# Product Specification

**Part Number** **TC-12020-00-P**

**1) Rating:** **DC 12V 50mA**

**2) Operating Temperature Range: -10°C ~ +60°C**

**3) Electrical Performance:**

| | Test Conditions | Performance |
|---|---|---|
| Contact Resistance | Measured at small current (10mA 1000Hz or less) | 100mΩ Max. |
| Insulation Resistance | Shall be measured by applying 500V DC, between all terminals and between the terminals and the frame for 1minute±5sec. | 100MΩ Min. |
| Dielectric Strength | AC 250v rms (50-60Hz) for 1 minute trip current: 0.5 mA<br>1. Between Terminals<br>2. Between individual terminals and frame | Without damage to parts arcing or breakdown |

**4) Mechanical Performance:**

| | Test Conditions | Performance |
|---|---|---|
| Operating Force | Measuring push the top of the actuator (knob) | 180gf±50gf |
| Terminal Strength | A static load of 300gf shall be applied to the terminal for 15 sec. in any direction. | Electrical characteristics shall be satisfied without damage of excessive looseness of terminals. |
| Displacement of Actuator (Knob) | A static load of 5N (500gf) shall be applied to the top of the actuator (knob) and then displacement shall be measured to the direction of the arrow. | The lever shall have no serious deformation and function is normal. |
| Life Test | Endurance without loading: A switch shall be subjected to 100,000 cycles at a speed of 15 to 18 cycles per minute without loading. | (1) Contact resistance: 200mΩ Max.<br>(2) Insulation Resistance: 50MΩ Min.<br>(3) Withstand Voltage: AC 250V for 1 minute.<br>(4) Operating force: Less than +10%~-30% of initial operating force<br>(5) Without damage to parts arcing or breakdown etc. |

## 5) Environmental Characteristics:

| | Test Conditions | Performance |
|---|---|---|
| Soldering Test | The top of terminals shall be dipped 2mm in the solder bath of 255±5°C for 3±0.5 seconds. | The area of soldering should be over 75% |
| Soldering heat resistance | Solder bath method: Solder temperature 260±5°C. Immersion time within 10 seconds. Immersion depth up to the surface of the board 0.8mm dimensions of component holes in the printed wiring board shall being accordance with those specified in this specification. Solder Iron method: Temperature of solder 350±10°C. Time of solder 3±0.5 seconds. | Without deformation of case or excessive looseness of terminals electrical characteristics shall be satisfied |
| Cold test | The switch shall be stored at a temperature of -25±3°C for 48 hours, then the switch shall be maintained at standard atmospheric conditions for hour after which measurement shall be made | There shall be no deformation or cracks in molded part |
| Heat test | The switch shall be stored at a temperature of 70±2°C for 48 hours, then the switch shall be maintained at standard atmospheric conditions for hour after which measurement shall be made | |
| Humidity test | The switch shall be stored at a temperature of 40±2° and a humidity of 90% to 95% for 48 hours, then the switch shall be maintained at a standard atmospheric conditions for 1 hour after which measurement shall be made | There shall be no deformation or cracks in molded part. |
| Test Condition (Unless otherwise specified)<br>Temperature: 5°C - 35°C<br>Humidity: 45% - 85% R.H.<br>Pressure: 86-143kPa | | |