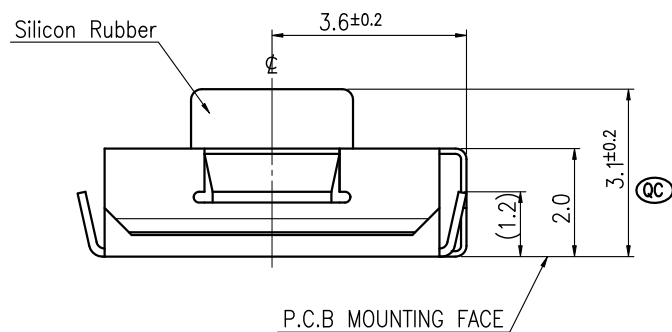
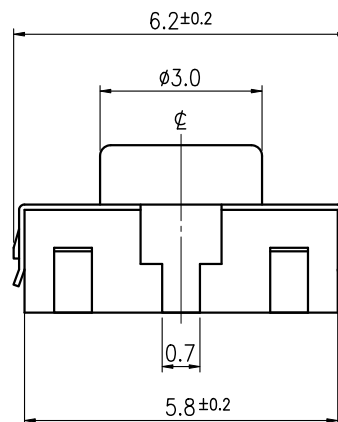


For Reference Only



	QC	QC	
MODEL NO.	STROKE	OPERATION FORCE	LIFE CYCLES
NTC020-CA1J-F160TG	0.3±0.15	160±50gf	1,000,000
NTC020-CA1J-F260TG		260±50gf	500,000
NTC020-CA1J-F320TG	0.4±0.2	320±80gf	300,000
NTC020-CA1J-F520TG	0.5±0.2	520±130af	200,000

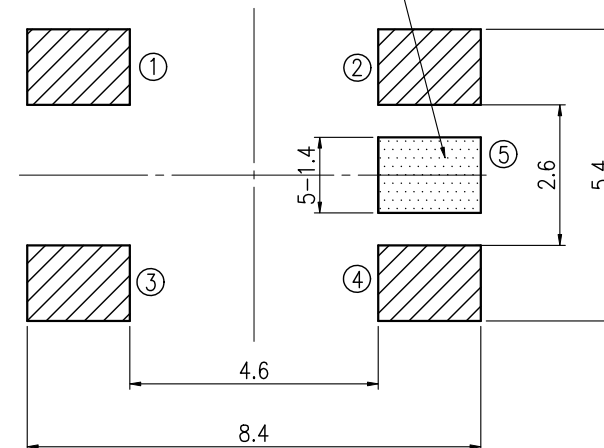


Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2011.08.08	Jane Shen	C			
B				D			


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

The diagram shows a 2D hexagonal lattice. Nodes are numbered 1 through 5. Node 1 is at the top left, node 2 is at the top right, node 3 is at the bottom left, and node 4 is at the bottom right. Node 5 is located to the right of node 2. A path is highlighted with a thick line, starting from node 1, going down to a node below it, then right to node 3, and finally up to node 4. A diagonal line also connects node 1 to the node below it.

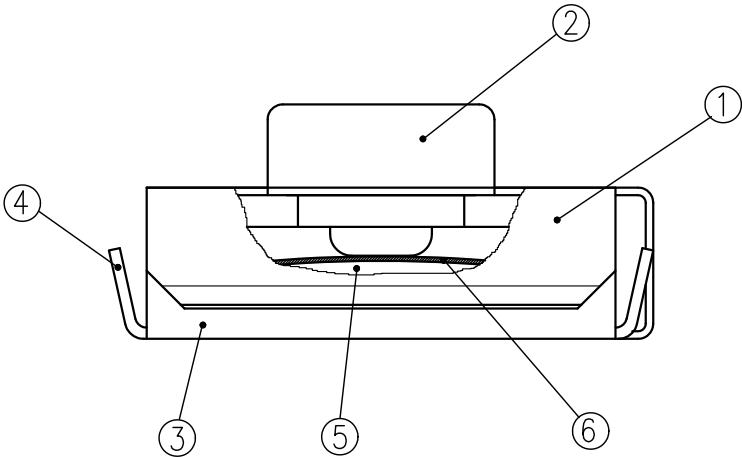
Ground terminal can be effective even if not soldered.



HATCHED AREA SHOWS SOLDERING LAND

TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.1			SIGNATURES	DATE	MODEL
			DRAWN <b>Jane Shen</b>	2011.08.08	TITLE  TACT SWITCH
			CHECKED		
	UNIT mm	SCALE 10/1	REVIEWED		NO.  See Model No.
			APPROVALS		

TAIWAN MISAKI ELECTRONICS CO., LTD.



6	TAPE	1	POLYIMIDE	
5	CONTACT PLATE	1	STAINLESS STEEL PLATE	Ag-CLAD
4	TERMINAL	4	COPPER ALLOY	Ag-PLATING or Ag-CLAD
3	FRAME	1	LIQUID CRYSTAL POLYMER	BLACK COLOR
2	STEM	1	SILICON RUBBER	COLOR: <input type="checkbox"/> 160/BUE, <input type="checkbox"/> 260/RED, <input type="checkbox"/> 320/YELLOW, <input type="checkbox"/> 520/GREEN
1	COVER	1	NICKEL SILVER	
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION
				SIGNATURES
				DATE
				M O D E L
				DRAWN <b>Jane Shen</b>
				2011.08.08
				CHK'D
				REV'D
				NO. NTC020-CA1J-F OTG
				APP'D
SYM	DESCRIPTION	DATE	APPROVED	DWG NO. TC020-03
TAIWAN MISAKI ELECTRONICS CO.,LTD.				

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC020&NTC010 – Silicone rubber "F"stem 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.

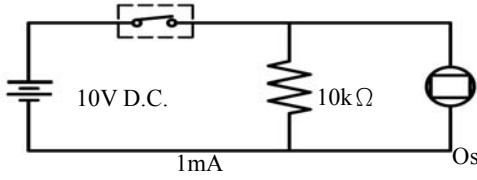
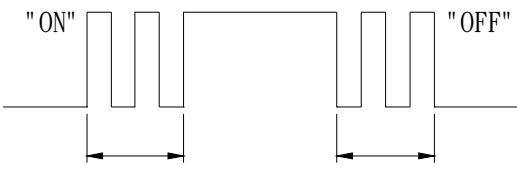
## 5. Electrical Performance:

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.

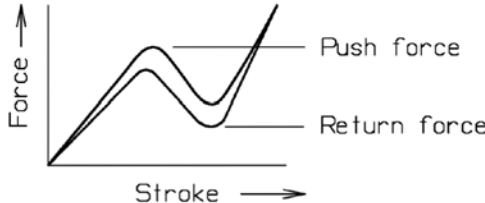
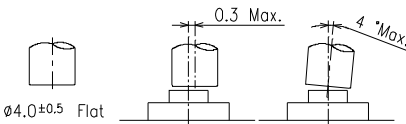
			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
			Dennis Hung		Jamie Li 2011.08.04	Jane Shen 2011.08.04	SE-TC26N
							PAGINATE
A	NEW RELEASE						1/5
SYM	DISCRIPTION	DATE	2011.08.04				

# 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>ø4.0±0.5 Flat 0.3 Max. 4° Max.</p>	<p>Push force:</p> <p>± gf</p>

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REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

*Dennis Hung*

Jamie Li  
2011.08.04

Jane Shen  
2011.08.04

SE-TC26N

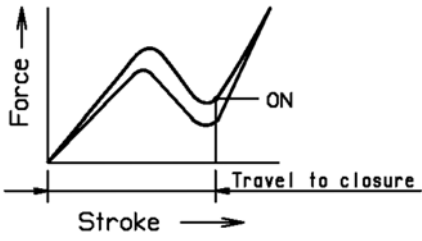
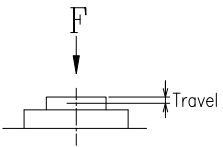
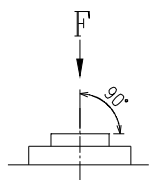
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2011.08.04

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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>  	$0. \pm 0. \text{ mm.}$
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 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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SPEC NO.

*Dennis Hung*

Jamie Li  
2011.08.04

Jane Shen  
2011.08.04

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2011.08.04

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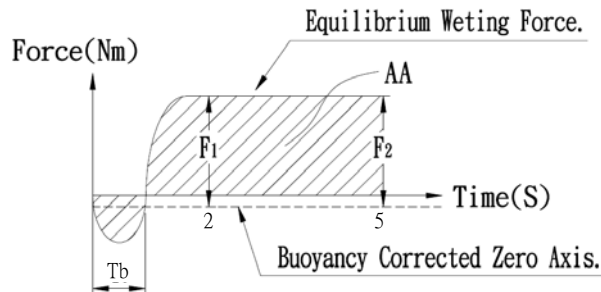
A NEW RELEASE  
SYM DISCRIPTION

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.							

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DESIGNED BY

SPEC NO.

*Dennis Hung*

Jamie Li

Jane Shen

SE-TC26N

2011.08.04

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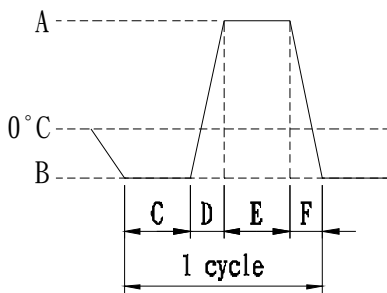
2011.08.04

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# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

## 7. Weather Performance:

No.	Items	Test conditions	Specifications
7.1	Humidity Test	(1) Temperature: $60\pm 2^{\circ}\text{C}$ . (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.	Contact resistance: 500m $\Omega$ 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: 120~180 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 0,000 times.	Contact Resistance: 2 $\Omega$ 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.

*Dennis Hung*

Jamie Li

Jane Shen

SE-TC26N

2011.08.04

2011.08.04

2011.08.04

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A NEW RELEASE

SYM DISCRIPTION

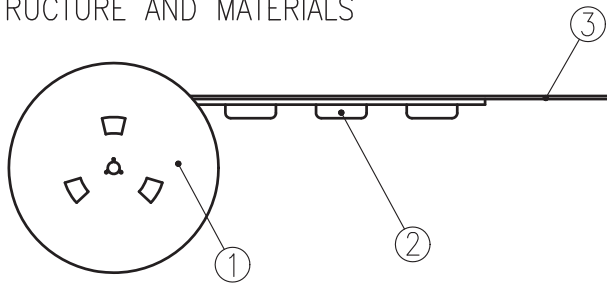
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5/5

# THE PACKING SPECIFICATIONS

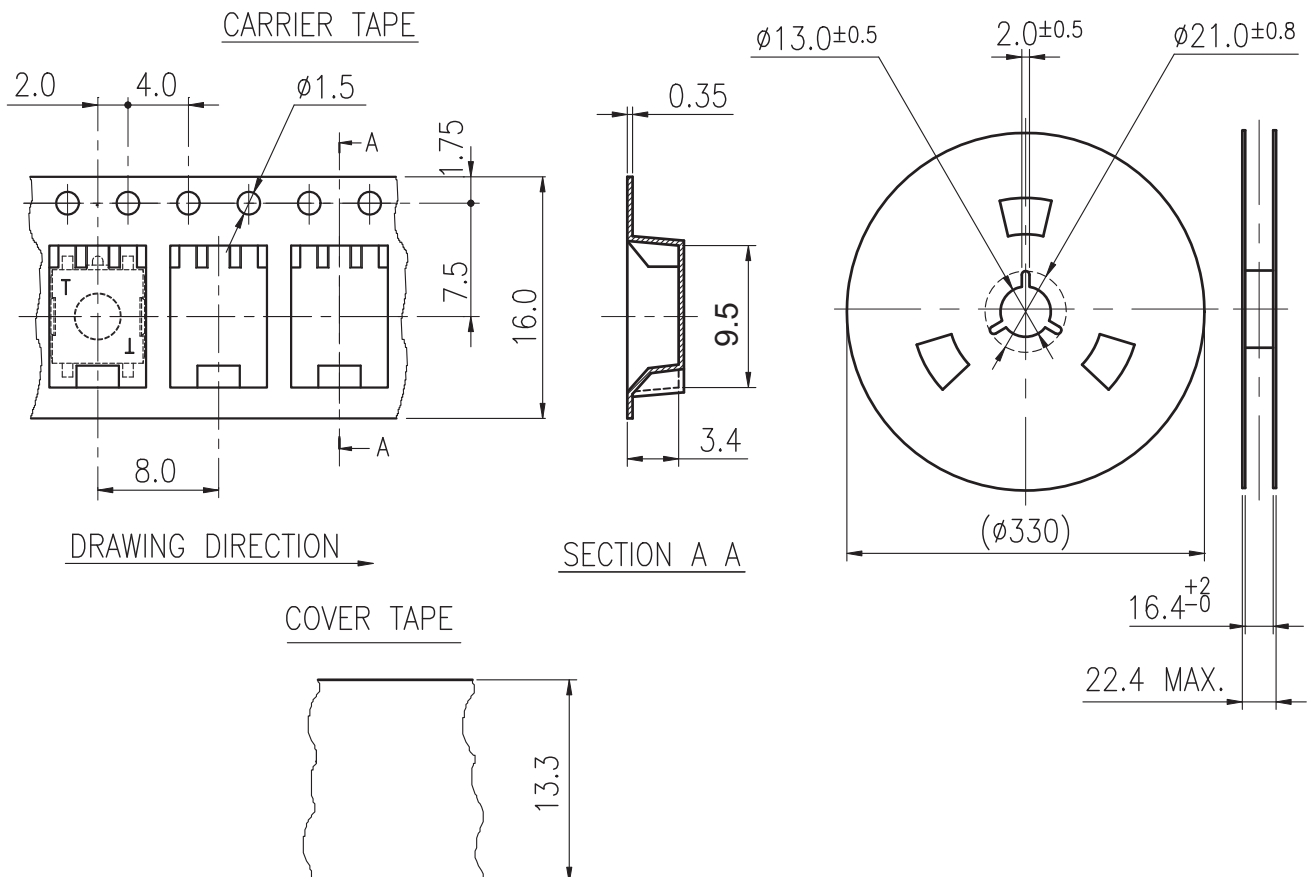
RoHS Compliance

## 1.STRUCTURE AND MATERIALS



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

- PACKAGING QUANTITY : 2,200 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 ACCETABLE 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 PRODUCT IN THE POCKET OF CARRIER TAPE SHOULD BE PLACED IN A SPECIFIED CORRECT POSITION.
- TAPE AND REEL PER EIA-481.
- DIMENSIONS :



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				<i>Fred Chen</i>	<i>Ken Lin</i>	<i>Max Chen</i>	<i>Jane Shen</i>	NTC020- CA1J -F__TG
				2009-07-20	2009.07.20	2009.07.20	2009.05.07	PAGINATE.
								1/1
								SPEC NO.
								P-542
SYM	DISCRPTION	DATE	APPROVED					

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