

RoHS Compliant

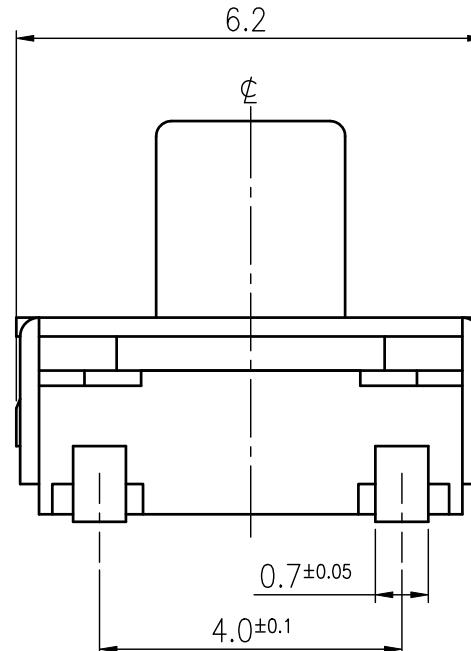
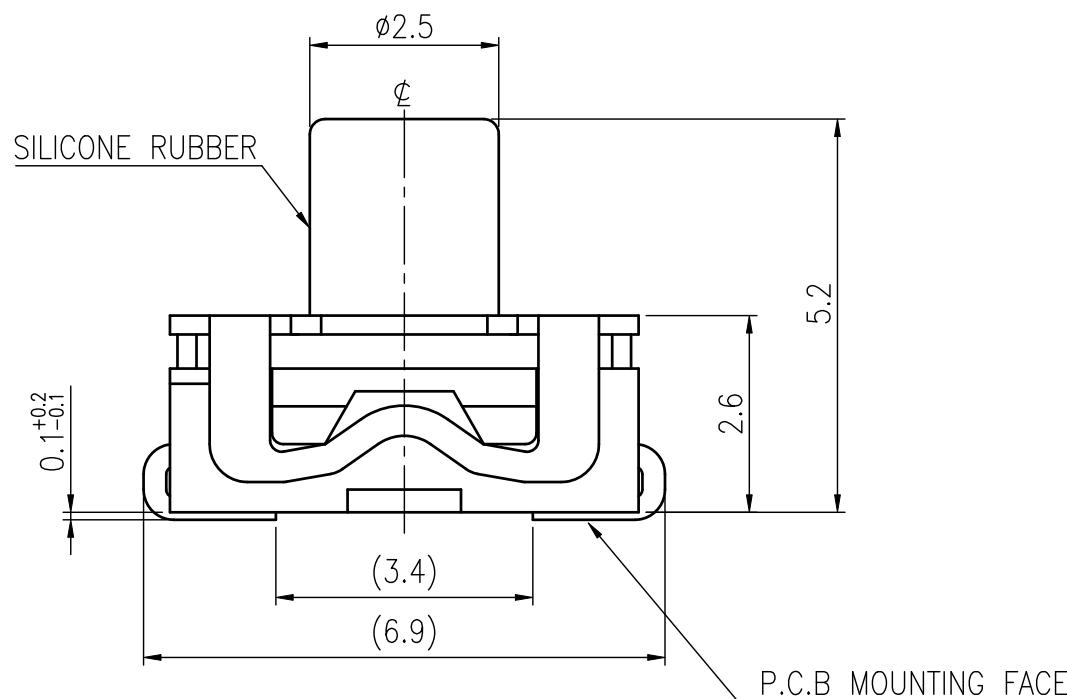
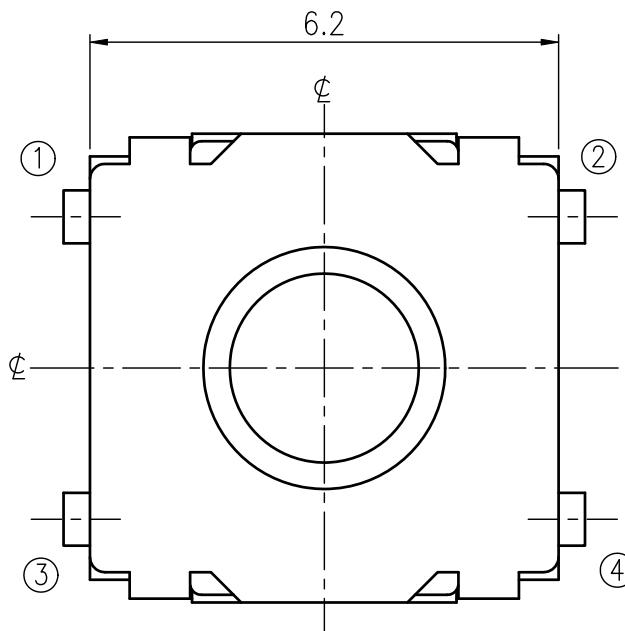
For Reference Only

REVISIONS

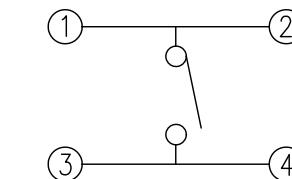
Rev	DESCRIPTION	DATE	DRAWER	Rev	DESCRIPTION	DATE	DRAWER
A	Initial Drawing	2017.04.07	Jane Shen	C			
B				D			

SPECIFICATIONS

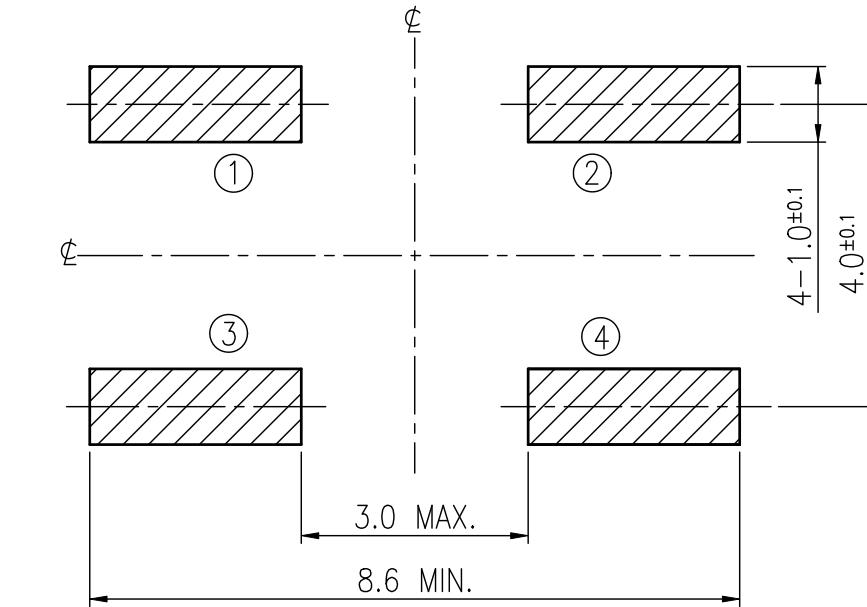
RATING	DC32V 50mA	TIMING	
CONTACT RESISTANCE	100mΩ MAX.	OPERATION (TORQUE)	200±50gf
INSULATION RESISTANCE	DC100V-1000MΩ MIN.	STROKE (ANGLE)	0.6±0.25mm
WITHSTAND VOLTAGE	AC250V-1 MINUTE.	LIFE	500,000 CYCLES
REMARKS:	Waterproof Grade : IP67		



SCHEMATIC



RECOMMENDED P.C.B LAYOUT



HATCHED AREA SHOWS SOLDERING LAND

TOLERANCES UNLESS OTHERWISE SPECIFIED ±0.2			SIGNATURES		DATE	MODEL
			DRAWER	Jane Shen		
			CHECKED		2017.04.28	
	UNIT	SCALE	REVIEWED	<i>Landry Su</i>	2017.04.28	TITLE TACT SWITCH NO. NTC202-AA1U-52200T
	mm	10/1	APPROVALS	<i>Dennis Hung</i>	2017.04.28	

TAIWAN MISAKI ELECTRONICS CO., LTD.

SPECIFICATIONS FOR TACT SWITCH

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Model: NTC_202-AA1_ 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: -55 ~ +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: 32V D.C. , 50mA.

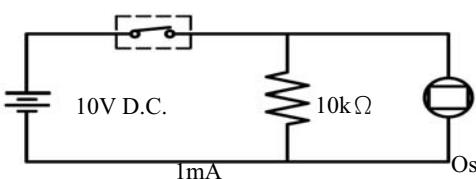
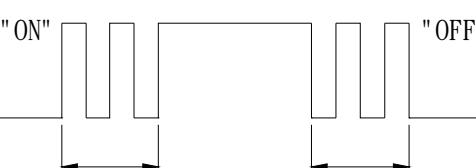
5. Electrical Performance:

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 100V D.C. Between all terminals and between the terminals and the frame for 1 minute ± 5 seconds.	1000MΩ 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.

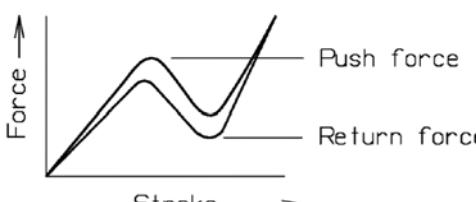
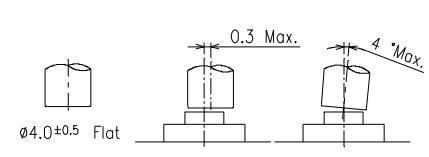
			APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	SPEC NO.
							SE-TC47N
							PAGINATE
A	NEW RELEASE						
SYM	DISCRIPTION	DATE	Dennis Hung			Jane Shen 2017.03.15	1/5

SPECIFICATIONS FOR TACT SWITCH

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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: $\leq 1\text{m sec.}$ OFF: $\leq 1\text{m sec.}$</p>

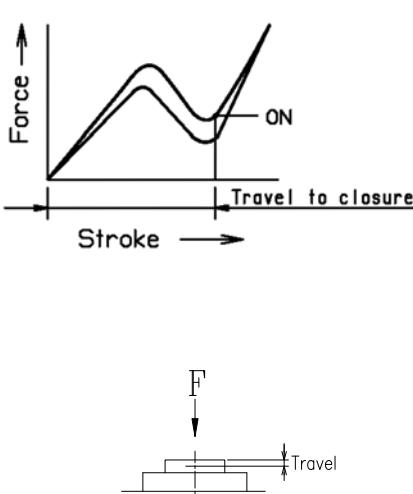
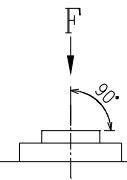
6. Mechanical Performance:

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: $200\pm50\text{ gf}$</p>

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SPECIFICATIONS FOR TACT SWITCH

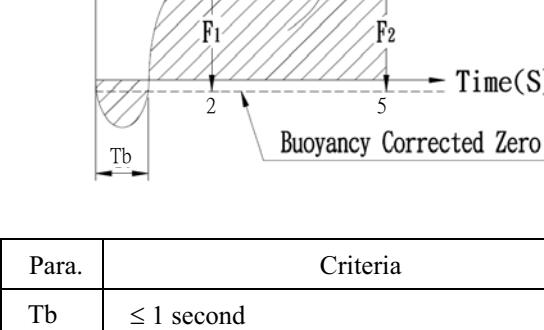
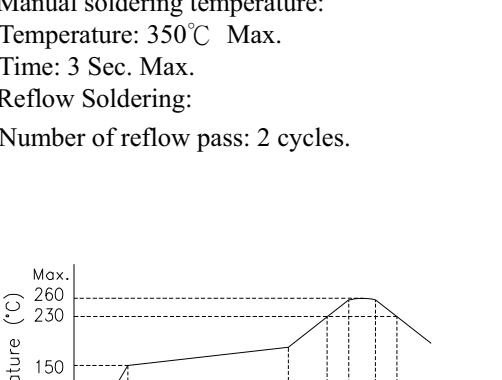
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No.	Items	Test conditions	Specifications
6.2	Travel	<p>Placing the switch such that the direction of switch operation is vertical and then applying a below static load to the center of the stem, the travel distance for the switch to come to a stop shall be measured.</p> 	0.6±0.25 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 .</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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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>  <p>Force (Nm) vs Time (S). The graph shows a hysteresis loop. The upper loop is labeled 'Equilibrium Weting Force.' and the lower loop is labeled 'Buoyancy Corrected Zero Axis.' The dwell time is marked as 2 seconds. The force at 2 seconds is labeled F_1, and the force at 5 seconds is labeled F_2. The area under the F_1 curve is labeled AA.</p> <table border="1"> <thead> <tr> <th>Para.</th><th>Criteria</th></tr> </thead> <tbody> <tr> <td>T_b</td><td>≤ 1 second</td></tr> <tr> <td>F_1</td><td>50% of maximum theoretical wetting force at or before two seconds</td></tr> <tr> <td>F_2</td><td>No less than 90% of the F_1 Value</td></tr> <tr> <td>AA</td><td>Area calculated using sample buoyancy and 50% maximum theoretical force</td></tr> </tbody> </table>	Para.	Criteria	T_b	≤ 1 second	F_1	50% of maximum theoretical wetting force at or before two seconds	F_2	No less than 90% of the F_1 Value	AA	Area calculated using sample buoyancy and 50% maximum theoretical force	Conform to the criteria in the left table.
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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>  <p>Temperature ($^\circ\text{C}$) vs Time (sec). The graph shows a temperature profile with a peak of 260°C. The dwell time is indicated as 5~10 seconds, and the total time is 60 max. The initial heating time is 120~150 seconds.</p>	<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.</p>										

			APPROVED BY <i>Dennis</i>	REVIEWED BY <i>Hung</i>	CHECKED BY	DESIGNED BY Jane Shen 2017.03.15	SPEC NO.
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SYM	DISCRIPTION	DATE					

SPECIFICATIONS FOR TACT SWITCH

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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: $500\text{m}\Omega$ 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	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 border="1"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration of test</th> </tr> </thead> <tbody> <tr> <td>1 cycles</td> <td>$20\pm5^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td></td> <td>$-40\pm2^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td></td> <td>$20\pm5^{\circ}\text{C}$</td> <td>1 Hour</td> </tr> <tr> <td></td> <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	
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8. Durability:

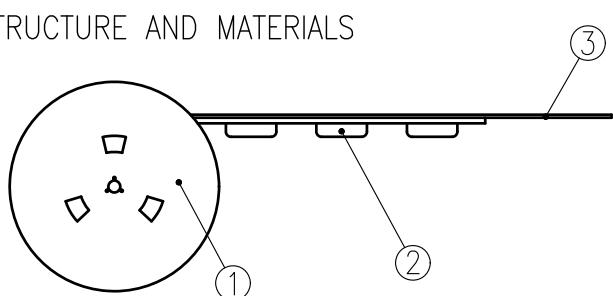
No.	Items	Test conditions	Specifications
8.1	Life Test	(1)5V D.C. , 5mA Resistance load. (2) Operating speed: 120 cycles/minute. (2) Push force: Maximum value of operation force. (3) Operation number: 500,000 times.	Contact Resistance: 1Ω MAX. Bounce: $\leq 1\text{m sec. (ON,OFF)}$ Operating Force: Within $\pm 30\%$ of specifications. Item 5.2 shall be satisfied. Item 6.2 shall be satisfied.

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THE PACKING SPECIFICATIONS

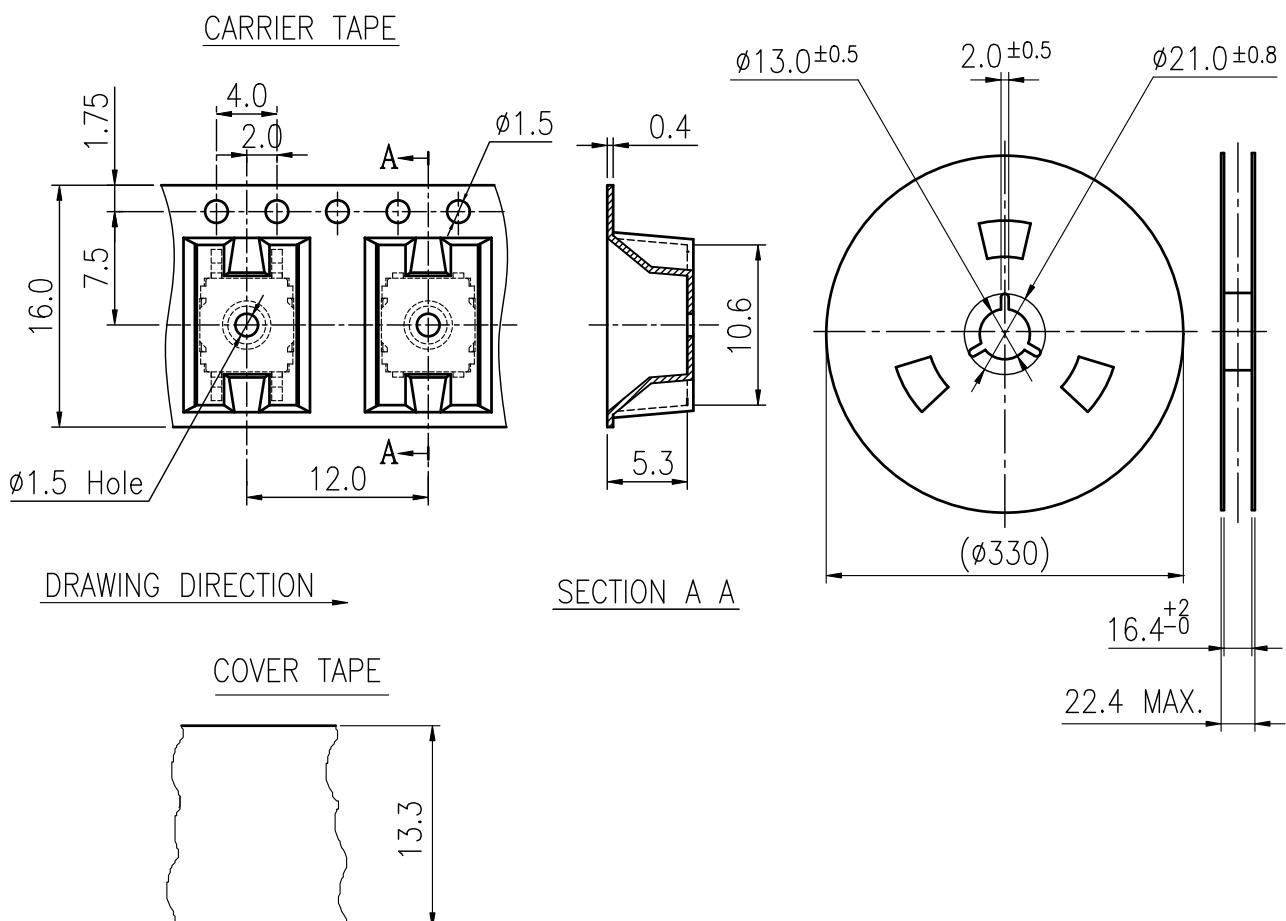
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1. STRUCTURE AND MATERIALS



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

- 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 $165^\circ \sim 180^\circ$.
- THE PRODUCT IN THE POCKET OF CARRIER TAPE SHOULD BE PLACED IN A SPECIFIED CORRECT POSITION.
- TAPE AND REEL PER EIA-481.
- DIMENSIONS :



SYM	DISCRIPTION	DATE	APPROVED	APPROVED BY	REVIEWED BY	CHECKED BY	DESIGNED BY	MODEL NO.
				Dennis Hung			Jane Shen	NTC202-AA1(G,U)-52
							2017.03.31	PAGINATE. 1/1
								SPEC NO. P-811