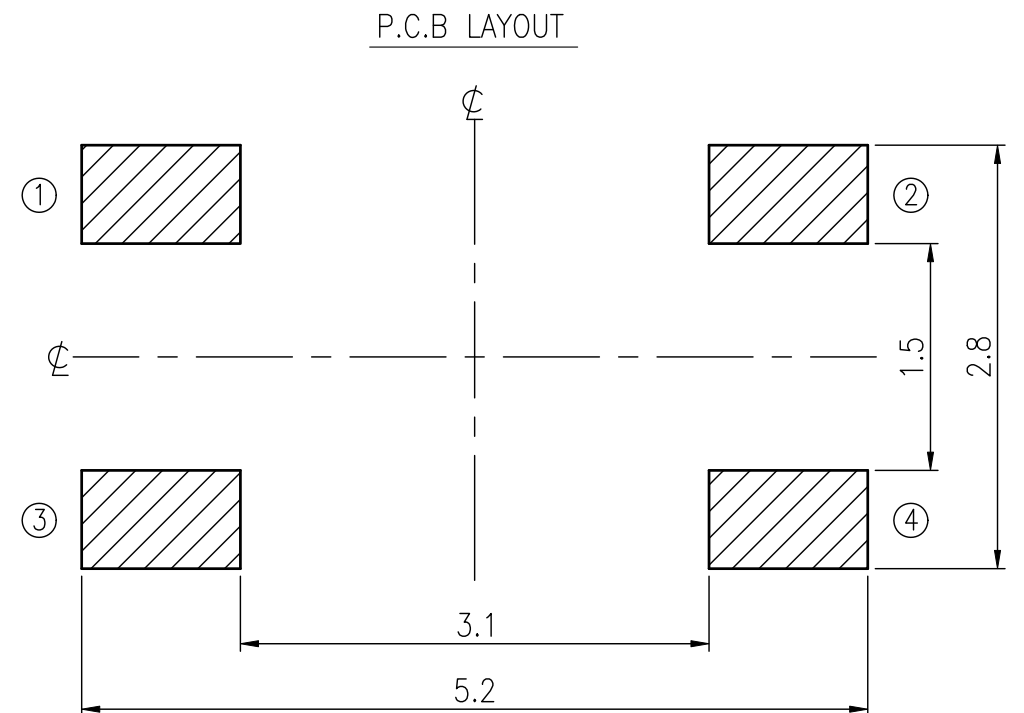
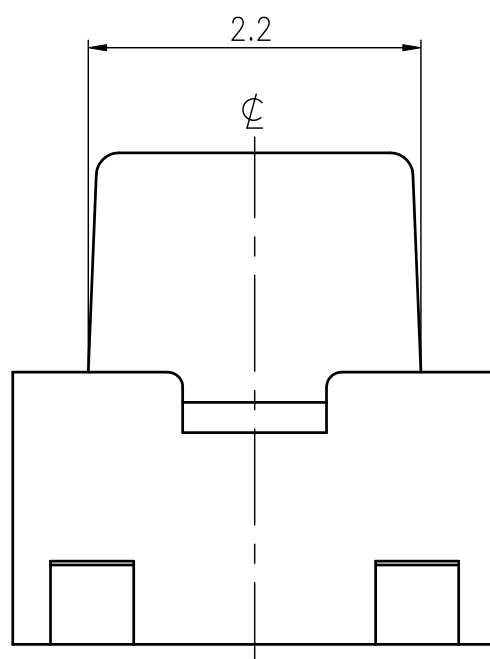
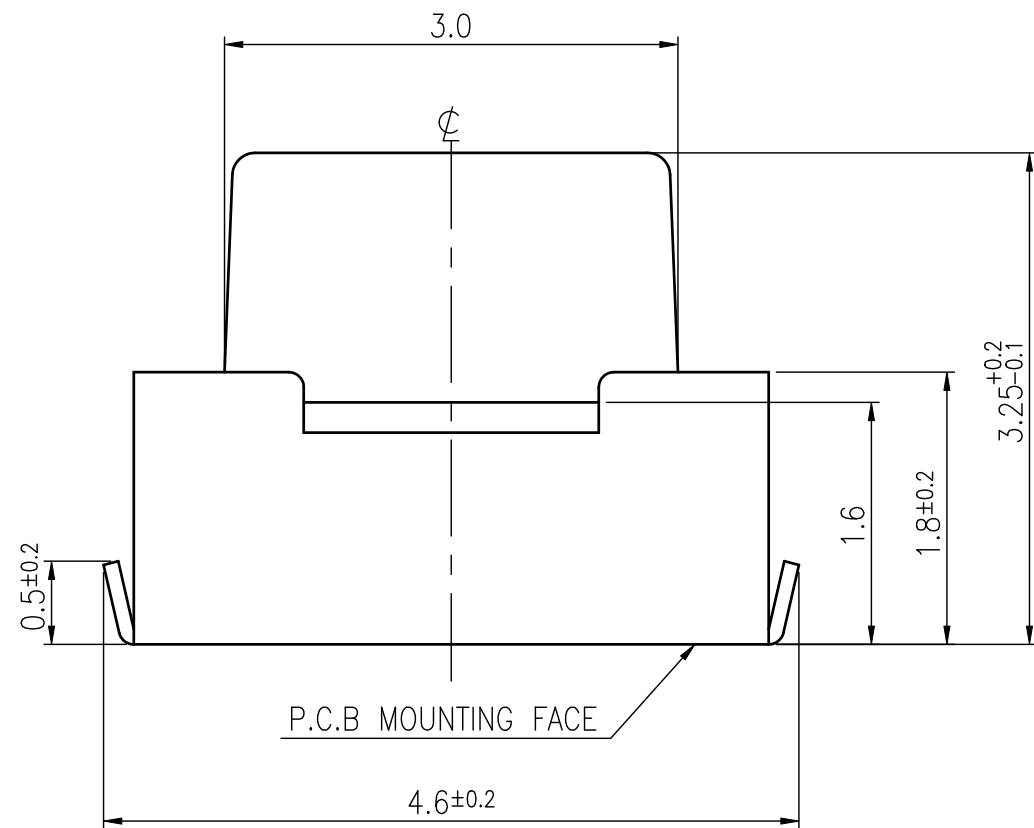
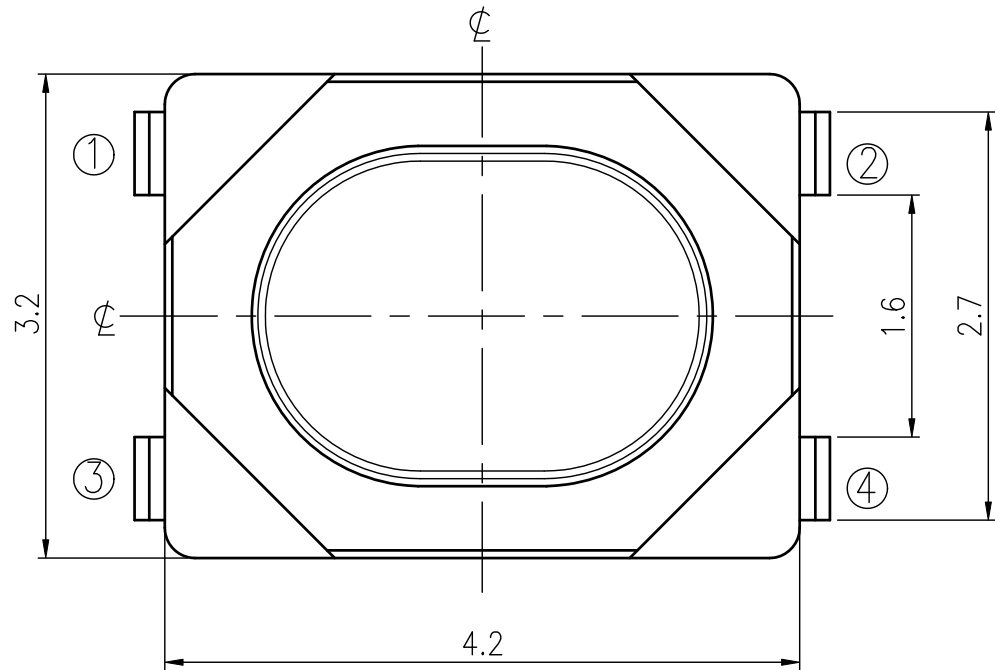
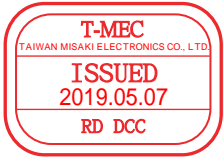


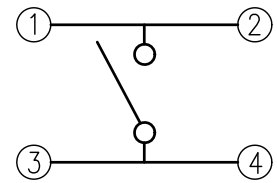
RoHS Compliant



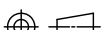
HATCHED AREA SHOWS SOLDERING LAND

REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2019.02.15	Jane Shen	C			
B				D			
SPECIFICATIONS							
RATING		DC16V 50mA		TIMING			
CONTACT RESISTANCE		500mΩ MAX.		OPERATION (TORQUE)		160±50gf	
INSULATION RESISTANCE		DC500V-100MΩ MIN.		STROKE (ANGLE)		0.15±0.1mm	
WITHSTAND VOLTAGE		AC250V-1MINUTE		LIFE		50,000 CYCLES	
REMARKS:							

SCHEMATIC

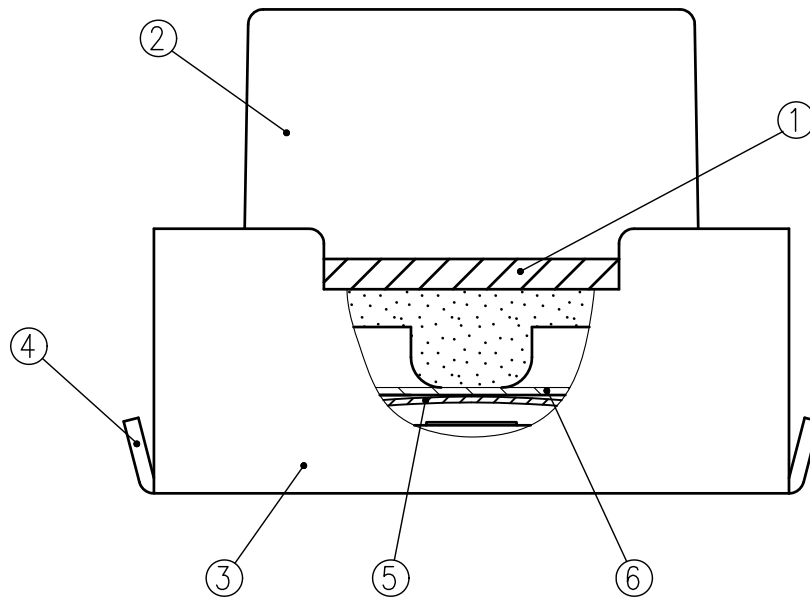


## P.C.B LAYOUT

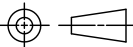
TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.1			SIGNATURES		DATE	MODEL
			DRAWER	Jane Shen	2019.02.15	TITLE  TACT SWITCH
			CHECKED	<i>Landry Su</i>	2019.02.15	
	UNIT mm	SCALE 20/1	REVIEWED			NO.  NTC013-AT1J-E160TX
			APPROVALS	Qiuyuan Chuang	2019.02.15	
TAIWAN MISAKI ELECTRONICS CO., LTD.						

TAIWAN MISAKI ELECTRONICS CO., LTD.

## RoHS Compliant



6	TAPE	1	POLYIMIDE	
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	LIQUID CRYSTAL POLYMER	COLOR <input checked="" type="checkbox"/> 160:BLACK, <input type="checkbox"/> 260:NATURAL
1	COVER	1	STAINLESS STEEL PLATE	
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION

				SIGNATURES	DATE	M O D E L
				DRAWN Jane Shen	2019.01.24	TITLE TACT SWITCH
				CHK'D Landry Lu	2019.01.24	
				REV'D		NO. NTC013-AT1J-E160TX
				APP'D Qiuyuan Chuang	2019.01.24	
SYM	DESCRIPTION	DATE	APPROVED			DWG NO. TC013-06
TAIWAN MISAKI ELECTRONICS CO.,LTD.						

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC\_013 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: -40 ~ +85°C

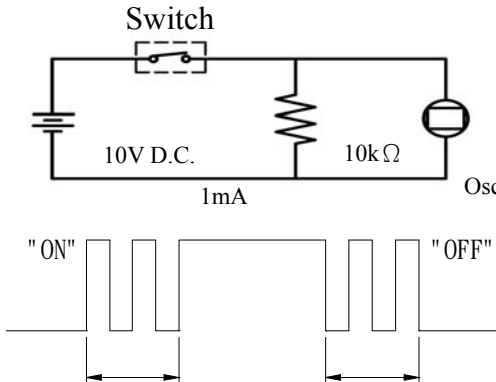
## 3. Construction:

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: 16V 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.	500mΩ Max.
5.2	Insulation Resistance	Shall be measured by applying 500V D.C. Between all terminals and between the terminals and the frame for 1 minute ± 5 seconds.	100 MΩ 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.
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>ON: 10m sec Max. OFF: 10m sec Max.</p>

APPROVED BY

REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

*Dennis Hung*

Jane Shen  
2018.03.29

SE-TC30N

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SYM DISCRIPTION

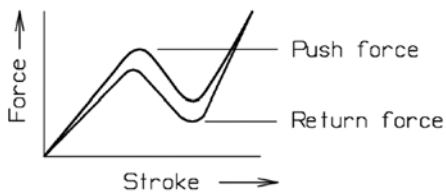
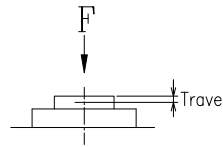
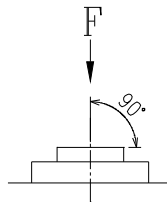
DATE

1/4

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

## 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>Push force:</p> <p>160+/-50 gf 260+/-70 gf</p>
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>Travel (Stroke):</p> <p>0.2 +/-0.1 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>3 kgf for 15 seconds.</p> 	<p>The terminals must not fall off and no structure is damaged .</p> <p>Item 5.1~5.4 shall be satisfied.</p> <p>Item 6.1~6.2 shall be satisfied.</p>

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						Jane Shen	SE-TC30N
						2018.03.29	PAGINATE
A	NEW RELEASE		Dennis Hung				2/4
SYM	DISCRIPTION	DATE					

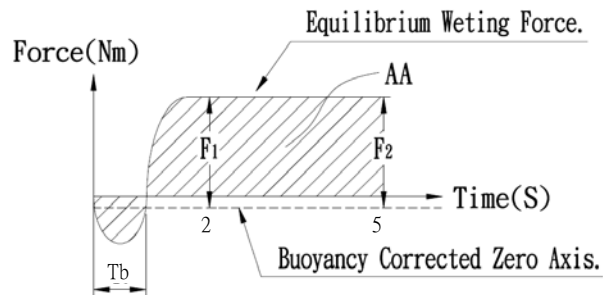
# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

6.4

Solderability

Test Temperature :  $235 \pm 5^{\circ}\text{C}$   
 Immersion Angle :  $90^{\circ}$   
 Immersion Speed : 1 mm/sec.  
 Immersion Depth : 0.1mm  
 Dwell Time : 5 seconds



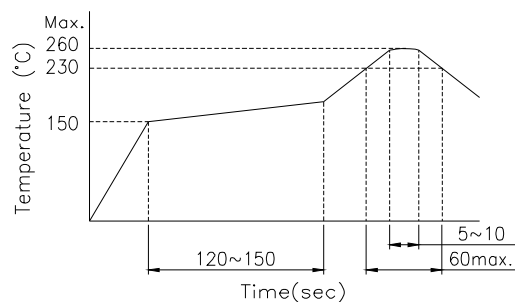
Para.	Criteria
Tb	$\leq 1$ second
F1	50% of maximum theoretical wetting force at or before two seconds
F2	No less than 90% of the F1 Value
AA	Area calculated using sample buoyancy and 50% maximum theoretical force

Conform to the criteria in the left table.

6.5

Solder Heat Resistance

- (1) Manual soldering temperature:  
 Temperature:  $350^{\circ}\text{C}$  Max.  
 Time: 3 Sec. Max.  
 (2) Reflow Soldering:  
 Number of reflow pass: 2 cycles.



Shall be free from pronounced deforming in appearance.  
 Item 5.1~5.4 shall be satisfied.  
 Item 6.1~6.2 shall be satisfied.

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SYM DISRIPTION

DATE

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# 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 drop water. (5) Standard conditions after test: 1 Hour.	Contact resistance: 500mΩ Max Item 5.2~5.4 shall be satisfied. 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 drop water. (4) Standard conditions after test: 1 Hour.	Contact resistance: 500mΩ Max Item 5.2~5.4 shall be satisfied. Item 6.1~6.2 shall be satisfied.
7.4	Temperature cycle	(1) Test cycle: 20 cycles. (2) Standard conditions after test: 1 Hour.  <p>A: <math>+85\pm 2^{\circ}\text{C}</math> B: <math>-40\pm 2^{\circ}\text{C}</math> C: 2 hour D: 1 hour E: 2 hour F: 1 hour</p>	

## 8. Durability:

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: 0,000 times.	Contact Resistance: 2Ω 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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REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

*Dennis Hung*

Jane Shen  
2018.03.29

SE-TC30N

PAGINATE

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SYM DISCRIPTION

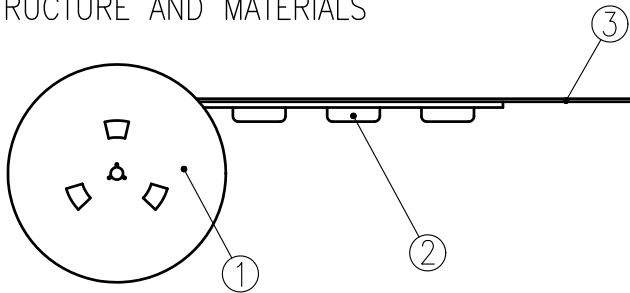
DATE

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# THE PACKING SPECIFICATIONS

RoHS Compliant

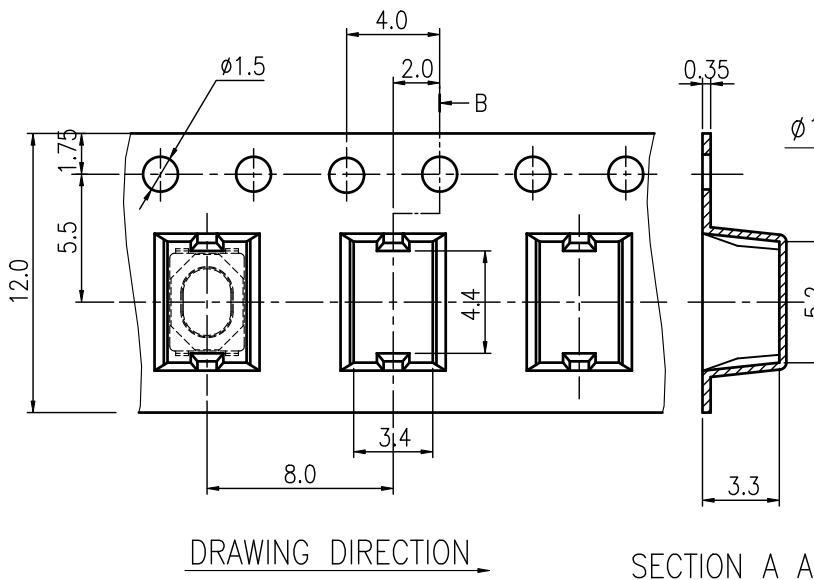
## 1.STRUCTURE AND MATERIALS



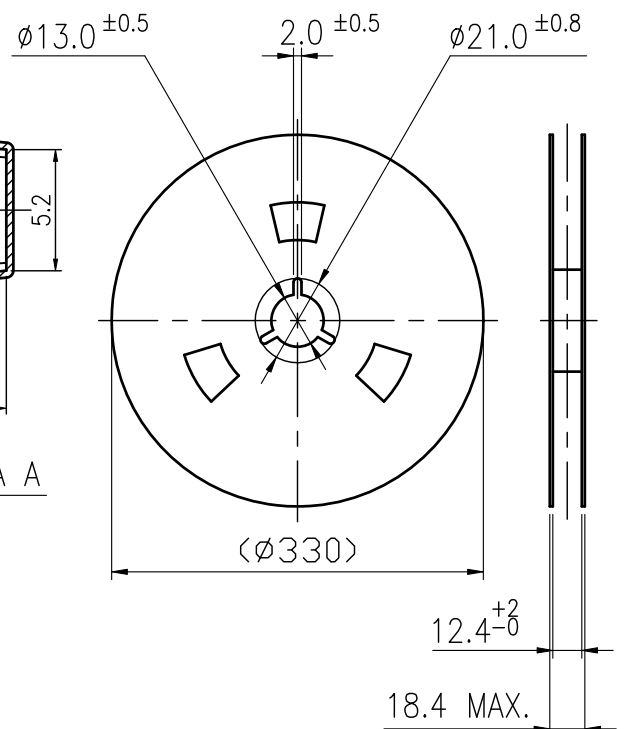
③	COVER TAPE	POLYESTER
②	CARRIER TAPE	POLYSTYRENE
①	REEL	POLYSTYRENE
NO.	PARTS NAME	MATERIALS

- PACKAGING QUANTITY : 2,000 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 :

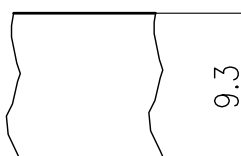
### CARRIER TAPE



### REEL



### COVER TAPE



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				Qiuyuan Chuang			Jane Shen	NTC013-AT1J-E160TX
								PAGINATE.
								1/1
								SPEC NO.
								P-844
SYM	DISCRIPTION	DATE	APPROVED					

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