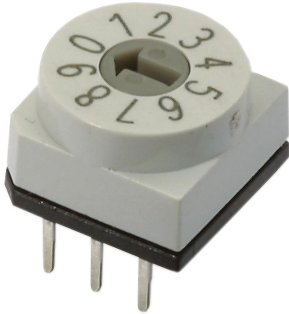


Flat-head and Cross-head Through Hole Actuator



Specifications:

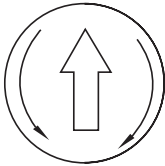
| | |
|----------------------------|--|
| Rating | : Non Switching Rating 24V DC 400mA Switching Rating 24V DC 150mA |
| Life | : 10,000 Steps |
| Operating Force | : 400gf.cm Max. |
| Initial Contact Resistance | : 100mΩ Max. |
| Dielectric Strength | : AC 250V 1 minute |
| Insulation Resistance | : 100MΩ Min. (DC 250V Megger) |
| Operating Temperature | : -60°C to +125°C |

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 : -60°C to +125°C
- 1.2 Storage Temperature Range : -60°C to +125°C
- 1.3 The shelf life of product is within 6 months.
- 2. Current Range:
 - 2.1 Non-Switching : 400mA, 24V DC
 - 2.2 Switching : 150mA , 24V DC
- 3. Type of Actuation : Rotating

Test Sequence

| Performance | Description | Test Conditions | Requirements |
|------------------------|----------------------------------|--|--|
| Electric Performance | Visual Examination | By visual examination check without any out pressure & testing. | There shall be no defects that affect the serviceability of the product. |
| | 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. | 1. 80mΩ max. (initial) |
| | Insulation Resistance | 250V DC, 1 minute ±5 seconds. | 100MΩ min. |
| | Dielectric with-standing Voltage | 250V AC (50Hz or 60 Hz) shall be applied between all the adjacent terminals and between the terminal and the frame for 1 minute. | There shall be no breakdown or flashover. |
| | Capacitance | 1 MHz ±10kHz | 5pF max. |
| Mechanical Performance | Operation Force | Applied in the direction of operation.  | 400gf·cm Max (3.92N·cm Max) |
| | Stop Strength | A static load of 1 kgf (9.8N) is applied in the vertical direction operated for a period of 15 seconds. | There shall be no sign of damage mechanically. |

Flat-head and Cross-head Through Hole Actuator



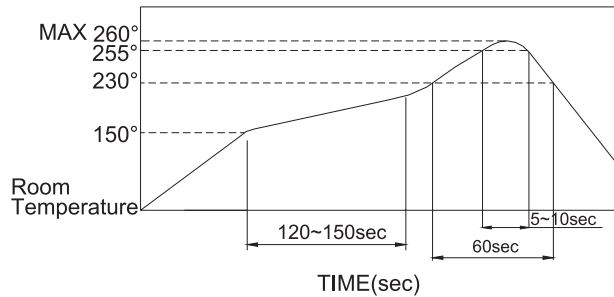
| Performance | Description | Test Conditions | Requirements | | | | | | |
|------------------------|---|---|--|------------------------------|------------|-----------------------------|--------|--|---|
| Mechanical Performance | Soldering Heat Resistance | 1. Soldering Temperature <table border="1" style="margin-left: 20px;"> <tr> <td>P.C. Board terminal RBH Series</td> <td>SMT Type Terminal RBM Series</td> </tr> <tr> <td>260°C ±5°C</td> <td>See the Temperature profile</td> </tr> <tr> <td colspan="2" style="text-align: center;">5±1sec</td> </tr> </table> 2. Duration of Solder Immersion: 5±1 sec. 3. Frequency of Soldering Process: 2 times max. (PCB is 1.6mm in thickness.) | P.C. Board terminal RBH Series | SMT Type Terminal RBM Series | 260°C ±5°C | See the Temperature profile | 5±1sec | | 1. As shown in item 4~6 2. Contact Resistance: 200mΩ max. 3. Insulation Resistance: 10MΩ min. |
| | P.C. Board terminal RBH Series | SMT Type Terminal RBM Series | | | | | | | |
| | 260°C ±5°C | See the Temperature profile | | | | | | | |
| | 5±1sec | | | | | | | | |
| Vibration | Shall be vibrated in accordance with Method 201A of MIL-STD-202F 1. Frequency : 10-55-10 Hz 1 min/cycle. 2. Direction : 3 vertical directions including the direction of operation. 3. Test Time : 2 hours each direction. | Ditto | | | | | | | |
| Shock | Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F 1. Acceleration : 50G. 2. Action Time : 11 ±1m sec. 3. Testing Direction : 6 sides. 4. Test cycle : 3 times in each direction | Ditto | | | | | | | |
| Solderability | 1. Soldering Temperature : 260 ±5°C Lead-Free solder : M705E JIS Z 3282 Class A (Tin 96.5%, Silver 3%, Copper 0.5%) 2. Flux : 5-10 seconds. 3. Duration of solder Immersion : 5±1 sec. | No anti-soldering and the coverage of dipping into solder must more than 85% was requested. | | | | | | | |
| Durability | Operation Life | Measurements shall be made following the test set forth below: 1. 25mA, 24V DC resistive load 2. Rate of Operation : 1 cycles/ minute 3. Step of Operation : 10,000 Steps. | 1. As shown in item 3,4 2. Contact Resistance : 500mΩ max. | | | | | | |
| Weather-Proof | 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 : -60°C±2°C 2. Time : 96 hours | 1. As shown in item 4~6 2. Contact Resistance: 200mΩ max. 3. Insulation Resistance : 10MΩ min. | | | | | | |
| | 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 : 125°C ±2°C 2. Time: 96 hours | Ditto | | | | | | |
| | 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 ~ 95% 3. Time : 504 hours | Ditto | | | | | | |

Flat-head and Cross-head Through Hole Actuator

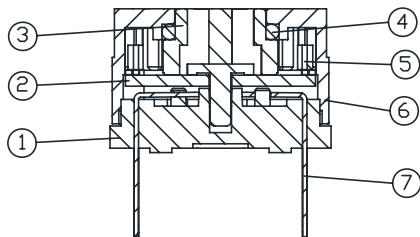


Soldering Conditions:

Condition for Soldering – RBM Series

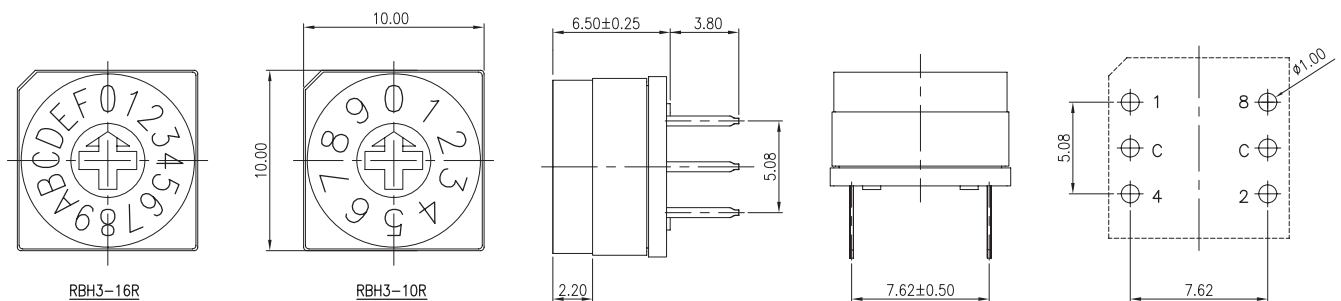


The condition mentioned above is the temperature on the Cu foil of the PCB surface. There are cases where board's temperature greatly differs from switch's surface temperature depending on board's material, size, thickness, etc. Care, therefore, should be used not to allow switch's surface temperature to exceed 260°C.



| Item | Description | Materials | Q'TY | Treatment |
|------|-------------|--|------|--------------|
| 1. | Base | High - Temp. Thermoplastic Nylon UL94V - 0 | 1 | Molded Black |
| 2. | PCB Contact | FR-4 | | Gold Plated |
| 3. | Actuator | High - Temp. Thermoplastic Nylon UL94V - 0 | | Molded Grey |
| 4. | O Ring | Silicone | | - |
| 5. | Spring | Stainless Steel | 2 | - |
| 6. | Cover | High - Temp. Thermoplastic Nylon UL94V - 0 | 1 | Molded White |
| 7. | Terminal | Brass | | Gold Plated |

Diagram:



Dimensions : Millimetres



Flat-head and Cross-head Through Hole Actuator



| TYPE | CIRCUIT CHARACTERISTICS | | | | | | | | | | | | | | | | |
|----------|-------------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RBH3-10R | CODE | POSITION ● ON | | | | | | | | | | | | | | | |
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| | 1 | | ● | | ● | | ● | | ● | | ● | | | | | | |
| | 2 | | | ● | ● | | | ● | ● | | | | | | | | |
| | 4 | | | | | ● | ● | ● | ● | | | | | | | | |
| 8 | | | | | | | | | ● | ● | | | | | | | |

| TYPE | CIRCUIT CHARACTERISTICS | | | | | | | | | | | | | | | | |
|----------|-------------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RBH3-16R | CODE | POSITION ● ON | | | | | | | | | | | | | | | |
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| | 1 | | ● | | ● | | ● | | ● | | ● | | ● | | ● | | ● |
| | 2 | | | ● | ● | | | ● | ● | | | ● | ● | | ● | ● | ● |
| | 4 | | | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | ● |
| 8 | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | |

Part Number Table

| Description | Part Number |
|--|-------------|
| Through hole; 3×2; 10 STEPS; Flat-head actuator | RBH2-10RBVB |
| Through hole; 3×3; 10 STEPS; Flat-head actuator | RBH3-10RBVB |
| Through hole; 3×3; 16 STEPS; Flat-head actuator | RBH3-16RBVB |
| Through hole; 3×2; 16 STEPS; Cross-head actuator | RBH2-16RAVB |
| Through hole; 3×2; 16 STEPS; Flat-head actuator | RBH2-16RBVB |
| Through hole; 3×2; 10 STEPS; Cross-head actuator | RBH2-10RAVB |
| Through hole; 3×3; 10 STEPS; Cross-head actuator | RBH3-10RAVB |
| Through hole; 3×3; 16 STEPS; Cross-head actuator | RBH3-16RAVB |

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