## 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)


## CIRCUITRY



## SPECIFICATIONS

## Electrical Ratings

Make-and-break Current Rating: 2,000 operations per switch position at these resistive loads: $10 \mathrm{~mA}, 30 \mathrm{Vdc}$; or $10 \mathrm{~mA}, 50 \mathrm{mVdc} ; 10$ $\mathrm{mA}, 50 \mathrm{mVdc}$; or $25 \mathrm{~mA}, 24 \mathrm{Vdc}$; or $100 \mathrm{~mA}, 6$ Vdc.
Contact Resistance: (measured at $10 \mathrm{~mA}, 50$ $\mathrm{mVdc})$. 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 $20^{\circ} \mathrm{C}$
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 $\mathrm{B}, 1 \mathrm{mS}$ 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 $85^{\circ} \mathrm{C}$; no failures.
ORDERING INFORMATION

| 90HBW02PRT | Packaging: R = Tape and reel packaging (750 switches/reel) <br> Blank = Tube packaging (each tube is $19.5^{\prime \prime}$ long) <br> Seal: $\mathrm{P}=$ Polyimide Seal <br> Blank = No Seal <br> Number of Positions: 02 through 10 |  |  |
| :---: | :---: | :---: | :---: |
| No. of Positions | Length Inches | Length Metric | Number <br> Per Tube |
| 2 3 4 5 6 7 8 9 10 | $\begin{aligned} & .270 " \\ & .370^{\prime \prime} \\ & .470^{\prime \prime} \\ & .570^{\prime \prime} \\ & .670^{\prime \prime} \\ & .770{ }^{\prime \prime} \\ & .870^{\prime \prime} \\ & .970^{\prime \prime} \\ & \hline \end{aligned}$ | $\begin{array}{r} 6,9 \mathrm{~mm} \\ 9,4 \mathrm{~mm} \\ 11,9 \mathrm{~mm} \\ 14,5 \mathrm{~mm} \\ 17,0 \mathrm{~mm} \\ 19,6 \mathrm{~mm} \\ 22,1 \mathrm{~mm} \\ 24,6 \mathrm{~mm} \\ 27,2 \mathrm{~mm} \end{array}$ | $\begin{aligned} & 60 \\ & 47 \\ & 37 \\ & 31 \\ & 26 \\ & 23 \\ & 20 \\ & 18 \\ & 16 \end{aligned}$ |

[^0]Office, an authorized local Distributor or Grayhill.

## Environmental Ratings

Meets all requirements of MIL- S-83504.
Operating Temperature Range: $-40^{\circ} \mathrm{C}$ to + $85^{\circ} \mathrm{C}$
Storage Temperature Range: $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$
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: $220^{\circ} \mathrm{C}-230^{\circ} \mathrm{C}$ ( 1 pass- $260^{\circ} \mathrm{C}$ 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 ( $140^{\circ} \mathrm{F}$ 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.


[^0]:    Available from your local Grayhill Distributor.
    For prices and discounts, contact a local Sales

