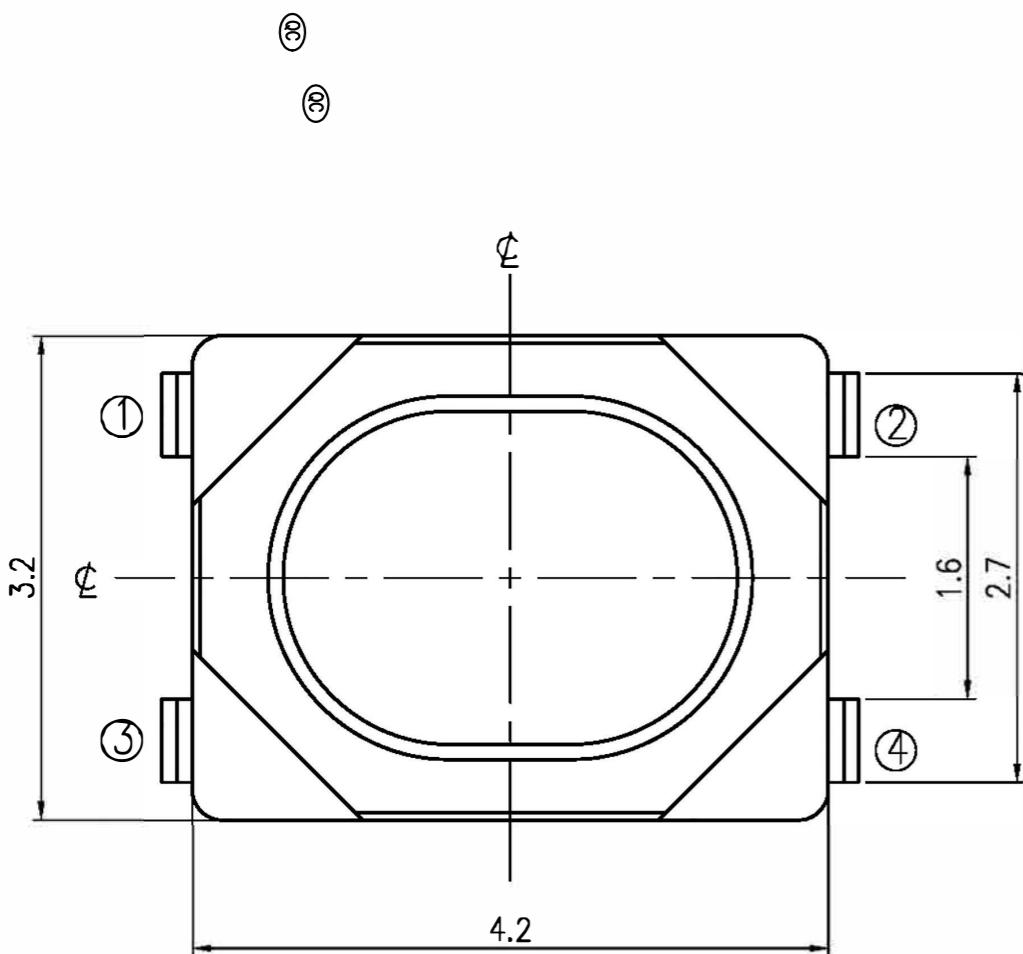


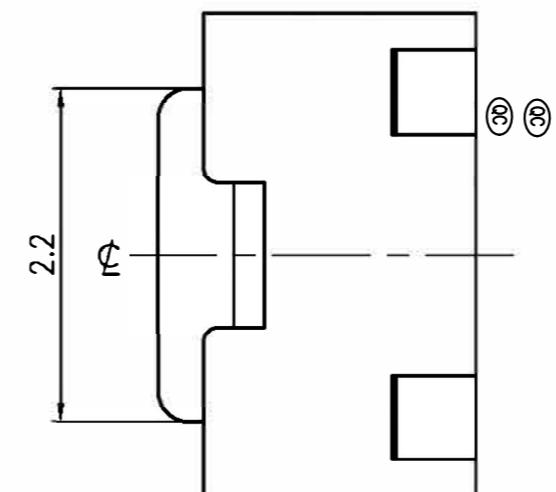
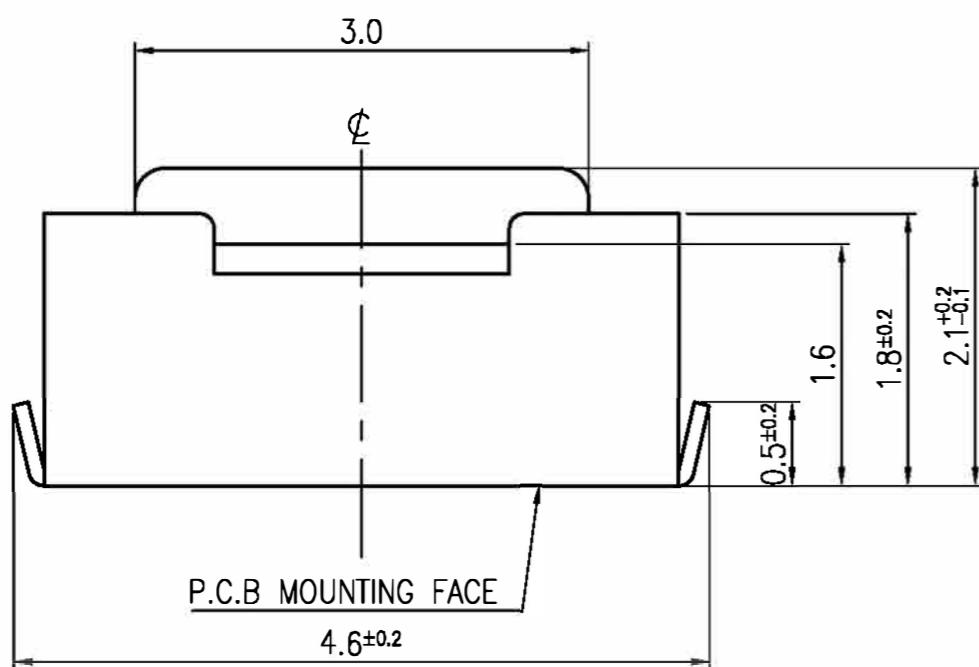
RoHS Compliant

Only

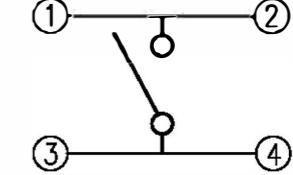
REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2016.11.03	Jane Shen	C			
B				D			
SPECIFICATIONS							
RATING	DC16V 50mA	TIMING					
CONTACT RESISTANCE	500mΩ MAX.	OPERATION (TORQUE)	500±100gf				
INSULATION RESISTANCE	DC500V - 100MΩ MIN.	STROKE (ANGLE)	0.2±0.1 mm				
WITHSTAND VOLTAGE	AC250V - 1 MINUTE.	CONTACT RESISTANCE	1Ω MAX.				
REMARKS:	(AFTER 200,000 CYCLES LIFE TEST)						



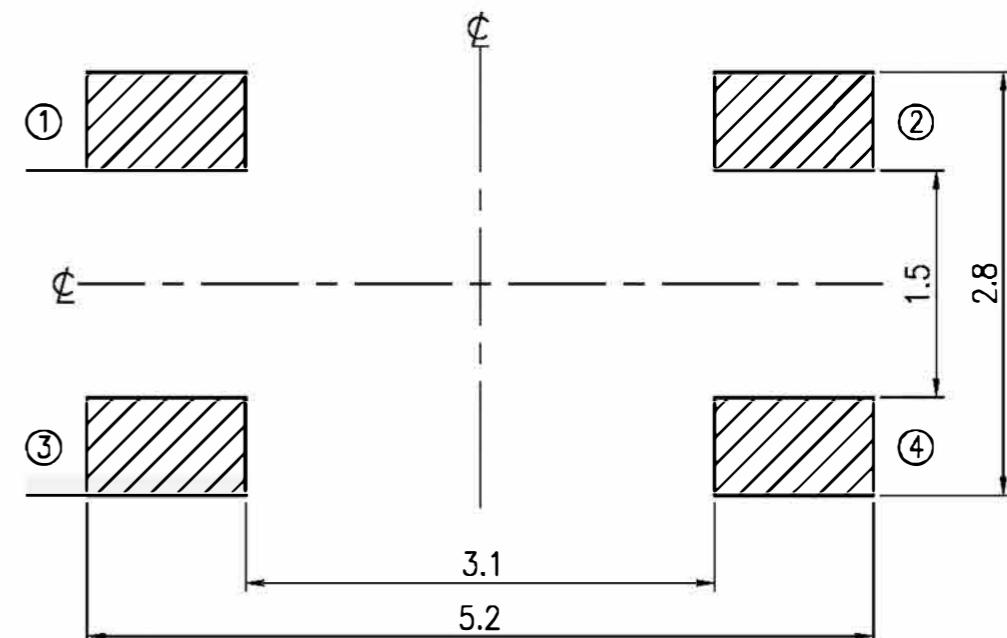
Dennis Hung 2016.11.03



SCHEMATIC



RECOMMENDED P.C.B LAYOUT

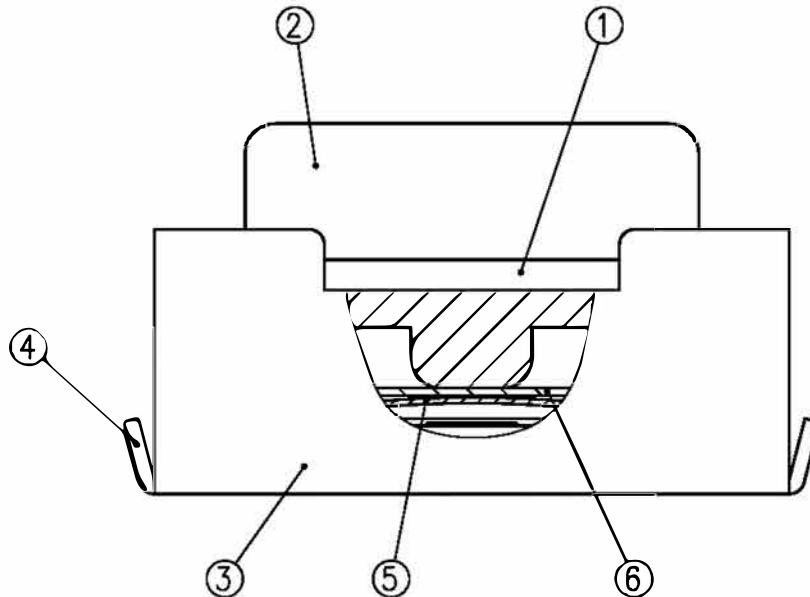


HATCHED AREA SHOWS SOLDERING LAND

TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.1		SIGNATURES		DATE	MODEL
DRAWER	Jnae Shen	2016.11.03	TITLE	TACT SWITCH	
CHECKED					
UNIT	mm	SCALE	20/1	REVIEWED	
⊕				APPROVALS	NO. NTC013-AP1J-B500T

TAIWAN MISAKI ELECTRONICS CO., LTD.

RoHS Compliant



Dennis Hung
Landy Wu

2017.04.27

NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION		
				SIGNATURES	DATE	MODEL
6	TACT PLATE	1	POLYIMIDE	DRAWN W.M.C	2017.04.27	TITLE TACT SWITCH
5	CONTACT PLATE	2	STAINLESS STEEL PLATE	CHK'D		
4	TERMINAL	4	COPPER ALLOY	REV'D		NO. NTC013-AP1J-B500T
3	FRAME	1	LIQUID CRYSTAL POLYMER	APP'D		
2	STEM	1	LIQUID CRYSTAL POLYMER			
1	COVER	1	STAINLESS STEEL PLATE			
SYM	DESCRIPTION	DATE	APPROVED		DWG NO.	TC013-L-04
TAIWAN MISAKI ELECTRONICS CO.,LTD.						

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC013-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: Single condition: -40 ~ +85°C ; Taping condition: -20 ~ +60°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:

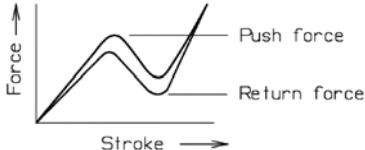
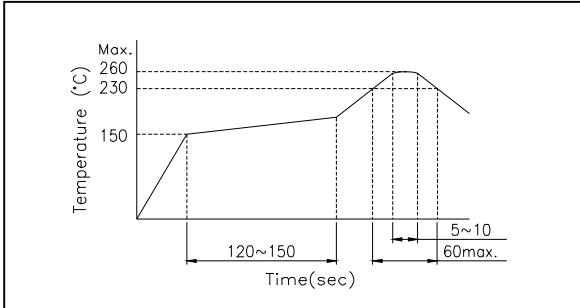
No.	Items	Test conditions	Specifications
5.1	Contact Resistance	Shall be measure at 1kHz±200Hz (MAX. 20mV, MAX. 50mA.) or 1 A, 5V D.C. By voltage drop method.	500mΩ Max.
5.2	Insulation Resistance	Shall be measured by applying 500V D.C. Between all terminals and between the terminals and the frame for 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>Switch</p>	<p>ON: 10m sec Max. OFF:10m sec Max.</p>

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
							SE-TC30N
							PAGINATE
A	NEW RELEASE					Jane Shen 2015.10.12	
SYM	DISCRIPTION	DATE					1/3

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

6. Mechanical Performance:

No.	Items	Test conditions	Specifications
6.1	Operating Force	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. 	500 ± 100 gf.
6.2	Travel	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.	0.2 ± 0.1 mm.
6.3	Control Strength	The static load of 5kgf shall be applied on top of the terminal in every direction for 1 minute, in any direction on condition of once for one terminal.	Shall be free from extreme wobble, vent or electrical and mechanical abnormality. Not deformation of the appearance.
6.4	Solderability	Soldering temperature: 235±5°C. Soldering time: 2±0.5 seconds.	75% or more of surface area of the portion immersed in solder shall be satisfied.
6.5	Solder Heat Resistance	(1) Manual soldering temperature: Temperature: 350°C Max. Time: 3 Sec. Max. (2) Reflow Soldering: Number of reflow pass: 2 cycles. 	Shall be free from pronounced deforming in appearance. Of item 5.1~5.4 shall be satisfied. Of item 6.1~6.2 shall be satisfied.

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
						Jane Shen 2015.10.12	SE-TC30N
A	NEW RELEASE						PAGINATE
SYM	DISCRIPTION	DATE					2/3

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 a drop water. (5) Standard conditions after test: 1 Hour.	Contact resistance: 1Ω 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: $85\pm2^{\circ}\text{C}$. (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 a 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.	<table border="1"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration of test</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1 cycles</td> <td>$20\pm5^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td>$-40\pm2^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td>$20\pm5^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td>$85\pm2^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> </tbody> </table>		Temperature	Duration of test	1 cycles	$20\pm5^{\circ}\text{C}$	1 Hour	$-40\pm2^{\circ}\text{C}$	1 Hour	$20\pm5^{\circ}\text{C}$	1 Hour	$85\pm2^{\circ}\text{C}$	1 Hour
	Temperature	Duration of test													
1 cycles	$20\pm5^{\circ}\text{C}$	1 Hour													
	$-40\pm2^{\circ}\text{C}$	1 Hour													
	$20\pm5^{\circ}\text{C}$	1 Hour													
	$85\pm2^{\circ}\text{C}$	1 Hour													

8. Durability:

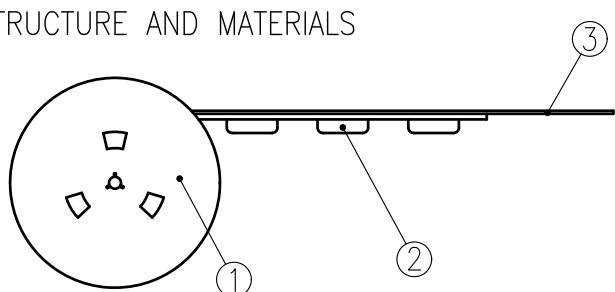
No.	Items	Test conditions	Specifications
8.1	Life Test (5V D.C. , 5mA.)	(1) Operating speed: 90 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 200,000 times.	Contact Resistance: 1Ω MAX. Operating Force: Within $\pm30\%$ of specifications. Of item 5.2 shall be satisfied. Of item 6.2 shall be satisfied.

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
							SE-TC30N
							PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					3/3

THE PACKING SPECIFICATIONS

RoHS Compliant

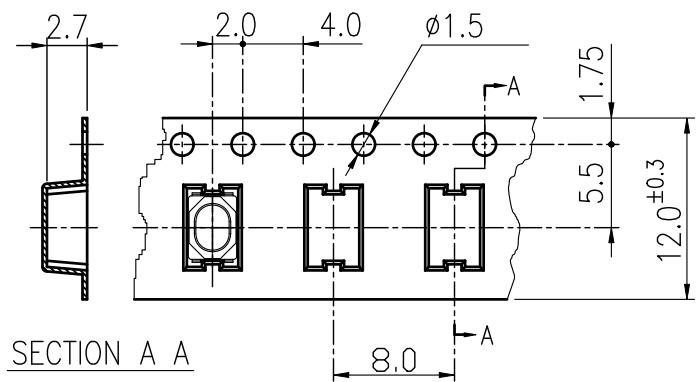
1. STRUCTURE AND MATERIALS



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

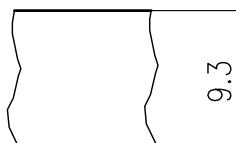
- PACKAGING QUANTITY : 2,900 PCS/REEL
- MORE THAN 10 EMPTY POCKETS SHOULD BE REMAINED AT BOTH ENDS OF THE CARRIER TAPE FOR EACH REEL.
- SHORTAGE LESS THAN 10 PCS A REEL IS ACCEPTABLE BUT MORE THAN 3 RUNNING POCKETS SHORTAGE IS NOT ALLOWED.
- STRIPPING STRENGTH OF COVER TAPE IS BETWEEN 10 gf TO 130 gf AND STRIPPING ANGLE SHOULD BE WITHIN 165° ~ 180°.
- 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

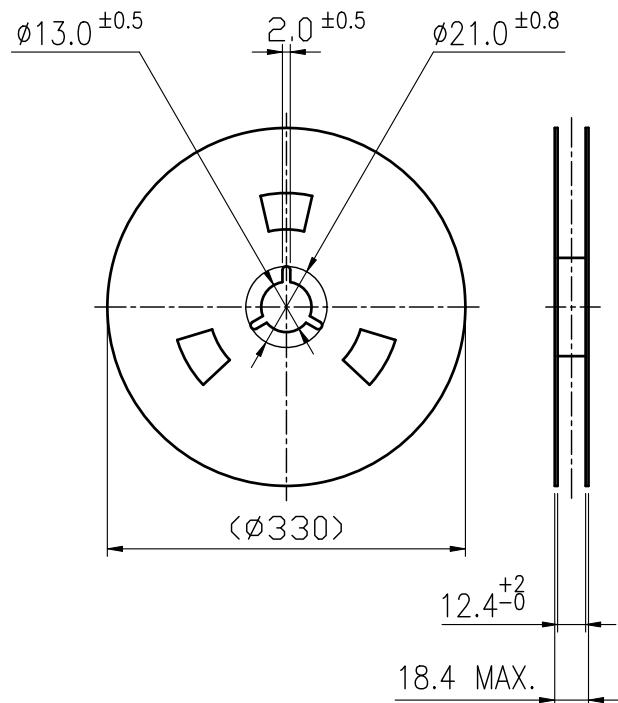


DRAWING DIRECTION

COVER TAPE



REEL



SYM	DESCRIPTION	DATE	APPROVED	APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				Dennis	Hung		Jane Shen 2016.05.24	NTC013-AP1J-B500TW
								PAGINATE. 1/1
								SPEC NO. P-433