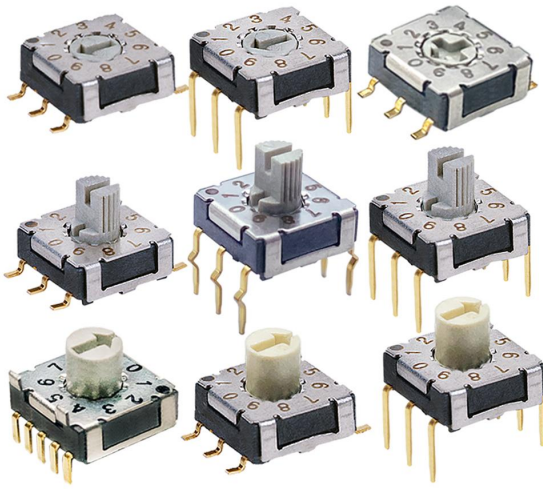


## General Specification 基本参数



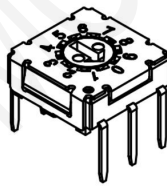
<b>1.Rating:</b> 额定功率	100mA, DC 5V (Switching) 100mA, DC 50V (None-Switching)
<b>2.Contact Resistance:</b> 接触电阻	100mΩ Max.
<b>3.Insulation Resistance:</b> 绝缘电阻	100MΩ Min at DC 250V
<b>4.Operating Force:</b> 操作扭力	200gf Max.
<b>5.Life Cycle:</b> 使用寿命	25,000 steps
<b>6.Sealing:</b> 防护等级	IP67 (Dust& Water proof) (防水防尘)
<b>7.Operating Temperature Range:</b> 使用温度	-40°C +85°C

## HOW TO ORDER 选型规则

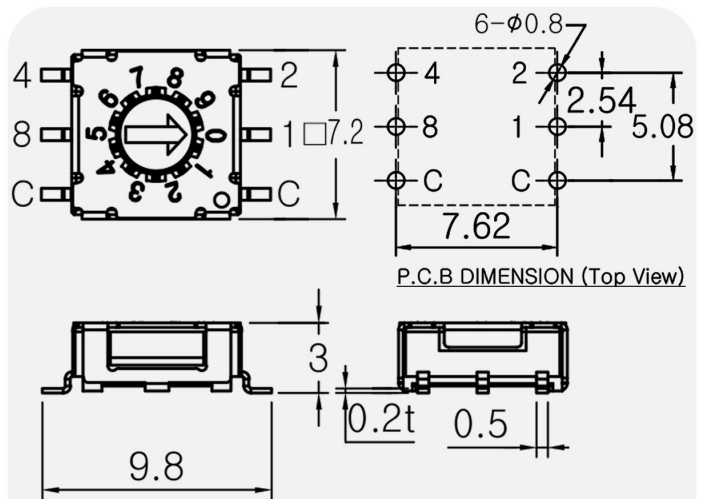
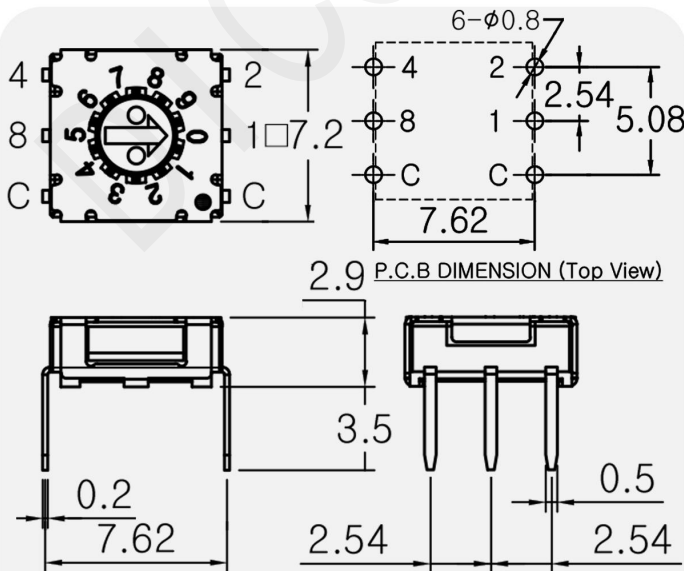
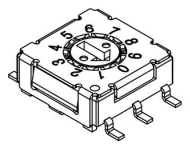
<b>GS</b>	<b>D</b>	<b>R</b>	<b>10</b>	<b>S</b>	<b>TR</b>
Type 系列型号	Actuator 旋钮样式	Code 编码方式	Position 档位数	Terminal 引脚	Packing 包装
<b>GS</b> 7.2 X 7.2 Size Height 2.9mm	<b>D</b> Arrow (H0mm) 箭头槽 0mm高 <b>E</b> Cross (H0mm) 十字槽 0mm高 <b>M</b> Slotted spindle (H3mm) 槽沟半柄 3mm高 <b>P</b> Arrow (H3mm) 箭头圆柄 3mm高	<b>R</b> Real Code 二进制正码 <b>C</b> Complement Code 二进制反补码 <b>G</b> Gray code 格雷码 特殊编码方式详情 请看下方表格	<b>04</b> 04 Position <b>10</b> 10 Position <b>16</b> 16 Position	<b>T</b> Through-Hole (Ter' 3 X 3) 直插 (3对3脚) <b>S</b> SMD Gull Wing 贴片 <b>K</b> Crimped 弯曲插脚 <b>J</b> J SMD 内弯形贴片脚 <b>M</b> Angle Half Pitch 并排5脚侧插 (Through Hole) <b>MS</b> Angle Half Pitch SMD (Ter'5) 并排5脚侧贴	<b>T</b> Tube Packing 管装 <b>TR</b> Reel Packing 编带

## 1. General Dimension 基本尺寸

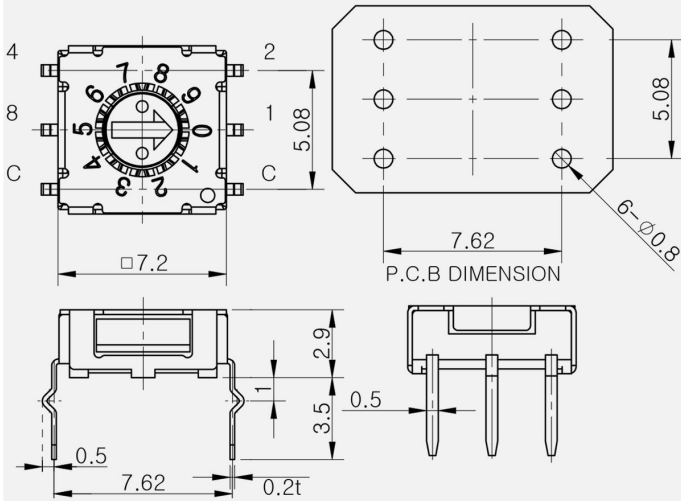
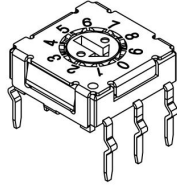
**-** Through-Hole(3x3)  
3对3直插脚



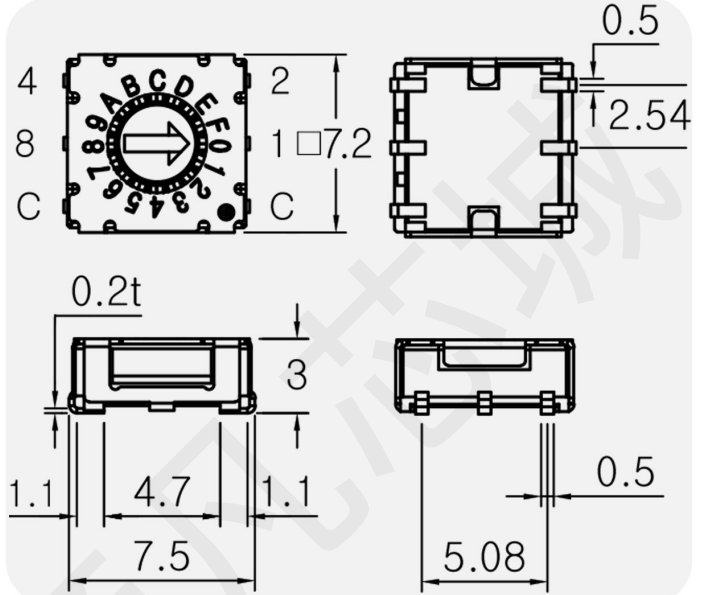
**S** SMD Gull Wing(3x3)  
3对3贴片脚



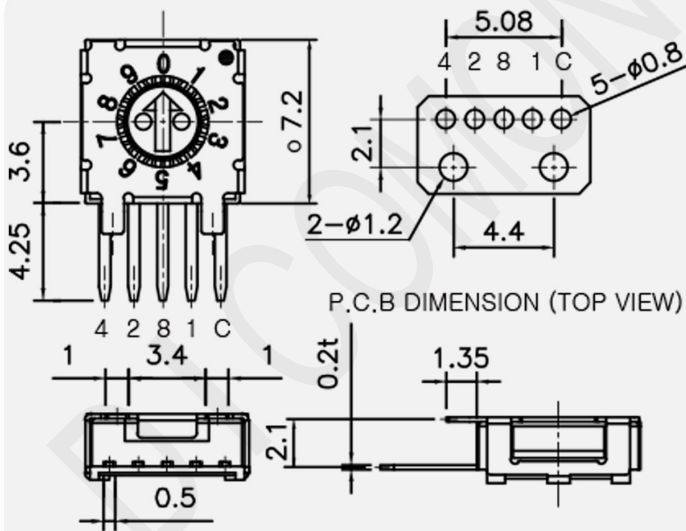
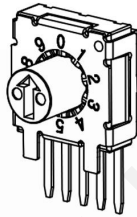
**K** Crimped(3x3)  
弯曲插脚



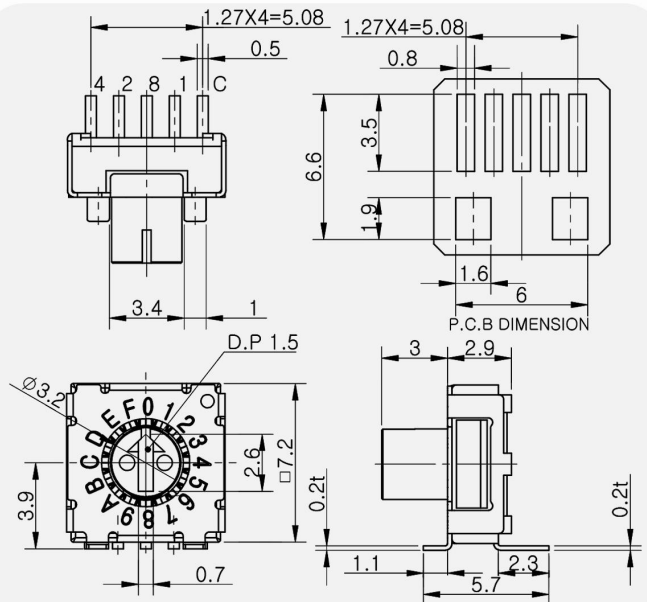
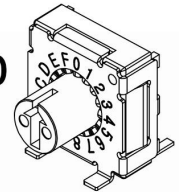
**J** JSMD  
内弯J型贴片脚



**M** Angle Half Pitch  
并排5脚侧插



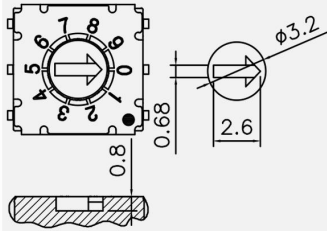
**MS** Angle Half Pitch SMD  
并排5脚侧贴片



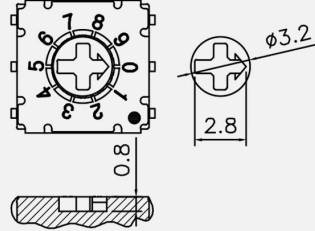
## 2. Actuator 旋钮样式



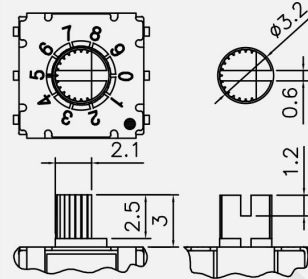
**D** Arrow (Height = 0mm)  
箭头槽 0mm高



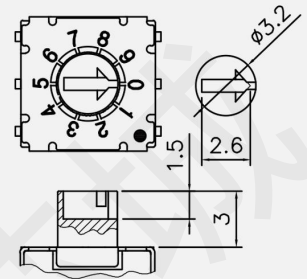
**E** Cross (Height = 0mm)  
十字槽 0mm高



**M** Slotted Spindle Height = 3mm  
槽沟半柄 3mm高



**P** Arrow (Height = 3mm)  
箭头圆柄 3mm高



## 3. Code & Position 编码方式 & 档位数



**R** Real Code 二进制正码

Position	Real Code			
	C	1	2	4 8
0	0	0	0	0
1	0	0	1	1
2	0	1	0	2
3	0	1	1	3
4	1	0	0	4
5	1	0	1	5
6	1	1	0	6
7	1	1	1	7
8	0	0	0	8
9	0	0	1	9
10	0	1	0	A
11	0	1	1	B
12	1	0	0	C
13	1	0	1	D
14	1	1	0	E
15	1	1	1	F

04 POSITION: C C 1

06/08/10/16 POSITION: 1 8 C C 4 2

**C** Complement Code 二进制反补码

Position	Complement Code			
	C	1	2	4 8
0	1	1	1	1
1	1	1	0	0
2	1	0	1	1
3	1	0	0	0
4	0	1	1	1
5	0	1	0	0
6	0	0	1	1
7	0	0	0	0
8	1	1	1	1
9	1	1	0	0
10	1	0	1	1
11	1	0	0	0
12	0	1	1	1
13	0	1	0	0
14	0	0	1	1
15	0	0	0	0

04 POSITION: C C 1

06/08/10/16 POSITION: 1 8 C C 4 2

**G** Gray Code 格雷码

Position	Gray Code			
	C	1	2	4 8
0	0	0	0	0
1	0	1	0	1
2	0	1	1	2
3	1	0	0	3
4	1	0	1	4
5	1	1	0	5
6	1	1	1	6
7	0	0	0	7
8	0	0	1	8
9	0	0	0	9
10	0	1	0	A
11	0	1	1	B
12	1	0	0	C
13	1	0	1	D
14	1	1	0	E
15	1	1	1	F

10/16 POSITION: 1 8 C C 4 2



## GS Series Mini Rotary DIP Switch Specification

### GS 系列编码开关 电气参数

**1. Style:**

1.1 Operating / Storage Temperature Range : -40°C ~ +85°C

**2. Rating:**

2.1 None-Switching : 100 mA, DC 50V

2.2 Switching : 100 mA, DC 5V

**3. Type of Actuation : Rotating**
**4. Electrical Characteristics**

ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
4-1	Visual Examination	By visual examination check without any out pressure & testing.	There shall be no defects that affect the serviceability of the product.
4-2	Contact Resistance	① To be measured between the two terminals associated with each switch pole. ② Measurements shall be made with a 1 kHz shall current contact resistance meter.	100mΩ max. (initial)
4-3	Insulation Resistance	100V DC	100 MΩ min.
4-4	Dielectric withstanding Voltage	250V AC(50Hz or 60Hz)shall be applied between all the adjacent terminal and between the terminal and the frame for 1 minute.	There shall be no breakdown or flashover.

**5. Mechanical Characteristics**

ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
5-1	Operation Force	Operating direction shall be clockwise or counter clockwise direction	200gf ·cm max (1.96N ·cm max)
5-2	Operation Life	Measurements shall be made following the test set forth below: 1)100mA, 5V DC resistive load 2)Rate of operation: 15~20 cycles/ minute 3)Step of operation: 10,000 steps	1)As shown in item 3,4 2)Contact Resistance: 200mΩ max 3)Final-after test

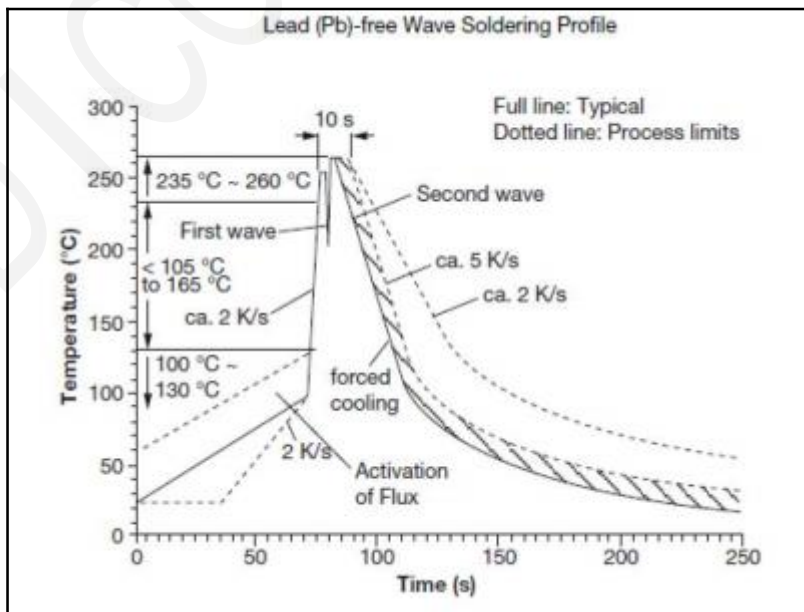
## 6. Environmental Characteristics

ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
6-1	Resistance Low Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1)Temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 2)Time: 96 hours	1)As shown in item 4-3, 4-4, 5-1 2)Contact Resistance: 200m $\Omega$ max
6-2	Resistance High Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1)Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2)Time: 96 hours	1)As shown in item 4-3, 4-4, 5-1 2)Contact Resistance: 200m $\Omega$ max
6-3	Resistance Humidity	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1)Temperature: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2)Relative humidity: 90~95% 3)Time: 240 hours	1)As shown in item 4-4, 5-1 2)Contact Resistance: 200m $\Omega$ max 3)Insulation Resistance: 10 M $\Omega$ min

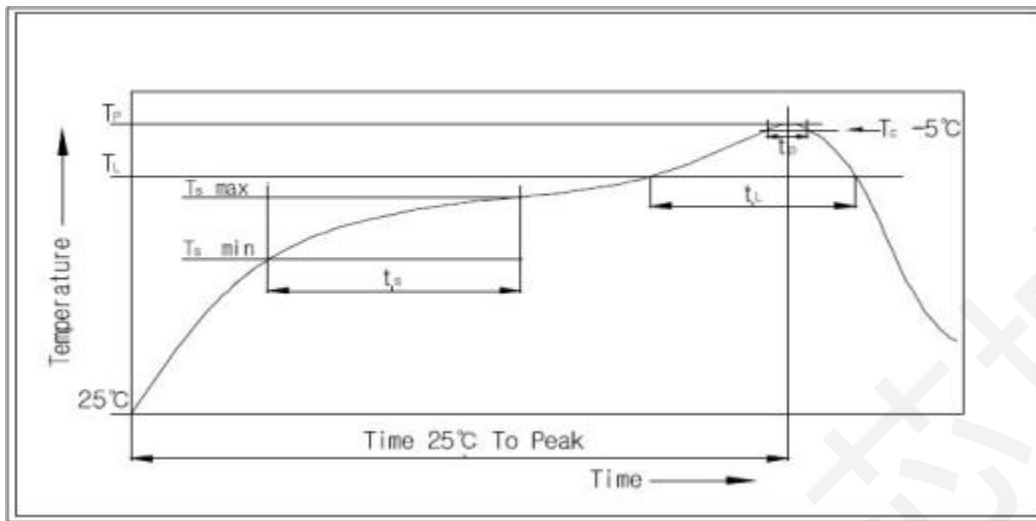
7. This item is "RoHS" Compliant

8. Manual Soldering : Max 350°C, 3 sec.

9. Wave Soldering Conditions:



## 10. Reflow Soldering Conditions:



### 10-1 Condition for Soldering

Profile Feature	Pb-Free Assembly
Average Ramp-UP Rate( $T_s$ max to TP)	3°C/second max
Preheat	
- Temperature Min( $T_s$ min)	150°C
- Temperature Max( $T_s$ max)	200°C
- Time ( $t_s$ min to $t_s$ max)	60-180seconds
Time maintained above:	
- Temperature (TL)	217°C
- Time (tL)	60-150seconds
Peak/ Classification Temperature(TP)	260°C +0°C/ -5°C
Time within 5°C of actual Peak Temperature(TP)	5~10 seconds
Ramp- Down Rate	6°C/sec max
Time 25°C to Peak Temperature	8 minutes max