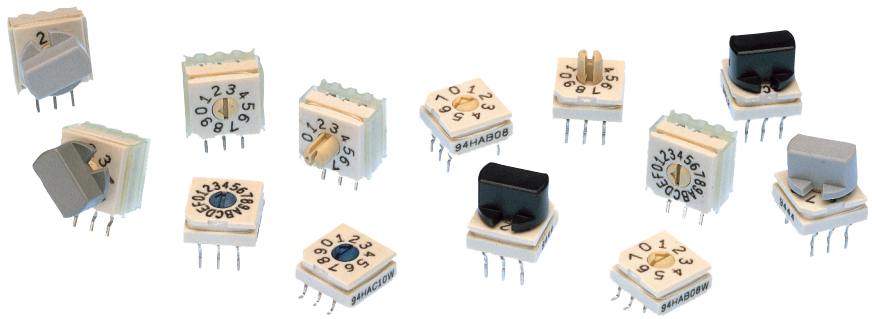
# SERIES 94H
## Binary Coded



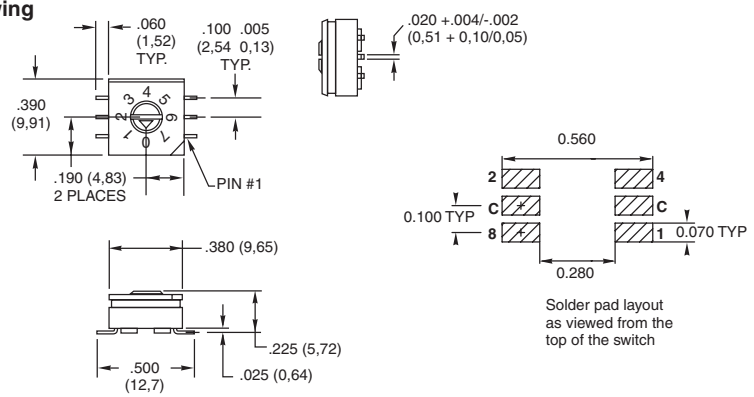
## FEATURES

- Sealed Construction; No Tape Seal Required
- Surface Mount or Thru-Hole Style
- Tube or Tape and Reel Packaging
- Octal, BCD, and Hexadecimal Code
- In Standard or Complement
- Standard and Right Angle Mount
- Flush or Extended Actuators
- Gold-Plated Contacts
- RoHS Compliant

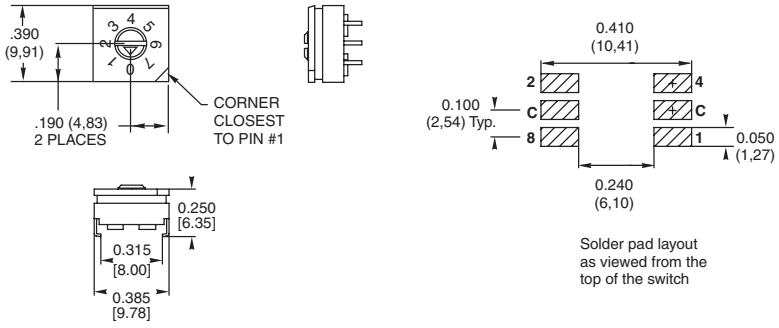
## DIMENSIONS in inches (and millimeters)

Tolerances are ± .010 inches unless specified otherwise.

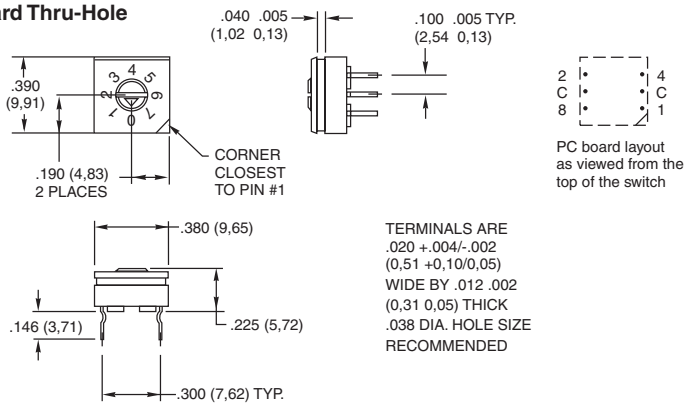
### Surface Mount Gullwing




### Surface Mount J-Lead




### Standard Thru-Hole




## ACTUATOR STYLES

**Octal–8 position**

**BCD–10 position**

**Hex–16 position**

**Figure 1**
"A" style rotor

**Figure 2**
"F" style rotor

All actuation types are available in octal (8), binary coded decimal (10), or hexadecimal (16) codes; with either standard or complement output. Standard code outputs have natural color rotors; complements in a contrasting color.

## EXTENDED ACTUATOR TYPES

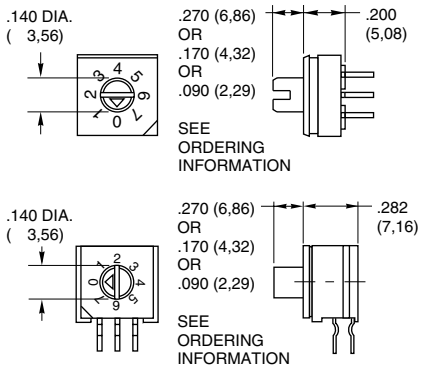
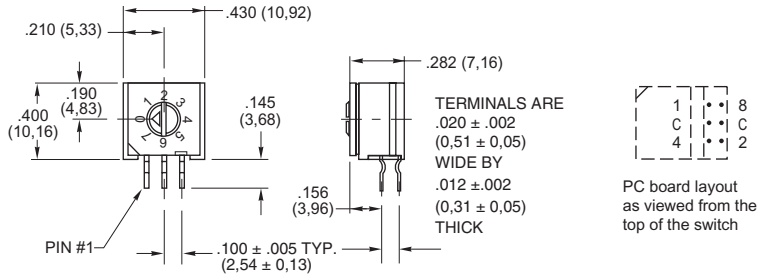



**Figure 3**

## DIMENSIONS in inches (and millimeters)

**Right Angle Thru-Hole**



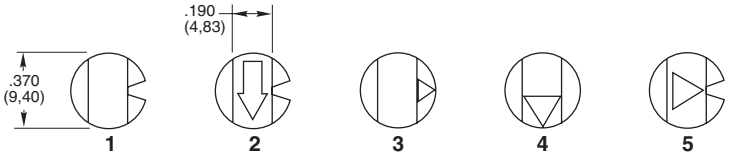

## ORDERING INFORMATION: Series 94H

**94HAB10WRT**

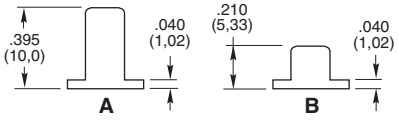
**Series**
**Actuator Style:** A = Flush, Figure 1
B = .270, Figure 3 (see page B-21)
C = .170, Figure 3 (see page B-21)
E = .090, Figure 3 (see page B-21)
F = Flush, Figure 2
**Code:** B = Standard (Natural),
C = Complementary (Contrasting Color)
**RoHS Compliant**
**Packaging:** R = Tape and Reel, (Surface Mount Only)
Blank = Tube*
**Terminal Style:** RA = Right Angle, Thru-Hole
J = J-Lead
W = Surface Mount
Blank = Thru-Hole
**Number of Positions:** 08 = Octal, 8 Position
10 = BCD, 10 Position
16 = Hex, 16 Position

* 27 Pieces per tube for surface mount and thru-hole, 24 pieces per tube for right angle switches.

## SERIES 94 High Temperature Knobs: For Shaft Extensions




Slotted knobs show switch markings. Contact Grayhill for other knob material/ marking color combinations and geometrics.




* Use only with Actuator Type B or C

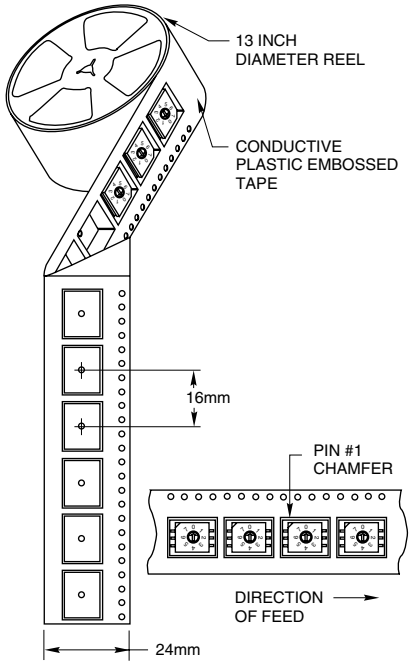
## ORDERING INFORMATION: Series 94 High Temperature Knobs*

| Knob Style and Height | Knob Color | Arrow Color | Part Number |
|---|---|---|---|
| 1A | Gray | N/A | **947706-001** |
| 5A | Gray | Black | **947706-005** |
| 1B | Black | N/A | **947705-001** |
| 1B | Gray | N/A | **947705-012** |
| 2B | Gray | White | **947705-004** |
| 3B | Gray | Black | **947705-017** |
| 4B | Gray | Black | **947705-018** |
| 1B | Natural | N/A | **947705-009** |
| 4B | Black | White | **947705-010** |
| 5B | Gray | Black | **947705-019** |

*Ordered as a separate item. B = Standard (Natural), C = Complementary (Contrasting Color).

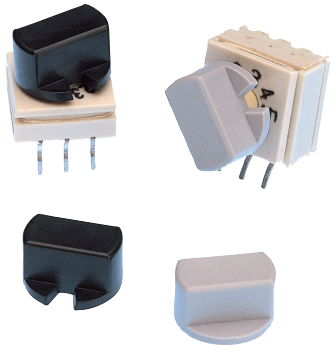
## TAPE AND REEL PACKAGING: Series 94H

Meets requirements of EIA 481-2.




Each reel contains the following number of switches with a 15.35 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

| | |
|---|---|
| 94HA style | 750 sw/reel |
| 94HB style | 150 sw/reel |
| 94HC style | 200 sw/reel |
| 94HE style | 300 sw/reel |
| 94HF style | 750 sw/reel |



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

# SPECIFICATIONS

## Electrical Ratings

**Make-and-break Current Rating:** 30 mA at 30 Vdc for 10,000 cycles of operation.
**Carrying Current Rating:** 100 mA at 50 Vdc
**Contact Resistance:** 50 mohms maximum initially (measured at 10 mA, 50 mVdc). 150 mohms maximum after life.
**Insulation Resistance:**(measured at 100 Vdc across open switch contacts)
Initial: 5000 Mohms minimum. After Life: 1000 Mohms minimum.
**Dielectric Strength:** (measured across open switch contacts) Initial: 500 Vac RMS minimum. After Life: 250 Vac RMS

## Mechanical Ratings

**Mechanical Life:** 10,000 cycles of operation. One cycle is a rotation through all positions and a complete return through all positions.
**Mechanical Shock:** 1000g's, 0.5 mS, half sine per MIL-STD-202F, Method 213, Test Condition E.
**Vibration Resistance:** 10-2000 Hz at 15G or 0.060" double amplitude per MIL-STD-202F, Method 204, Test Condition B.
**Operational Torque:** 2 to 6 inch-ounces initially and 1.2 inch-ounces minimum after life.

## Environmental Ratings

**Operating Temperature Range:**
-40° to +85°C.
**Storage Temperature Range:** -40° to +85°C.
**Moisture Resistance:** 240 hours with temperature cycling and polarization. Passes insulation resistance and dielectric strength per MIL-STD-202F, Method 106 following exposure.

## Materials and Finishes

**Rotor and Switch Body:** Plastic (UL94V-O)
**Contact Material:** Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.
**Shorting Member:** Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.
**Terminals:** Copper alloy, matte tin plated over nickel barrier.
**Internal O-ring:** Rubber BUNA-N

## Soldering Information

*For the most current soldering & cleaning processing guidelines, reference Grayhill Dip Switch Processing Information, Bulletin 1234

**Soldering Temperature:** 260° C maximum.
**Cleaning:** Acceptable solutions include 1-1-1 Trichlorenthane, Freon (TF, TE, or TMS), Isopropyl Alcohol and detergent (140°F maximum). Solutions which are not recommended include Acetone, Methylene Chloride, and Freon TMC.

# CODE & TRUTH TABLES

All switches are continuous rotation.

Dot indicates terminal to common connection.

Octal and Octal Complement outputs are 0 thru 7 positions.

BCD and BCD Complement outputs are 0 thru 9 positions.

Hexadecimal and Hexadecimal Complement outputs are 0 thru F positions.

Standard codes have natural color rotors. Complements have rotors in a contrasting color.

| | | Standard Output CODE OUTPUT | | | | Complement Output CODE OUTPUT | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 4 | 8 | 1 | 2 | 4 | 8 |
| SWITCH POSITION | 0 | | | | | ● | ● | ● | ● |
| | 1 | ● | | | | | ● | ● | ● |
| | 2 | | ● | | | ● | | ● | ● |
| | 3 | ● | ● | | | | | ● | ● |
| | 4 | | | ● | | ● | ● | | ● |
| | 5 | ● | | ● | | | ● | | ● |
| | 6 | | ● | ● | | ● | | | ● |
| | 7 | ● | ● | ● | | | | | ● |
| | 8 | | | | ● | ● | ● | ● | |
| | 9 | ● | | | ● | | ● | ● | |
| | A | | ● | | ● | ● | | ● | |
| | B | ● | ● | | ● | | | ● | |
| | C | | | ● | ● | ● | ● | | |
| | D | ● | | ● | ● | | ● | | |
| | E | | ● | ● | ● | ● | | | |
| | F | ● | ● | ● | ● | | | | |