

# DATA SHEET

**SUNGMUN CODE :** HAMR-10

**DESCRIPTION :** ROTARY DIP SWITCH

## **SUNGMUN ELECTRONICS CO., LTD.**

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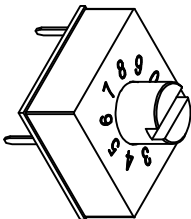
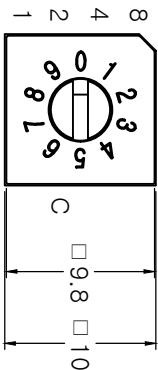
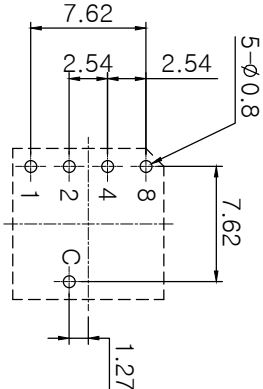


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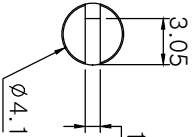
| MRK. | DATE | REVISION | SIGN |
|------|------|----------|------|
| △    |      |          |      |

SPECIFICATION

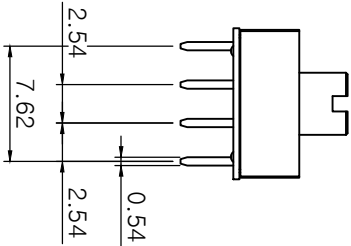
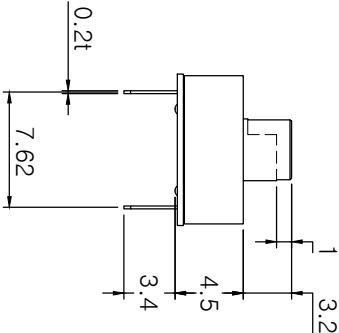
1. Rating : 25mA, DC 12V (Switching)  
25mA, DC 24V (None-Switching)
2. Contact Resistance : 100mΩ Max
3. Insulation Resistance : 100MΩ Min at DC 250V
4. Operating Force : 700gf Max
5. Life cycle : 10,000 steps
6. Sealing : IP67 (Dust & Water proof)
7. Packing : 50pcs Tube



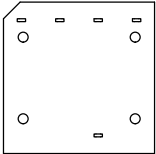
P.C.B DIMENSION (Top View)



ACTUATOR



| Real Code |   |   |   |   |   |
|-----------|---|---|---|---|---|
|           | C | 1 | 2 | 4 | 8 |
| 0         | ● |   |   |   | 0 |
| 1         | ● | ● |   |   | 1 |
| 2         | ● |   | ● |   | 2 |
| 3         | ● | ● | ● |   | 3 |
| 4         | ● |   |   | ● | 4 |
| 5         | ● | ● |   | ● | 5 |
| 6         | ● |   | ● | ● | 6 |
| 7         | ● | ● | ● | ● | 7 |
| 8         | ● |   |   |   | 8 |
| 9         | ● | ● |   |   | 9 |



| DRAW/DESIGNED                | CHECKED    | APPROVED   | G.TOL |          | TITLE             |      |
|------------------------------|------------|------------|-------|----------|-------------------|------|
| J.S YANG                     | W.J LEE    | K.I LEE    | ±0.3  | SCALE    | ROTARY DIP SWITCH |      |
| 2022-01-06                   | 2022-01-06 | 2022-01-06 | UNIT  | 2:1      | MODEL NO.         | REV. |
| SUNG MUN ELECTRONICS CO.,LTD |            |            | mm    | SIZE     | HAMR-10-03        | 03   |
|                              |            |            | A4    | DRAW NO. |                   |      |

## 1. Description:

This specification describes "10X10 slim size of Rotary Dip Switches" which is U&H series.

1-1 Operating / Storage Temperature Range : -40°C ~ +85°C

## 2. Rating:

2-1 None-Switching : 25 mA, DC 24V

2-2 Switching : 25 mA, DC 12V

## 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.<br>② Measurements shall be made with a 1kHz shall current contact resistance meter. | 100mΩ max.                                                               |
| 4-3  | Insulation Resistance           | 250V DC, 1minute ±5seconds                                                                                                                                       | 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.                                |

|                                                                                                                                    |                                                                 |                                    |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------|
| <br><b>SUNG MUN</b><br><small>ELECTRONICS</small> | <b>“U/H” SERIES ROTARY DIP SWITCH<br/>SPECIFICATION (10X10)</b> | <b>Rev. 02</b><br><b>P : 2 / 3</b> |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------|

## 5. Mechanical Characteristics

| ITEM | DESCRIPTION     | TEST CONDITIONS                                                                                                                                                                    | REQUIREMENTS                                                      |
|------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 5-1  | Operation Force | Operating direction shall be clockwise or counter clockwise direction                                                                                                              | 700gf•cm max                                                      |
| 5-2  | Operation Life  | Measurements shall be made following the test set forth below:<br>1)150mA, 24V DC resistive load<br>2)Rate of operation: 15~20 cycles/ minute<br>3)Step of operation: 10,000 steps | 1)As shown in item 4-3, 4-4<br>2)Contact Resistance:<br>200mΩ max |

## 6. Environmental Characteristics

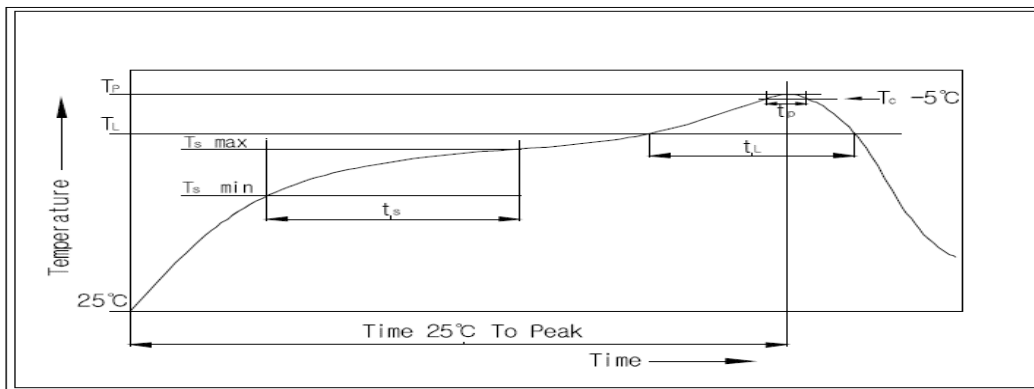
| ITEM | DESCRIPTION                 | TEST CONDITIONS                                                                                                                                                                                                                    | REQUIREMENTS                                                                                               |
|------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 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:<br>1)Temperature: -40°C ±3°C<br>2)Time: 96 hours                               | 1)As shown in item 4-3, 4-4, 5-1<br>2)Contact Resistance:<br>200mΩ 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:<br>1)Temperature: 85°C ±2°C<br>2)Time: 96 hours                                | 1)As shown in item 4-3, 4-4, 5-1<br>2)Contact Resistance:<br>200mΩ 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:<br>1)Temperature: 40°C ±2°C<br>2)Relative humidity: 90~95%<br>3)Time: 96 hours | 1)As shown in item 4-4, 5-1<br>2)Contact Resistance:<br>200mΩ max<br>3)Insulation Resistance:<br>10 MΩ min |

7. This item is "RoHS" Compliant

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

9. Wave Soldering : Max 260°C, 5 sec.

10. Reflow Soldering Conditions: (SMD type only)



## 10-1 Condition for Soldering

| Profile Feature                                                                                                                                           | Pb-Free Assembly                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Average Ramp-UP Rate(Ts max to TP)                                                                                                                        | 3°C/second max                  |
| Preheat <ul style="list-style-type: none"> <li>- Temperature Min(Ts min)</li> <li>- Temperature Max(Ts max)</li> <li>- Time (ts min to ts max)</li> </ul> | 150°C<br>200°C<br>60-180seconds |
| Time maintained above: <ul style="list-style-type: none"> <li>- Temperature (TL)</li> <li>- Time (tL)</li> </ul>                                          | 217°C<br>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                   |