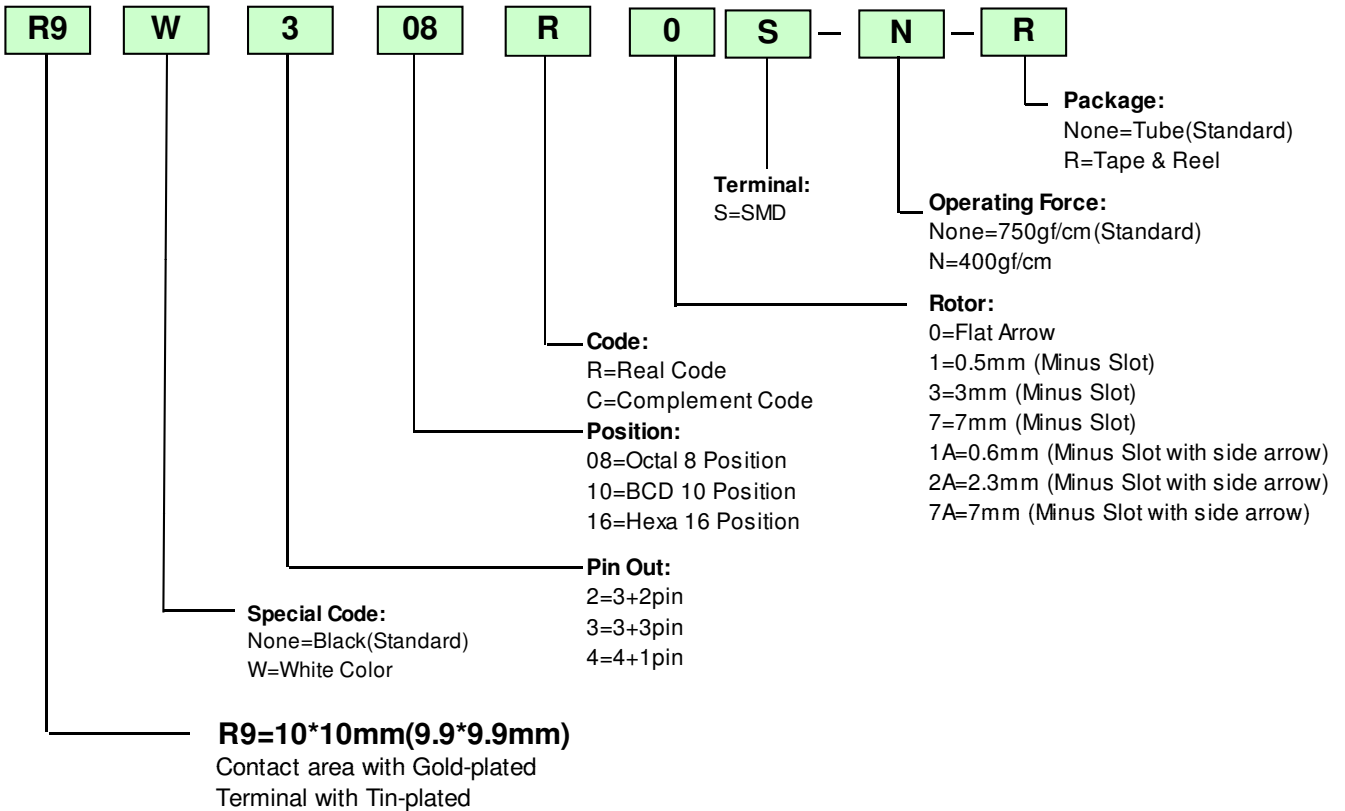


|                                     |   |        |      |
|-------------------------------------|---|--------|------|
| <b>MODEL</b>                        | <b>SPECIFICATION</b><br>Rotary Coded SWITCH<br><b>RoHS&amp;REACH Compliant / Halogen Free</b> | SP-001 | Page |
| <b>R9 series</b><br><b>SMD Type</b> |   |        | 1/5  |

**Order Information**



**Specifications**

|                         |       |                                  |
|-------------------------|-------|----------------------------------|
| ◆ Rating                | ..... | 5VDC 100mA Max./ 20mVDC 1µA Min. |
| ◆ Contact Resistance    | ..... | 100mΩ Max                        |
| ◆ Insulation Resistance | ..... | 1,000MΩ/Min. at 100 VDC          |
| ◆ Dielectric Strength   | ..... | 250VAC / 1 mintue                |
| ◆ Operating Force       | ..... | 750gf/cm (Standard)              |
|                         | ..... | 400gf/cm Max. (N type)           |
| ◆ Mechanical Life       | ..... | 20,000 Steps                     |
| ◆ Operating Temperature | ..... | -40°C ~ +125°C                   |
| ◆ Storage Temperature   | ..... | -40°C ~ +85°C                    |
| ◆ Waterproof            | ..... | Meet IP67                        |

**Materials**

|                    |                   |   |
|--------------------|-------------------|---|
| ◆ Cover & Base     | Halogen Free..... | Thermoplastic UL 94 rate, Black/ White                |
| ◆ Rotor            | Halogen Free..... | Thermoplastic UL 94 rate, White/ Orange/ Blue/ Yellow |
| ◆ Knob             | .....             | Thermoplastic UL 94 rate                              |
| ◆ "O" Ring         | .....             | Silicone Rubber                                       |
| ◆ Step             | .....             | Stainless Steel                                       |
| ◆ Spacer           | .....             | Stainless Steel                                       |
| ◆ Movable Contact  | .....             | Gold-Plated   |
| ◆ Terminal Contact | .....             | Gold-Plated   |
| ◆ Terminal         | .....             | Tin-Plated  |

|                                     |  |        |      |
|-------------------------------------|--|--------|------|
| <b>MODEL</b>                        | <b>SPECIFICATION</b>   |        | Page |
| <b>R9 series</b><br><b>SMD Type</b> | <b>Rotary Coded SWITCH</b><br><b>RoHS&amp;REACH Compliant / Halogen Free</b> | SP-002 | 2/5  |

## Soldering Information

### ◆ Hand Soldering

Soldering iron 30W or under at 350°C for 3 sec. max. or at 270°C for 5 sec. max.

### ◆ Reflow Soldering

260°C +/-5°C within 30sec for reflow, In-line or Batch system.

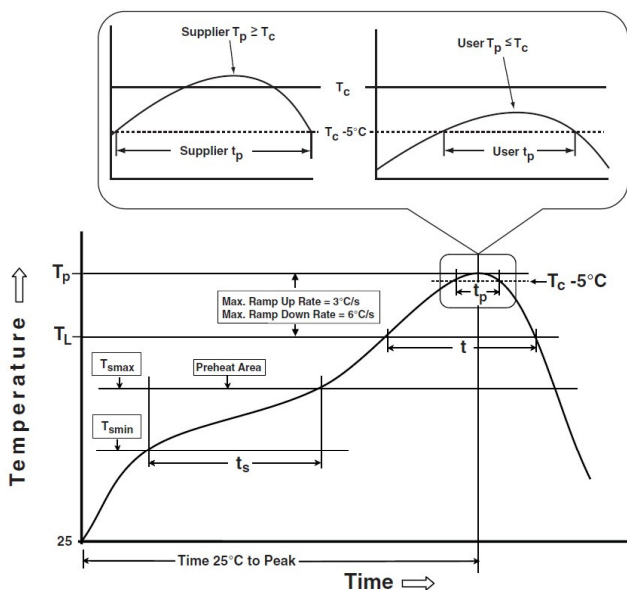
### The table copy from IPC/JEDEC J-STD-020 D.1

| Profile Feature   | Pb-Free Assembly  |
|---|---|
| <b>Preheat / Soak</b>   |   |
| Temperature Min ( $T_{smin}$ )  | 150°C   |
| Temperature Max ( $T_{smax}$ )  | 200°C   |
| Time( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )   | 60 ~120 seconds   |
| Ramp-up Rate ( $T_L$ to $T_p$ )   | 3°C/second max  |
| Liquidous temperature ( $T_L$ )   | 217°C   |
| Time ( $t_L$ ) maintained above to $T_L$  | 60 ~ 150 seconds  |
| Peak package body temperature ( $T_p$ )   | For users $T_p$ must not exceed the Classification temp:250°C (Package Thickness>2.5mm)<br>For suppliers $T_p$ must equal or exceed the Classification temp:250°C (Package Thickness>2.5mm) |
| Time ( $t_p$ ) within 5°C of specified classification temperature ( $T_c$ )                           | 30 seconds  |
| Ramp-Down Rate ( $T_p$ to $T_L$ )   | 6°C/second max  |
| Time 25°C to Peak Temperature   | 8 minutes max   |
| * Tolerance for peak profile temperature( $T_p$ ) is defined as a supplier minimum and a user maximum |   |

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

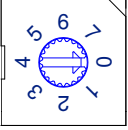
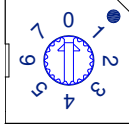
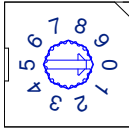
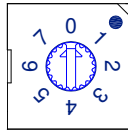
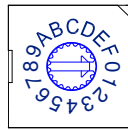
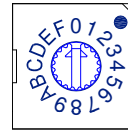
Note 2: Time within 5 °C of actual peak temperature ( $t_p$ ) specified for the reflow profiles is a "supplier" minimum and "user" maximum.

### Classification Reflow Soldering Profiles

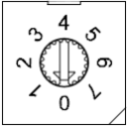
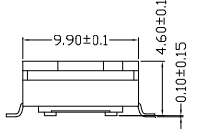
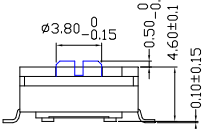
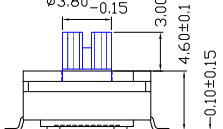
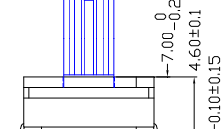

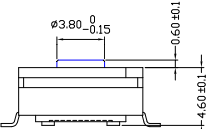
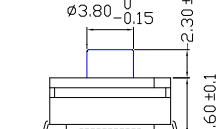
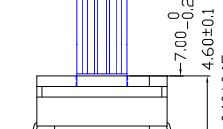


|                                     |   |        |      |
|-------------------------------------|---|--------|------|
| <b>MODEL</b>                        | <b>SPECIFICATION</b><br>Rotary Coded SWITCH<br><b>RoHS&amp;REACH Compliant / Halogen Free</b> | SP-003 | Page |
| <b>R9 series</b><br><b>SMD Type</b> |   |        | 3/5  |

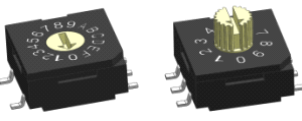
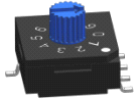
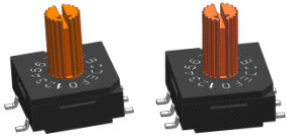
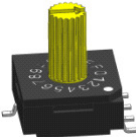
### Position

| 8 Position  |   | 10 Position   |   | 16 Position  |   |
|---|---|---|---|--|---|
| R92/93  | R94   | R92/93  | R94   | R92/93   | R94   |
|  |  |  |  |  |  |

### Rotor Style

| Standard Rotor  | 0 (Flat Type)   | 1 (0.5mm)   | 3 (3mm)  | 7 (7mm)   |
|---|---|---|--|---|
|    |    |    |    |  |
| A type Rotor  | 1A (0.6mm)  | 2A (2.3mm)  | 7A (7mm)   |   |
|  |  |  |  |   |

### Rotor Color

| Real Code   |   | Complement Code  |   |
|---|---|--|---|
| R93/R92 (White)   | R94 (Blue)  | R93/R92 (Orange)   | R94 (Yellow)  |
|  |  |  |  |

### Knob Order information

**KR1**

**08**

**KR1**



**Knob Color**

**KR2 / KR2A**



**00 : Blue**

**02 : Green**

**03 : Light Grey**

**04 : Yellow**

**05 : Dark Grey**

**KR3 / KR3A**



**06 : White**

**08 : Red**

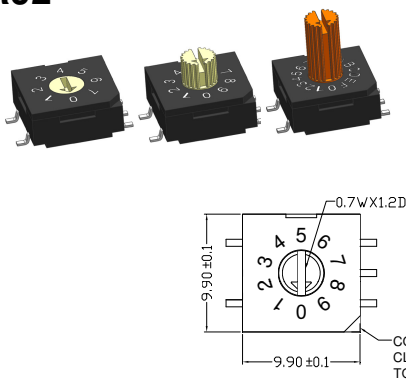
**09 : Black**

**Note:**

1. All caps are not allowed to pass through soldering process.
2. All caps should be assembled after all soldering process finished.

|                                     |  |                             |
|-------------------------------------|--|-----------------------------|
| <b>MODEL</b>                        | <b>SPECIFICATION</b>   | <b>Page</b>                 |
| <b>R9 series</b><br><b>SMD Type</b> | <b>Rotary Coded SWITCH</b><br><b>RoHS&amp;REACH Compliant / Halogen Free</b> | <b>SP-004</b><br><b>4/5</b> |

**R92**



0.7Wx1.2D

9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #1

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

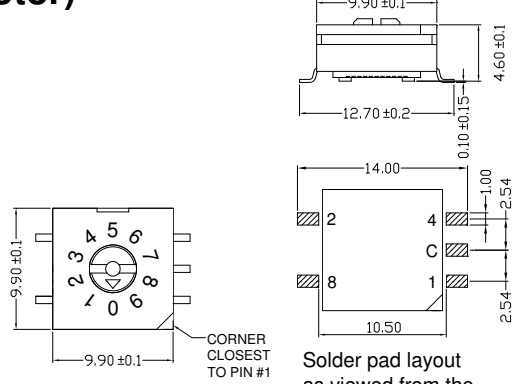
1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**R92(A Rotor)**



9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #1

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

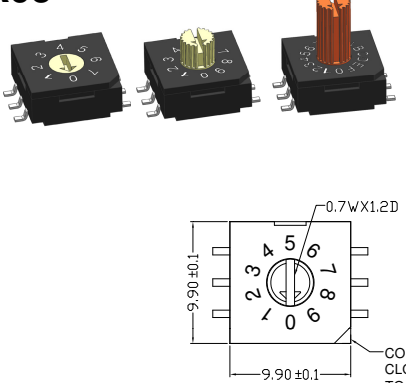
1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**R93**



0.7Wx1.2D

9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #1

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

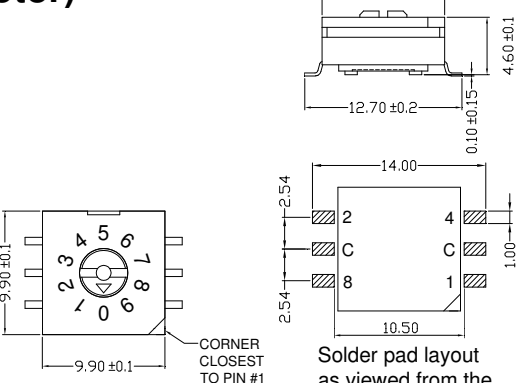
1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**R93(A Rotor)**



9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #1

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

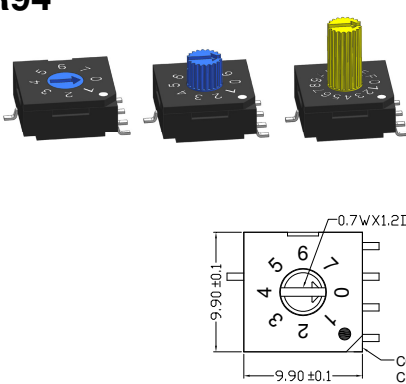
1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**R94**



0.7Wx1.2D

9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #8

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

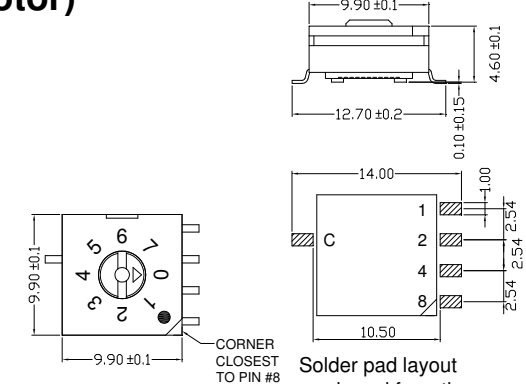
1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**R94(A Rotor)**



9.90 ±0.1

9.90 ±0.1

CORNER CLOSEST TO PIN #8

9.90 ±0.1

12.70 ±0.2

4.60 ±0.1

0.10 ±0.15

14.00

10.50

1.00

2.54

2.54

Solder pad layout as viewed from the top of the switch

**Code Format**

| No. of Positions   |           | 16 Positions |   |   |   |   |   |   |   |              |   |   |   |   |   |   |   |
|--------------------|-----------|--------------|---|---|---|---|---|---|---|--------------|---|---|---|---|---|---|---|
|                    |           | 08 Postions  |   |   |   |   |   |   |   | 10 Positions |   |   |   |   |   |   |   |
|                    |           | 0            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8            | 9 | A | B | C | D | E | F |
| Code               | Real Code | 8            |   |   |   |   |   |   |   | •            | • | • | • | • | • | • | • |
|                    |           | 4            |   |   |   | • | • | • | • |              |   |   |   | • | • | • | • |
|                    |           | 2            |   |   | • | • |   |   | • | •            |   |   | • | • |   | • | • |
|                    | 1         |              | • |   | • |   |   | • |   | •            |   | • |   | • |   | • |   |
| Complementary Code | 8         | •            | • | • | • | • | • | • |   |              |   |   |   |   |   |   |   |
|                    | 4         | •            | • | • | • |   |   |   | • | •            | • | • |   |   |   |   |   |
|                    | 2         | •            | • |   |   | • | • |   | • | •            |   |   | • | • |   |   |   |
|                    | 1         | •            |   | • |   | • |   | • | • |              | • | • |   | • |   | • |   |

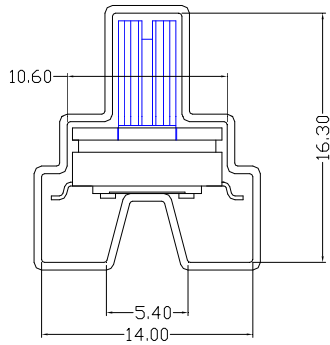
|                                     |  |        |      |
|-------------------------------------|--|--------|------|
| <b>MODEL</b>                        | <b>SPECIFICATION</b>   |        | Page |
| <b>R9 series</b><br><b>SMD Type</b> | <b>Rotary Coded SWITCH</b><br><b>RoHS&amp;REACH Compliant / Halogen Free</b> | SP-005 | 5/5  |

### Part Number Table

| Pin Out | No. Pos. | Real Code                             |                                     |                                     | Complementary Code                  |                                     |                                      |
|---------|----------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|
|         |          | S Type<br>0.5mm Rotor<br>Tube Package | S Type<br>7mm Rotor<br>Tube Package | S Type<br>Flat Rotor<br>Taping Reel | S Type<br>3mm Rotor<br>Tube Package | S Type<br>7mm Rotor<br>Tube Package | S Type<br>0.6mm Rotor<br>Taping Reel |
| 3+2     | 08       | R9208R1S                              | R9208R7S                            | R9208R0S-R                          | R9208C3S                            | R9208C7S                            | R9208C1AS-R                          |
|         | 10       | R9210R1S                              | R9210R7S                            | R9210R0S-R                          | R9210C3S                            | R9210C7S                            | R9210C1AS-R                          |
|         | 16       | R9216R1S                              | R9216R7S                            | R9216R0S-R                          | R9216C3S                            | R9216C7S                            | R9216C1AS-R                          |
| 3+3     | 08       | R9308R1S                              | R9308R7S                            | R9308R0S-R                          | R9308C3S                            | R9308C7S                            | R9308C1AS-R                          |
|         | 10       | R9310R1S                              | R9310R7S                            | R9310R0S-R                          | R9310C3S                            | R9310C7S                            | R9310C1AS-R                          |
|         | 16       | R9316R1S                              | R9316R7S                            | R9316R0S-R                          | R9316C3S                            | R9316C7S                            | R9316C1AS-R                          |
| 4+1     | 08       | R9408R1S                              | R9408R7S                            | R9408R0S-R                          | R9408C3S                            | R9408C7S                            | R9408C1AS-R                          |
|         | 10       | R9410R1S                              | R9410R7S                            | R9410R0S-R                          | R9410C3S                            | R9410C7S                            | R9410C1AS-R                          |
|         | 16       | R9416R1S                              | R9416R7S                            | R9416R0S-R                          | R9416C3S                            | R9416C7S                            | R9416C1AS-R                          |

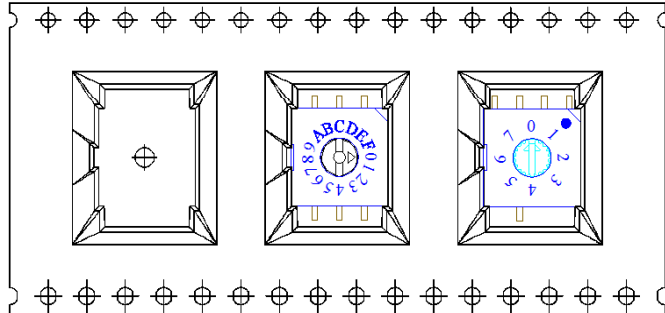
### Tube Package

|                |          |
|----------------|----------|
| ROTOR          | 0mm ~7mm |
| Per TUBE (pcs) | 50       |
| BOX (pcs)      | 2000     |
| CTN 1 (pcs)    | 4000     |
| CTN 2 (pcs)    | 8000     |



### Tape & Reel Package

|                |         |         |      |
|----------------|---------|---------|------|
| ROTOR          | 0 ~ 1mm | 2 ~ 3mm | 7mm  |
| Per REEL (pcs) | 600     | 350     | 200  |
| BOX (pcs)      | 1800    | 1050    | 600  |
| CTN 1 (pcs)    | 3600    | 2100    | 1200 |



### Box Dimension

- ◆ Tube ..... 57.0cm x 13.0cm x 12.5cm
- ◆ Tape & Reel ..... 34.5cm x 34.5cm x 15.0cm

### Carton Dimension

- ◆ Tube
  - 2 Boxes..... 58.5cm x 29.0cm x 15.0cm
  - 4 Boxes..... 58.5cm x 28.0cm x 27.0cm
- ◆ Tape & Reel
  - 1 Box..... 34.5cm x 34.5cm x 15.0cm
  - 2 Boxes..... 36.0cm x 27.5cm x 37.0cm

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