



Datasheet

RS PRO Sub-Miniature Pushbutton Switches

Stock number: **175-8689, 175-8625**

EN



The picture above is for reference only.
Please refer to the table in the drawing below for other colors.

Package Contain:

- 1x Nut
- 1x Locking Washer
- 1x Splash Proof O-Ring

Specifications:

- Switch type: Pushbutton
- Poles/throws: SPST
- Switch functions: off-mom

Max. Current/voltage rating with resistive load:

400ma 32vac - 200 ma 50vdc - 125 ma 125vac.

Initial contact resistance: 50mΩmax.

Insulation resistance: 1GΩmin.at 500VDC.

Dielectric strength: 1,500 VAC rms.

Electrical life at full load: 500,000 cycles.

Operating temperature: -30°C to 85°C.

Panel thickness: 1.5 mm (.059) min. -4 mm (.157) max.

Total travel: 1.5 mm(.059)

Operating force: 3N~6N

Contact bounce: 10 ms.

Mechanical life: 1,000,000 cycles.

Torque : 0.5 Nm max. applied to nut

Degree of protection: IP68

Manual soldering:

Use soldering iron of 30 watts, controlled at 350°C approximately 5 seconds while applying solder.

Wave soldering:

Recommended soldering temperature: 260 ± 5°C

※Ambient temperature of the soldered surface of PCB.110°C max.

Duration of solder immersion: max 5 sec. (PCB is 1.6mm in thickness).

RS Part no.

| | |
|----------|--|
| 175-8689 | SP Off-Mom. / Round, Bright (Non LED) / Black Cap Color |
| 175-8625 | SP Off-Mom. / Round, Bright (Non LED) / Red Cap Color |

Specifications:

1. Style :

This specification describes “Snap-Acting Pushbutton Switches”, mainly used as signal switch of electric devices, with the general requirements of mechanical and electrical characteristic.

Operating Temperature Range : -30 °C ~+85°C.

2. Current Range :

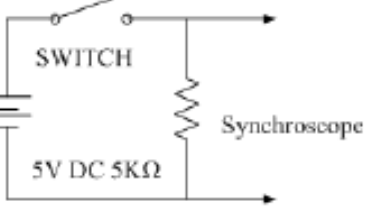
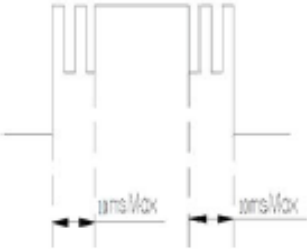
2.1 Silver Plating Standard :

| Plating | | Rating |
|--------------------|---|--|
| C=Gold over silver | Fixed Terminal : Copper alloy with silver plated over gold plate. Movable contact : Copper alloy with silver plated over gold plate. | 400mA @32VAC Max. 125mA @125VAC Max. 200mA @50VDC Max. |

3. Type of Actuation : Snap-Acting Pushbutton Switches.

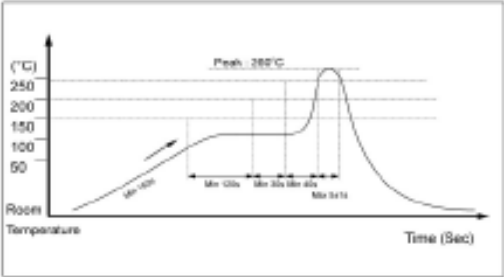
4. Test Sequence :

| ELECTRIC PERFORMANCE | ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|----------------------|------|---------------------------------|---|--|
| | 1 | Visual Examination | By Visual Examination check without and out pressure & testing. | There shall be no defects that affect the serviceability of the product. |
| | 2 | Contact Resistance | To be measured between the two terminals associated with each switch pole. | 50mΩ Max. |
| | 3 | Insulation Resistance | Measurements shall be made following application of 500 V/DC 100mA potential across terminals and cover for 1 minute. | 1GΩ min/500V. |
| | 4 | Dielectric Withstanding Voltage | 1500 VAC(50Hz or 60Hz) Between the two terminals contacts for 1 minute. | There shall be no breakdown or flashover. |

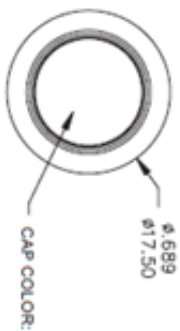
| ELECTRIC PERFORMANCE | ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|------------------------|------|-----------------|---|---|
| | 5 | Bounce | <p>3 to 4 operations at a rate of 1 cycle per second.</p>  | <p>10 m seconds max.</p>  |
| MECHANICAL PERFORMANCE | 6 | Actuation Force | <p>MODEL-1305N MECHANICAL TEST 500gram、1000gram、2000gram. OFF TO ON Total Travel.</p> | <p>①At for test the force. Force : 3N~6N. ②Total Travel : 1.5mm ③Operating Position : 1.10mm±0.20mm</p> |
| | 7 | Torque | Applied to nut. | About 0.5 Nm Max. |
| OPERATING LIFE | 8 | Operating Life | <p>Measurements shall be made following the test forth below :</p> <p>①Plastic Material : 200mA,50VDC resistive load-gold over silver plated.</p> <p>②Electronics Life Test : 500,000 cycles.</p> <p>③Rate of Operation: 6-8 operation cycles per minute.</p> <hr/> <p>④Mechanical Life Test : 1,000,000cycles.</p> | <p>①Electronics Life Test : As shown in item 3~4.</p> <p>②Mechanical Life Test : As shown in item 2~4.</p> |

| ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|------|-----------------------------|--|---|
| 9 | Resistance Low Temperature | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made : ①Temperature : $-30\pm 3^{\circ}\text{C}$. ②Time : 96 hours. | As shown in item 2~4. |
| 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 the measurements are made : ①Temperature : $85\pm 3^{\circ}\text{C}$. ②Time : 96 hours. | As shown in item 2~4. |
| 11 | Resistance Humidity | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made : ①Temperature : $40\pm 2^{\circ}\text{C}$. ②Relative Humidity : 90~95%. ③Time : 96 hours. | ①Contact Resistance : 50mΩ Max. ②Insulation Resistance : 1GΩ min. |
| 12 | The Salt Testing | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made : ①Temperature : $35\pm 2^{\circ}\text{C}$. ②The ratio of salt-water : 5%. ③The spray amount of salt-water : 1~2 ml/h. ④Time : 48 hours. | The testing standard based on bubble, crack, and magnifying glass with gauge. |

HUMIDITY RESISTANCE

| | ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|------------------------|------|----------------|---|---|
| HUMIDITY RESISTANCE | 13 | HSF | Refer RoHS Standard : The electronic electrical machinery product limits with six big chemical materials. | Cd : 100ppm Pb : 1000ppm Hg : 1000ppm Cr6+ : 1000ppm PBB 、 PBDE : 1000ppm |
| | 14 | Test of IP 68 | Protected against the effects of continuous immersion in water at a depth 1 m /60 minutes. | IP68 According to EN 60529 : 1991 + A1 : 2000 IEC 60529 : 2001 |
| SOLDER HEAT RESISTANCE | 15 | Wave Soldering | <p>■ Wave Soldering :</p> <p>① Soldering Temperature: $260 \pm 5^{\circ}\text{C}$.</p> <p>② Duration of Solder Immersion: 5 ± 1 seconds.</p> <p>Temperature Profile</p>  <p>③ PCB is 1.6mm in thickness.</p> <p>■ Ambient temperature of the soldered Surface of PC board. 110°C Max.</p> | <p>① Shall be free from pronounced backlash and falling-off or breakage terminals.</p> <p>② As shown in item 2~4.</p> |

| SOLDER HEAT RESISTANCE | ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|------------------------|------|------------------|---|---|
| | 16 | Manual Soldering | <p>■ Manual Soldering :</p> <p>① Soldering Temperature : 350°C Max.</p> <p>② Duration of Solder Heated : 5 seconds Max.</p> <p>■ Precautions in Handling</p> <p>① Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.</p> <p>② Except for washable type do not wash the switch.</p> <p>③ Please make sure that there is no flux rose over the surface of the PCB.</p> | <p>① Shall be free from pronounced backlash and falling-off or breakage terminals.</p> <p>② As shown in item 2~4.</p> |



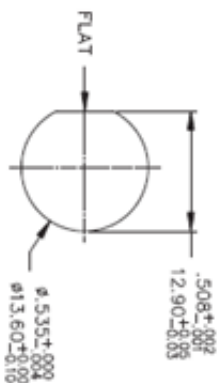
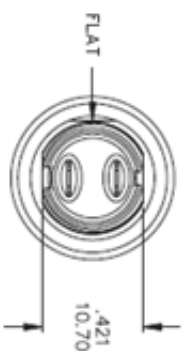
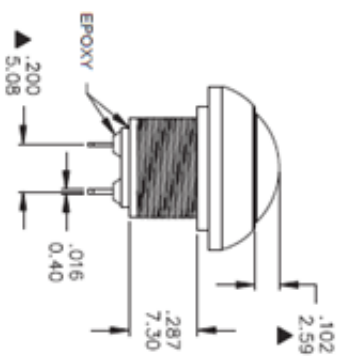
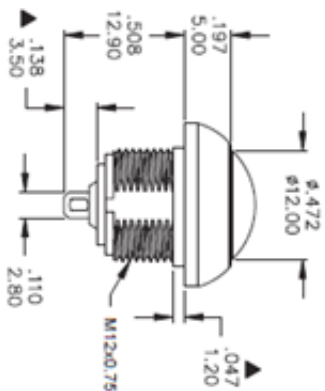
MATERIALS
 CAP: Polyamide 6/6.
 PLUNGER: PC.
 RUBBER: Silicone.
 BUSHING: Polyamide 6/6.
 CASE: Diethyl phthalate (DAP)(UL94V-0).
 TERMINAL/CONTACTS: Gold over silver plated.
 RoHS & Lead Free

| PART NO. | PART NAME | QTY |
|----------|-----------|-----|
| 1 | MNU-PA03 | 1 |
| 2 | MNU-1M59 | 1 |
| 3 | FCP-A253 | 1 |

FILE NAME: HARDWARE-0085

| Model No. | POS. 1 | POS. 2 |
|---------------------|--------|---------|
| | OFF | MOM(ON) |
| CONNECTED TERMINALS | OPEN | CLOSE |
| SCHEMATIC | | |

SWITCH FUNCTION



PANEL CUT-OUT

THICKNESS: 1.5 mm ~ 4.0 mm

TOLERANCE :
 0.00 mm ± 0.25mm
 0.0 mm ± 0.40mm
 ANGULAR : ± 5°

SPECIFICATIONS
 Max. current/voltage rating with resistive load:
 400mA 32VAC - 200 mA 50VDC - 125 mA 125VAC.
 INITIAL CONTACT RESISTANCE: 50 mΩ max.
 INSULATION RESISTANCE: 1 GΩ min. at 500VDC.
 DIELECTRIC STRENGTH: 1,500 VAC rms.
 ELECTRICAL LIFE AT FULL LOAD: 500,000 cycles.
 TOTAL TRAVEL: 1.5 mm(.059).
 OPERATING FORCE: 3N-6N.
 CONTACT BOUNCE: 10 ms.
 MECHANICAL LIFE: 1,000,000 cycles.
 TORQUE: 0.5 Nm max. applied to nut.
 SOLDERING: 350°C max. for 5 seconds.
 OPERATING TEMPERATURE: -30°C to 85°C.
 DEGREE OF PROTECTION: IP68