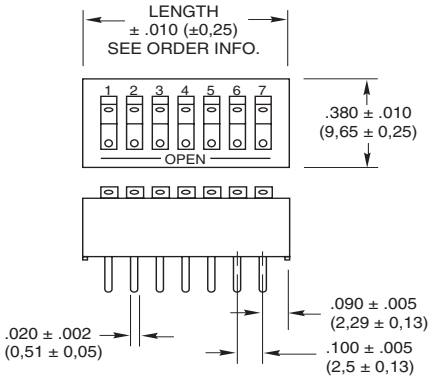
FEATURES

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



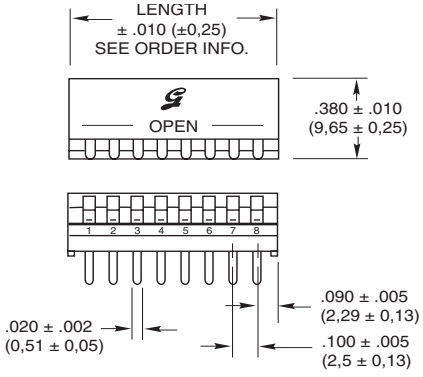
DIMENSIONS In inches (and millimeters)

Rocker and Recessed Rocker



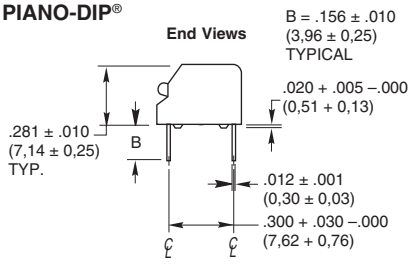
See also end view.

Side Actuated PIANO-DIP®

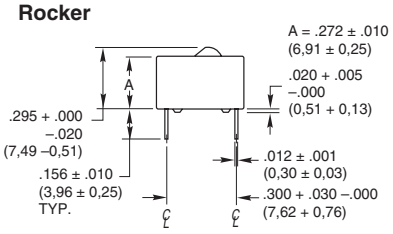


See also end view.

PIANO-DIP®



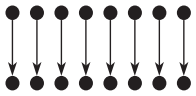
Rocker



For recessed rockers, delete .295 dimension.

CIRCUITRY

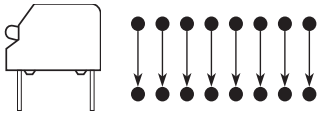
Styles 76SB and 76RSB



Typical circuit diagram with actuator in the closed position.

Style 76PSB

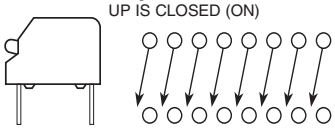
UP IS OPEN (OFF)



Actuator shown in the down position.

Styles 76PRB

UP IS CLOSED (ON)



Actuator shown in the down position.

ORDERING INFORMATION

Series
Switch Style: SB = Raised Rocker
RSB = Recessed Rocker
PSB = Piano-DIP (Up is Off)
PRB = Piano-DIP (Up is On)

76RSB04ST

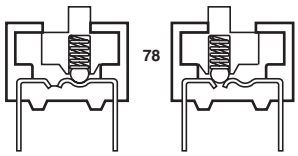
T = RoHS compliant
Sealed*: S = Tape Seal
Number of Positions: 02 through 10, 12

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
9	0.980"	24,9 mm	10
10	1.080"	27,4 mm	9
12	1.280"	32,5 mm	8

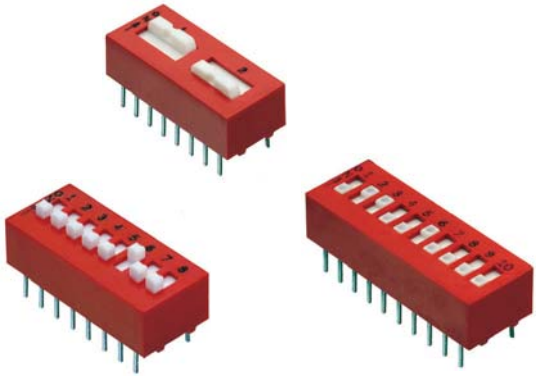
*A top tape seal is required for switches that are machine soldered or heavily cleaned after hand soldering. To order top seal versions, add "S" to the Grayhill part number.

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

SERIES 78
SPST To 4PST Slide

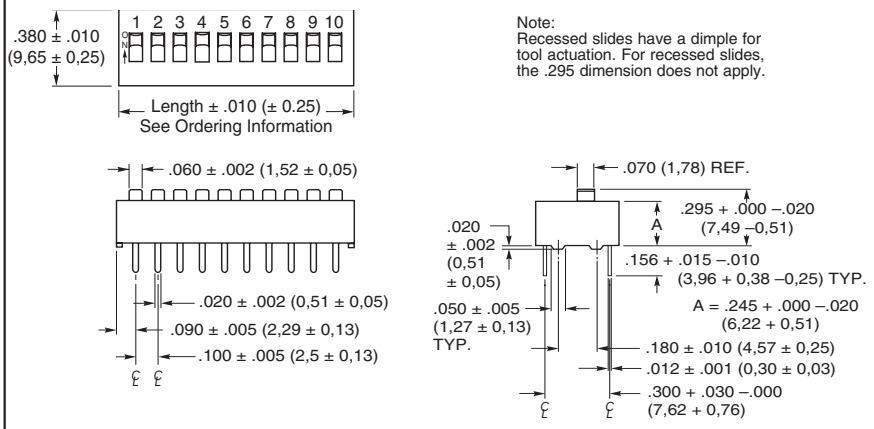


FEATURES
- Raised and Recessed Slides
- SPST, 2PST, 3PST, 4PST
- Sealed Base Standard
- Spring and Ball Contact
- Top Tape Seal Option



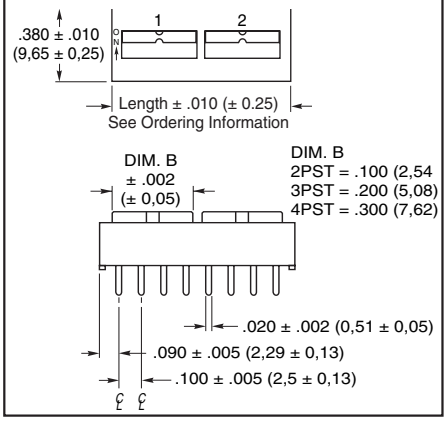
DIMENSIONS In inches (and millimeters)

Single Pole/Single Throw Switch in Raised and Recessed Slides



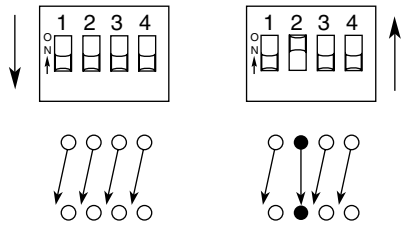
Note:
Recessed slides have a dimple for tool actuation. For recessed slides, the .295 dimension does not apply.

Typical Multiple Pole Switch with Raised Slides
(Switch shown here is 78H02, 4PST)

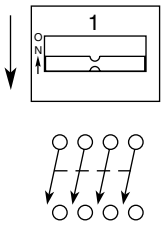


CIRCUITRY

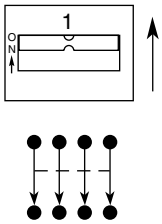
Single Pole/Single Throw Switch



Typical Multiple Pole Switch



Typical Circuit Diagram



For switches with 5, 6, 7, 8, or 10PST circuitry, contact Grayhill.

*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" before the "T" in the Grayhill part number.

ORDERING INFORMATION

Circuitry	No. of Positions	Length Inches	Length Metric	No./ Tube	Raised Slides*	Recessed Slides*
SPST	2	0.280"	7,1mm	35	**78B02T**	**78RB02T**
	3	0.380"	9,7mm	27	**78B03T**	**78RB03T**
	4	0.480"	12,2mm	21	**78B04T**	**78RB04T**
	5	0.580"	14,7mm	18	**78B05T**	**78RB05T**
	6	0.680"	17,3mm	15	**78B06T**	**78RB06T**
	7	0.780"	19,8mm	13	**78B07T**	**78RB07T**
	8	0.880"	22,4mm	12	**78B08T**	**78RB08T**
	9	0.980"	24,9mm	10	**78B09T**	**78RB09T**
	10	1.080"	27,4mm	9	**78B10T**	**78RB10T**
	12	1.280"	32,5mm	8	**78B12T**	**78RB12T**
2PST	1	0.280"	7,1mm	35	**78F01T**	Recessed Slides Not Available
	2	0.480"	12,2mm	21	**78F02T**	
	3	0.680"	17,3mm	15	**78F03T**	
	4	0.880"	22,4mm	12	**78F04T**	
	5	1.080"	27,4mm	9	**78F05T**	
	6	1.280"	32,5mm	8	**78F06T**	
3PST	1	0.380"	9,7mm	27	**78G01T**	
	2	0.680"	17,3mm	15	**78G02T**	
	3	0.980"	24,9mm	10	**78G03T**	
4PST	1	0.480"	12,2mm	21	**78H01T**	
	2	0.880"	22,4mm	12	**78H02T**	

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

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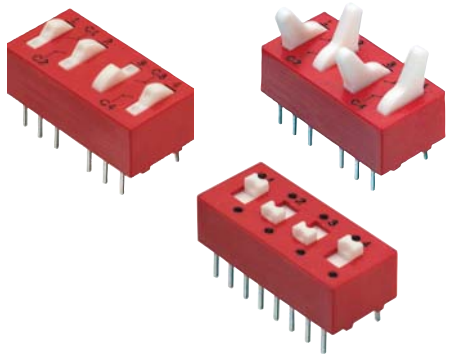
SERIES 76 and 78

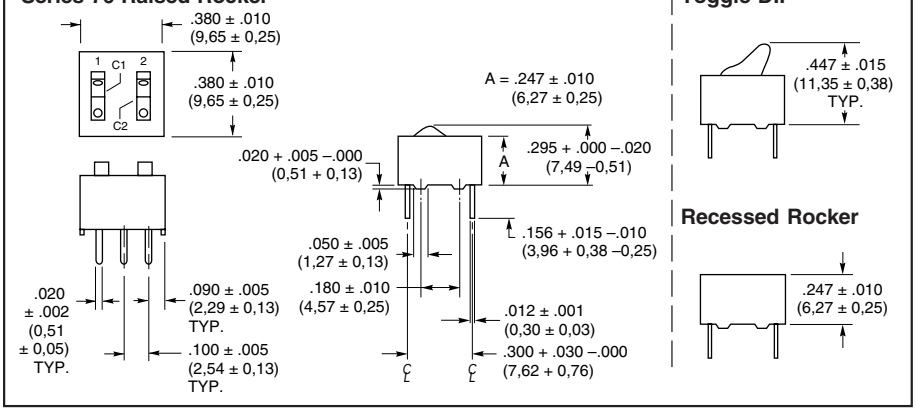
SPDT

FEATURES

- Raised and Recessed Rocker, and Toggle Actuated Styles
- SPDT with a Common Pole, or SPDT with 2 Isolated Circuits
- Spring and Ball Contact
- Top Tape Seal Option for Most Styles

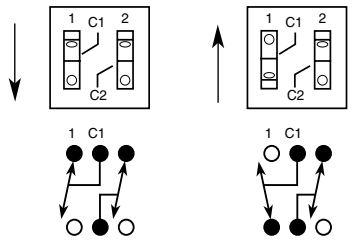


DIMENSIONS: Series 76 In inches (and millimeters)

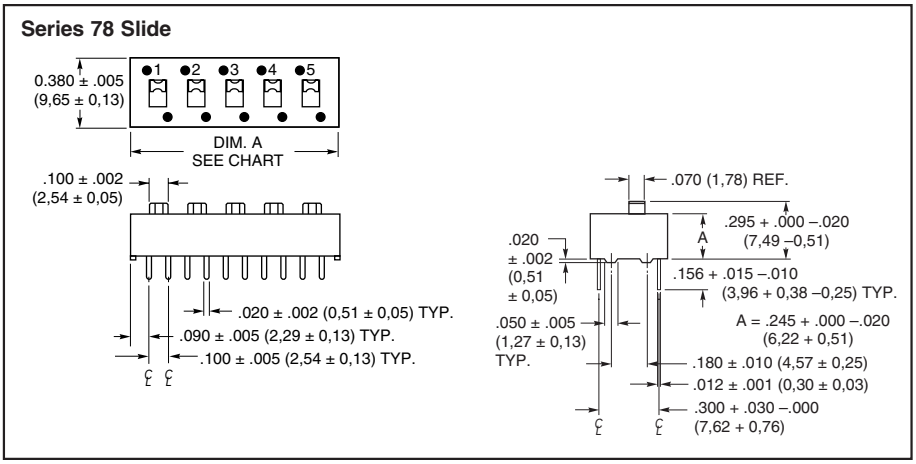


CIRCUITRY: Series 76

SPDT with Common
True Form C Switching

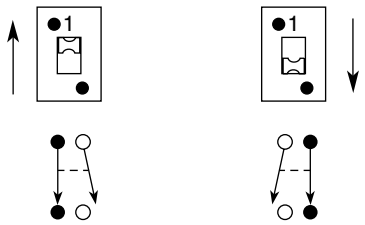


DIMENSIONS: Series 78 In inches (and millimeters)



CIRCUITRY: Series 78

SPDT, 2 Circuits
(No Commons)
Dot on cover indicates active terminal when slide is on that side of switch. Contact is made with terminal on opposite side.



To create common poles, tie together 2 adjoining terminals on 1 (either) side of switch.

ORDERING INFORMATION

Circuitry	Positions	Length Inches	Length Metric	No./ Tube	Raised Type*	Recessed Rockers*	Toggle-DIP*
SPDT Form C	2	0.380"	9,7mm	27	**76SC02T**	**76RSC02T**	**76STC02T**
	3	0.580"	14,7mm	18	**76SC03T**	**76RSC03T**	**76STC03T**
	4	0.780"	19,8mm	13	**76SC04T**	**76RSC04T**	**76STC04T**
SPDT 2 Circuits	1	0.280"	7,1mm	35	**78J01T**	—	—
	2	0.480"	12,2mm	21	**78J02T**	—	—
	3	0.680"	17,3mm	15	**78J03T**	—	—
	4	0.880"	22,4mm	12	**78J04T**	—	—
	5	1.080"	27,4mm	9	**78J05T**	—	—
	6	1.280"	32.5mm	8	**78J06T**		

*To order top seal versions, add "S" before the "T" in the Grayhill part number.
Not available on Toggle-DIP.

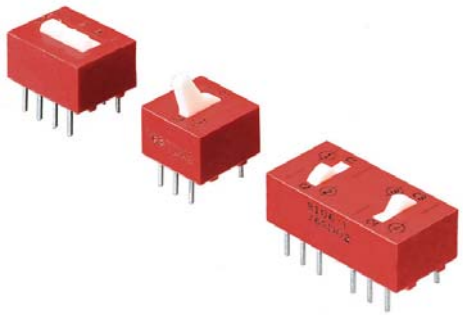
Available from your local Grayhill Distributor.
For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

SERIES 76 and 78

DPDT

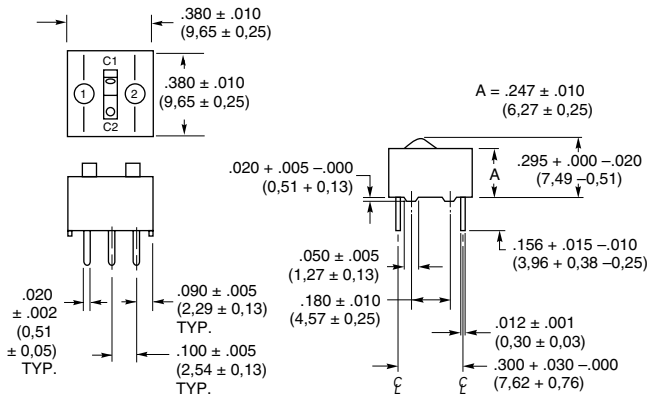
FEATURES

- Raised and Recessed Rocker, and Toggle Actuated Styles
- DPDT with Common Poles, or DPDT with 4 Isolated Circuits
- Spring and Ball Contact
- Top Tape Seal Option for Most Styles

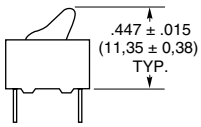


DIMENSIONS: Series 76 In inches (and millimeters)

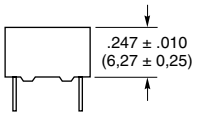
Series 76 Raised Rocker, Double-DIP



Toggle-DIP

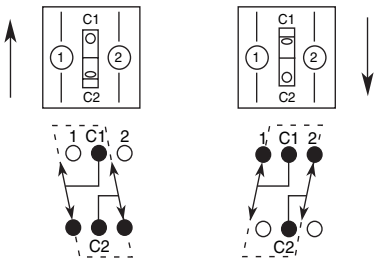


Recessed Rocker



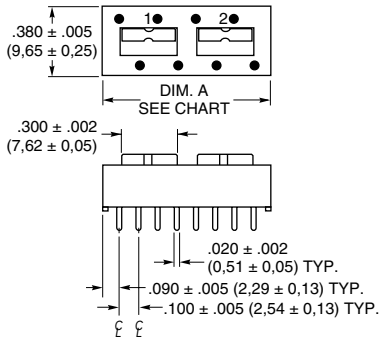
CIRCUITRY: Series 76

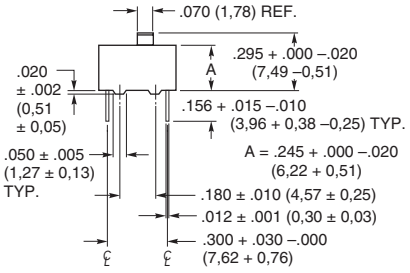
DPDT with Commons
True Form D Switching



DIMENSIONS: Series 78 In inches (and millimeters)

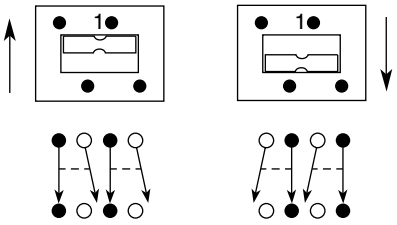
Series 78 Slide





CIRCUITRY: Series 78

DPDT, 4 Circuits
(No Commons)
Dot on cover indicates active terminal when slide is on that side of switch. Contact is made with terminal on opposite side.



To create common poles, tie together 2 adjoining terminals on 1 (either) side of switch.

ORDERING INFORMATION

Circuitry	No./ Positions	Length Inches	Length Metric	No./ Tube	Raised Type*	Recessed Rockers*	Toggle-DIP*
DPDT Form D	1 2	0.380" 0.780"	9,7mm 19,8mm	27 13	**76SD01T** **76SD02T**	**76RSD01T** **76RSD02T**	**76STD01T** **76STD02T**
DPDT 4 Circ.	1 2	0.480" 0.880"	12,2mm 22,4mm	21 12	**78K01T** **78K02T**	— —	— —

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" before the "T" in the Grayhill part number. Not available on Toggle-DIP.

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

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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

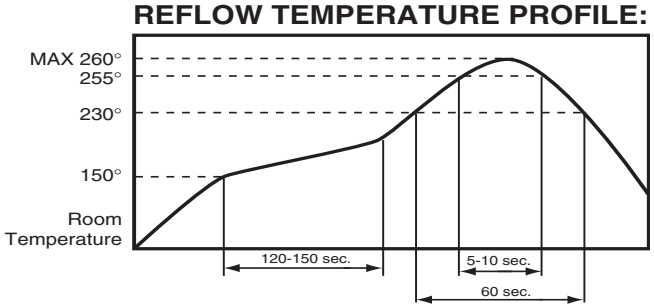
Shorting Member (Ball): Brass, gold-plated over nickel barrier.
Base Contacts: Copper alloy, gold-plated over nickel barrier.
Terminals: Copper alloy, matte tin plated over nickel barrier.
Non-Conductive Parts: Thermoplastic (UL94V-O)
Potting Material: Epoxy, 76,78 only.
Protective Cover: 76,78, only-Polycarbonate.
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:

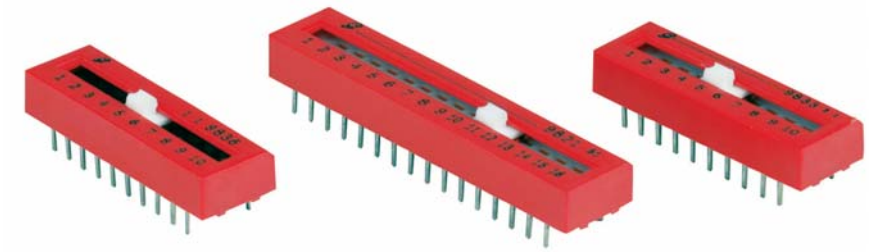
(260°C Peak Temperature)

REFLOW TEMPERATURE PROFILE:



WAVE SOLDERING: 260°C maximum solder temperature for 5 seconds max.

SERIES 79A
Linear Action Circuit Selector
SERIES 79C
Linear Action Tap

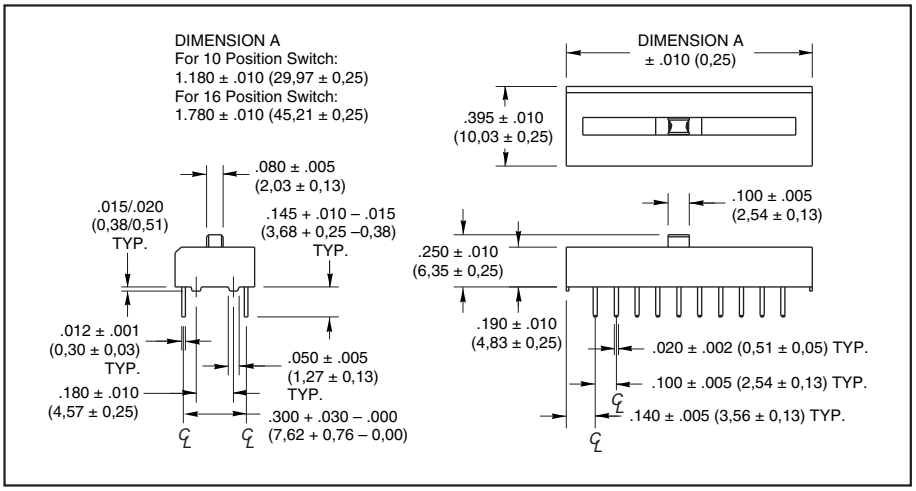


FEATURES
- Single-Setting Programming
- Isolated or Bussed Circuits
- 10 or 16 Positions
- 125 mA, 6 Vdc, 2000 Cycles

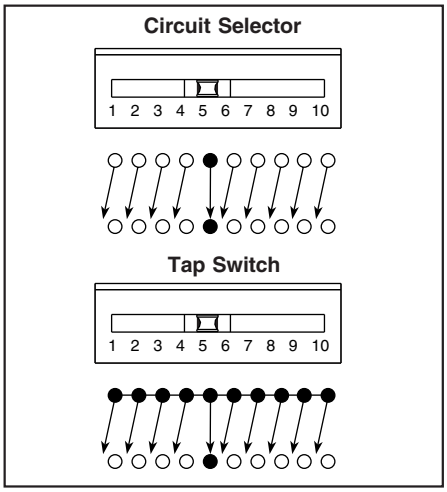
Circuit Selector
Isolated Circuits in 10 and 16 Positions
Each position is a single isolated circuit, which connects the two terminals across the switch package. The movable contact is non-shorting.

Tap Switch
SP/10 Positions, and SP/16 Postions
All contacts on one side of the switch are internally bussed for a common pole. Any terminal on that side may be used as a common, the others may be clipped. The movable contact is non-shorting.

DIMENSIONS In inches (and millimeters)



CIRCUITRY



SPECIFICATIONS

Electrical Ratings
Make-and-break Current Rating: 2,000 cycles at 10 mA, 50 mVdc; 2,000 cycles at 125 mA, 6 Vdc; 2,000 cycles at 50 mA, 30 Vdc.
Contact Resistance: (measured at 10 mA, 50 mVdc) Coded Switches: 60 mohms maximum initially. Other Switches: 50 mohms maximum initially. After LIfe: 100 mohms maximum
Insulation Resistance (at 100 Vdc): Between adjacent isolated contacts: Initial:5,000 Mohms; 1,000 Mohms minimum after life. Across open contacts: Initial: 5,000 Mohms; 1,000 Mohms minimum after life.
Dielectric Strength: Between adjacent isolated contacts and also across open contacts. Initially: 750 Vac: 500 Vac after life
Contact Carry Rating: 2 Amps with a maximum contact temperature rise of 20°C

Mechanical Ratings
Mechanical Life: 4,000 cycles maximum. Note: a cycle is one complete operation, back and forth through all switch positions.
Vibration Resistance: 10 to 2,000 Hz at 15G or 0.060" double amplitude, per MIL-STD-202F per MIL-5-83504; Method 213, Condition A. No damage and no contact openings exceeding 10 mS (Method 204, Test Condition B).
Shock Resistance: 509, 11 mS, half sine; no damage and no openings exceeding 10 mS (Method 213, Test Condition A).

Environmental Rating
Operating Temperature Range: -40°C to +85°C
Storage Temperature Range: -55°C to +85°C
Moisture Resistance: 240 hours with temperature cycling and polarization, per MIL-STD-202F, Method 305

Materials and Finishes
Nonconductive Parts: Plastic UL94V-O
Shorting Arm: Phosphor bronze, gold plate over nickel plate
Base Contacts: Copper alloy, gold plate over nickel plate
Terminals: Copper alloy, matte tin plated over nickel barrier.
Potting Material: Epoxy

Tape and Seal Packaging
Seal Strength: Per MIL-STD-202, Method 112. 30 seconds at 125° hot Fluorocarbon
Solderability: Per MIL-STD-202, Method 208.
Tape Seal: Polyester film

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

ORDERING INFORMATION

Number of Positions	Type of Circuit Code	Number per Tube	Part Number*
10	Circuit Selector	9	**79A10T**
10	Single Pole	9	**79C10T**
16	Circuit Selector	6	**79A16T**
16	Single Pole	6	**79C16T**

*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" before the "T" in the Grayhill part number.

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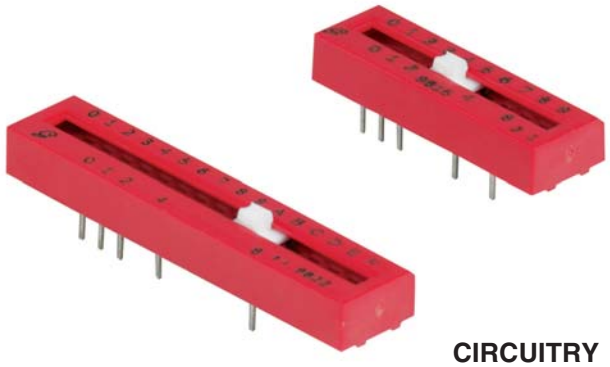
SERIES 79B

Linear Action, Coded Output

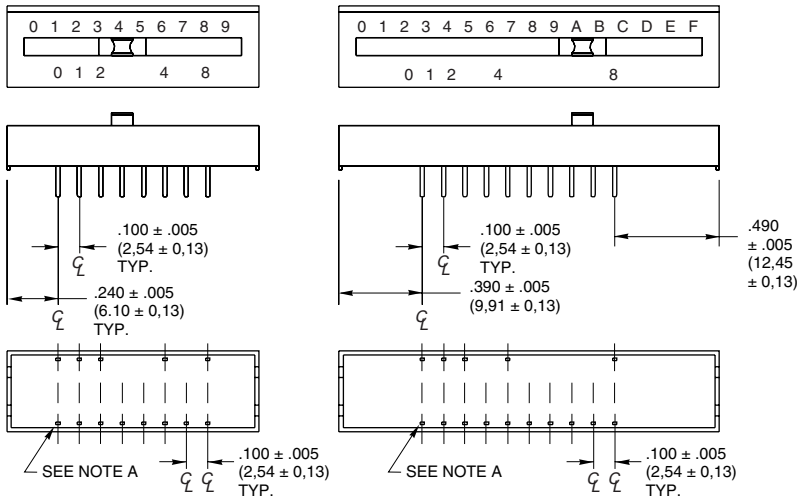
FEATURES

- Reliable Switching, Positive Detent
- Codes in BCD and Hexadecimal
- True Zero Output
- 10 or 16 Positions
- 2000 Cycle Life
- Up to 60,000 Detent Operations



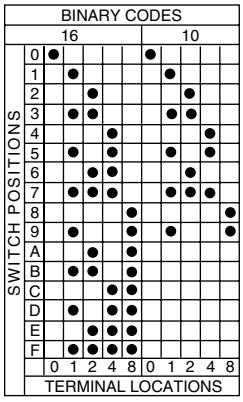
DIMENSIONS In inches (and millimeters)

All dimensions not shown here are the same as those on the facing page.



NOTE A: All terminals on this side of the switch are bussed internally. Any one of them may be used as the common terminal.

CIRCUITRY



Dot indicates contact made between contact and output terminal.

SPECIFICATIONS

Electrical Ratings

Make-and-break Current Rating: 2,000 cycles at 10 mA, 50 mVdc; 2,000 cycles at 125 mA, 6 Vdc; 2,000 cycles at 50 mA, 30 Vdc.
Contact Resistance: 100 mohms maximum after life, measured at 10 mA dc and 50 mV (open circuit). Initial values are 60 mohms maximum for coded switches, and 50 mohms for other linear action switches.
Insulation Resistance (at 100 Vdc): Between adjacent isolated contacts: Initial: 5,000 Mohms minimum; After Life: 1,000 Mohms minimum
Across open contacts: Initial: 5,000 Mohms minimum; After Life: 1,000 Mohms minimum
Dielectric Strength: Between adjacent isolated contacts and across open contacts. Initial: 750 Vac; After Life: 500 Vac
Contact Carry Rating: 2 amps with a maximum contact temperature rise of 20°C.

Mechanical Ratings

Mechanical Life: 4,000 cycles maximum. Note: a cycle is one complete operation, back and forth through all switch positions.
Vibration Resistance: 10 to 2,000 Hz at 15G or 0.060" double amplitude; no damage and no contact openings exceeding 10 mS (Method 204, Test Condition B).
Shock Resistance: 509, 11 mS, half sine; no damage and no openings exceeding 10 microseconds (Method 213, Test Condition A).

Environmental Ratings

Refer to MIL-STD-202F per MIL-S-83504
Operating Temperature Range: -40°C to +85°C
Storage Temperature Range: -55°C to +85°C
Moisture Resistance: 240 hours with temperature cycling and polarization, per MIL-STD-202F, Method 305

Materials and Finishes

Nonconductive Parts: Plastic UL94V-O
Shorting Arm: Phosphor bronze, gold plate over nickel plate
Base Contacts: Copper alloy, gold plate over nickel plate
Terminals: Copper alloy, matte tin plated over nickel barrier
Potting Material: Epoxy

Tape Seal and Packaging

Tape Seal: Polyester film

ORDERING INFORMATION

Number of Positions	Type of Circuit Code	Number per Tube	Part Number*
10	Binary Code Decimal	9	**79B10T**
16	Hexadecimal	6	**79B16T**

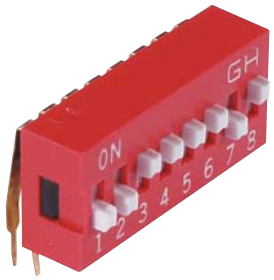
*A top tape seal is required for switches that are machine soldered or heavily cleaned after hand soldering. To order top seal versions, add "S" before the "T" in the Grayhill part number.

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

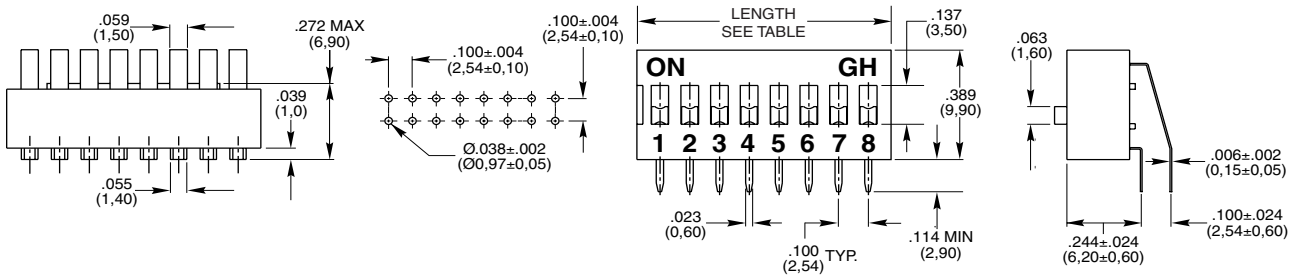
SERIES 78C
Right Angle Option

FEATURES
- Easy Access
- SPST Circuitry
- 2-10 and 12 positions available
- Sealed versions available

APPLICATIONS
Telecommunications, computers and peripherals, instruments and controls.



Series 78C DIMENSIONS In inches (and millimeters)



Unless otherwise specified, tolerances are ±0.008 (0,20)

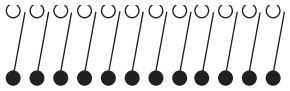
SPECIFICATIONS

Mechanical
Mechanical Life: 2000 operations per switch.
Operation Force: 1000gf max.
Stroke: 2.0mm
Operation Temp: -20°C to 70°C
Storage Temp: -40°C to 85°C
Vibration Test: MIL-STD-202F METHOD 201A.
Frequency: 10-55-10Hz/1 min.
Directions: X,Y,Z, three mutually perpendicular directions.
Time: 2 hours each direction.
High reliability.
Shock Test: MIL-STD-202F METHOD 213 B. CONDITION A.
Gravity: 50G (peak value), 11 msec.
Direction and times: 6 sides and 3 Times in each direction.
High reliability.

Electrical
Electrical Life: 2000 operations per switch 24VDC, 25mA.
Non-Switching Rating: 100mA, 50VDC.
Switching rating: 25mA, 24VDC.
Contact Resistance: 50mΩ max. at initial.
Insulation Resistance: (at 500VDC) 100mΩ min.
Dielectric Strength: 500VAC/1 minute.
Capacitance: 5pF max.
Circuit: Single pole single throw.

Soldering and Cleaning Process
For best results follow these recommendations: Keep switch contacts in "OFF" position for all operations.
Wave Sodering: Recommended solder temperature: 500°F (260°C) max 5 seconds.
Hand Soldering: Use a soldering iron of 30 Watts or less, controlled at 608°F (320°C) approximately 2 seconds while applying solder.
Cleaning: Tape sealed versions withstand cleaning processes.

CIRCUITRY



Materials
Base Contact: Phosphor bronze with gold plating over nickel
Terminals: Brass with gold plating over nickel
Nonconductive Parts: Plastic UL94V-0
Potting Material: Epoxy
Tape Seal: Polyester film.

ORDERING INFORMATION

78C08SRAT

- **Series**
- **Number of Positions**
- **RoHS compliant**
- **Right Angle**
- **S=** Top Tape Sealed, Blank=Unsealed

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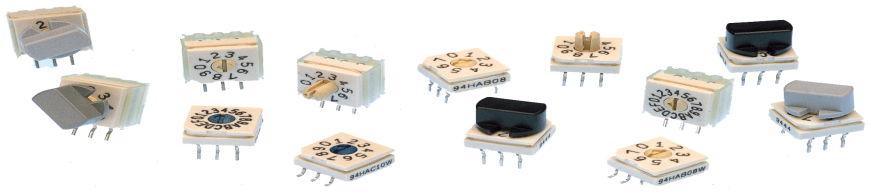
TABLE

Grayhill Part Number	Length Dimension inches (mm)	Packaging
78C02RAT	0.254(6,44)	73 pcs/tube
78C03RAT	0.354(8,98)	52 pcs/tube
78C04RAT	0.454(11,52)	40 pcs/tube
78C05RAT	0.554(14,06)	33 pcs/tube
78C06RAT	0.654(16,60)	28 pcs/tube
78C07RAT	0.754(19,14)	24 pcs/tube
78C08RAT	0.854(21,68)	21 pcs/tube
78C09RAT	0.954(24,22)	19 pcs/tube
78C10RAT	1.054(26,76)	17 pcs/tube
78C12RAT	1.254(31,84)	14 pcs/tube
78C02SRAT	0.254(6,44)	70 pcs/tube
78C03SRAT	0.354(8,98)	52 pcs/tube
78C04SRAT	0.454(11,52)	39 pcs/tube
78C05SRAT	0.554(14,06)	32 pcs/tube
78C06SRAT	0.654(16,60)	28 pcs/tube
78C07SRAT	0.754(19,14)	24 pcs/tube
78C08SRAT	0.854(21,68)	21 pcs/tube
78C09SRAT	0.954(24,22)	19 pcs/tube
78C10SRAT	1.054(26,76)	17 pcs/tube
78C12SRAT	1.254(31,84)	14 pcs/tube

SERIES 94H
Binary Coded



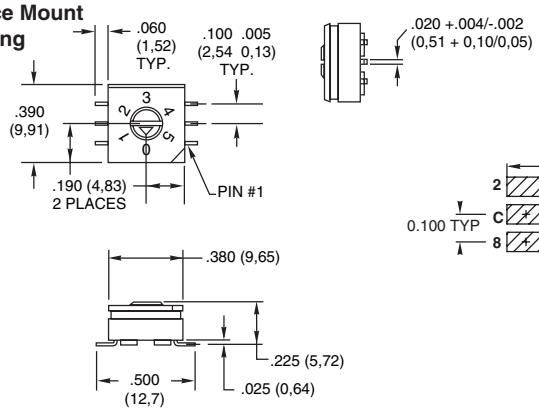
FEATURES

- Sealed Construction; No Tape Seal Required
- Surface Mount or Thru-Hole Style
- Tube or Tape and Reel Packaging
- Octal, BCD, and Hexadecimal Code
- In Standard or Complement
- Standard and Right Angle Mount
- Flush or Extended Actuators
- Gold-Plated Contacts

DIMENSIONS In inches (and millimeters)

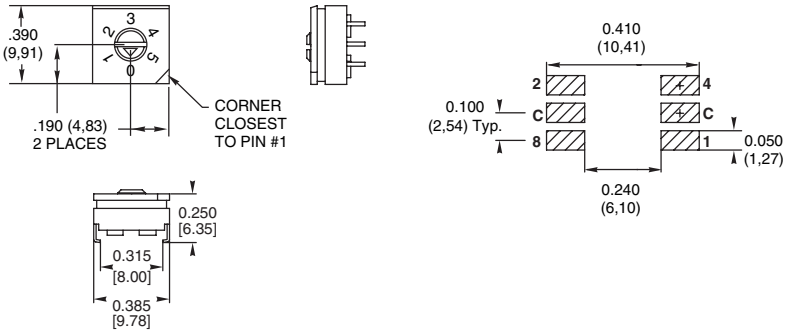
Tolerances are ± .010 inches unless specified otherwise.

Surface Mount Gullwing

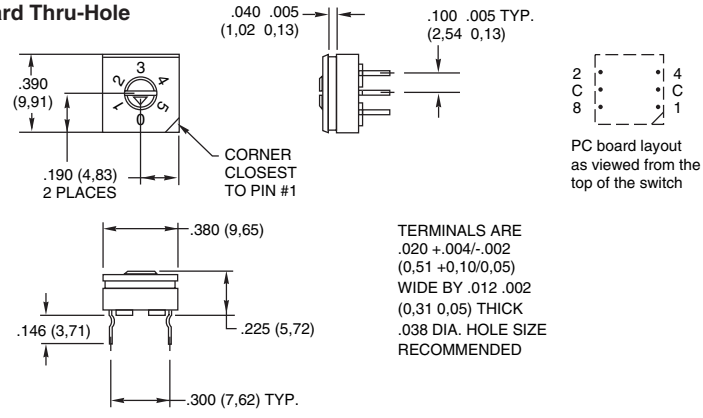


Solder pad layout as viewed from the top of the switch

Surface Mount J-Lead



Standard Thru-Hole



PC board layout as viewed from the top of the switch

TERMINALS ARE .020 +.004/-.002 (0,51 +0,10/0,05) WIDE BY .012 .002 (0,31 0,05) THICK .038 DIA. HOLE SIZE RECOMMENDED

ACTUATOR STYLES

Octal–8 position

BCD–10 position

Hex–16 position

Figure 1
"A" style rotor

Figure 2
"F" style rotor

All actuation types are available in octal (8), binary coded decimal (10), or hexadecimal (16) codes; with either standard or complement output. Standard code outputs have natural color rotors; complements in a contrasting color.

EXTENDED ACTUATOR TYPES

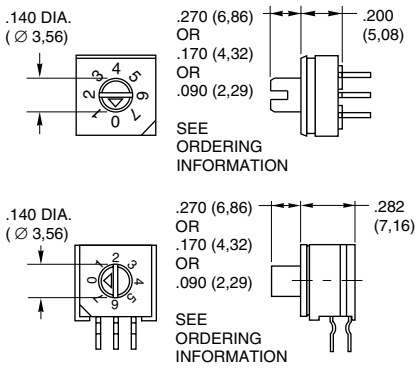
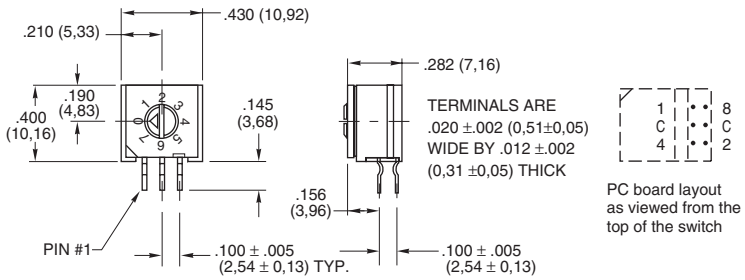


Figure 3

DIMENSIONS In inches (and millimeters)

Right Angle Thru-Hole



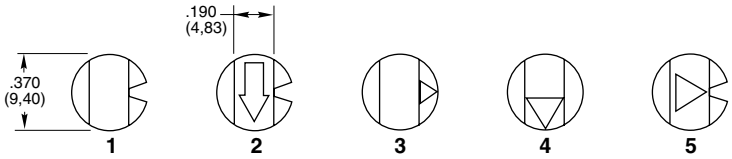
ORDERING INFORMATION: Series 94H

94HAB10WRT

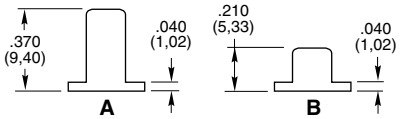
Series
Actuator Style: A = Flush, Figure 1
B = .270, Figure 3 (see page B-21)
C = .170, Figure 3 (see page B-21)
E = .090, Figure 3 (see page B-21)
F = Flush, Figure 2
Code: B = Standard (Natural),
C = Complementary (Contrasting Color)
RoHS Compliant
Packaging: R = Tape and Reel, (Surface Mount Only)
Blank = Tube*
Terminal Style: RA = Right Angle, Thru-Hole
J = J-Lead
W = Surface Mount
Blank = Thru-Hole
Number of Positions: 08 = Octal, 8 Position
10 = BCD, 10 Position
16 = Hex, 16 Position

* 27 Pieces per tube for surface mount and thru-hole, 24 pieces per tube for right angle switches.

SERIES 94 High Temperature Knobs: For Shaft Extensions



Slotted knobs show switch markings. Contact Grayhill for other knob material/ marking color combinations and geometrics.



* Use only with Actuator Type B or C

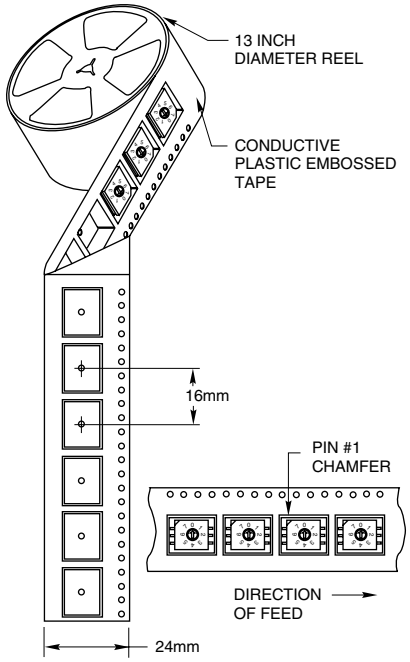
ORDERING INFORMATION: Series 94 High Temperature Knobs*

Knob Style and Height	Knob Color	Arrow Color	Part Number
1A	Gray	N/A	**947706-001**
5A	Gray	Black	**947706-005**
1B	Black	N/A	**947705-001**
1B	Gray	N/A	**947705-012**
2B	Gray	White	**947705-004**
3B	Gray	Black	**947705-017**
4B	Gray	Black	**947705-018**
1B	Natural	N/A	**947705-009**
4B	Black	White	**947705-010**
5B	Gray	Black	**947705-019**

*Ordered as a separate item. B = Standard (Natural), C = Complementary (Conrasting Color).

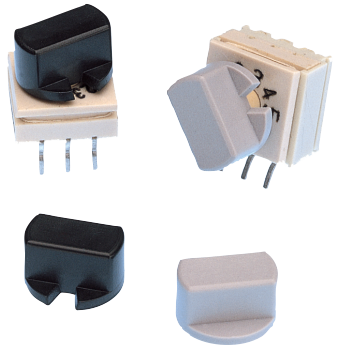
TAPE AND REEL PACKAGING: Series 94H

Meets requirements of EIA 481-2.



Each reel contains the following number of switches with a 15.35 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

94HA style	750 sw/reel
94HB style	150 sw/reel
94HC style	200 sw/reel
94HE style	300 sw/reel
94HF style	750 sw/reel



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

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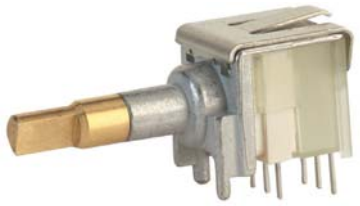
SERIES 94R

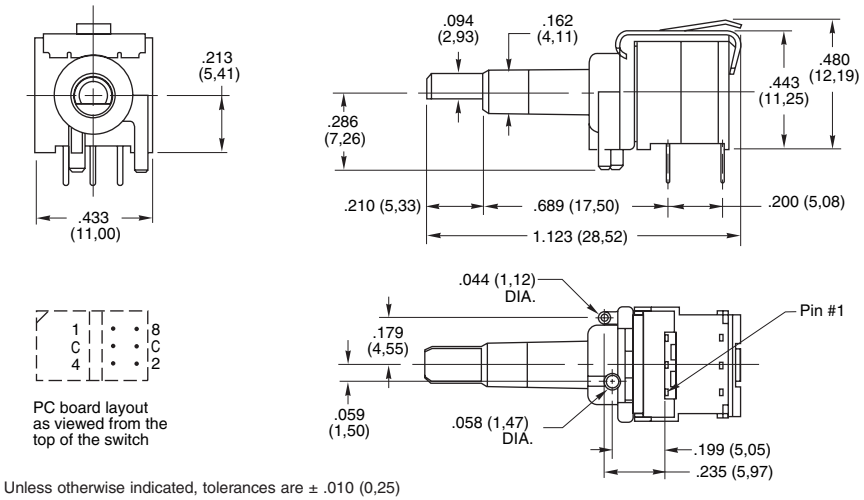
Economical, Binary Coded



FEATURES

- 10,000 Cycles of Operation
- Gold-Plated Contacts
- Sealed Contact System
- Right Angle Mount
- Octal, BCD & Hexadecimal Codes
- Standard or Complement
- RoHS Compliant

DIMENSIONS In inches (and millimeters)



Unless otherwise indicated, tolerances are ± .010 (0,25)

CODE & TRUTH TABLES:

Series 94H and 94R

Standard Output / Complement Output

SWITCH POSITION	CODE OUTPUT 1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
B	●	●		●
C			●	●
D	●		●	●
E		●	●	●
F	●	●	●	●

Dot indicates terminal to common connection. All switches are continuous rotation.

Octal and Octal Complement outputs are 0 thru 7 positions.

BCD and BCD Complement outputs are 0 thru 9 positions.

Hexadecimal and Hexadecimal Complement outputs are 0 thru F positions.

Standard codes have natural color rotors; complements have rotors in a contrasting color.

SPECIFICATIONS: Series 94H and 94R

Electrical Ratings

Make-and-break Current Rating: 30 mA at 30 Vdc for 10,000 cycles of operation.
Carrying Current Rating: 100 mA at 50 Vdc
Contact Resistance: 50 mohms maximum initially (measured at 10 mA, 50 mVdc). 150 mohms maximum after life.
Insulation Resistance:(measured at 100 Vdc across open switch contacts)
Initial: 5000 Mohms minimum. After Life: 1000 Mohms minimum.
Dielectric Strength: (measured across open switch contacts) Initial: 500 Vac RMS minimum. After Life: 250 Vac RMS

Mechanical Ratings

Mechanical Life: 10,000 cycles of operation. One cycle is a rotation through all positions and a complete return through all positions.
Mechanical Shock: 1000g's, 0.5 mS, half sine per MIL-STD-202F, Method 213, Test Condition E.
Vibration Resistance: 10-2000 Hz at 15G or 0.060" double amplitude per MIL-STD-202F, Method 204, Test Condition B.
Operational Torque: 2 to 6 inch-ounces initially and 1.2 inch-ounces minimum after life.

Environmental Ratings

Operating Temperature Range: -40° to +85°C.
Storage Temperature Range: -40° to +85°C.
Moisture Resistance: 240 hours with temperature cycling and polarization. Passes insulation resistance and dielectric strength per MIL-STD-202F, Method 106 following exposure.

Materials and Finishes

Rotor and Switch Body: Plastic (UL94V-O)
Contact Material: Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.
Shorting Member: Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.
Terminals: Copper alloy, matte tin plated over nickel barrier.
Internal O-ring: Rubber BUNA-N

Soldering Information

Soldering Temperature: 260° C maximum.
Cleaning: Acceptable solutions include 1-1-1 Trichlorenthane, Freon (TF, TE, or TMS), Isopropyl Alcohol and detergent (140°F maximum). Solutions which are not recommended include Acetone, Methylene Chloride, and Freon TMC.

ORDERING INFORMATION: Series 94R

Continuous Rotation Versions			
Code	**No. of Positions**	**Standard Code Part Number**	**Complement Part Number**
Octal BCD Hexadecimal	8 10 16	**94RB08CT** **94RB10CT** **94RB16CT**	**94RC08CT** **94RC10CT** **94RC16CT**
Rotational Stop Versions*			
Code	**No. of Positions**	**Standard Code Part Number**	**Complement Part Number**
Hexadecimal	16	**94RB16FT**	**94RC16FT**

* Consult Grayhill for 8 or 10 position

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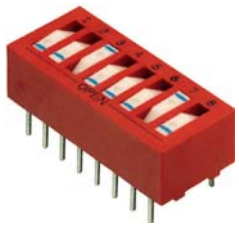
OPTIONS

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

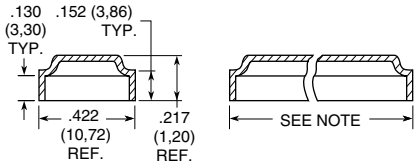
For Series 76, 78, & 90
We can mark your part number or other wording on the switch, often at no charge. For some markings there will be a nominal charge for tooling plus a set-up charge. In addition, there is a marking charge per side per switch. Add it to the unit price and discount it accordingly.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