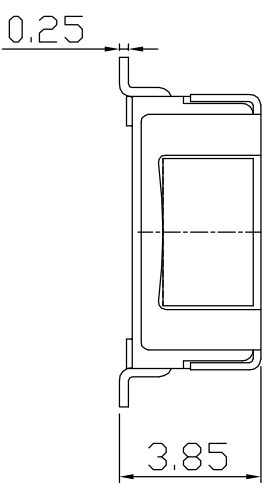
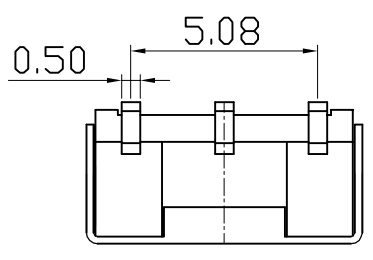
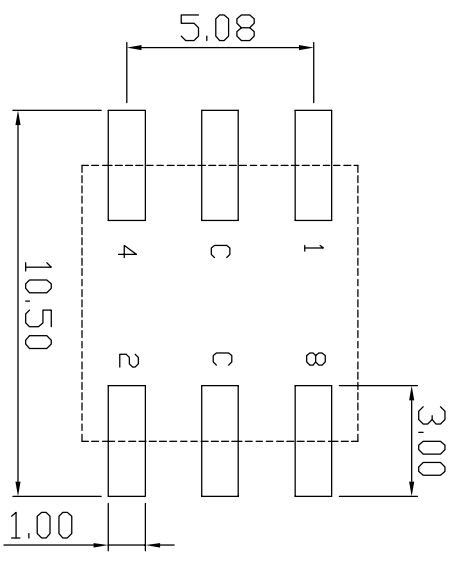
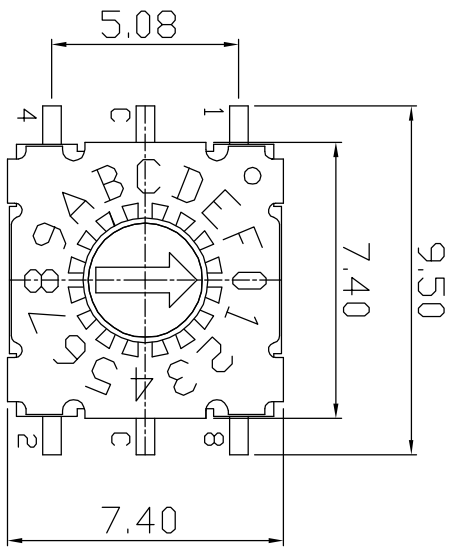


HRK	DATE	REMARKS
Δ		
Δ		



**SPECIFICATION**

1. Operating Voltage : 42v  
(None-Switching: 400mA)  
(Switching : 100mA)
2. Contact Resistance : 80mΩ Max
3. Insulation Resistance : 100MΩ Min
4. Operating Force : 120gf ±30gf Max
5. Life cycle : 25,000 steps

		Real Coded				
		C	1	2	4	8
0	●					
1	●	●				
2	●		●			
3	●			●		
4	●				●	
5	●		●			
6	●			●		
7	●				●	
8	●		●			
9	●					●
A	●			●		
B	●		●			
C	●				●	
D	●		●			
E	●				●	
F	●					●

APPD	CHKD	D'SGD	TITLE
K.L LEE	J.P ROH	J.S SIN	MINI ROTARY DIP SWITCH
MODEL NO.			MSDR-16S
SUNGMUN ELECTRONICS CO., LTD.			REV A

**1. Style:**

This specification describes "Rotary Switch" mainly used as signal switch of electric devices with the general requirements of mechanical and electrical characteristics.

1.1 Operating Temperature Range :  $-50^{\circ}\text{C} \sim +125^{\circ}\text{C}$

1.2 Storage Temperature Range :  $-55^{\circ}\text{C} \sim +135^{\circ}\text{C}$

**2. Current Range:**

2.1 Operating Voltage : 42V

2.2 None-Switching : 400mA

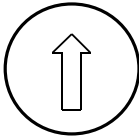
2.3 Switching : 100mA

2.4 Minimum Switching :  $1\mu\text{A}$  20mVDC

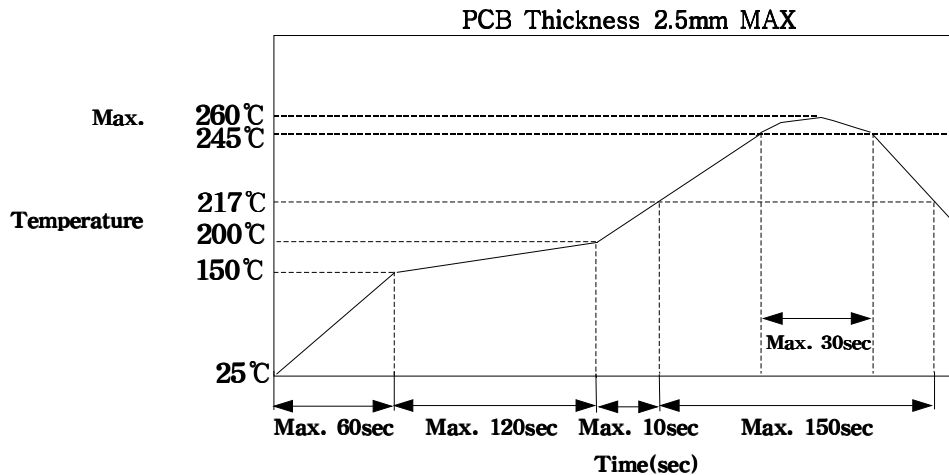
3. Type of Actuation : Rotating

4. Operation Life : 25,000 Steps

5. Test Sequence :

	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
ELECTRIC PERFORMANCE	1	Visual Examination	By visual examination check without any out pressure & testing.	There shall be no defects that affect the serviceability of the product
	2	Contact Resistance	① To be measured between the two terminals associated with each switch pole ② Measurements shall be made with a 1kHz shall current contact resistance meter	80mΩ max.(initial)
	3	Insulation Resistance	250V DC, 1minute $\pm$ 5seconds	100MΩ min
	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 flash over
	5	Operation Force	Applied in the direction of operation 	120 $\pm$ 30gf/cm.

M E C H A N I C A L  P E R F O R M A N C E	6	Stop Strength	A static load of 1 kgf is applied in the vertical direction operated for a period of 15 seconds.	There shall be no sign of damage mechanically.	
	7	Soldering Heat Resistance	1. Soldering Temperature:	As shown in item 2~6	
			<table border="1"> <tr> <td>Auto(wave) Soldering</td> <td>SMT, THR Type</td> </tr> <tr> <td>280°C ±5°C</td> <td rowspan="2">See the temperature profile</td> </tr> <tr> <td>5±1sec</td> </tr> </table>		Auto(wave) Soldering
Auto(wave) Soldering	SMT, THR Type				
280°C ±5°C	See the temperature profile				
5±1sec					
8	Solder ability	1)Soldering temperature: 230 ±5°C 2)Flux: 5-10 seconds. 3)Duration of solder limmersion: 3 ±0.5sec	soldering coverage of dipping into solder must more than 75% was requested		
W E A T H E R  P R O O F	9	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°C ±3°C 2)Time: 96 hours	As shown in item 2~6	
	10	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°C ±2°C 2)Time: 96 hours	1)As shown in item 3~6 2)Contact Resistance: 200mΩ max	
	11	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°C ±2°C 2)Relative humidity: 90~93% 3)Time: 96 hours	1)As shown in item 4,6 2)Contact Resistance: 200mΩ max 3)Insulation Resistance: 10MΩ min	

**6. Soldering Conditions:****1)Condition for Soldering**

2)The condition mentioned above is the temperature on the Cu foil of PCB surface.

There are where board's temperature greatly differs from switch's surface temperature depending on board's material, size, thickness, etc. Care, therefore, should be used not to allow switch's surface temperature to exceed 280°C.

**3)Precautions in Handling**

Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.

**7. This item is "ROHS" Compliant**

## 8. Part List

NO	Part Name	Q'ty	Materials	Treatment	Remark
1	Cover	1	Stainless Steel		
2	Spring Plate	1	Stainless Steel		
3	Guide Plate	1	Stainless Steel		
4	Contact	1	Phosphor Bronze	Plating: Gold	Au 0.07 $\mu$ m Min Ni 0.1 $\mu$ m Min
5	Terminal	1	Phosphor Bronze	Plating: Gold	Au 0.07 $\mu$ m Min Ni 0.3 $\mu$ m Min
6	Rotor	1	LCP		
7	Base	1	LCP		
8	O-Ring	1	Silicone		

*Report of the usage of Environmentally Hazardous Substances  
in the Products and/or the Parts*

Model Number : MSDR-S, MSSR-S Series

Date : 2008. 12. 16.



Parts	O-Ring	Rotor, Base	Cover, Spring Plate, Guide Plate	Marking	Contact, Terminal
Material	Silicone	LCP	STS	INK	PHOSPHOR BRONZE
Pb	n.d	n.d	n.d	n.d	35
Cd	n.d	n.d	n.d	n.d	n.d
Hg	n.d	n.d	n.d	n.d	n.d
Cr VI	n.d	n.d	n.d	n.d	n.d
PBB	n.d	n.d	n.d	—	—
PBDE	n.d	n.d	n.d	—	—
첨부파일					

\* n.d : not detected



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