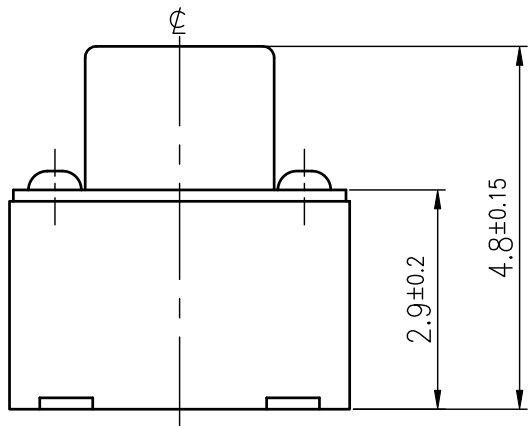
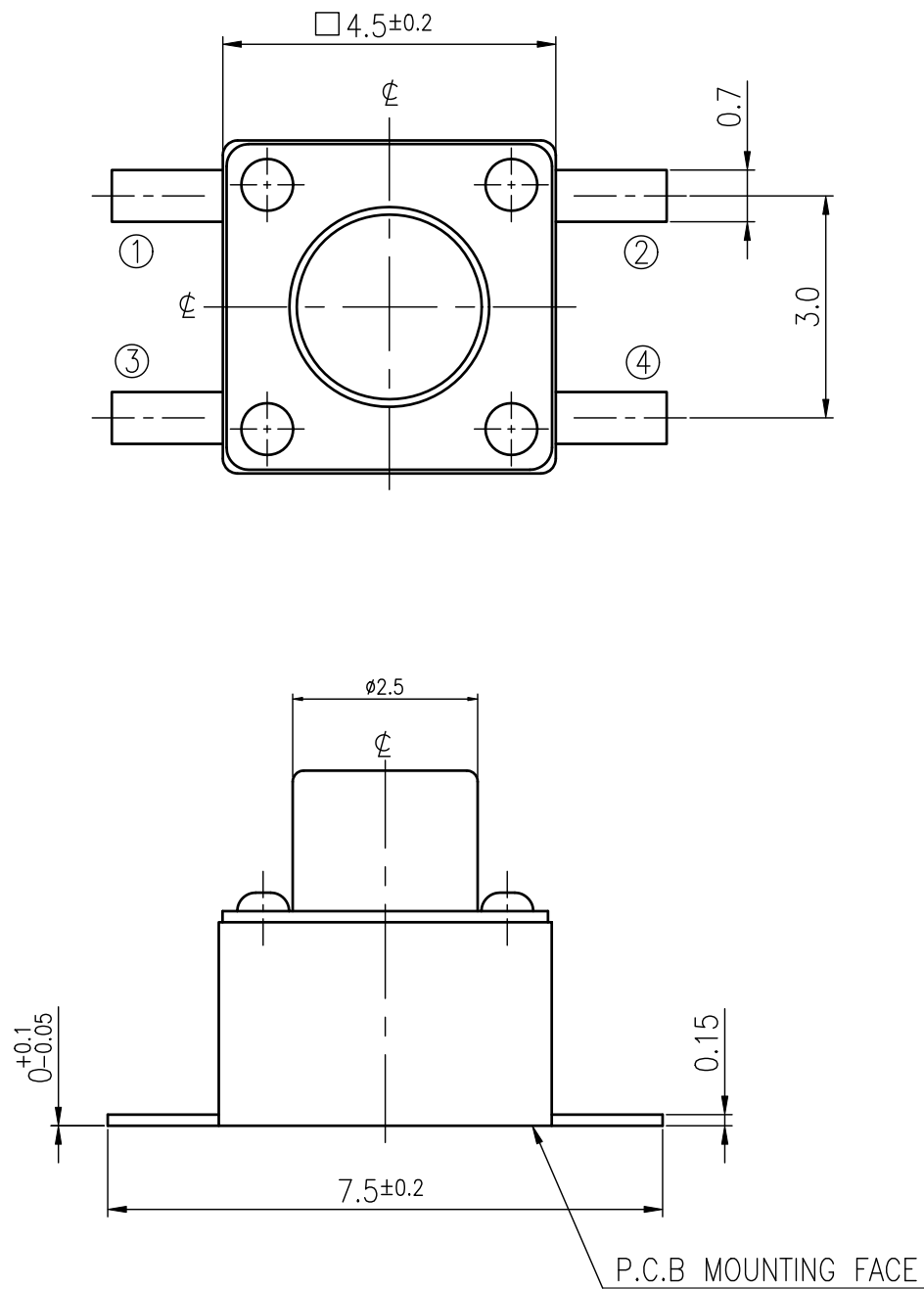
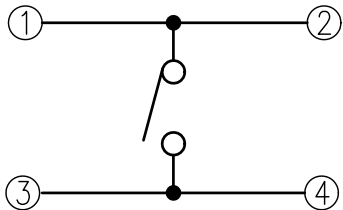


RoHS Compliant

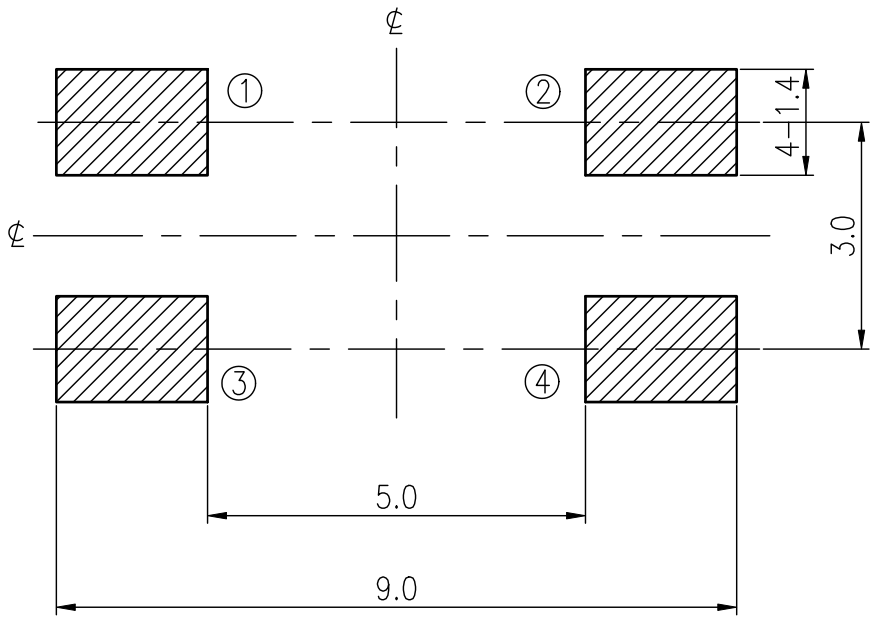


REVISIONS							
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2019.01.10	Jane Shen	C			
B				D			
SPECIFICATIONS							
RATING		DC12V 50mA		TIMING			
CONTACT RESISTANCE		100mΩ MAX.		OPERATION (TORQUE)		160±50 gf	
INSULATION RESISTANCE		DC500V - 100MΩ MIN.		STROKE (ANGLE)		0.2±0.1 mm	
WITHSTAND VOLTAGE		AC100V - 1 MINUTE.		LIFE		1,000,000 CYCLES	
REMARKS:							

SCHEMATIC

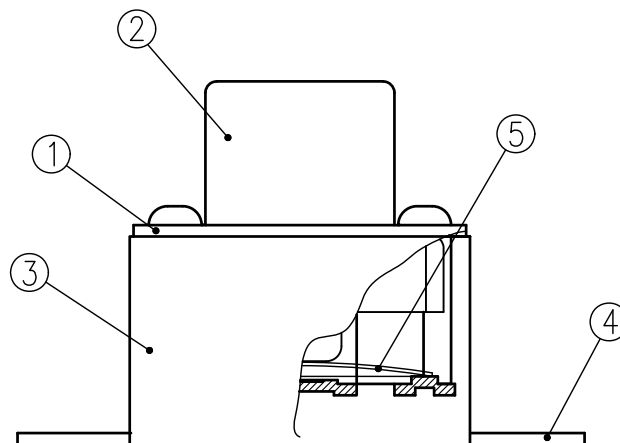


P.C.B LAYOUT



TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.1			SIGNATURES		DATE	MODEL
			DRAWER	Jane Shen	2019.01.10	TACT SWITCH
			CHECKED			
	UNIT mm	SCALE 10/1	REVIEWED	Landry Su	2019.01.10	NO. NTC015-AP1G-C160T
			APPROVALS	Qiuyuan Chuang	2019.01.10	

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5	CONTACT PLATE	1	STAINLESS STEEL PLATE	Ag PLATING
4	TERMINAL	4	COPPER ALLOY	Ag PLATING OVER Ni PLATING
3	FRAME	1	POLYAMIDE RESIN	BLACK COLOR
2	STEM	1	LIQUID CRYSTAL POLYMER	NATURAL COLOR
1	COVER	1	STAINLESS STEEL	
NO.	PART NAME	Q'TY	MATERIAL	SPECIFICATION
				SIGNATURES
				DATE
				M O D E L
				DRAWN Jane Shen 2018.02.12
				CHK'D
				REV'D Landry Su 2018.02.12
				APP'D Qiuyuan Chuang 2018.02.12
				TITLE TACT SWITCH
				NO. NTC015-AP1G-C160T
				DWG NO. TC015-10
SYM	DESCRIPTION	DATE	APPROVED	
TAIWAN MISAKI ELECTRONICS CO.,LTD.				

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

Model: NTC\_015\_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

Storage temperature range: -40 ~ +85°C

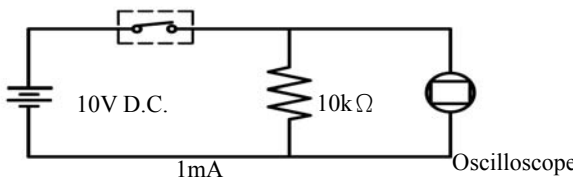
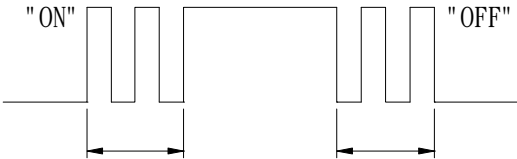
## 3. Construction:

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.	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	100V 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 style="text-align: center;">Switch</p>  <p style="text-align: center;">"ON"      "OFF"</p> 	ON:10m sec Max. OFF:10m sec Max.

APPROVED BY

REVIEWED BY

CHECKED BY

DESIGNED BY

SPEC NO.

*Dennis Hung*

Jane Shen  
2017.03.23

SE-TC29N  
PAGINATE

A NEW RELEASE

SYM DISRIPTION

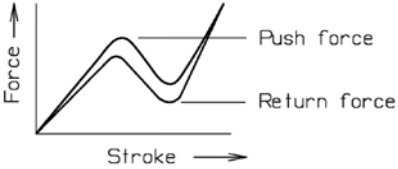
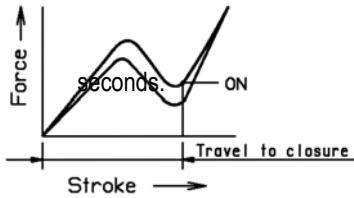
DATE

1/4

# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

## 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:</p> <p><math>160 \pm 50 \text{ gf}</math></p>
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><math>0.2 \pm 0.1 \text{ mm.}</math></p>
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.</p> <p>Item 5.1~5.4 shall be satisfied.</p> <p>Item 6.1~6.2 shall be satisfied.</p>

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2017.03.23

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SYM DISCRIPTION

DATE

2/4

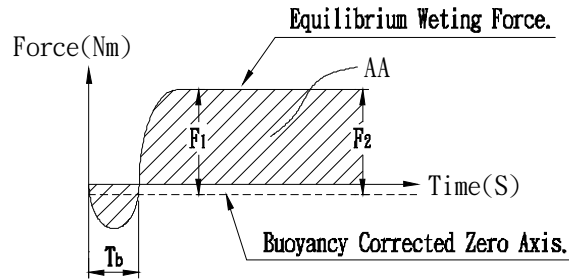
# SPECIFICATIONS FOR TACT SWITCH

RoHS Compliant

6.4

Solderability

Test Temperature :  $235 \pm 5^{\circ}\text{C}$   
 Immersion Angle :  $90^{\circ}$   
 Immersion Speed : 1 mm/sec.  
 Immersion Depth : 0.1mm  
 Dwell Time : 5 seconds



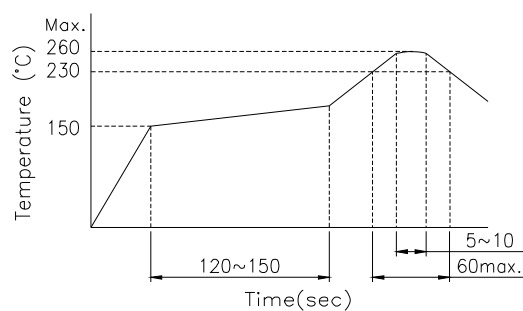
Conform to the criteria in the left table.

Para.	Criteria
Tb	$\leq 1$ 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:  $350^{\circ}\text{C}$  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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 2017.03.23

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SYM DISCRIPTION

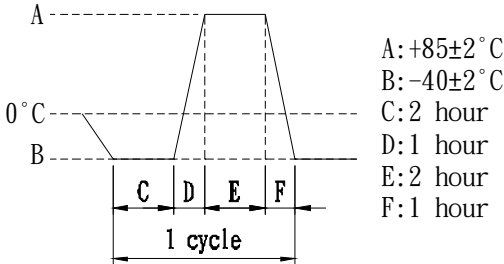
DATE

3/4

# 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</p>	

## 8. Durability:

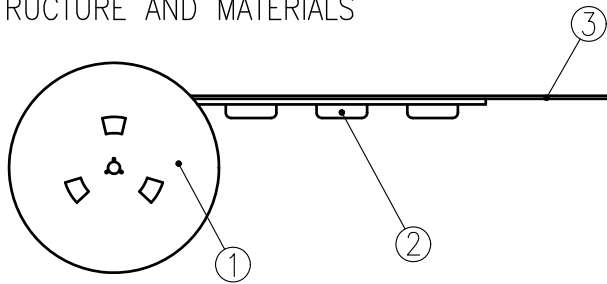
No.	Items	Test conditions	Specifications
8.1	Life Test	(1) 5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 1,000,000 times.	Contact Resistance: 2 $\Omega$ MAX.  Bounce: 20m sec Max.(ON,OFF)  Operating Force: 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.
						Jane Shen	SE-TC29N
						2017.03.23	PAGINATE
A	NEW RELEASE		Dennis Hung				
SYM	DISCRIPTION	DATE					4/4

# THE PACKING SPECIFICATIONS

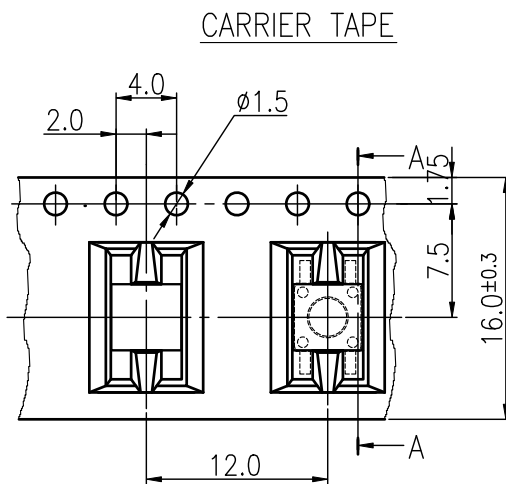
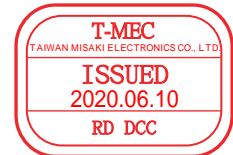
RoHS Compliant

## 1. STRUCTURE AND MATERIALS

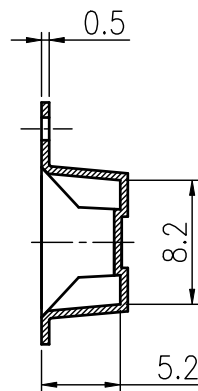


③	COVER TAPE	POLYESTER
②	CARRIER TAPE	POLYSTYRENE
①	REEL	POLYSTYRENE
NO.	PARTS NAME	MATERIALS

- PACKAGING QUANTITY : 1,000 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 :

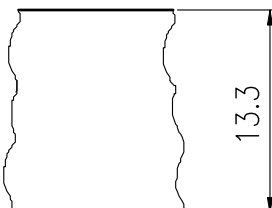


DRAWING DIRECTION →

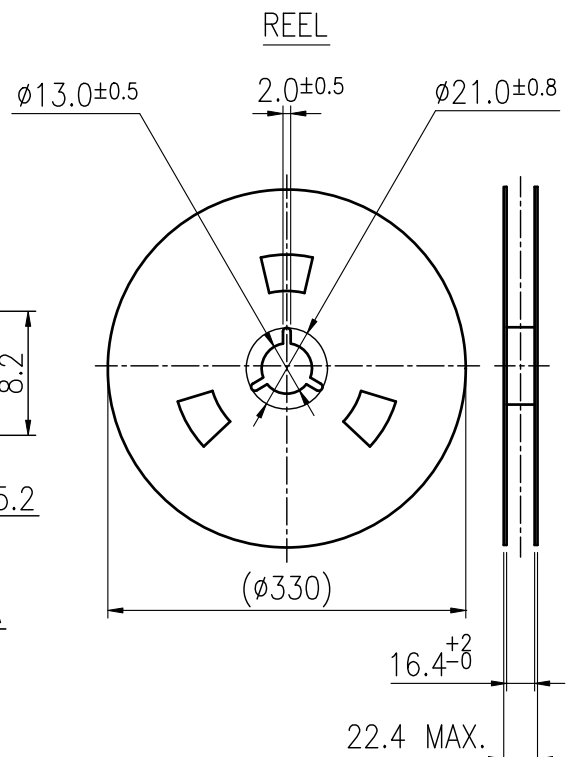


SECTION A A

COVER TAPE



Qiuyuan Chuang



				APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
							Jane Shen	NTC015-A 1(G,J)-C
								PAGINATE.
								1/1
								SPEC NO.
								P-529
SYM	DISCRIPTION	DATE	APPROVED					

TAIWAN MISAKI ELECTRONICS CO.,LTD.