

**SERIES 90HB**  
SPST, Low Profile



**FEATURES**

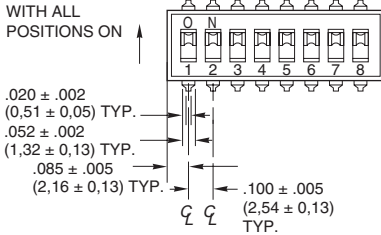
- Compatible with SMT Assembly, Including Infrared Reflow and Vapor-Phase
- Top Seal Withstands High Pressure Aqueous Cleaning
- Reliable Spring and Ball Contact



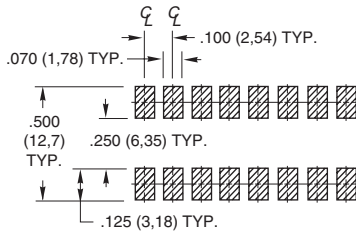
**DIMENSIONS** In inches (and millimeters)

**Top View—Gull Wing**

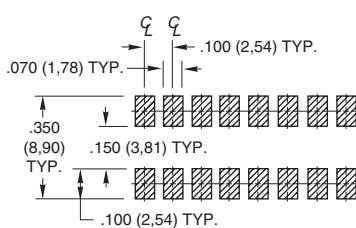
SWITCH IS PACKAGED AS SHOWN HERE WITH ALL POSITIONS ON



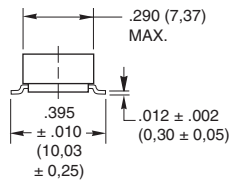
**Recommended PC Pad Dimensions—Gull Wing**



**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 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:** 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.

**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.

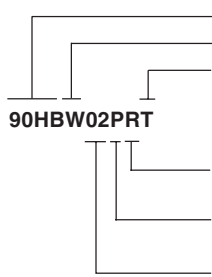
**Non-Conductive Parts:** Thermoplastic (UL94V-O)

**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**



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

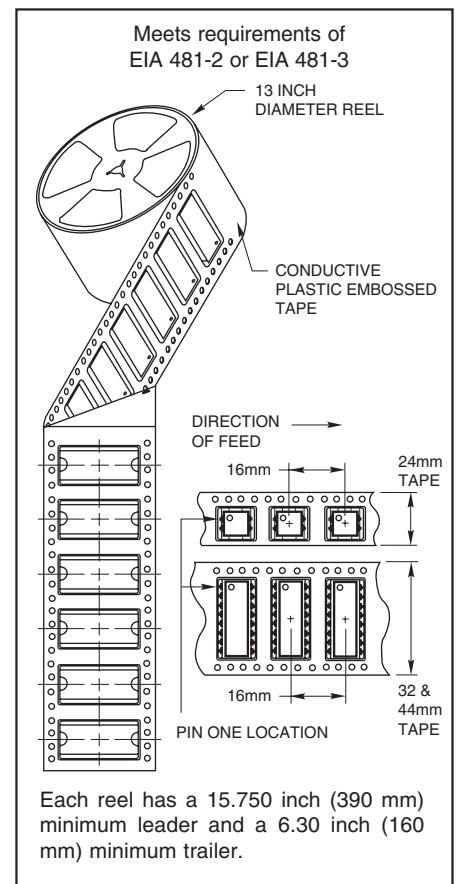
**Packaging:** R = Tape and reel packaging (750 switches/reel)  
 Blank = Tube packaging (each tube is 19.5" long)

**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**



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