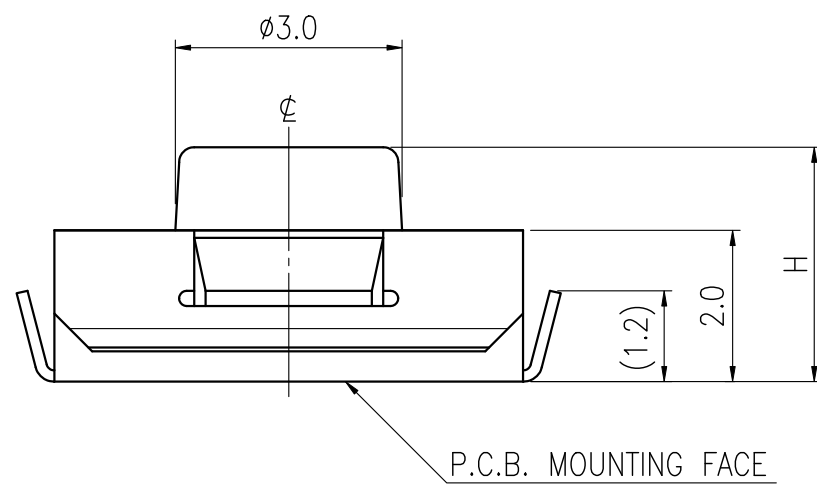



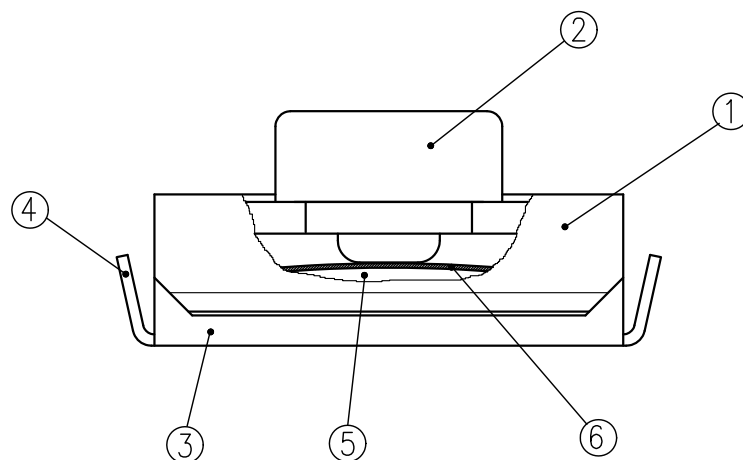
T-MEC
TAIWAN MISAKI ELECTRONICS CO., LTD.
ISSUED
2013.04.12
RD DCC

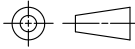


MODEL NO.	H	LIFE CYCLES	OPERATION FORCE
NTC220-AK1J-A160T	2.5	300,000	160±50gf
NTC220-AK1J-B160T	3.1		
NTC220-AK1J-C160T	3.5		
NTC220-AK1J-A260T	2.5	200,000	260±50gf
NTC220-AK1J-B260T	3.1		
NTC220-AK1J-C260T	3.5		

TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.2			SIGNATURES		DATE	MODEL
			DRAWER	Jane Shen	2013.01.08	TITLE TACT SWITCH
			CHECKED	Jamie Li	2013.01.08	
	UNIT mm	SCALE 10/1	REVIEWED			NO. See Model No.
			APPROVALS	<i>Dennis Hung</i>	2013.01.09	

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6	TAPE	1	POLYIMIDE	
5	CONTACT PLATE	1	STAINLESS STEEL PLATE	Ag-PLATING
4	TERMINAL	4	COPPER ALLOY	Ag-PLATING
3	FRAME	1	LIQUID CRYSTAL POLYMER	BLACK COLOR
2	STEM	1	LIQUID CRYSTAL POLYMER	<input type="checkbox"/> 160/BROWN, <input checked="" type="checkbox"/> 260/SALMON,
1	COVER	1	STAINLESS STEEL PLATE	
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION
				SIGNATURES
				DATE
				M O D E L
				DRAWN Jane Shen
				2013.01.08
				CHK'D Jamie Li
				2013.01.08
				REV'D
				APP'D Dennis Hung
				2013.01.09
SYM	DESCRIPTION	DATE	APPROVED	
TAIWAN MISAKI ELECTRONICS CO.,LTD.				
				DWG NO. TC220-02

TITLE TACT SWITCH

NO. NTC220-AK1J-B260T

SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC220 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.

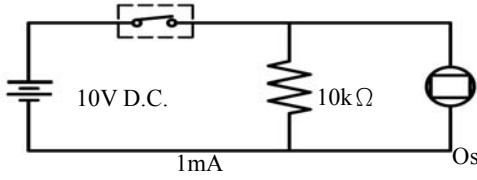
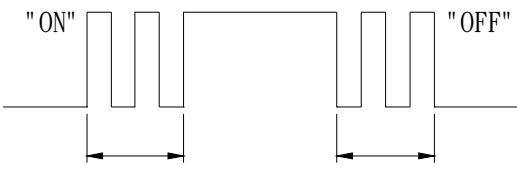
5. Electrical Performance:

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.

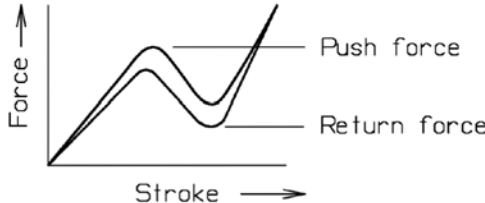
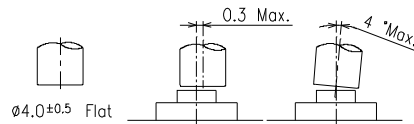
			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
			Dennis Hung			Jane Shen 2012.07.16	SE-TC74N
							PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE					1/5

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>Force ↑</p> <p>Stroke →</p> <p>Push force</p> <p>Return force</p> <p>0.3 Max.</p> <p>4 Max.</p> <p>∅4.0±0.5 Flat</p>	<p>Push force:</p> <p>260 ±50gf</p>

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SPEC NO.

Dennis Hung

Jane Shen
2012.07.16

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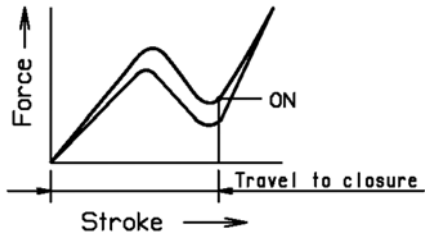
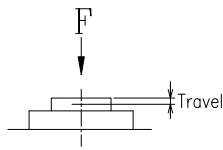
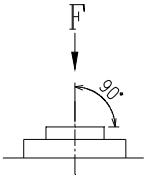
SYM DISCRIPTION

DATE

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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>  	0.25 ± 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 15 seconds.</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>

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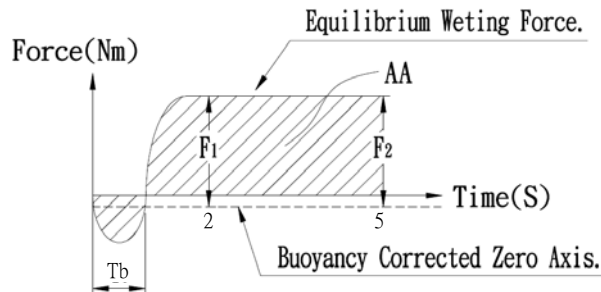
DATE

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SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

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.							

			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
						Jane Shen	SE-TC74N
						2012.07.16	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±2℃. (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: <u>500mΩ</u> 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±2℃. (2) Duration of test: 500 Hour. (3) Standard conditions after test: 1 Hour.												
7.3	Cold Test	(1) Temperature: -40±2℃. (2) Duration of test: 500 Hour. (3) Take off a drop water. (4) Standard conditions after test: 1 Hour.												
7.4	Waterproof test	Immersion tank water-lever on enclosure: 0.15 M above top. 1 M above bottom. Duration of test : 30 min.												
7.5	Temperature cycle	(1) Test cycle: <u>20</u> cycles. (2) Standard conditions after test: 1 Hour. <table><tr><td></td><td>Temperature</td><td>Duration of test</td></tr><tr><td rowspan="4">1 cycles</td><td>20±5℃</td><td>1 Hour</td></tr><tr><td>-40±2℃</td><td>1 Hour</td></tr><tr><td>20±5℃</td><td>1 Hour</td></tr><tr><td>85±2℃</td><td>1 Hour</td></tr></table>			Temperature	Duration of test	1 cycles	20±5℃	1 Hour	-40±2℃	1 Hour	20±5℃	1 Hour	85±2℃
	Temperature	Duration of test												
1 cycles	20±5℃	1 Hour												
	-40±2℃	1 Hour												
	20±5℃	1 Hour												
	85±2℃	1 Hour												

8. Durability:

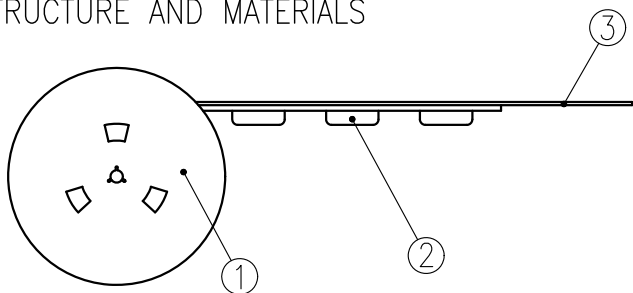
No.	Items	Test conditions	Specifications
8.1	Life Test	(1) 5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 200,000 times.	Contact Resistance: 2 Ω MAX. Bounce: 20m sec Max.(ON,OFF) Operating Force: Within ±30% of specifications. Item 5.2 shall be satisfied. Item 6.2 shall be satisfied.

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			Dennis Hung			Jane Shen 2012.07.16	SE-TC74N
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SYM	DISCRIPTION	DATE					5/5

THE PACKING SPECIFICATIONS

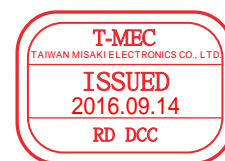
RoHS Compliant

1. STRUCTURE AND MATERIALS

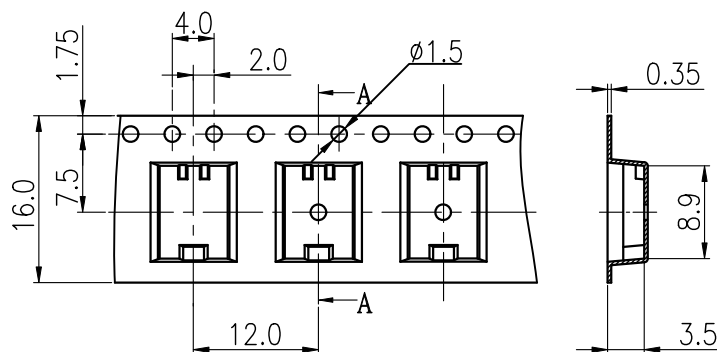


③	COVER TAPE	POLYESTER
②	CARRIER TAPE	POLYSTYRENE
①	REEL	POLYSTYRENE
NO.	PARTS NAME	MATERIALS

- PACKAGING QUANTITY : 1,500 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 ACCTABLE 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 :



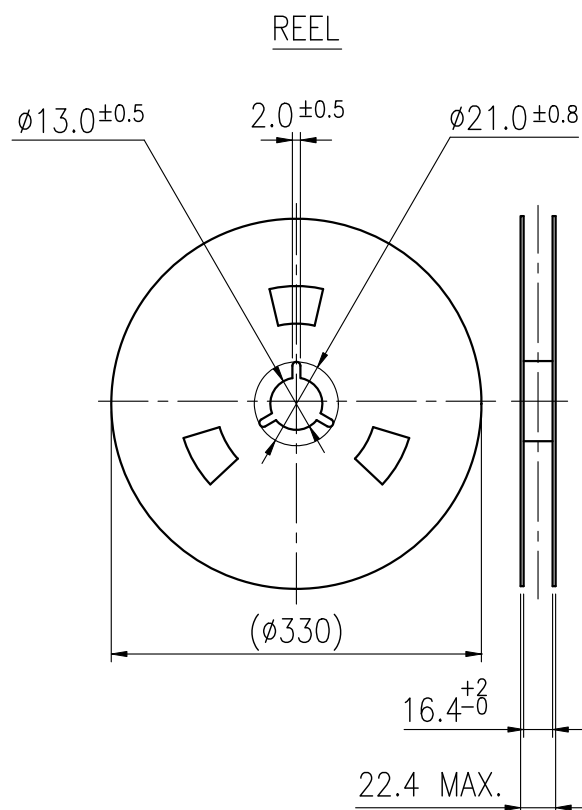
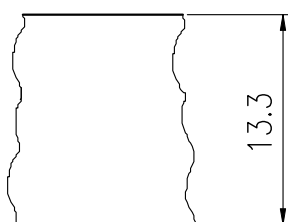
CARRIER TAPE



DRAWING DIRECTION →

SECTION A A

COVER TAPE



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
							Jane Shen	NTC220-AK1J- B260T
							2011.05.05	PAGINATE.
								1/1
								SPEC NO.
								P-12
SYM	DISCRIPTION	DATE	APPROVED					

TAIWAN MISAKI ELECTRONICS CO.,LTD.