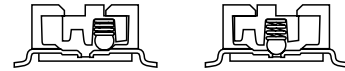


**SERIES 90HB**  
SPST, Low Profile

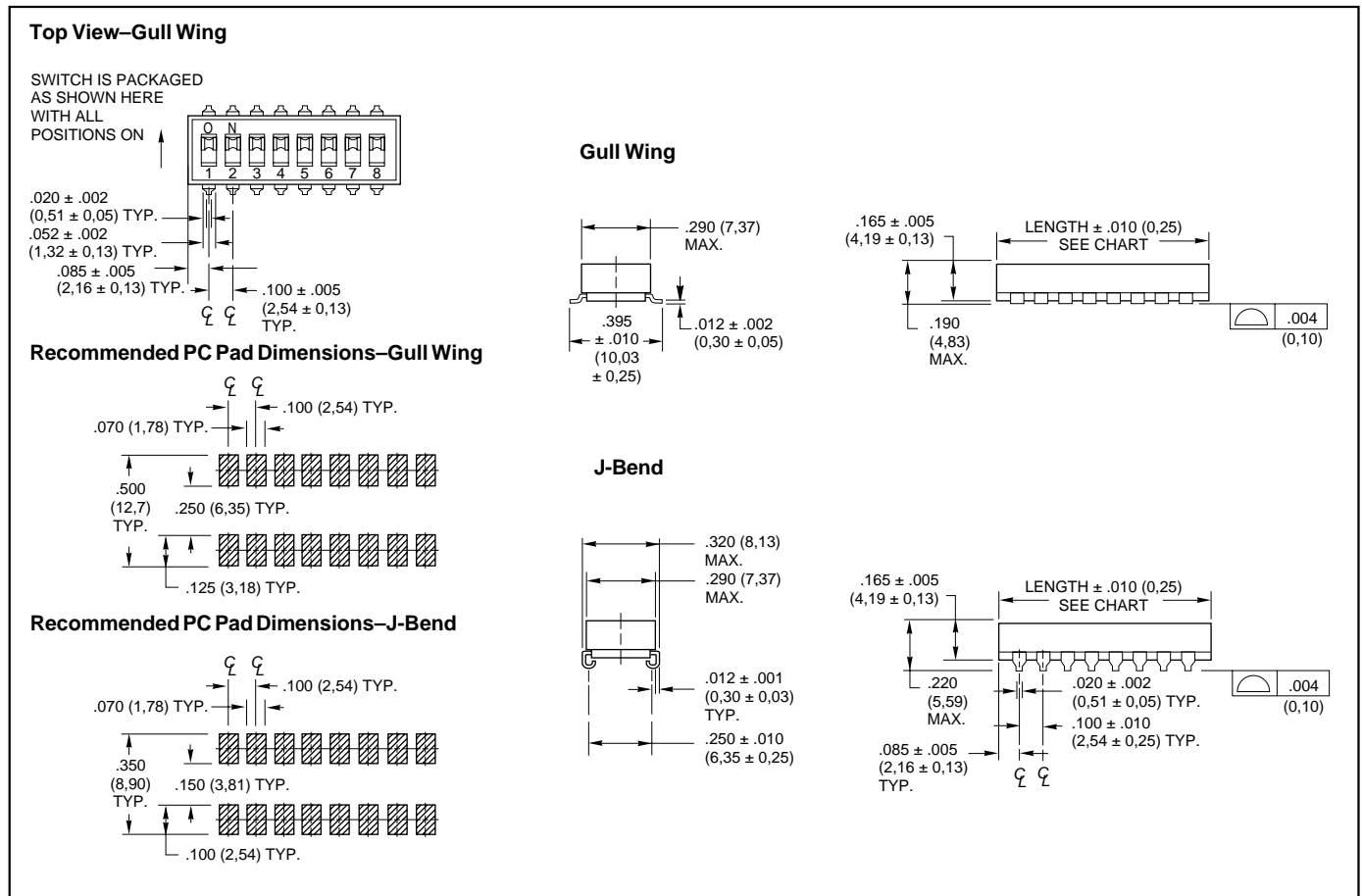
**FEATURES**

- Compatible with SMT Assembly, Including Infrared Reflow and Vapor-Phase
- Top Seal Withstands High Pressure Aqueous Cleaning
- Reliable Spring and Ball Contact



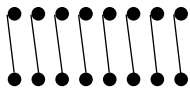
DIP Switches

**DIMENSIONS** In inches (and millimeters)



**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 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:** 5,000 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 specification, 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.

**Materials and Finishes**

**Shorting Member (Ball):** Brass, gold-plate over nickel barrier.

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

**Terminals:** Copper alloy, solder-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**

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

90HBW02PR

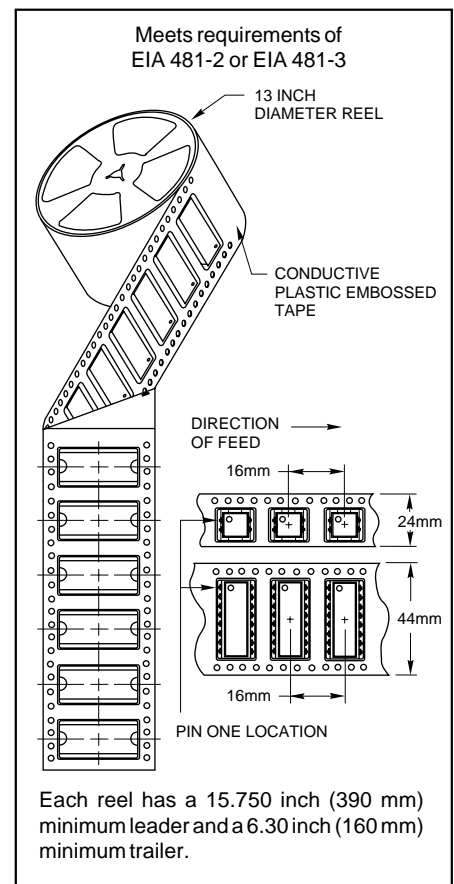
**Packaging:** R = Tape and reel packaging (750 switches/reel)  
 Blank = Tube packaging (each tube is 19.5" long)

**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**



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

DIP Switches