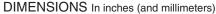


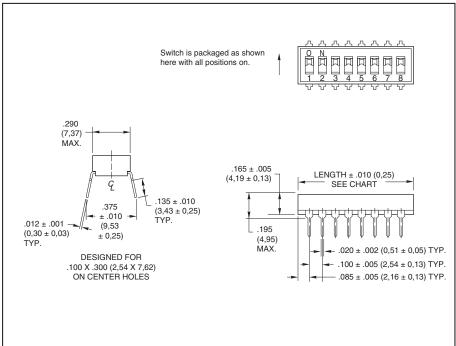
## SERIES 90B AND 90GB

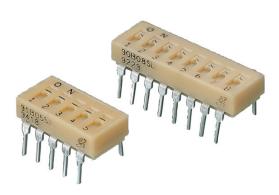
Machine Insertable MIDIP

### **FEATURES**

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





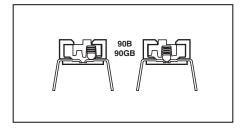


## **CIRCUITRY**

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



### CONTACT SYSTEM



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

No. of	Length	Length	Number	Part Number	
Positions	Inches	Metric	Per Tube		
2 3 4 5 6 7 8 9	.270" .370" .470" .570" .670" .770" .870" .970"	6,9 mm 9,4 mm 11,9 mm 14,5 mm 17,0 mm 19,6 mm 22,1 mm 24,6 mm 27,2 mm	60 47 37 31 26 23 20 18 16	90B02ST 90B03ST 90B04ST 90B05ST 90B06ST 90B07ST 90B08ST 90B09ST 90B10ST	90GB02ST 90GB03ST 90GB04ST 90GB05ST 90GB06ST 90GB07ST 90GB08ST 90GB09ST 90GB10ST

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

## ADDITIONAL INFORMATION

Please visit our website for accessories.

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

<sup>\*\*</sup>Style "GB" contains 30 $\mu$  gold plated terminals.



# SPECIFICATIONS: Standard Styles

Ratings Mechanical Life: Operations per switch position	76 2,000	78 2,000	90B 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: 10 mA, 30 Vdc; or 10 mA, 50 mVdc: 10 mA, 50 mVdc; or 25 mA, 24 Vdc; or 100 mA, 6 Vdc:	2,000  	2,000 — —	 2,000 2,000	
Contact Resistance: Initially: After life, at 10 mA, 50 mVdc, open circuit:	$\leq 30~\text{m}\Omega \\ \leq 100~\text{m}\Omega$	$\leq 30~\text{m}\Omega \\ \leq 100~\text{m}\Omega$	$\leq$ 20 m $\Omega$ $\leq$ 100 m $\Omega$	
Insulation Resistance: Minimum, at 100 Vdc between adjacent closed contacts and also across open switch contacts Initially (Mohms): After life (Mohms):	5,000 1,000	5,000 1,000	5,000 1,000	
Dielectric Strength: Minimum voltage (AC, RMS) measured between adjacent closed contacts and also across open switch contacts. Initially: After life:	750 V 500 V	750 V 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)

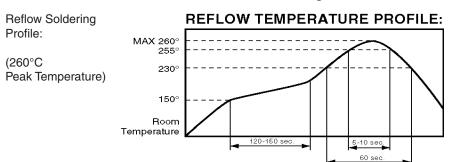
Potting Material: Epoxy, 76,78 only.

**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:**



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

<sup>\*\*</sup> Note: 100% matte tin terminal plating does not meet MIL-S-83504 for lead content.