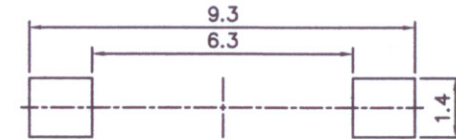
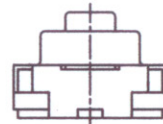
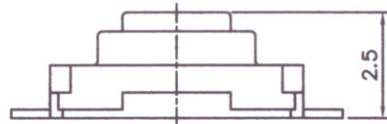


CIRCUIT DIAGRAM

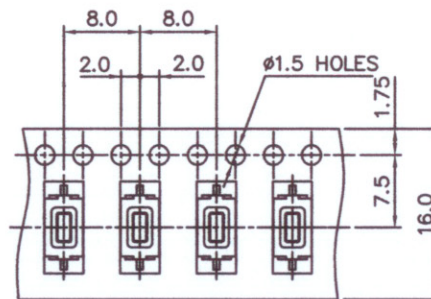
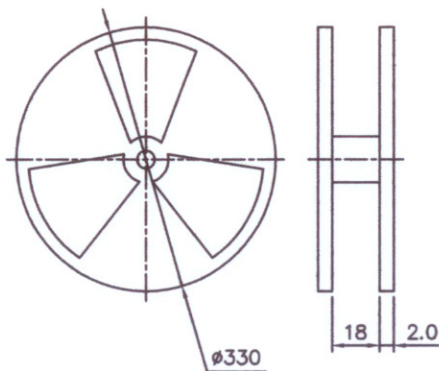


PRINTED CIRCUIT BOARD MOUNTING HOLE DIMENSION
(WHEN VIEWD FROM SWITCH MOUNTING FACES)



NOTE

1. OPERATING FORCE : 180±50gf, 250±50gf
2. RATING : 50mA 12V DC
3. TRAVEL : 0.25^{+0.2}/_{-0.1} m/m
4. PACKAGE : 16mm
5. THE QUANTITY PACKAGED PER REEL IS 3,000PCS
6. DUST PROOF TYPE
7. REFLOW SOLDERING



| PART NO | PART NAME | Q'TY | MATERIAL | STANDARD | DISPOSITION | REMARKS |
|---------|------------|------|---------------|----------|-------------|---------------|
| △ | | | TRIGON-OMETRY | UNIT | SCALE | TACT SWITCHES |
| △ | | | APPD | CHKD | DSGD | |
| △ | | | | | | |
| △ | | | | | | |
| NO | CORRECTION | | | | MODEL | INT-1181F |

1. GENERAL MATTERS

1.1 Application : This specification is applied to low current tactile switch for electronic equipment.

1.2 Operating Temperature Range : -20°C ~ 70°C, 45 ~ 85% RH

1.3 Test Condition : The standard test conditions shall be 5°C ~ 35°C in temperature,
45 ~ 85% RH and 860 ~ 1060mbar in atmospheric pressure.

Should any doubt arise in judgment, tests shall be conducted
at 20 ±2°C, 65 ±5% RH and 860 ~ 1060mbar.

2. RATED VOLTAGE AND CURRENT

12V DC, 50mA

3. ELECTRICAL PERFORMANCE

| | PROPERTY | TEST CONDITION | PERFORMANCE |
|-----|-----------------------|--|---|
| 3.1 | Contact Resistance | Measured at 50mA, 12V DC | 100mΩ Max |
| 3.2 | Insulation Resistance | DC 500C is applied between terminals and earth for 1 minute ±5 seconds. | 100mΩ Min |
| 3.3 | Withstand Voltage | 250V AC(50~ 60HZ) is applied between terminals and earth for 1 minute. | No insulation defect shall be observed. |
| 3.4 | Bounce | Measured by lightly striking the center of the button stem at a rate of 3 operation/sec. | 10msec. Max |

4. MECHANICAL PERFORMANCE

| | PROPERTY | TEST CONDITION | PERFORMANCE |
|-----|------------------------|--|---|
| 4.1 | Operating Force | A gradually increasing load is applied to the center of the button stem. | 180/250±50gf |
| 4.2 | Terminal Strength | A static force of 500gf shall be applied to an arbitrary. | Shall be free from terminal looseness, damage and breakdown of insulator. |
| 4.3 | Stop Strength | A static force of 3Kgf shall be applied to the direction of operation for 3 seconds. | Shall be free from mechanical and electrical abnormalities. |
| 4.4 | Solder Heat Resistance | Soldering temperature : 250°C Soldering time : 2 SEC. MAX. | Shall be free from mechanical and electrical degradation. |
| 4.5 | Travel | | 0.25 + 0.2mm/ -0.1mm |
| 4.6 | Arrangement of action | | Tactile feed-back |

| DATE | | DESIGNED | CHECKED | APPROVED | PAGE |
|--------------|-----------------|--------------------|---------|--------------------|-------|
| S/W TYPE | SMD TACT S/W | <i>[Signature]</i> | | <i>[Signature]</i> | 1 / 3 |
| MODEL NO. | INT-1181 SERIES | | | | |
| DOCUMENT NO. | STS-009 | 07/13/16 | 1 / 1 | 07/13/16 | |

5. ENDURANCE

| | PROPERTY | TEST CONDITION | PERFORMANCE |
|-----|-------------------------|---|--|
| 5.1 | Operating Life | Measurements shall be made following the test set forth below : 1) 5V DC, 5mA resistive load. 2) Rate of operation 2 to 3 operations per second. 3) Depression : Twice the actuating force. 4) Cycles of operation : 50,000 cycles | Contact Resistance : 100mΩ Max Bounce : 20m sec Max Actuating Force : within ±50% of the initial value Item 3.3 Item 4.5 |
| 5.2 | Vibration Resistance | Measurements shall be made following the test set forth below : *Range of oscillation : 10 to 55Hz *Amplitude, pk-to-pk : 1.5mm *Cycle of sweep : 10-55-10Hz in one minute, approx. *Mode of sweep : logarithmical sweep or uniform sweep. *Direction of oscillation : three mutually perpendicular directions, including the direction of stem travel. *Duration of testing : 2 hours each, for a total of 6 hours. | Item 3.1 Item 3.2 Item 3.3 |
| 5.3 | Impact Shock Resistance | Measurements shall be made following the test set forth below : *Acceleration : 80g *cycle of test : 3 cycles each in 6 direction, for a total of 18 cycles. | Item 3.1 Item 3.2 Item 3.3 |

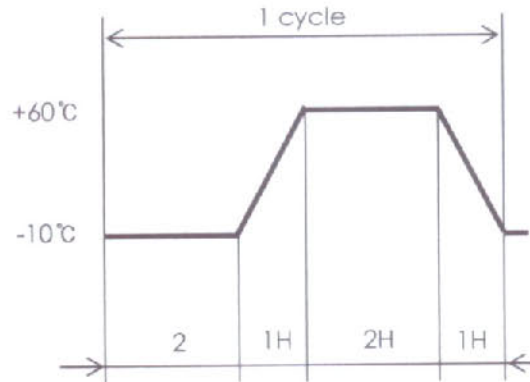
6. ENVIRONMENTAL

| | PROPERTY | TEST CONDITIONS | PERFORMANCE |
|-----|-------------------------------|---|----------------------------------|
| 6.1 | Resistance to Low Temperature | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made : *temperature : -30 ±2°C *time : 96 hours *waterdrops shall be removed. | Item 3.1 Item 3.2 Item 3.3 |
| 6.2 | Heat Resistance | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made : *temperature/time : 80 ±2°C/96hr | Item 3.1 Item 3.2 Item 3.3 |

| | | | | | |
|--------------|-----------------|--------------------|---------|--------------------|------|
| DATE | | DESIGNED | CHECKED | APPROVED | PAGE |
| S/W TYPE | SMD TACT S/W | <i>[Signature]</i> | | <i>[Signature]</i> | 2 / |
| MODEL NO. | INT-1181 SERIES | | | | 3 |
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6. ENVIRONMENTAL

| | PROPERTY | TEST CONDITION | PERFORMANCE |
|-----|---------------------|---|--|
| 6.3 | Moisture Resistance | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made : *temperature/time : $80 \pm 2^{\circ}\text{C}/96\text{hr}$ | Contact Resistance : 100m Ω Max Insulation Resistance : 10M Ω Min Item 3. 3, 3. 4 Item 4. 1, 4. 5 |
| 6.4 | Temperature Cycling | Following 5 cycles of the temperature cycling test set forth below the sample shall be left in normal temperature and humidity conditions for one hour during this test, waterdrops shall be removed. | Item 3. 1 Item 4. 1 Item 4. 5 |



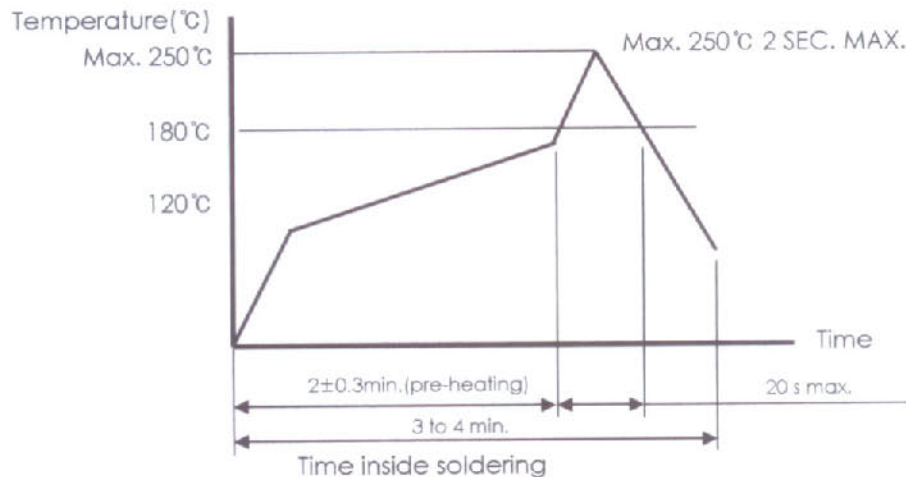
7. REFLOW SOLDERING

7.1 Refer to the following time temperature chart.

It is recommended to determine soldering conditions through verification test and on prior agreement of INNOCENT ELEC., since surface temperature varies depending upon material, size and thickness PCB.

7.2 Other precautions

- 1) Switch shall not be washed after soldering with solvent or the like.
- 2) Soldering shall be controlled so as not to allow flux penetrates switch at its upper face.
- 3) Switch terminals and PCB upper face shall be free from flux prior to soldering.



Above-mentions time-temperature chart is based on the temperature in the part mounting surface of PCB.

| DATE | DESIGNED | CHECKED | APPROVED | PAGE |
|--------------|-----------------|----------|----------|------|
| S/W TYPE | SMD TACT S/W | | | 3 / |
| MODEL NO. | INT-1181 SERIES | | | 3 |
| DOCUMENT NO. | STS-009 | 09/13/16 | 09/03/06 | 3 |