



Surface Mount and DIP Switch Selection Chart

DIP Switches

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	4, 6 & 8	1/Station	B-4
	Tactile	Snap Dome	95	1	1	B-5
	Standard DIP Package	Top Actuated, Recessed Slide	90	2-10	1/Station	B-7
	Standard DIP Package	Side Actuated	76	2-10 & 12	1/Station	B-10
SPDT, DPST	Standard DIP Package	Side Actuated, Top Actuated	78	2-10	1/Station	B-9
Standard, Complement Code	Octal, BCD & Hex	Rotary	94	8, 10 & 16	1	B-22

THRU-HOLE DIP SWITCHES

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

Circuitry	Description	Type of Actuation	Series	No. of Positions Available	No. of Actuators	Page Number
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SINGLE THROW SWITCHES

Single Pole, Single Throw	Machine Insertable	Recessed Slide	90	2-10	1/Station	B-11
	Standard	Raised Rocker	76	2-10 & 12	1/Station	B-12
		Recessed Rocker	76	2-10 & 12	1/Station	B-12
		Side Actuated	76	2-10 & 12	1/Station	B-12
		Slide*	78	2-10 & 12	1/Station	B-13
		Recessed Slide*	78	2-10	1/Station	B-13
	Military Qualified	Raised Rocker (MS83504/01)	76	2-10 & 12	1/Station	B-17
		Recessed Rocker (MS83504/02)	76	2-10 & 12	1/Station	B-17
		Side Actuated (MS83504/11)	76	2-10 & 12	1/Station	B-17
		Slide (MS83504/04)	78	2-10 & 12	1/Station	B-17
Machine Insertable (MS83504/12)		90	2-10	1/Station	B-17	
Multiple Pole, Single Throw	2PST	Slide*	78	1-5	1/Station	B-13
	3PST	Slide*	78	1-3	1/Station	B-13
	4PST	Slide*	78	1 & 2	1/Station	B-13
	5, 6, 7, 8, or 10PST	Slide*	78	1	1/Station	B-13

MULTIPLE THROW SWITCHES

Circuit Selector	1-of-10 Circuits	Linear Action Slide	79	10	1	B-21
	1-of-16 Circuits	Linear Action Slide	79	16	1	B-21
Single Pole, Multiple Throw	Standard	Raised Rocker	76	2-4	1/Station	B-14
		Recessed Rocker	76	2-4	1/Station	B-14
		Toggle	76	2-4	1/Station	B-14
		Slide*	78	1-6	1/Station	B-14
	Military Qualified	Raised Rocker (MS38504/05)	76	2-4	1/Station	B-17
	Recessed Rocker (MS38504/06)	76	2-4	1/Station	B-17	
Double Pole, Double Throw	Standard	Raised Rocker	76	1 & 2	1/Station	B-15
		Recessed Rocker	76	1 & 2	1/Station	B-15
		Toggle	76	1 & 2	1/Station	B-15
		Slide*	78	1 & 2	1/Station	B-15

BINARY CODED OUTPUT SWITCHES

Standard Code	BCD & Hexadecimal Octal, BCD, & Hex	Linear Action Slide	79	10 & 16	1	B-18
		Rotary	94	8, 10 & 16	1	B-22
Complement	Octal, BCD, & Hex	Rotary	94	8, 10 & 16	1	B-22

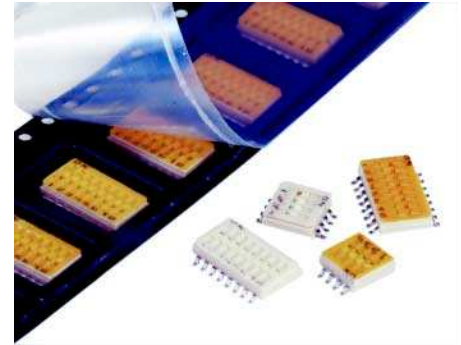
*Switch is also available with right angle termination. See page listed above and page B-20.

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.

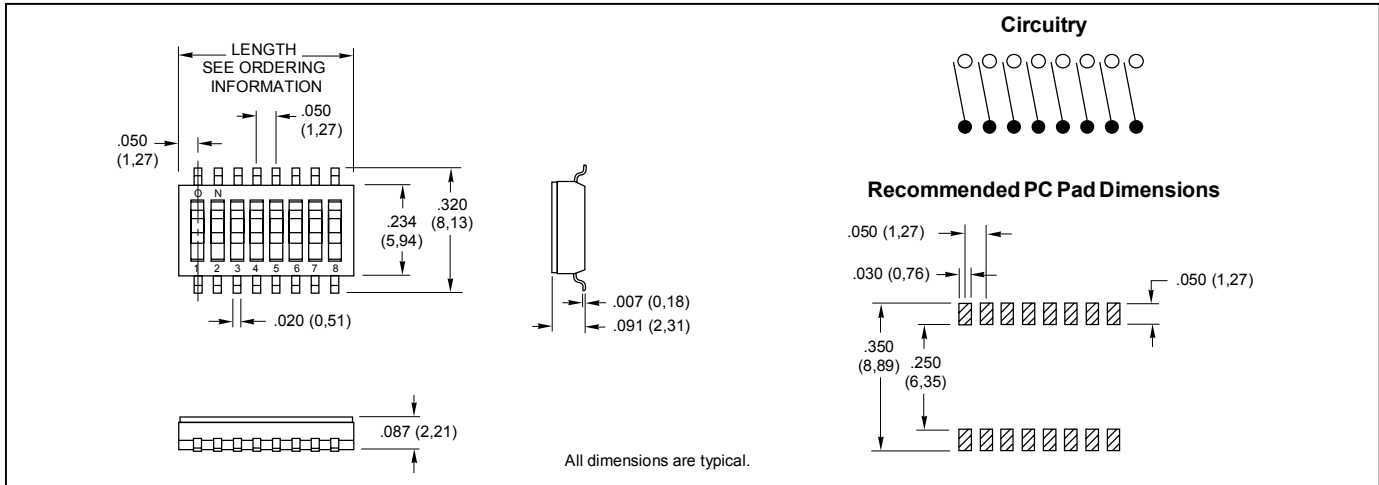
SERIES 97
Half-Pitch

FEATURES

- Requires One-Half the Board Space of a Standard DIP Switch
- Assembly Process Compatible to 260°C
- Available in 4 and 8 Position Lengths
- Tape and Reel Packaging for Surface Mount Assembly



DIMENSIONS In inches (and millimeters)



SPECIFICATIONS

Electrical Ratings

Contact Rating: 100 mA at 50 Vdc non-switching; 25 mA at 24 Vdc, 10 mA at 50 Vdc switching.
Contact Resistance: 100 mohms maximum initially (measured at 10 mA, 50 mVdc). 150 mohms maximum after life.
Insulation Resistance: Minimum at 100 Vdc between adjacent closed contacts and also across open switch contacts.
 Initial: 1,000 Mohms After Life: 200 Mohms
Dielectric Strength: 300 Vac RMS, minimum voltage measured between adjacent closed contacts and also across open switch contacts.
Switch Capacitance: 5 pF at 1 megahertz

Mechanical Ratings

Mechanical Life: 1,000 cycles minimum
Vibration Resistance: Per MIL-STD-202, Method 204, Test Condition A: There shall be no opening of closed contacts or closing of open contacts in excess of 10 microseconds, and there shall be no evidence of broken, loose, deformed or displaced parts.
Mechanical Shock: Per MIL-STD-202, Method 213, Test Condition E: There shall be no opening of closed contacts or closing of open contacts in excess of 10 microseconds, and there shall be no evidence of broken, loose, deformed or displaced parts.
Thermal Shock Resistance: Per MIL-STD-202, Method 107G, there shall be no evidence of physical damage or permanent change in electrical characteristics.

Terminal Strength: Per MIL-STD-202, Method 211A, Test Condition A. There shall be no evidence of mechanical distortion, cracking of the switch body or changes in the electrical characteristics.
Thermal Aging: Per MIL-STD-202, Method 108A. 1000 hours at 125°C.

Environmental Ratings

Operating Temperature: -40°C to +85°C
Storage Temperature Range: -55°C to +85°C
Moisture Resistance: Per MIL-STD-202, Method 106, there shall be no evidence of corrosion and the insulation resistance shall be no less than 10 Mohms.

Soldering Information

Recommended Processing Temperature: 220°C–230°C (1 pass—260°C maximum)
Resistance to Soldering Heat: Reflow or infrared soldering, 260°C for 60 seconds.
Flux Cleaning: Sealed switches withstand aqueous, detergent and isopropyl alcohol washing.

Materials and Finishes

Non-Conductive Parts: Cover, slide and base are a natural colored thermoplastic. (UL94V-O)
Shorting Member: Copper alloy, plated. 10 microinches minimum gold over nickel.
Base Contacts: Brass, plated. 10 microinches minimum gold over nickel.
Terminals: Brass, solder-plated, solderable per MIL-STD-202, Method 208.

Tape and Reel Packaging

Switches will be supplied on 13 inch reels with 2000 switches per reel. The 4 position switches have a tape width of 16mm, while the 8 position switches have a tape width of 24mm. The tape pockets have a 12mm pitch.

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

ORDERING INFORMATION* (2000 switches per reel)

No. of Positions	Length Inches (mm)	Part Number Without Tape Seal	Part Number With Tape Seal
4	0.250 (6,35)	97S04R	97S04SR
8	0.450 (11,43)	97S08R	97S08SR

* Consult Grayhill for 2 and 6 position switches.