

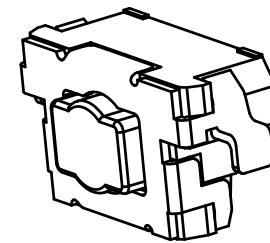
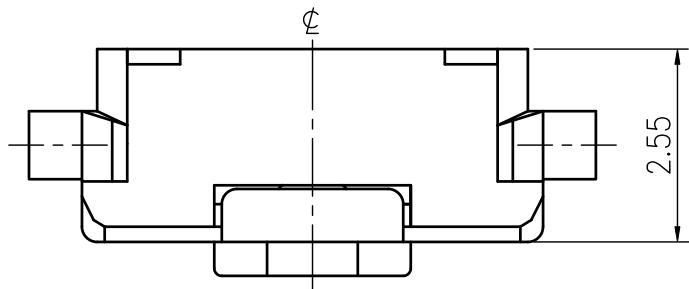
RoHS Compliant



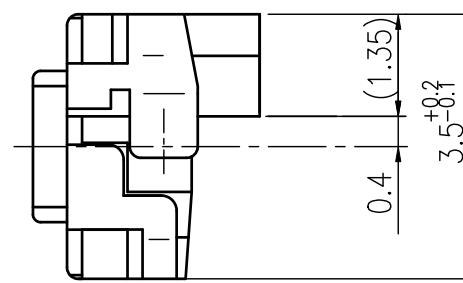
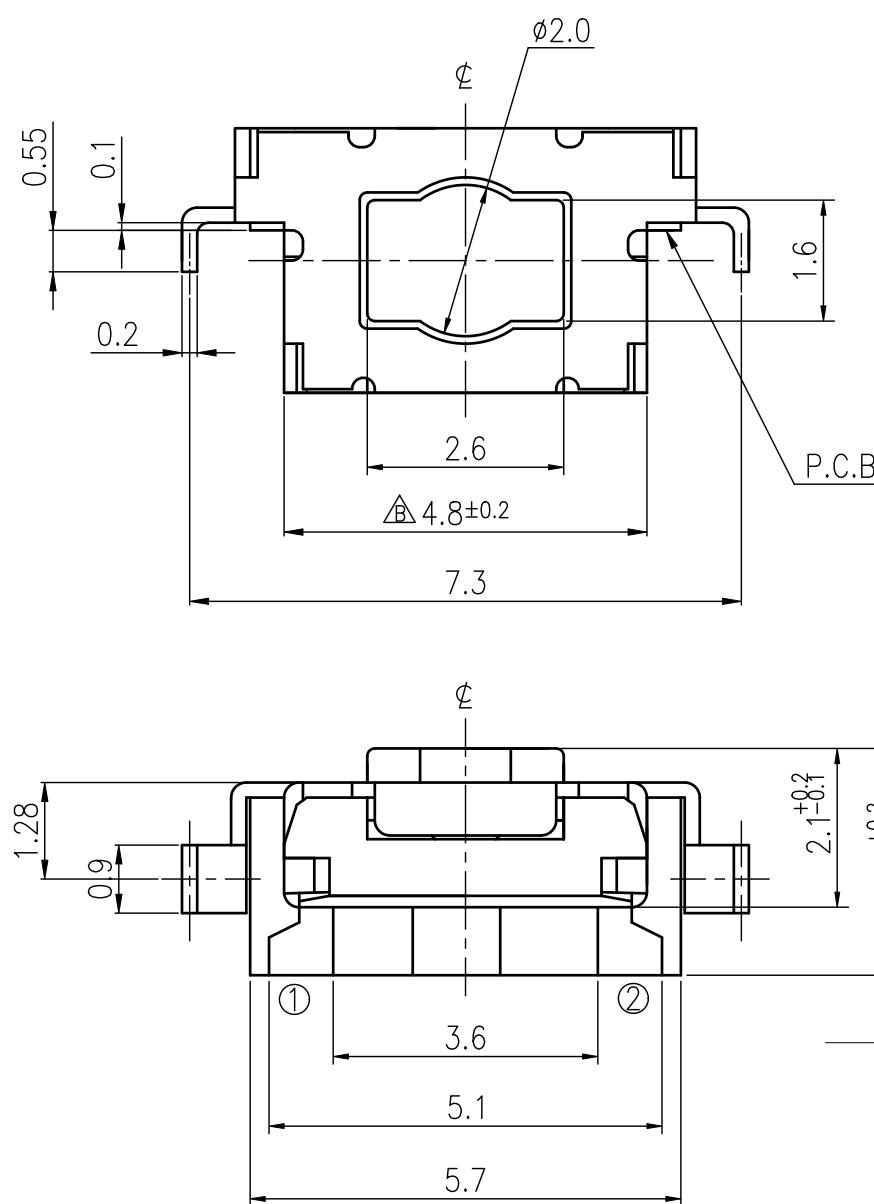
REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2013.03.27	Jane Shen	C			
B	Change Drawing	2014.06.23	Jane Shen	D			

SPECIFICATIONS

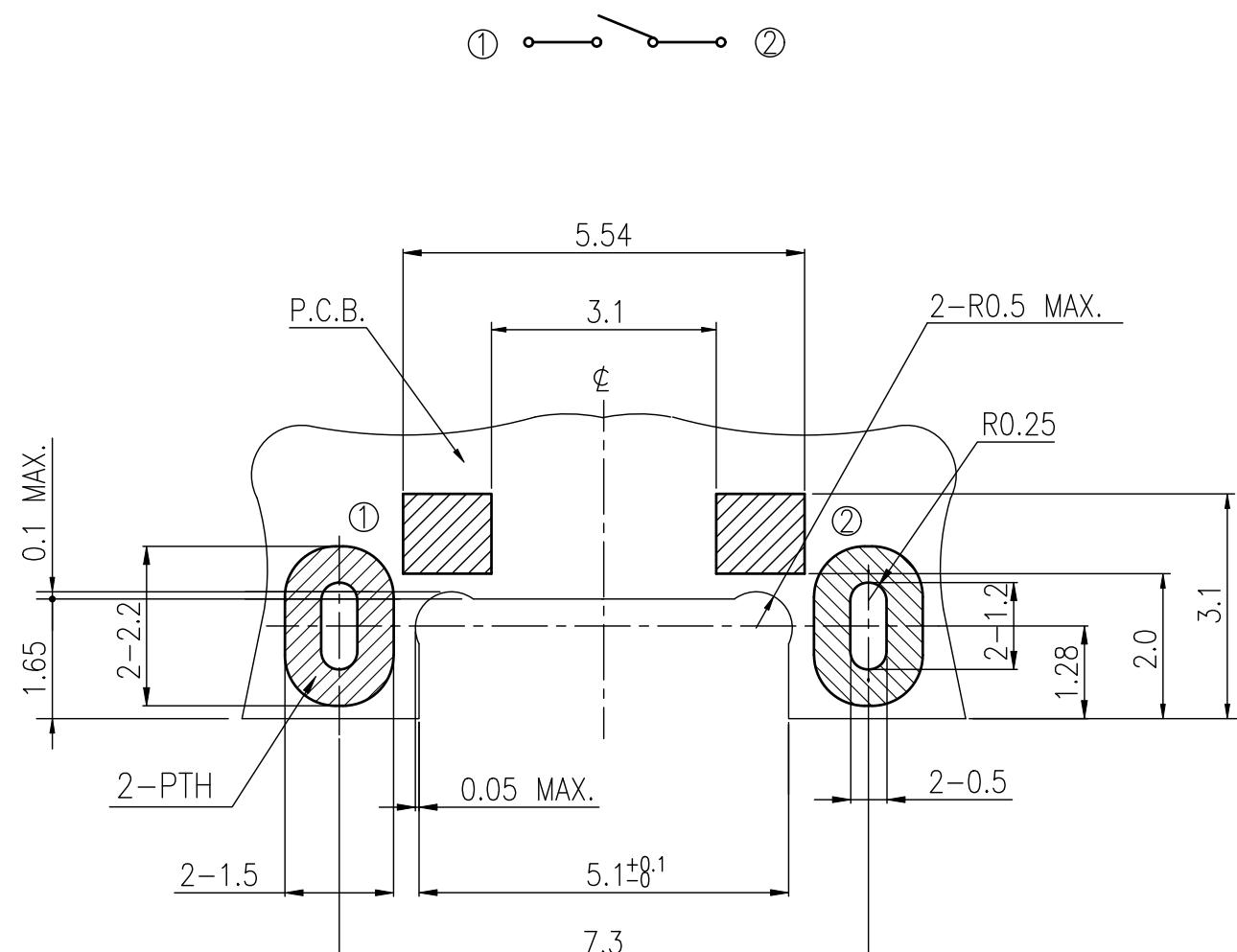
RATING	DC12V 50mA	TIMING	
CONTACT RESISTANCE	100mΩ MAX.	OPERATION (TORQUE)	
INSULATION RESISTANCE	DC500V-100MΩ MIN.	STROKE (ANGLE)	015±0.1 mm
WITHSTAND VOLTAGE	AC250V-1 MINUTE	CONTACT RESISTANCE	2Ω MAX.
REMARKS:		(AFTER	CYCLES LIFE TEST)



SCHEMATIC



P.C.B. MOUNTING FACE



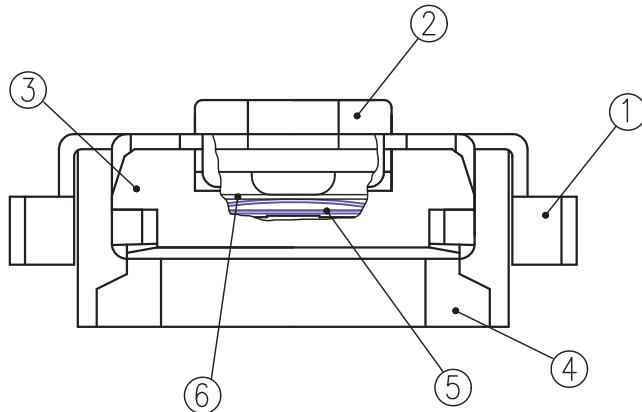
Recommend P.C.B. Layout

MODEL NO.	OPERATING FORCE	LIFE (CYCLES)
NTC302-BA1G-A120T	120±50gf	1,000,000
NTC302-BA1G-A160T	160±50gf	200,000

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

TAIWAN MISAKI ELECTRONICS CO., LTD.

RoHS Compliance



NO.	PART NAME	Q'TY	MATERIAL		SPECIFICATION	
					SIGNATURES	DATE
					DRAWN <i>Jane Shen</i>	2008.12.15
					CHK'D <i>Max Chen</i>	2008.12.15
					REV'D <i>Ken Lin</i>	2008.12.15
					APP'D <i>Fred Chen</i>	2008.12.16
SYM	DESCRIPTION	DATE	APPROVED			
TAIWAN MISAKI ELECTRONICS CO.,LTD.						DWG NO. TC302-02
						TACT SWITCH
						NO. NTC302-BA1G-A120T

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC302-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

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.

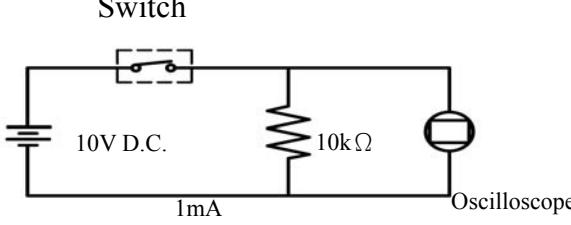
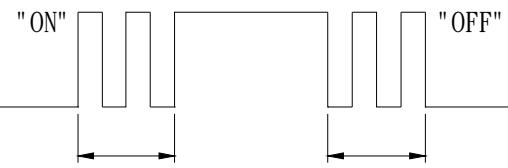
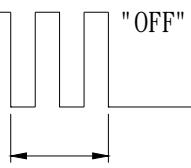
5. Electrical Performance:

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

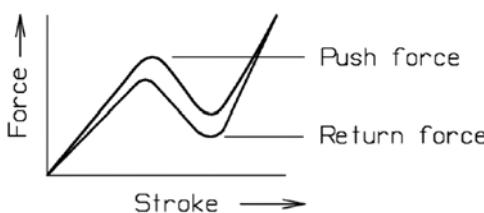
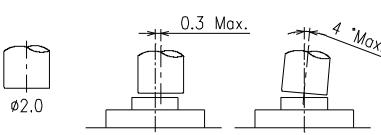
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							SE-TC49N
A	NEW RELEASE						
SYM	DISCRIPTION	DATE	Dennis	Hung		Jane Shen 2013.11.11	PAGINATE
							1/5

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>"ON"  "OFF" </p>	<p>ON: 10m sec Max. OFF:10m sec Max.</p>

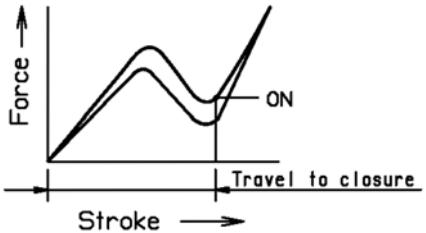
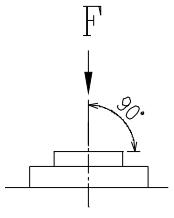
6. Mechanical Performance:

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>Push force: 120 +/-50 gf 160 +/-50 gf</p>

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SPECIFICATIONS FOR TACT SWITCH

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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>The graph shows Force on the vertical axis and Stroke on the horizontal axis. A curve starts at the origin, rises to a peak, dips, and then rises again to a point labeled 'ON'. A horizontal line extends from the 'ON' point to the vertical axis, and a vertical line from that intersection to the horizontal axis is labeled 'Travel to closure'.</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 diagram shows a vertical stem being pushed downwards by a force F. The stem is angled at 90 degrees relative to the base. The base is shown with a cross-section.</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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SPECIFICATIONS FOR TACT SWITCH

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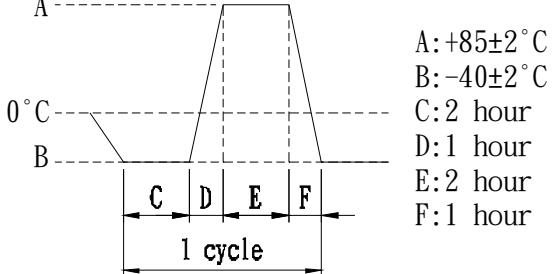
No.	Items	Test conditions	Specifications										
6.4	Solderability	<p>Test Temperature : $235 \pm 5^\circ\text{C}$ Immersion Angle : 90° Immersion Speed : 1 mm/sec. Immersion Depth : 0.1mm Dwell Time : 5 seconds</p> <table border="1"> <thead> <tr> <th>Para.</th> <th>Criteria</th> </tr> </thead> <tbody> <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> </tbody> </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°C Max. Time: 3 Sec. Max. (2) Reflow Soldering: Number of reflow pass: 2 cycles.</p>	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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SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

7. Weather Performance:

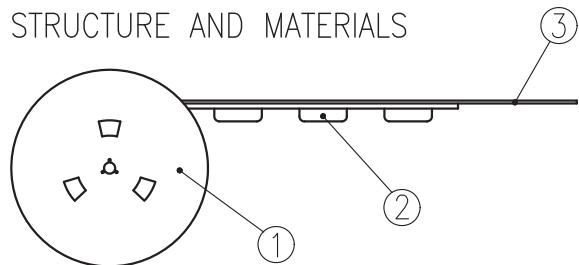
No.	Items	Test conditions	Specifications
7.1	Humidity Test	(1) Temperature: $60\pm2^{\circ}\text{C}$. (2) Relative humidity: 90~95% (3) Duration of test: 500 Hour. (4) Take off drop water. (5) Standard conditions after test: 1 Hour.	Contact resistance: 500mΩ Max Item 5.2~5.4 shall be satisfied. Item 6.1~6.2 shall be satisfied.
7.2	Heat Test	(1) Temperature: $85\pm2^{\circ}\text{C}$. (2) Duration of test: 500 Hour. (3) Standard conditions after test: 1 Hour.	
7.3	Cold Test	(1) Temperature: $-40\pm2^{\circ}\text{C}$. (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: $+85\pm2^{\circ}\text{C}$ B: $-40\pm2^{\circ}\text{C}$ 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: 1,000,000 times.	Contact Resistance: 2Ω MAX. Bounce: 20m sec Max.(ON,OFF) Operating Force: Within $\pm30\%$ of specifications. Item 5.2 shall be satisfied. Item 6.2 shall be satisfied.

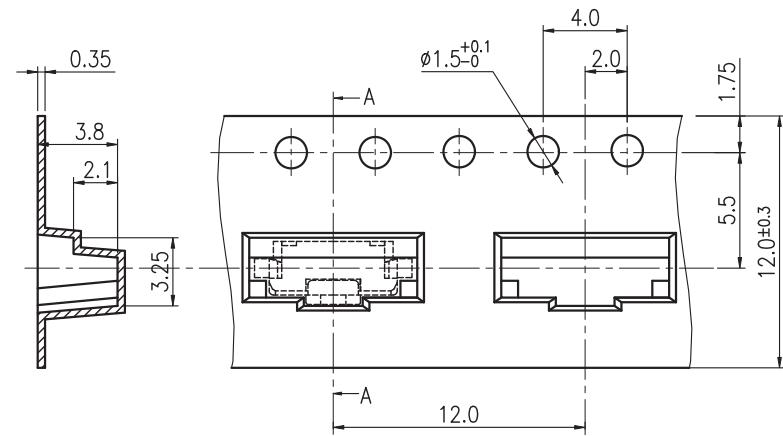
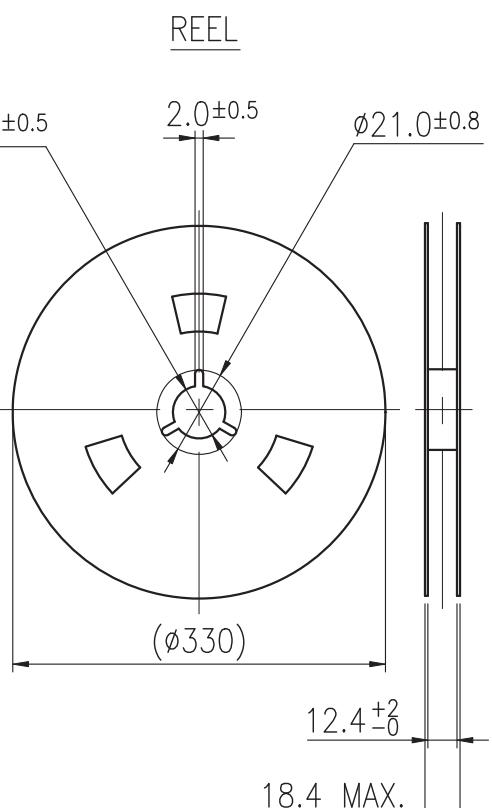
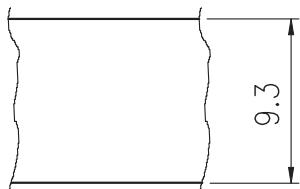
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1. STRUCTURE AND MATERIALS



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

- PACKAGE QUANTITY : 1200 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 RUNNIGE 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 TAPESECTION A ADRAWING DIRECTIONCOVER TAPE

SYM	DISCRIPTION	DATE	APPROVED	APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				<i>Fred Chen</i> 2008.12.16	<i>Ken Lin</i> 2008.12.15	Max Chen 2008.12.15	Jane Shen 2008.12.15	NTC302-BA1G-A120T
								PAGINATE. 1/1 SPEC NO. P-494