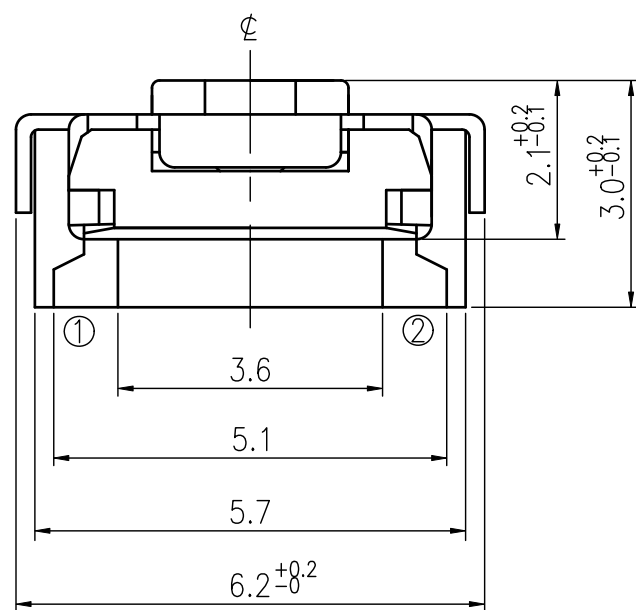
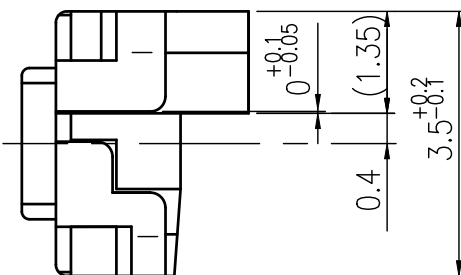
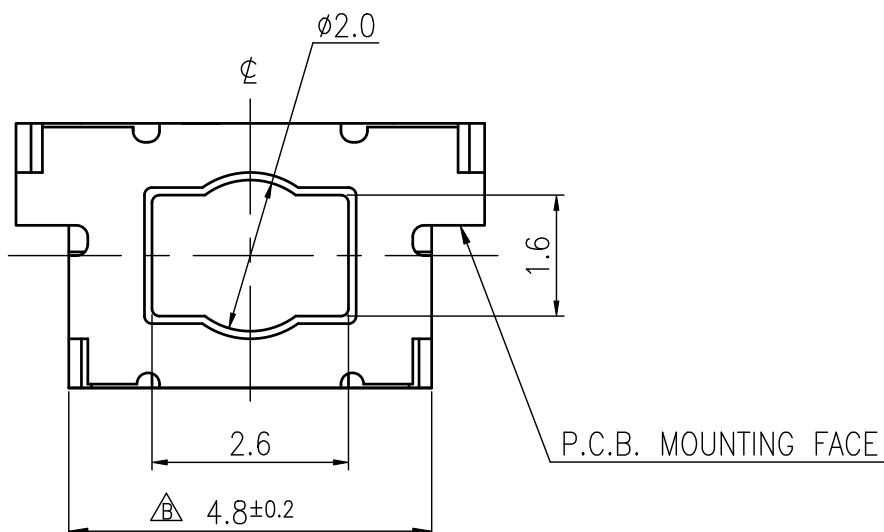
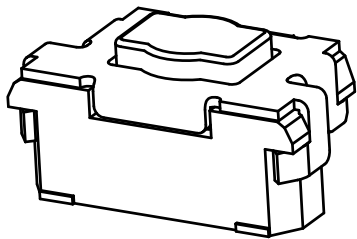
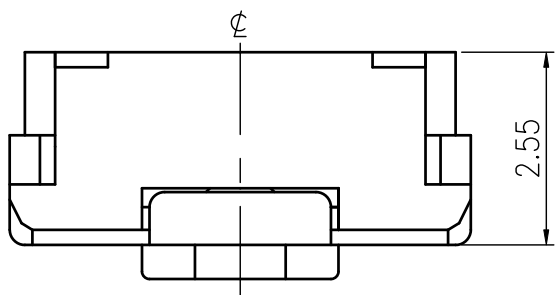


## RoHS Compliant



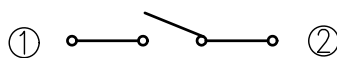
REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2008.12.18	Jane Shen	C			
B	Change Drawing	2014.06.23	Jane Shen	D			

SPECIFICATIONS			
RATING	DC12V 50mA	TIMING	
CONTACT RESISTANCE	100mΩ MAX.	OPERATION (TORQUE)	
INSULATION RESISTANCE	DC500V-100MΩ MIN.	STROKE (ANGLE)	0.15±0.1 mm
WITHSTAND VOLTAGE	AC250V-1 MINUTE	CONTACT RESISTANCE	2Ω MAX.
REMARKS:		(AFTER	CYCLES LIFE TEST)

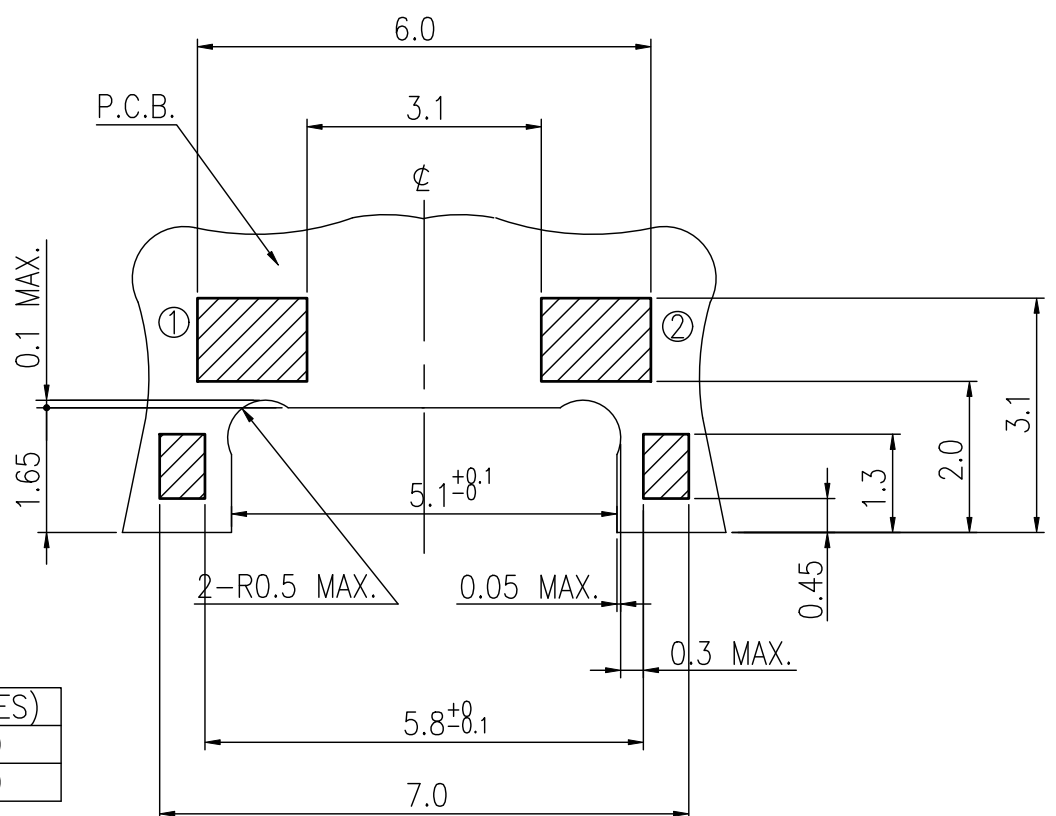



MODEL NO.	OPERATING FORCE	LIFE (CYCLES)
NTC302-AA1G-A120T	120±50gf	1,000,000
NTC302-AA1G-A160T	160±50gf	1,000,000

SCHEMATIC

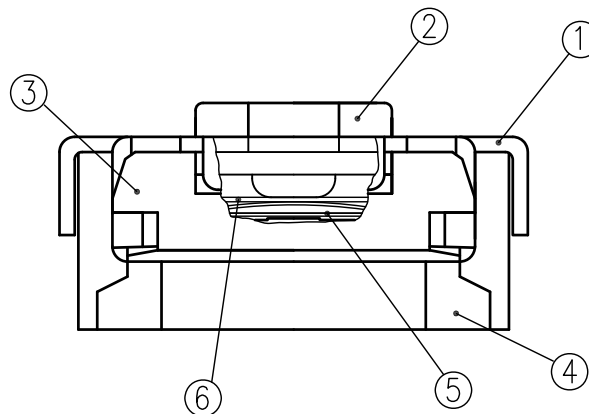


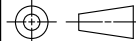
## P.C.B MOUNTING PLAN



TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.1			SIGNATURES		DATE	MODEL
			DRAWER	Jane Shen	2014.06.23	TITLE  TACT SWITCH
			CHECKED	Jamie Li	2014.06.25	
	UNIT mm	SCALE 10/1	REVIEWED		NO.  See Model No.	
			APPROVALS	Dennis Hung		
TAIWAN MISAKI ELECTRONICS CO., LTD.						

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6	TAPE	1	POLYIMIDE			
5	CONTACT PLATE	2	STAINLESS STEEL PLATE	Ag-CLAD		
4	TERMINAL	2	COPPER ALLOY	Ag PLATING OVER Ni PLATING		
3	FRAME	1	LIQUID CRYSTAL POLYMER + GLASS FIBRE	BLACK COLOR		
2	STEM	1	LIQUID CRYSTAL POLYMER + GLASS FIBRE	BLUE COLOR		
1	COVER	1	STAINLESS STEEL PLATE	Ag PLATING OVER Ni PLATING		
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION		
				SIGNATURES	DATE	M O D E L
				DRAWN Jane Shen	2008.01.21	TITLE TACT SWITCH
				CHK'D Max Chen	2008.01.21	
				REV'D Ken Lin	2008.1.21	
				APP'D Fred Chen	2008.01.21	
SYM	DESCRIPTION	DATE	APPROVED	NO. NTC302-AA1G-A160 T		
TAIWAN MISAKI ELECTRONICS CO.,LTD.						DWG NO. TC302-01

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC302-\_Series

## 1. Test condition:

Standard test conditions shall be 5~35℃ 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℃ in temperature, 60~70% RH in Humidity and 86~106 kpa in atmospheric pressure.

## 2. Operating temperature range: -40 ~ +85℃

Preservative temperature range: -40 ~ +85℃

## 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: 12V D.C. , 50mA.

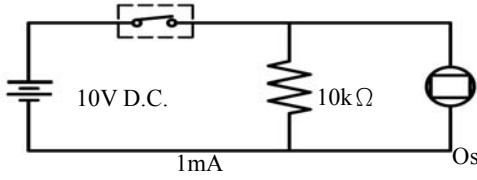
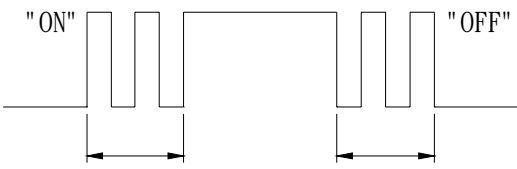
## 5. Electrical Performance:

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 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.

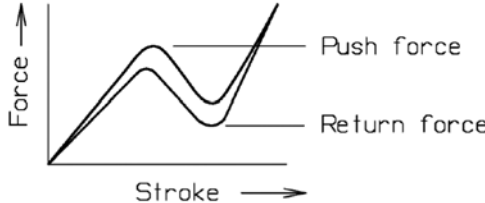
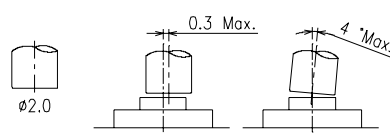
			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
						Jane Shen	SE-TC49N
						2013.11.11	PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					1/5

# 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: 10m sec Max. OFF: 10m sec Max.</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>ø2.0 0.3 Max. 4° Max.</p>	<p>Push force: 120 +/-50 gf 160 +/-50 gf</p>

APPROVED BY

REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

Jane Shen  
2013.11.11

SE-TC49N  
PAGINATE

A NEW RELEASE

SYM DISCRIPTION

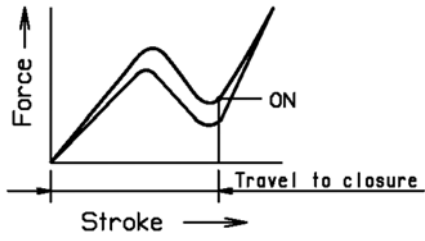
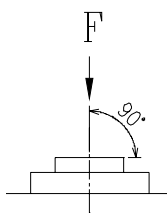
DATE

2/5

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# SPECIFICATIONS FOR TACT SWITCH

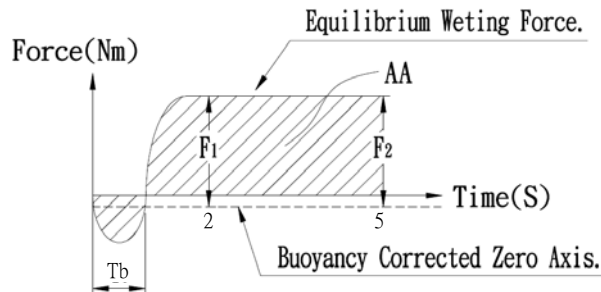
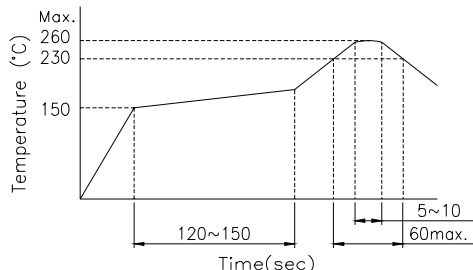
RoHS Compliant

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> 	0.15 +/-0.1 mm.
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 60 seconds.</p> 	<p>The terminals must not fall off and no structure is damaged.</p> <p>Item 5.1~5.4 shall be satisfied. Item 6.1~6.2 shall be satisfied.</p>

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						Jane Shen	SE-TC49N
						2013.11.11	PAGINATE
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SYM	DISCRIPTION	DATE					

# SPECIFICATIONS FOR TACT SWITCH

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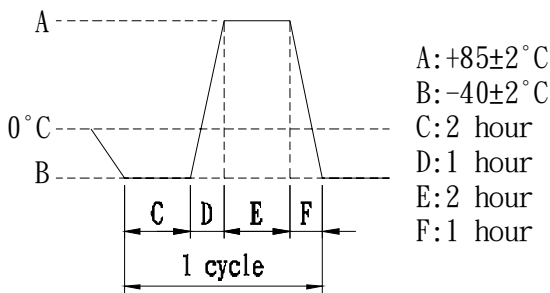
No.	Items	Test conditions	Specifications							
6.4	Solderability	Test Temperature : 235 ± 5℃ Immersion Angle : 90° Immersion Speed : 1 mm/sec. Immersion Depth : 0.1mm Dwell Time : 5 seconds	Conform to the criteria in the left table.							
		<div></div> <table><tr><th>Para.</th><th>Criteria</th></tr><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.							
		<div></div>								

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
						Jane Shen	SE-TC49N
						2013.11.11	PAGINATE
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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 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:

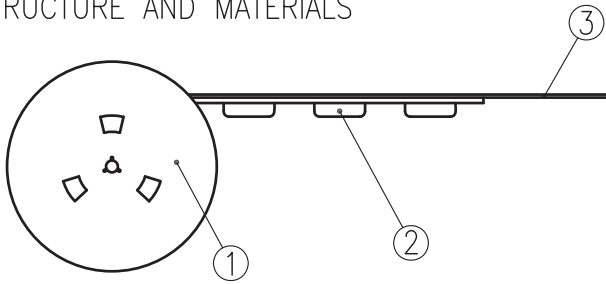
No.	Items	Test conditions	Specifications
8.1	Life Test	(1) 5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 1,000,000 times.	Contact Resistance: 2Ω MAX.  Bounce: 20m sec Max.(ON,OFF)  Operating Force: Within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

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
						Jane Shen	SE-TC49N
						2013.11.11	PAGINATE
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SYM	DISCRIPTION	DATE					5/5

# THE PACKING SPECIFICATIONS

RoHS Compliant

## 1.STRUCTURE AND MATERIALS



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

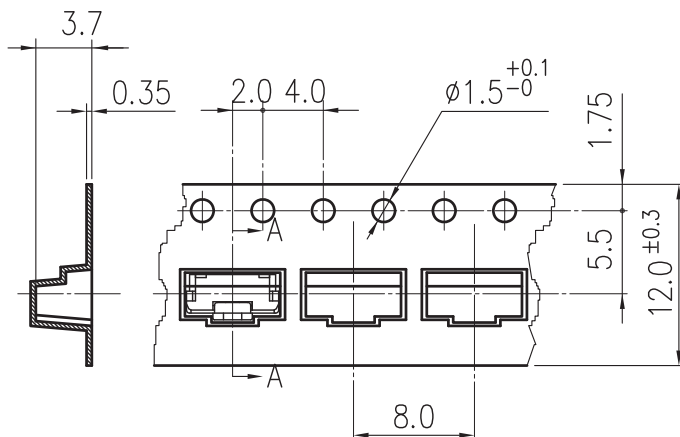
- PACKAGING QUANTITY : 2,000 PCS/REEL
- MORE THAN 10 EMPTY POCKETS SHOULD BE REMAINED AT BOTH ENDS OF THE CARRIER TAPE FOR EACH REEL.
- SHORTAGE LESS THAN 10 PCS A REEL IS ACCEPTABLE BUT MORE THAN 3 RUNNING POCKETS SHORTAGE IS NOT ALLOWED.
- STRIPPING STRENGTH OF COVER TAPE IS BETWEEN 10 gf TO **130 gf** AND STRIPPING ANGLE SHOULD BE WITHIN 165° ~ 180°.
- DIMENSIONS :



### CARRIER TAPE

Tape and Reel per EIA-481.

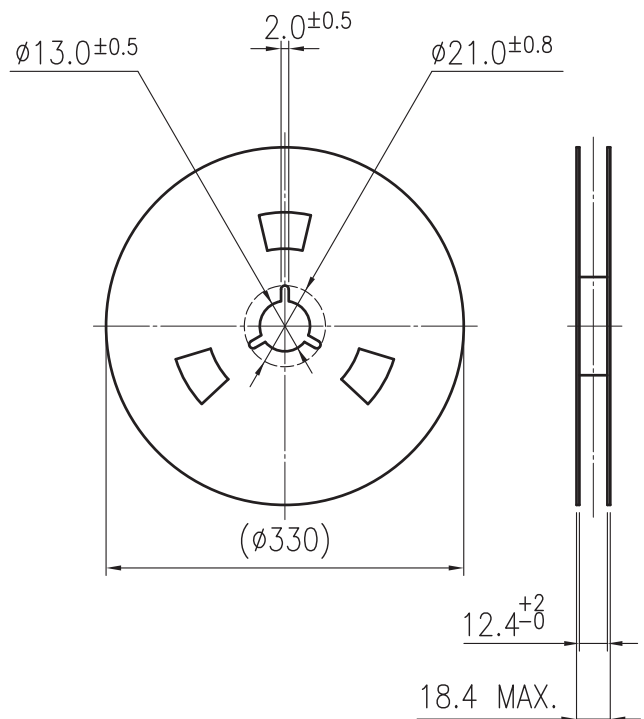
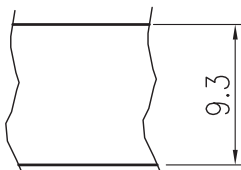
### REEL



SECTION A A

DRAWING DIRECTION

### COVER TAPE



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				<i>Fred Chen</i>	Ken Lin	Max Chen	Jane Shen	NTC302-AA1G-A160T
				2008.01.21	2008.1.21	2008.01.21	2008.01.21	PAGINATE.
								1/1
								SPEC NO.
								P-360
SYM	DISCRIPTION	DATE	APPROVED					

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