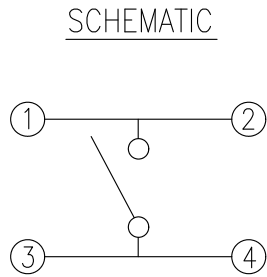
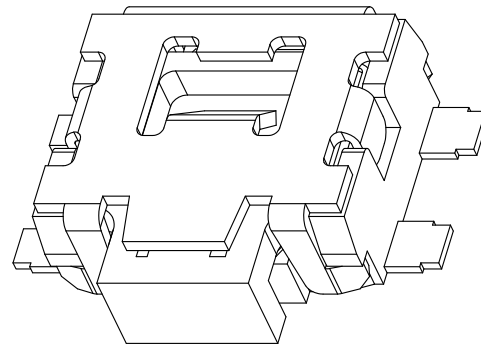
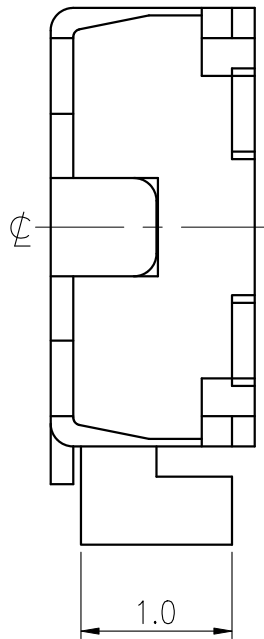
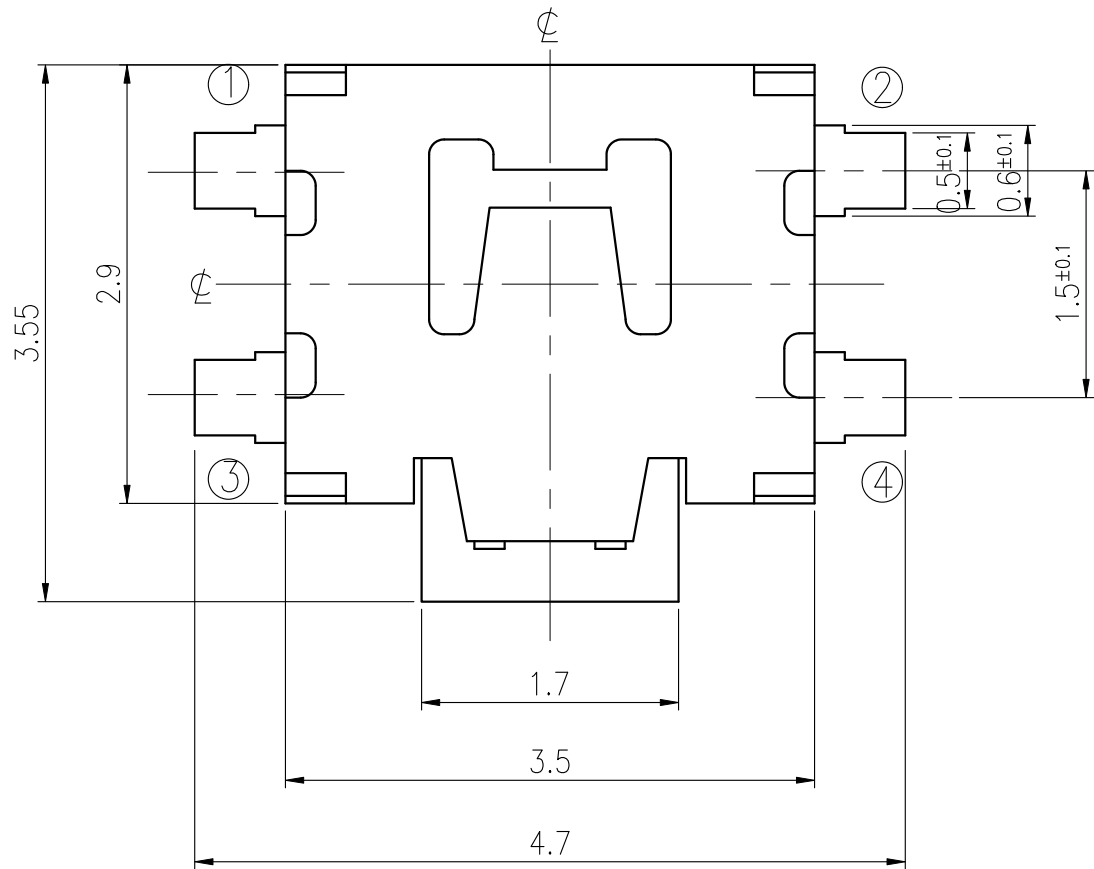


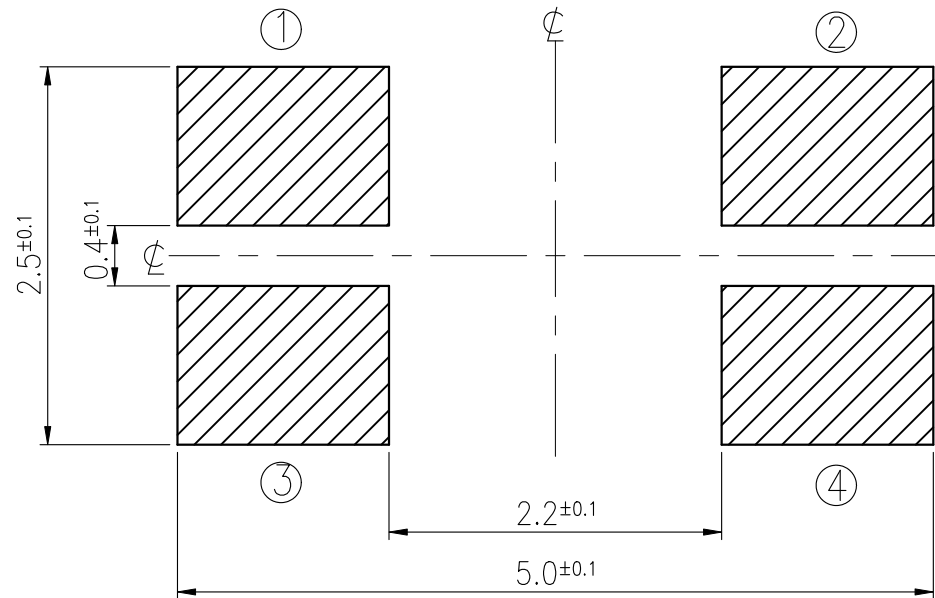
RoHS Compliant



REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2013.04.24	Max Chen	C			
B				D			
SPECIFICATIONS							
RATING		DC12V 50mA		TIMING			
CONTACT RESISTANCE		500mΩ MAX.		OPERATION (TORQUE)			
INSULATION RESISTANCE		DC500V - 100MΩ MIN.		STROKE (ANGLE)		0.2 ±0.2mm	
WITHSTAND VOLTAGE		AC250V - 1 MINUTE.		CONTACT RESISTANCE		1Ω MAX.	
REMARKS:				(AFTER		100,000 CYCLES LIFE TEST)	



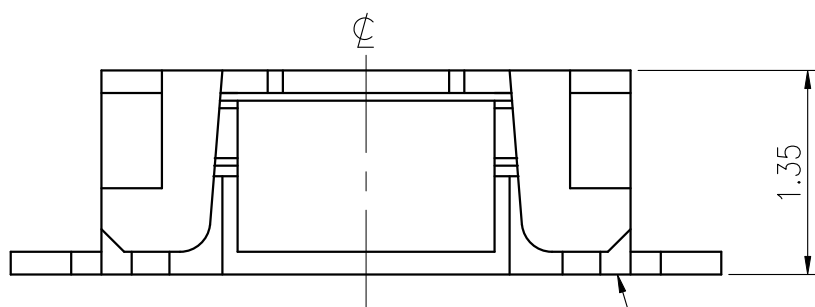
RECOMMENDED P.C.B LAYOUT



P.C.B MOUNTING FACE

TERMINALS DETAIL (40/1)

HATCHED AREA SHOWS SOLDERING LAND

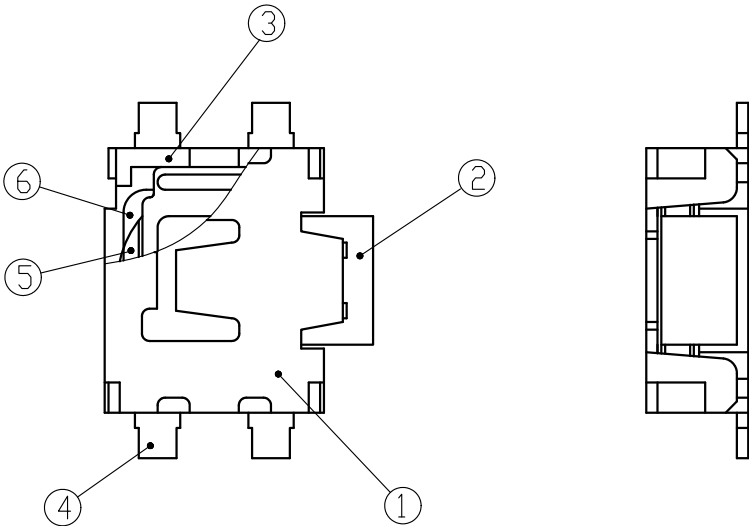


P.C.B MOUNTING FACE

MODEL NO.	OPERATION
NTC311-EC1G-A160T	160 <sup>+70</sup> <sub>-40</sub> gf
NTC311-EC1G-A220T	220 <sup>+80</sup> <sub>-70</sub> gf

TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.2			SIGNATURES		DATE	MODEL
			DRAWER      Max   Chen	2013.04.24	TITLE  TACT   SWITCH	
			CHECKED			
	UNIT mm	SCALE 20/1	REVIEWED			NO.  SEE   MODEL   NO.
			APPROVALS <i>Dennis Hung</i>		2013.04.24	

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6	TAPE	1	POLYIMIDE	
5	CONTACT PLATE	1	STAINLESS STEEL PLATE	Ag-PLATING
4	TERMINAL	4	COPPER ALLOY	<b>Ag PLATING OVER Ni PLATING</b>
3	FRAME	1	POLYAMIDE RESIN	BLACK COLOR
2	STEM	1	POLYAMIDE RESIN	COLOR: <input type="checkbox"/> BLACK , <input checked="" type="checkbox"/> NATURAL
1	COVER	1	STAINLESS STEEL PLATE	
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION
				SIGNATURES
				DATE
				M O D E L
				DRAWN Max Chen 2013.04.24
				CHK'D
				REV'D
				NO. NTC311-EC1G-A22 0T
				APP'D Dennis Hung 2013.04.24
SYM	DESCRIPTION	DATE	APPROVED	DWG NO. TC311-21
TAIWAN MISAKI ELECTRONICS CO.,LTD.				

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model:

## 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

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

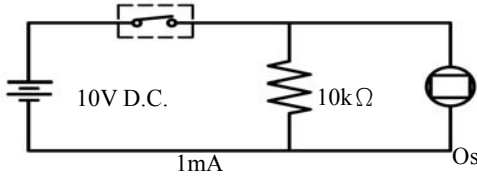
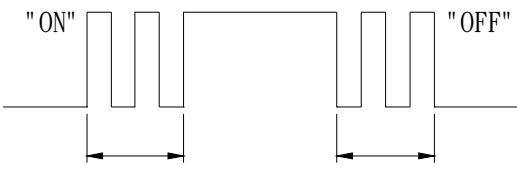
## 5. Electrical Performance:

No.	Items	Test conditions	Specifications
5.1	Contact Resistance	Shall be measure at 1kHz±200Hz (MAX. 20mV, MAX. 40mA.) 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.

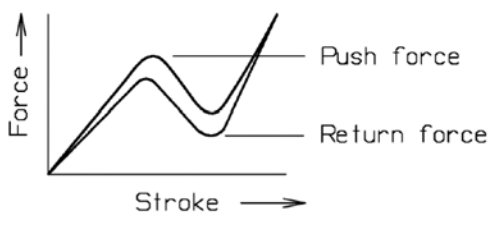
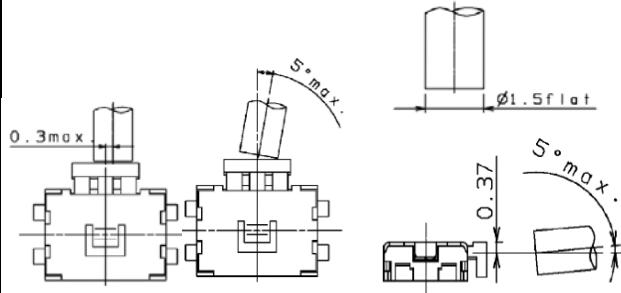
			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
			James_Hung		Catherine Lee	Max Chen	SE-TC14N
			2011.04.2		2011.04.19	2011.04.19	PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					1/5

# 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: 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>NTC311-____-A160T Push force: 160 <sup>+70</sup>/<sub>-40</sub> gf Return force: 10 gf min.</p> <p>NTC311-____-A220T Push force: 220 <sup>+80</sup>/<sub>-70</sub> gf Return force: 20 gf min.</p>

APPROVED BY

REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

James\_Hung

Catherine Lee

Max Chen

SE-TC14N

2011.04.22

2011.04.19

2011.04.19

PAGINATE

A NEW RELEASE

SYM DISCRIPTION

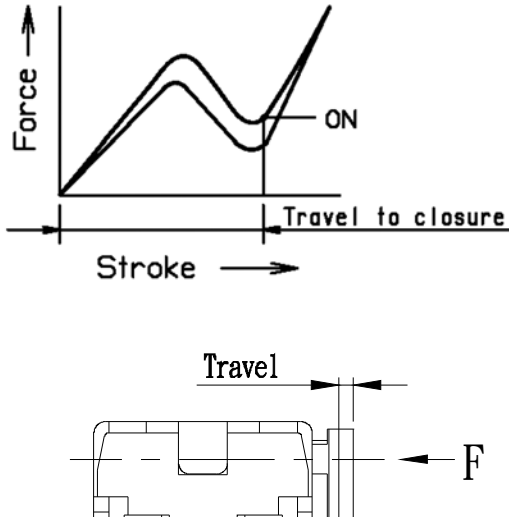
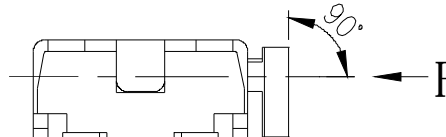
DATE

2/5

TAIWAN MISAKI ELECTRONICS CO., LTD.

# SPECIFICATIONS FOR TACT SWITCH

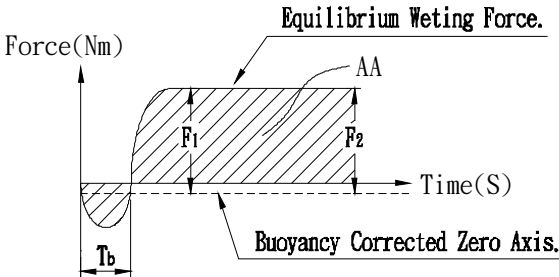
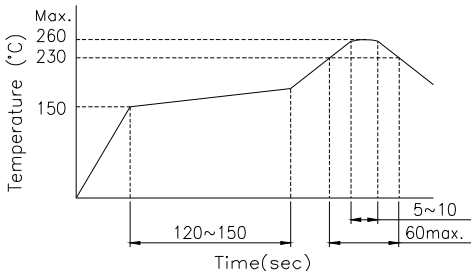
RoHS Compliant

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> 	$0.2 \begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix} \text{ mm.}$
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 1 minute.</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>

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
			James_Hung		Catherine Lee	Max Chen	SE-TC14N
			2011.04.22		2011.04.19	2011.04.19	PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					3/5

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

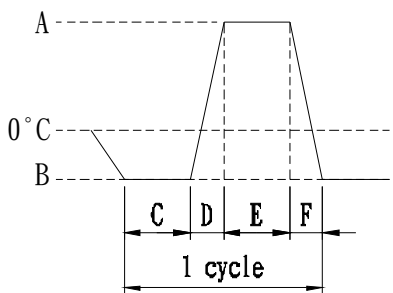
No.	Items	Test conditions	Specifications										
6.4	Solderability	<p>Test Temperature : 235 ± 5℃ Immersion Angle : 90° Immersion Speed : 1 mm/sec. Immersion Depth : 0.1mm Dwell Time : 5 seconds</p>  <table><tr><th>Para.</th><th>Criteria</th></tr><tr><td>Tb</td><td>≤ 1 second</td></tr><tr><td>F1</td><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	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.
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	<p>(1) Manual soldering temperature: Temperature: 350℃ Max. Time: 3 Sec. Max.</p> <p>(2) Reflow Soldering: Number of reflow pass: 2 cycles.</p> 	<p>Shall be free form pronounced deforming in appearance.</p> <p>Item 5.1~5.4 shall be satisfied.</p> <p>Item 6.1~6.2 shall be satisfied.</p>										

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
			James_Hung		Catherine Lee	Max Chen	SE-TC14N
			2011.04.22		2011.04.19	2011.04.19	PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					4/5

# 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: 500m $\Omega$ 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.	
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 1 cycle</p>	

## 8. Durability:

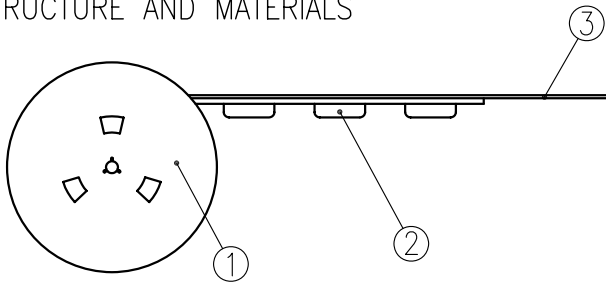
No.	Items	Test conditions	Specifications
8.1	Life Test	(1) 5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 100,000 times.	Contact Resistance: 1 $\Omega$ MAX.  Bounce: 20m sec Max.(ON,OFF)  Operating Force: 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.
			James_Hung		Catherine Lee	Max Chen	SE-TC14N
			2011.04.22		2011.04.19	2011.04.19	PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					5/5

# THE PACKING SPECIFICATIONS

RoHS Compliant

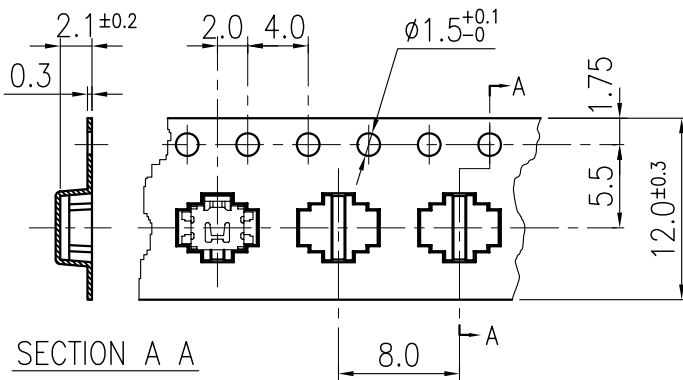
## 1.STRUCTURE AND MATERIALS



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

- PACKAGING QUANTITY : 3,500 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 70 gf AND STRIPPING ANGLE SHOULD BE WITHIN 165° ~ 180°.
- THE SWITCH SHOULD NOT BE STAYED IN CARRIER TAPE WHEN CARRIER TAPE UPSIDE DOWN.
- END OF CARRIER TAPE IS APART FROM REEL EASILY.
- THE DIRECTION OF MARK IS FREE.
- DIMENSIONS :

### CARRIER TAPE



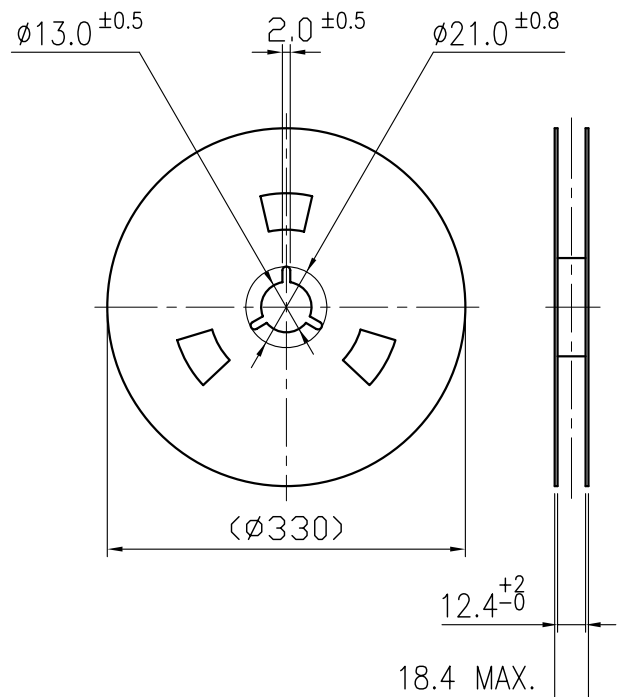
SECTION A A

DRAWING DIRECTION

### COVER TAPE



### REEL



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
						Ken Lin	Max Chen	NTC311-EC1G-A220T
						2007.05.18	2007.05.18	PAGINATE.
								1/1
								SPEC NO.
								P-380
SYM	DISCRIPTION	DATE	APPROVED					

TAIWAN MISAKI ELECTRONICS CO.,LTD.