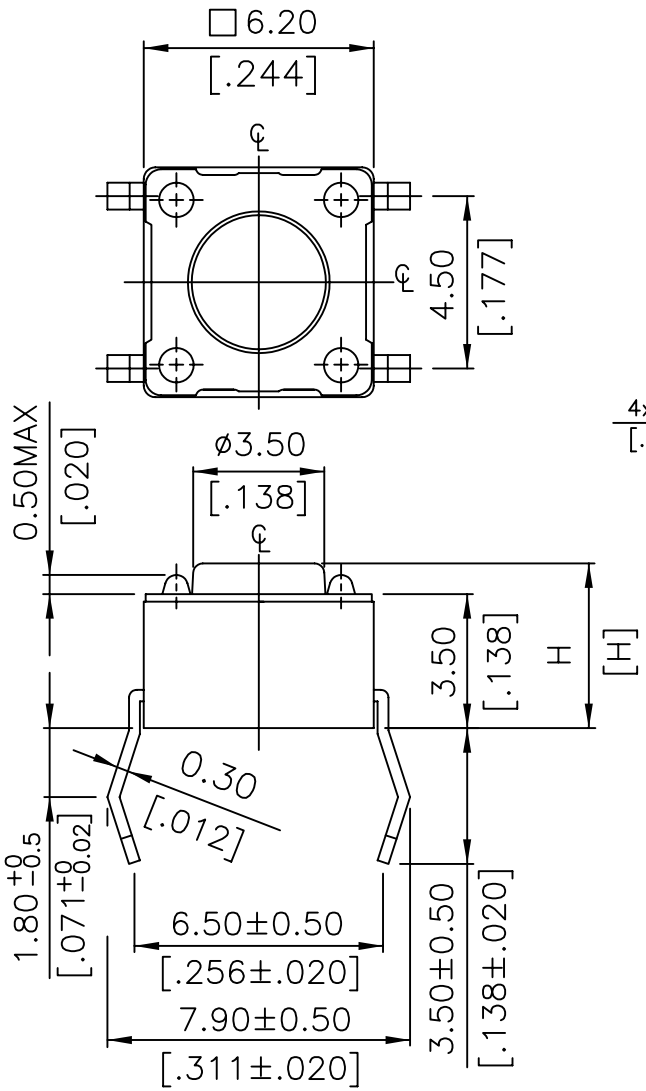
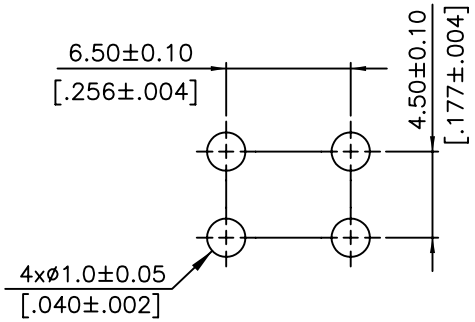
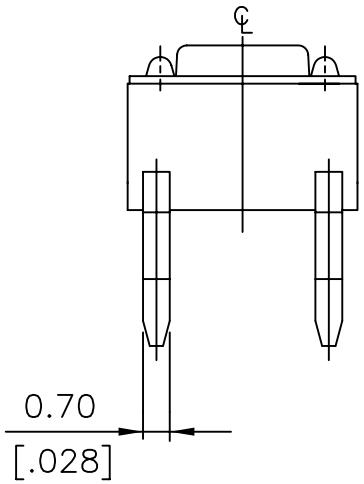
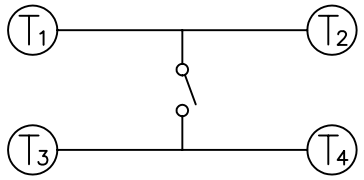



P.C.B. LAYOUT



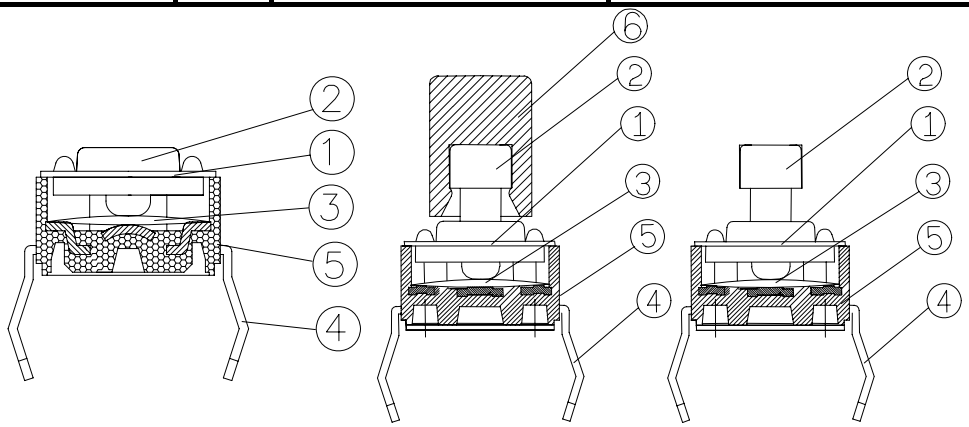

CIRCUIT DIAGRAM

| | |
|---|---|
| DTS- 6 6 □ | 13.0 [.512] |
| DTS- 6 5 □ | 9.5 [.374] |
| DTS- 6 3 □ | 7.0 [.275] |
| DTS- 6 2 □ | 5.0 [.197] |
| DTS- 6 1 □ | 4.3 [.169] |
| PROD. NO. | H |

| | | |
|---|---|---|
| DESIGN Lucy Fu | CHECKED BY Paulina Kao | **Tact Switches** |
| DRAWN BY Lucy Fu | DATE Dec. 20 2003 | COSLAND CO.,LTD. |
| PART NUMBER DTS-6 | SCALE 5:1 | |
| DRAWING NUMBER C:\TACT\DTS-6 | REV A | |

No.6, Alley 30,Lane 59,Sec.5.Nanking East Road.
Taiwan. Taiwan.
E MAIL: cosland@cosland.com
Tel No.:( 02 ) 2745 8908. Fax No.: 886-2-2765 3456.

| ITEM | DESC | Q'TY | MATERIALS | TREATMENT | REMARK |
|---|---|---|---|---|---|
| 1. | COVER | 1 | STAINLESS STEEL | NONE | - |
| 2. | STEM | 1 | HIGH – TEMP THERMOPLASTIC NYLON UL 94V-0 | → | - |
| 3. | CONTACT | 1 | PHOSPHOR BRONZE | WITH SILVER CLADDING | - |
| 4. | TERMINAL | 1 | BRASS | WITH SILVER PLATING | - |
| 5. | BASE | 1 | HIGH – TEMP THERMOPLASTIC NYLON UL 94V-0 | MOLDED BLACK | - |
| 6. | CAP | 1 | THERMOPLASTIC ABS | → | - |




Remark:

① Prod. No. : D T S □ - 6 □ □ □ - □ - V

K = With Cap

Dimension H:

1 = 4.3 ㎜
2 = 5.0 ㎜
3 = 7.0 ㎜
44(48)= 7.3 ㎜
5 = 9.5 ㎜
6 = 13 ㎜

Color Of Stem For Operating Force:

K = Black , 100g.
N = Brown , 160g.
R = Red , 260g.
S = Salmon, 320g.
Y = Yellow, 520g.

Soldering:

V = Lead Free

□= WITH SILVER PLATING 0.5uM
G =WITH SILVER PLATING 1.5uM

| | | |
|---|---|---|
| A | DWG. REL. | |
| REV. | ECO. NO. | APPD |

| | | |
|---|---|---|
| TITLE: TACTILE SWITCH 6x6 | APPD. : | |
| | CHKD. : | |
| PRROD. NO. : DTS□-6□□□-□-V | PR. : 張慧羚 | |
| FILE NO. : E-V-CT01 | REV : A | SHEET : 1 of 1 |

1. Style

This specification describes “TACTILE SWITCH”, mainly used as signal switch of electric devices, with the general requirements of mechanical and electrical characteristic.

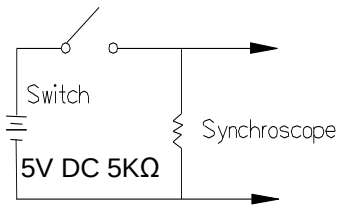
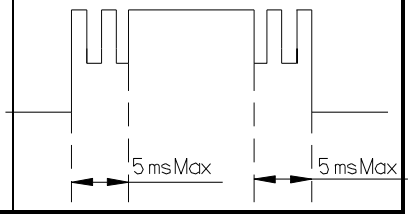
1.1 Operating Temperature Range: -25℃+70℃

1.2 Storage Temperature Range : -30℃+80℃

2. Current Range: 50mA, 12 VDC

3.Type of Actuation: Tactile feedback

4.Test Sequence:

| | ITEM | DESCRIPTION | TEST CONDITIONS | REQUIREMENTS |
|---|---|---|---|---|
| APPEARANCE | 1 | Visual Examination | By visual examination check without any out pressure & testing. | There shall be no defects that affect the serviceability of the product. |
| ELECTRIC PERFORMANCE | 2 | Contact Resistance | Applying a static load 1.5~2 times the operating force to the center made with a 1 kHz small current contact resistance meter. | 100mΩ Max. |
| | 3 | Insulation Resistance | Measurements shall be made following application of 500 V DC potential across terminals and cover for 1 minute ±5 seconds. | 100MΩ Min. |
| | 4 | Dielectric Withstanding Voltage | 250 V AC(50Hz or 60Hz) shall be applied across terminals and cover for 1 minute | There shall be no breakdown or flashover. |
| | 5. | Bounce | 3 to 4 operations at a rate of 1 cycles per second   | 5 m seconds Max.   |

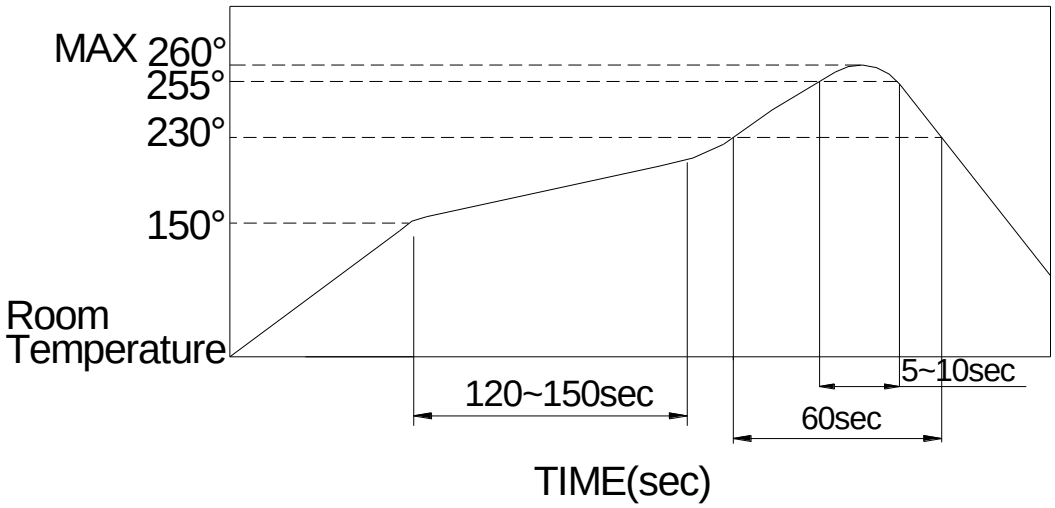
| | | | | |
|---|---|---|---|---|
| MECHANICAL PERFORMANCE | 6. | Operating Force | Applied in the direction of operation.   | OF<br>U: 70±30 [69N±29N]<br>K: 100±50 [98N±49N]<br>N: 160±50 [1568N±49N]<br>R: 260±50 [2548N±49N]<br>S: 320±80 [3136N±784N]<br>Y: 520±130 [5096N±1274N] |
| | 7. | Stroke | Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the stem, the stroke distance for the stem to come to a stop shall be measured. | 0.25 +0.2/-0.1 ㎜ |
| | 8. | Stop Strength | Placing the switch such that the direction of switch operation is vertical, a static load of 3 kgf(29.4N) shall be applied in the direction of stem operation for a period of 15 seconds | 1.As shown in item 4~7<br>2.Contact Resistance: 200mΩ Max<br>3.Insulation Resistance: 10MΩ Min |
| | 9. | Solder Heat Resistance | (Through Hole Type<br>(Soldering Temperature:260 ±5℃<br>(Duration of Solder Immersion: 5 ± 1 seconds.<br>(Frequency of Soldering Process 2 times max.<br>(PCB is 1.6 ㎜ in thickness)<br>■SMT Type ~DTSM Series(4/4) | 1.Shall be free from pronounced backlash and falling-off or breakage terminals<br>2.As shown in item 4、5<br>3.Contact Resistance: 200mΩ Max<br>4.Insulation Resistance:10MΩ Min |
| | 10. | Vibration | Shall be vibrated in accordance with Method 201A of MIL-STD-202F<br>1.Frequency: 10-55-10Hz in 1-min/cycle.<br>2.Direction: 3 vertical directions including the directions of operation<br>3.Test time: 2 hours each direction.<br>4.Swing distance=1.5mm | 1.As shown in item 4~7<br>2.Contact Resistance: 200mΩ Max<br>3.Insulation Resistance: 10MΩ Min |

| | | | | |
|---|---|---|---|---|
| MECHANICAL PERFORMANCE | 11 | Shock | Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F<br>1)Acceleration; 50G<br>2)Action time:11±1m seconds<br>3)Testing Direction: 6 sides<br>4)Test Cycle: 3 times in each direction | 1)As shown in item 4~7<br>2)Contact Resistance: 200mΩ Max<br>3)Insulation Resistance: 10MΩ Min |
| | 12 | Solder ability | Through Hole Soldering<br>1)Temperature：245±3℃<br>Lead-Free solder：M705E JIS Z 3282 A (Tin 96.5%，Silver 3%，Copper 0.5%)<br>2)Flux：5~10 sec<br>3)Duration of solder Immersion：5±1 sec | No anti-soldering and the coverage of dipping into solder must more than 66% was requested. |
| **DURABILITY** | 13 | Operating Life | Measurements shall be made following the test forth below:<br>1)5 mA,5 VDC resistive load<br>2)Applying a static load the operating force to the center of the stem in the direction of operation<br>3)Cycle of Operation:<br>(Through Hole、S.M.T Dome=Phosphor Bronze)<br>200,000 cycle's Min. For 100,160gf<br>100,000 cycle's Min. For 260gf<br>50,000 cycle's Min. For 320,520gf<br>(S.M.T Dome=Stainless Steel)<br>1,000,000 cycle's Min~100,160gf<br>500,000 cycle's Min~260gf<br>300,000 cycle's Min~320、520gf | 1)As shown in item 4、5<br>2)Operating force:±50% of initial force.<br>3)Contact Resistance: 10Ω Max<br>4)Insulation Resistance: 10MΩ Min<br>5)Bounce: 10 m seconds Max |
| **WEATHER-PROOF** | 14 | Resistance Low 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:<br>1)Temperature:-25±3℃<br>2)Time:96 hours | 1)As shown in item 4~7<br>2)Contact Resistance: 200mΩ Max<br>3)Insulation Resistance: 10MΩ Min |
| | 15 | 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:<br>1)Temperature:80±2℃<br>2)Time:96 hours | 1)As shown in item 4~7<br>2)Contact Resistance: 200mΩ Max<br>3)Insulation Resistance: 10MΩ Min |

| | | | | |
|---|---|---|---|---|
| | 16 | 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:<br>1)Temperature:40±2℃<br>2)Relative Humidity:90~95%<br>3)Time:96 hours | 1)As shown in item 4~7<br>2)Contact Resistance: 200mΩ Max<br>3)Insulation Resistance: 10MΩ Min |

5. SOLDERING CONDITIONS:

■ Condition for Reflow Soldering – S.M.T Series



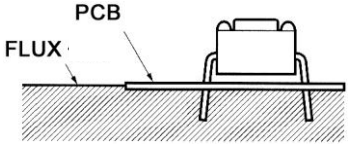

■ The condition mentioned above is the temperature on the Cu foil of the PCB surface. There are cases where board's temperature greatly differs from switch's surface be used not to allow switch's surface temperature to exceed 260℃.

■ Manual Soldering

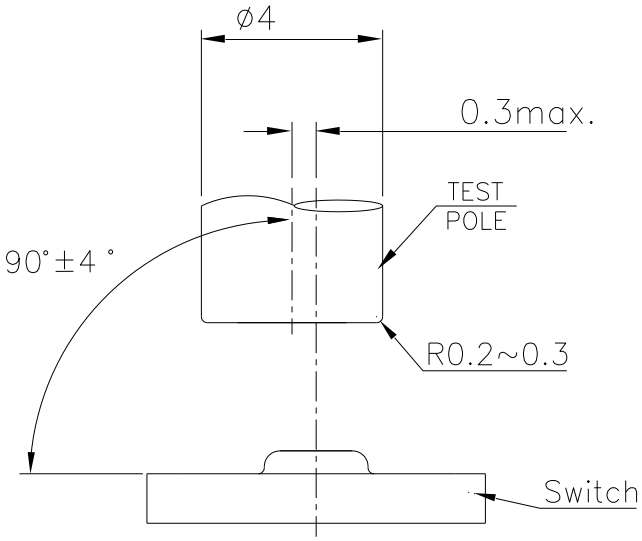
| | |
|---|---|
| Soldering Temperature | Max.350℃ |
| Continuous Soldering Time | Max. 5 seconds |

■ Precautions in Handling

1. Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.
2. Except for washable type do not wash the switch body.
3. Please make sure that there is no flux rose over the surface of the PCB



■ Operating Conditions




■ Notes on storage conditions:

Do not store in the following environment or it may affect product's function and solderbility:

1. temperature of -10 (max) ~ +40 (min) ℃ & humidity at 85% (min)
2. environment with corrosive gas
3. storage over 6 months
4. place of direct sunlight

Store with proper packaging conditions and to avoid loading heavy force

We suggest to use the products within 3 months or at least 6 months.

After opening the package, the rest products must be stored in the appropriate moisture-proof & airtight environment.