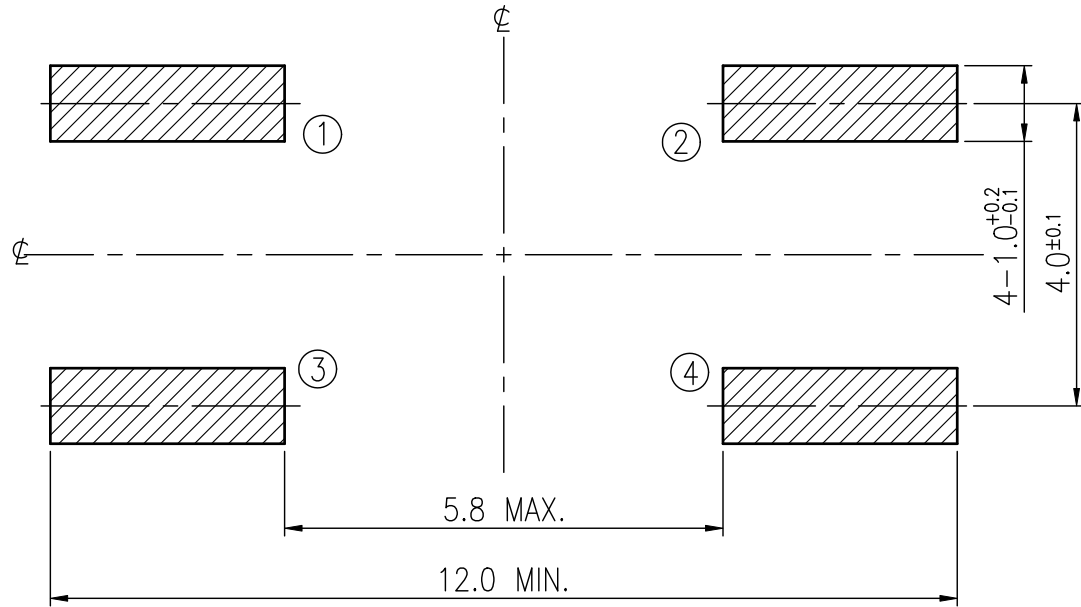
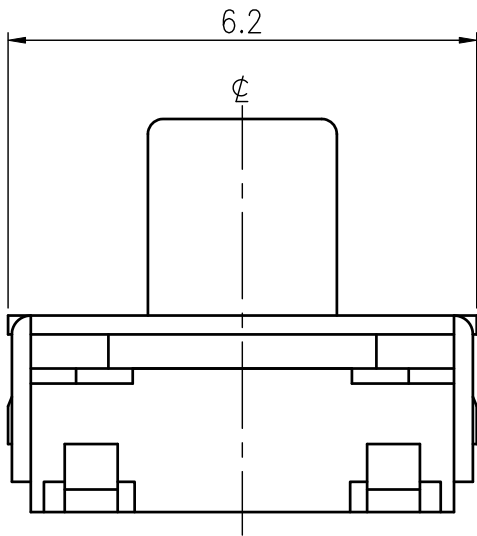
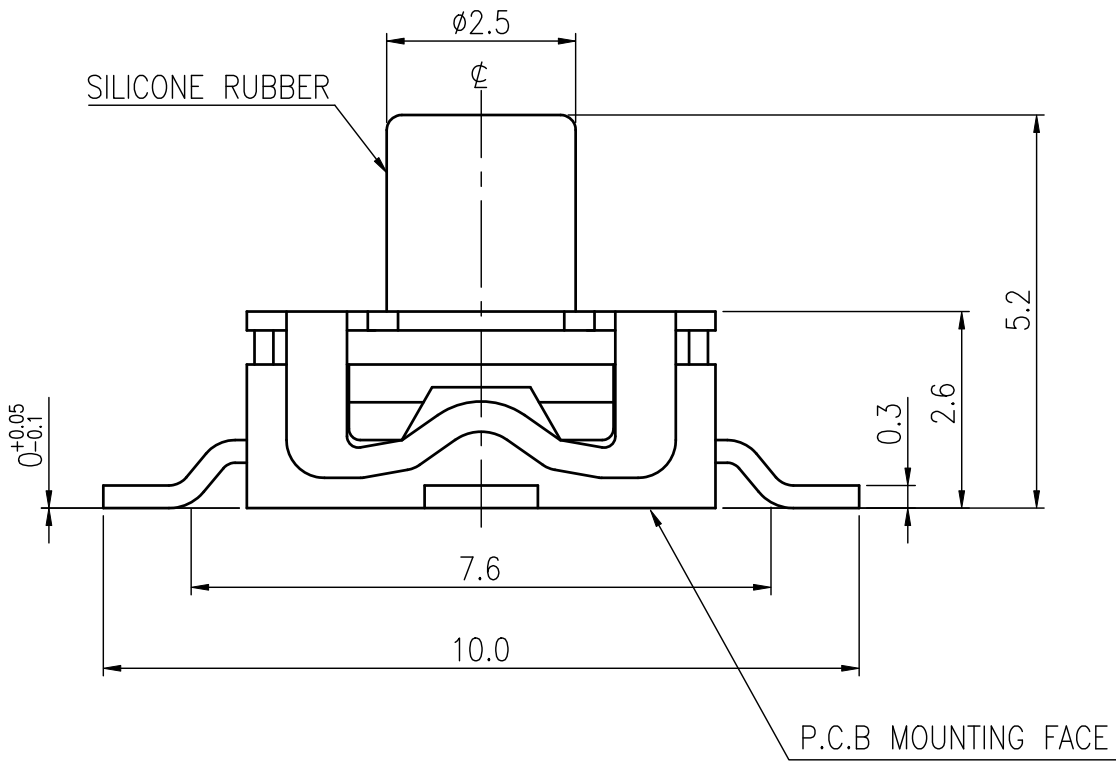
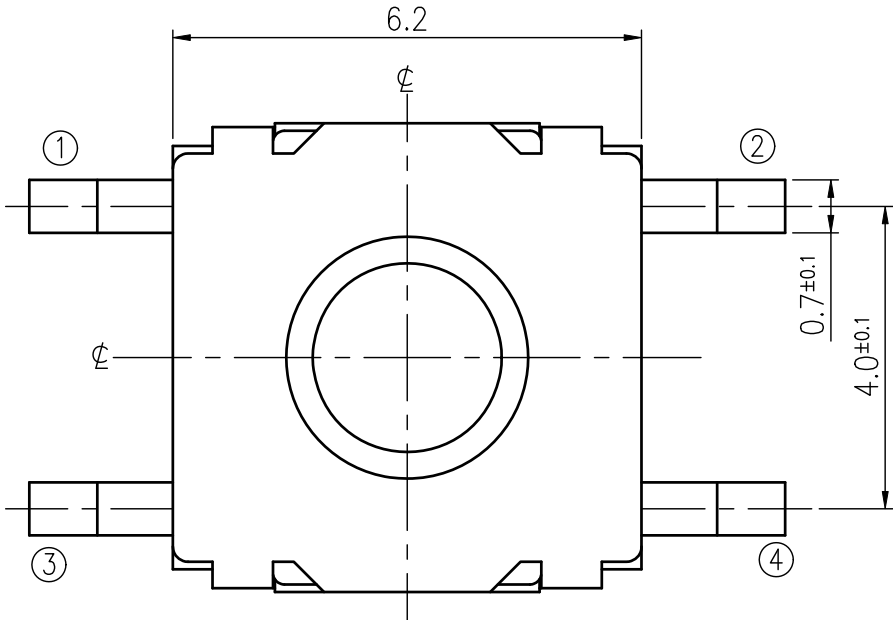
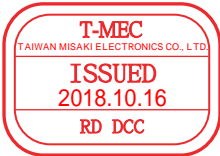
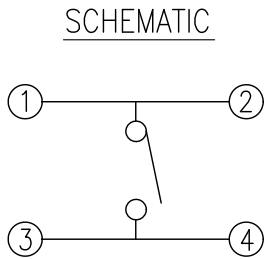


RoHS Compliant



HATCHED AREA SHOWS SOLDERING LAND

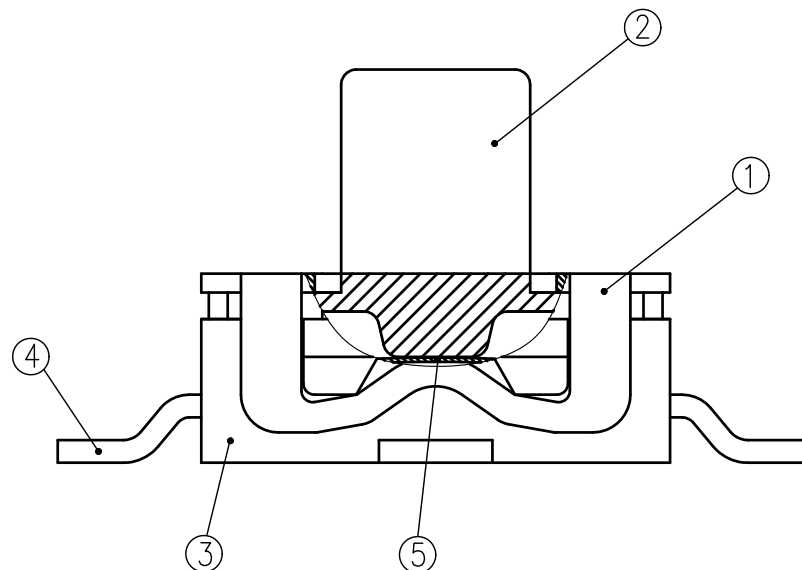
| REVISIONS | | | | | | | |
|-----------------------|-----------------|-------------------------|-----------|--------------------|-------------|------------------|--------|
| Rev | DESCRIPTION | DATE | DRAWER | Rev | DESCRIPTION | DATE | DRAWER |
| A | Initial Drawing | 2018.10.04 | Jane Shen | C | | | |
| B | | | | D | | | |
| SPECIFICATIONS | | | | | | | |
| RATING | | DC32V 50mA | | TIMING | | | |
| CONTACT RESISTANCE | | 100mΩ MAX. | | OPERATION (TORQUE) | | 145±50 gf | |
| INSULATION RESISTANCE | | DC100V-1000MΩ MIN. | | STROKE (ANGLE) | | 0.5±0.25 mm | |
| WITHSTAND VOLTAGE | | AC250V-1 MINUTE. | | LIFE | | 5,000,000 CYCLES | |
| REMARKS: | | Waterproof Grade : IP67 | | | | | |



RECOMMENDED P.C.B LAYOUT

| TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.2 | | | SIGNATURES | | DATE | MODEL |
|--|--|--|------------|-------------|------------|---------------------|
| | | | DRAWER | Jane Shen | 2018.10.04 | TITLE |
| | | | CHECKED | | | TACT SWITCH |
| | | | REVIEWED | Landry Su | 2018.10.04 | NO. |
| | | | APPROVALS | Dennis Hung | 2018.10.04 | NTC202-AA1G-52145TX |

TAIWAN MISAKI ELECTRONICS CO., LTD.



| 5 | CONTACT PLATE | 2 | STAINLESS STEEL PLATE | Ag-PLATING |
|------------------------------------|---------------|------|-----------------------|------------------------------|
| 4 | TERMINAL | 4 | COPPER ALLOY | Ag PLATING OVER Ni PLATING |
| 3 | FRAME | 1 | POLYAMIDE RESIN | BLACK COLOR |
| 2 | STEM | 1 | SILICON RUBBER | WHITE COLOR |
| 1 | COVER | 1 | STAINLESS STEEL PLATE | |
| NO. | PART NAME | Q'TY | MATERIAL | SPECIFICATION |
| | | | | SIGNATURES |
| | | | | DATE |
| | | | | M O D E L |
| | | | | DRAWN Jane Shen 2018.10.04 |
| | | | | CHK'D |
| | | | | REV'D Sandry Lu 2018.10.04 |
| | | | | APP'D Dennis Hung 2018.10.04 |
| SYM | DESCRIPTION | DATE | APPROVED | TITLE TACT SWITCH |
| TAIWAN MISAKI ELECTRONICS CO.,LTD. | | | | NO. NTC202-AA1G-52145TX |
| | | | | DWG NO. TC202-05 |

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC_202-AA1(G,U)- Series

1. Test condition:

Standard test conditions shall be 5~35°C in temperature, 45~85%RH in humidity and 86~106Kpa in atmospheric pressure.

Should any doubt arise in judgment, tests shall be conducted at 20±2°C in temperature, 60~70% RH in Humidity and 86~106 kpa in atmospheric pressure.

2. Operating temperature range: -40 ~ +85°C

Storage temperature range: -55 ~ +85°C

3. Construction:

3.1 Shape and dimension are subject to attached drawing regulation.

3.2 Appearance: Whole should be a good completion, no rust, no crack and good plating.

4. Rating:32V D.C. , 50mA.

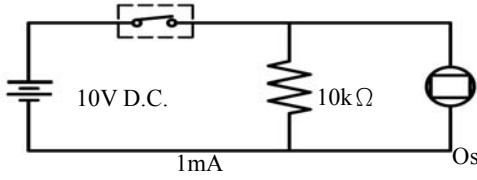
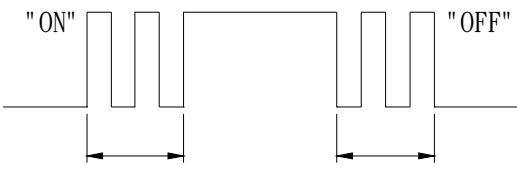
5. Electrical Performance:

| No. | Items | Test conditions | Specifications |
|-----|-----------------------|---|--|
| 5.1 | Contact Resistance | Shall be measure at 1kHz±200Hz (MAX. 20mV, MAX. 50mA.) or 1 A, 5V D.C. By voltage drop method. | 100mΩ Max. |
| 5.2 | Insulation Resistance | Shall be measured by applying 100V D.C. Between all terminals and between the terminals and the frame for 1 minute ± 5 seconds. | 1000MΩ Min. |
| 5.3 | Withstand Voltage | 250V A.C. (50~60Hz 2mA) shall be applied between all terminals and between the terminals and the frame for 1 minute. | No dielectric breakdown shall be occurred. |

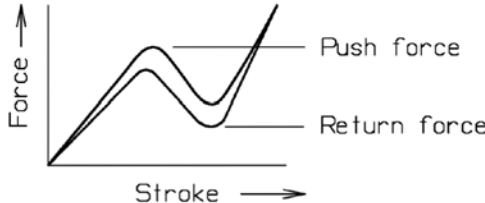
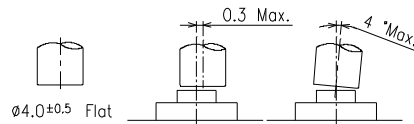
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| | | | APPROVED BY | REVIEWED BY | CHECKED BY | DESIGNED BY | SPEC NO. |
| | | | Dennis Hung | | | Jane Shen 2017.10.13 | SE-TC47N |
| | | | | | | | PAGINATE |
| A | NEW RELEASE | | | | | | |
| SYM | DISCRIPTION | DATE | | | | | 1/5 |

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

| No. | Items | Test conditions | Specifications |
|-----|--------|--|--|
| 5.4 | Bounce | <p>Lightly striking the center of the stem at a rate Encountered in normal use (3 to 4 operations per sec.)</p> <p>Switch</p>  <p>10V D.C. 10kΩ 1mA Oscilloscope</p>  <p>"ON" "OFF"</p> | <p>ON: $\leq 1\text{m sec}$ OFF: $\leq 1\text{m sec.}$</p> |

6. Mechanical Performance:

| No. | Items | Test conditions | Specifications |
|-----|-----------------|---|----------------------------------|
| 6.1 | Operating Force | <p>Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the center of the stem the maximum load required for the switch to come to a stop shall be measured.</p>  <p>Force → Push force Return force Stroke →</p>  <p>0.3 Max. 4 Max. ø4.0±0.5 Flat</p> | <p>Push force: 145±50 gf</p> |

APPROVED BY

REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

Dennis Hung

Jane Shen
2017.10.13

SE-TC47N
PAGINATE

A NEW RELEASE

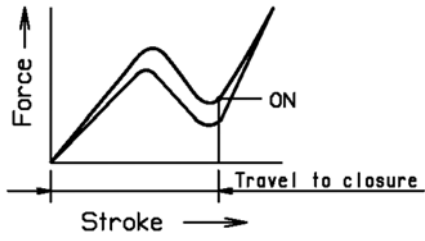
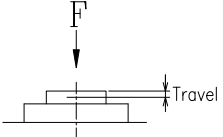
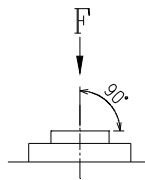
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SPECIFICATIONS FOR TACT SWITCH

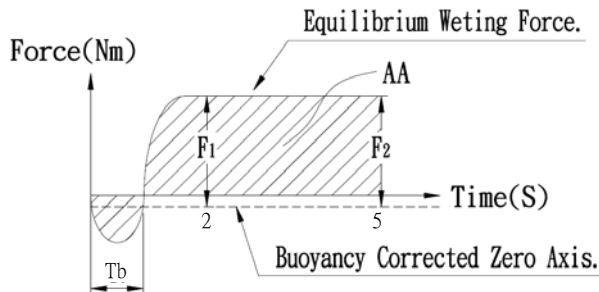
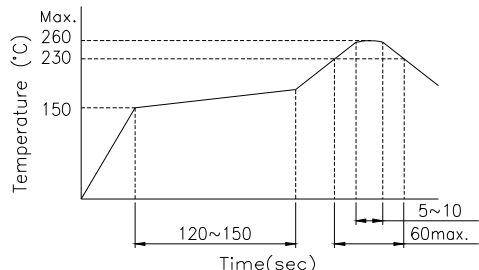
RoHS Compliant

| No. | Items | Test conditions | Specifications |
|-----|---------------|--|--|
| 6.2 | Travel | <p>Placing the switch such that the direction of switch operation is vertical and then applying a below static load to the center of the stem, the travel distance for the switch to come to a stop shall be measured.</p>   | <p>0.5 ± 0.25 mm</p> |
| 6.3 | Push Strength | <p>Placing the switch such that the direction of switch operation is vertical and then a below station load shall be applied in the direction of stem operation.</p> <p>3kgf for 15 seconds.</p>  | <p>The terminals must not fall off and no structure is damaged . Item 5.1~5.4 shall be satisfied. Item 6.1~6.2 shall be satisfied.</p> |

| | | | | | | | |
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| SYM | DISCRIPTION | DATE | | | | | 3/5 |

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

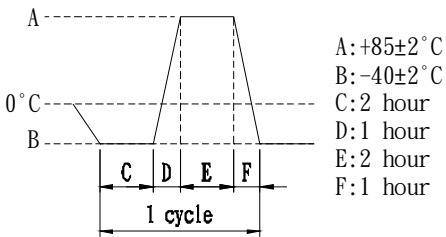
| No. | Items | Test conditions | Specifications | | | | | | | |
|-------|---|---|--|-------|----------|----|------------|----|---|----|
| 6.4 | Solderability | Test Temperature : 235 ± 5℃ Immersion Angle : 90° Immersion Speed : 1 mm/sec. Immersion Depth : 0.1mm Dwell Time : 5 seconds | Conform to the criteria in the left table. | | | | | | | |
| | | <div></div> <table><tr><th>Para.</th><th>Criteria</th></tr><tr><td>Tb</td><td>≤ 1 second</td></tr><tr><td>F1</td><td>50% of maximum theoretical wetting force at or before two seconds</td></tr><tr><td>F2</td><td>No less than 90% of the F1 Value</td></tr><tr><td>AA</td><td>Area calculated using sample buoyancy and 50% maximum theoretical force</td></tr></table> | | Para. | Criteria | Tb | ≤ 1 second | F1 | 50% of maximum theoretical wetting force at or before two seconds | F2 |
| Para. | Criteria | | | | | | | | | |
| Tb | ≤ 1 second | | | | | | | | | |
| F1 | 50% of maximum theoretical wetting force at or before two seconds | | | | | | | | | |
| F2 | No less than 90% of the F1 Value | | | | | | | | | |
| AA | Area calculated using sample buoyancy and 50% maximum theoretical force | | | | | | | | | |
| 6.5 | Solder Heat Resistance | (1) Manual soldering temperature: Temperature: 350℃ Max. Time: 3 Sec. Max. (2) Reflow Soldering: Number of reflow pass: 2 cycles. | Shall be free form pronounced deforming in appearance. Item 5.1~5.4 shall be satisfied. Item 6.1~6.2 shall be satisfied. | | | | | | | |
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| A | NEW RELEASE | | Dennis Hung | | | | 4/5 |
| SYM | DISCRIPTION | DATE | | | | | |

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

7. Weather Performance:

| No. | Items | Test conditions | Specifications |
|-----|-------------------|--|--|
| 7.1 | Humidity Test | (1) Temperature: $60\pm 2^{\circ}\text{C}$. (2) Relative humidity: 90~95% (3) Duration of test: 500 Hour. (4) Take off a drop water. (5) Standard conditions after test: 1 Hour. | Contact resistance: <u>500mΩ</u> Max Of item 5.2~5.4 shall be satisfied. Of item 6.1~6.2 shall be satisfied. |
| 7.2 | Heat Test | (1) Temperature: $85\pm 2^{\circ}\text{C}$. (2) Duration of test: 500 Hour. (3) Standard conditions after test: 1 Hour. | |
| 7.3 | Cold Test | (1) Temperature: $-40\pm 2^{\circ}\text{C}$. (2) Duration of test: 500 Hour. (3) Take off a drop water. (4) Standard conditions after test: 1 Hour. | |
| 7.4 | Waterproof test | Immersion tank water-level on enclosure: 0.15 M above top. 1 M above bottom. Duration of test : 30 min. | |
| 7.5 | Temperature cycle | (1) Test cycle: <u>20</u> cycles. (2) Standard conditions after test: 1 Hour.  <p>A: $+85\pm 2^{\circ}\text{C}$ B: $-40\pm 2^{\circ}\text{C}$ C: 2 hour D: 1 hour E: 2 hour F: 1 hour</p> | |

8. Durability:

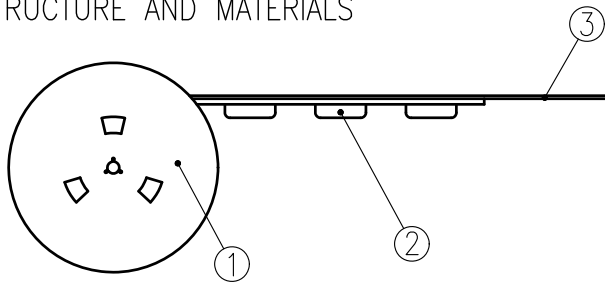
| No. | Items | Test conditions | Specifications |
|-----|-----------|--|--|
| 8.1 | Life Test | (1) 5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 5,000,000 times. | Contact Resistance: 10Ω MAX. Bounce: 20m sec Max.(ON,OFF) Operating Force: Within $\pm 30\%$ of specifications. Item 5.2 shall be satisfied. Item 6.2 shall be satisfied. |

| | | | | | | | |
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| SYM | DISCRIPTION | DATE | | | | | 5/5 |

THE PACKING SPECIFICATIONS

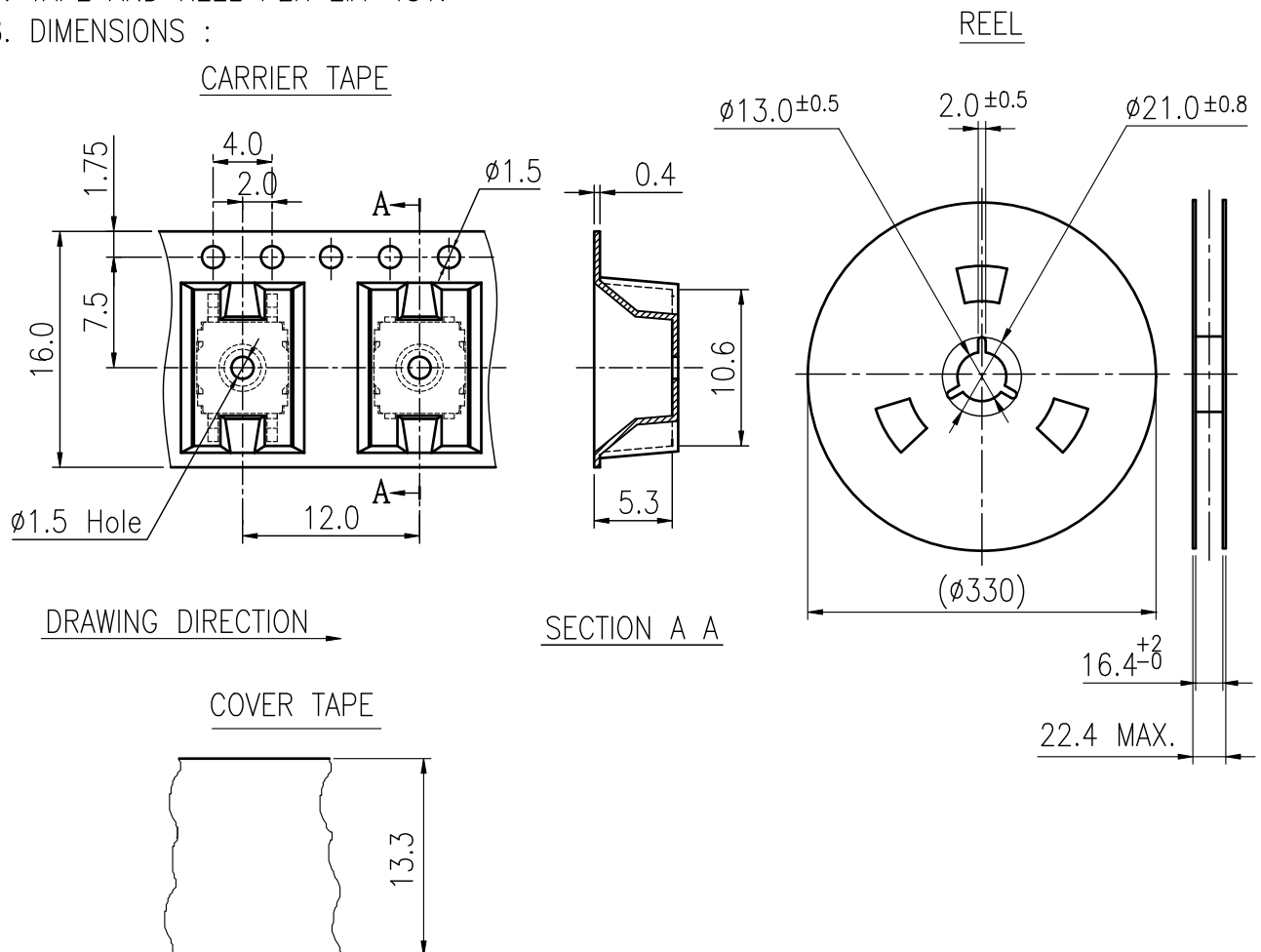
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1.STRUCTURE AND MATERIALS



| ③ | COVER TAPE | POLYESTER |
|-----|--------------|-------------|
| ② | CARRIER TAPE | POLYSTYRENE |
| ① | REEL | POLYSTYRENE |
| NO. | PARTS NAME | MATERIALS |

- PACKAGING QUANTITY : 1,000 PCS/REEL
- MORE THAN 10 EMPTY POCKETS SHOULD BE REMAINED AT BOTH ENDS OF THE CARRIER TAPE FOR EACH REEL.
- SHORTAGE LESS THAN 10 PCS A REEL IS ACCETABLE BUT MORE THAN 3 RUNNING POCKETS SHORTAGE IS NOT ALLOWED.
- STRIPPING STRENGTH OF COVER TAPE IS BETWEEN 10 gf TO 130 gf AND STRIPPING ANGLE SHOULD BE WITHIN 165° ~ 180° .
- THE PRODUCT IN THE POCKET OF CARRIER TAPE SHOULD BE PLACED IN A SPECIFIED CORRECT POSITION.
- TAPE AND REEL PER EIA-481.
- DIMENSIONS :



| | | | | APPROVED BY | REVIEWED BY | CHECKED BY | DESIGNED BY | MODEL NO. |
|-----|------------|------|----------|-------------|-------------|------------|-------------|-------------------------|
| | | | | | | | Jane Shen | NTC202-AA1(G,U)-52145TX |
| | | | | | | | 2017.03.31 | PAGINATE. |
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| | | | | | | | | SPEC NO. |
| | | | | | | | | P-811 |
| SYM | DISCRPTION | DATE | APPROVED | | | | | |

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