

## GC-E06

Ermes 169 MHz

- Dimensions (mm) : 25.0 x 5.0 x 0.8
- Câble et connecteurs sur mesure à la demande



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**SKU:** GC-E06



## Specifications

### Electrical Specifications

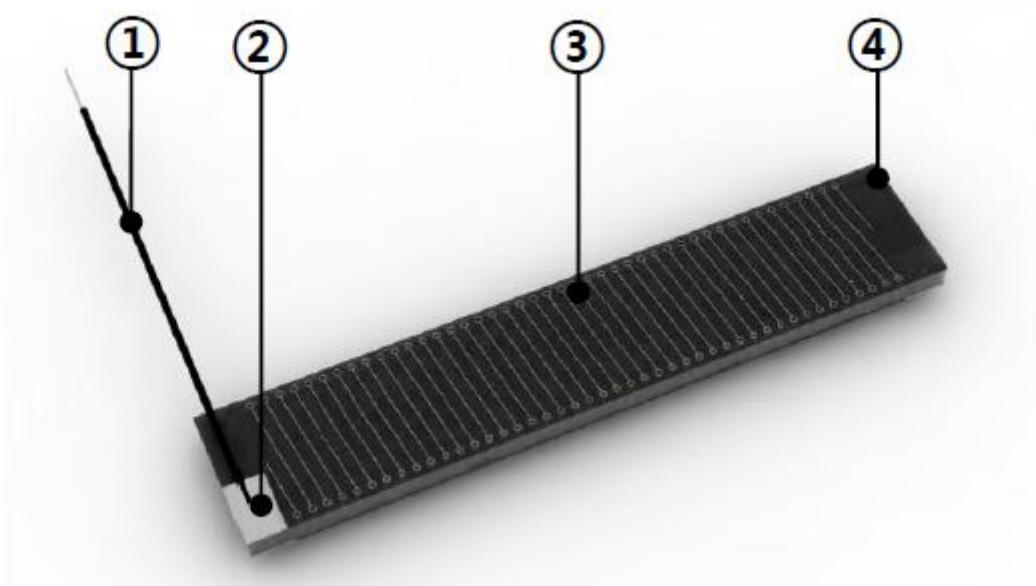
No	Item	Spec.	Remark
1	Frequency	169 MHz	
2	VSWR	2.0 : 1 max	
3	Average Gain	-17.6 dBi	
4	Polarization	Linear	
5	Azimuth Beam Pattern	Omni-directional	
6	Impedance	50 $\Omega$	
7	Power level	Max. 30 dBm	

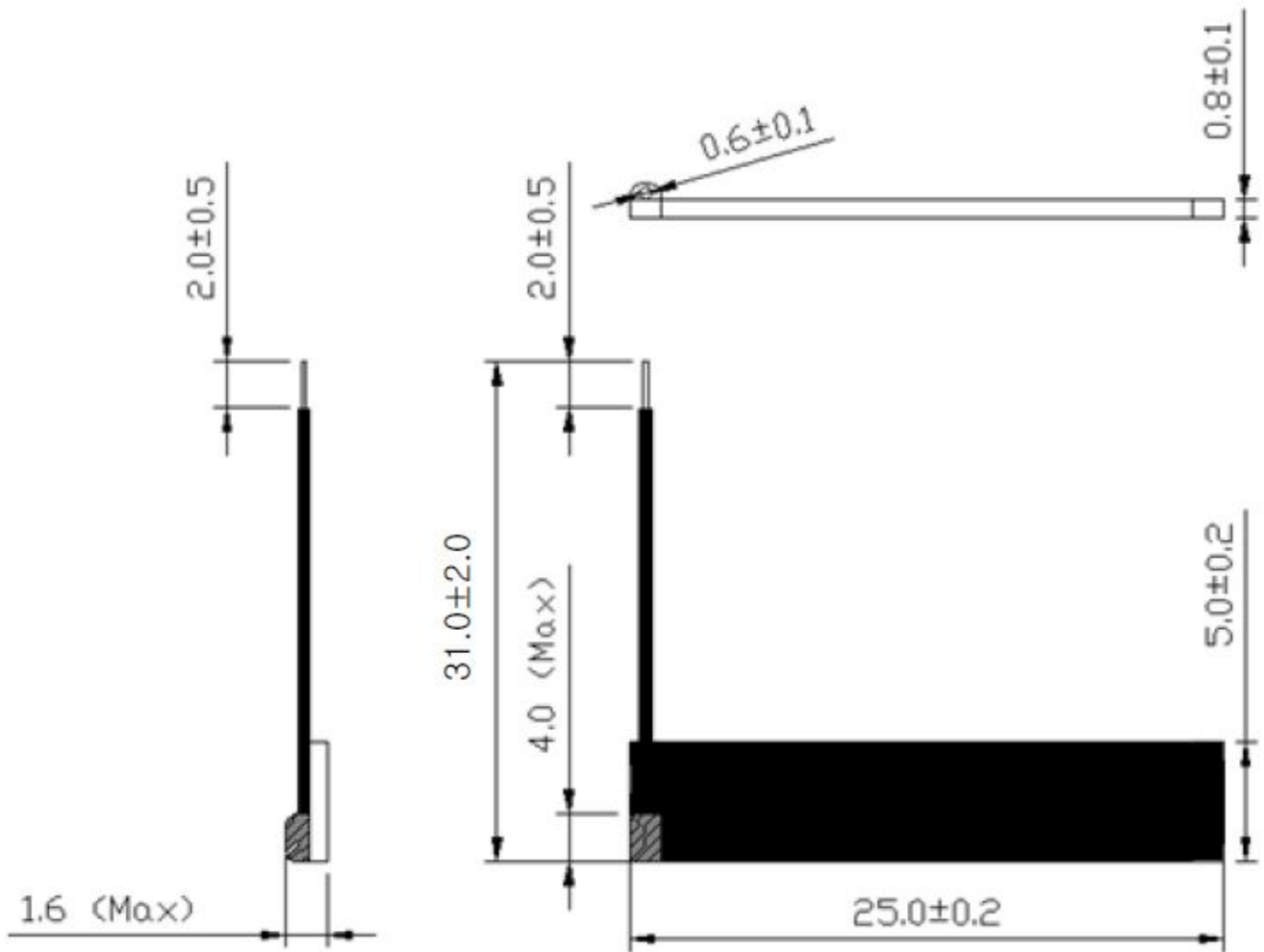
### Mechanical Specifications

No	Item	Spec.	Remark
1	Dimensions (L x W x H)	25.0 x 5.0 x 0.8	mm
2	Operating Temperature	-35 ~ +85	°C
3	Cable	31.0, $\Phi$ 0.6	mm
4	Double sided Adhesive Tape	Typ. 0.125um	User Option

## Appearance and Dimensions

No	Item	Function
1	Cable	Cable soldering
2	Cable External Electrode	Soldering to Antenna
3	PCB	FR4
4	External Electrode	-

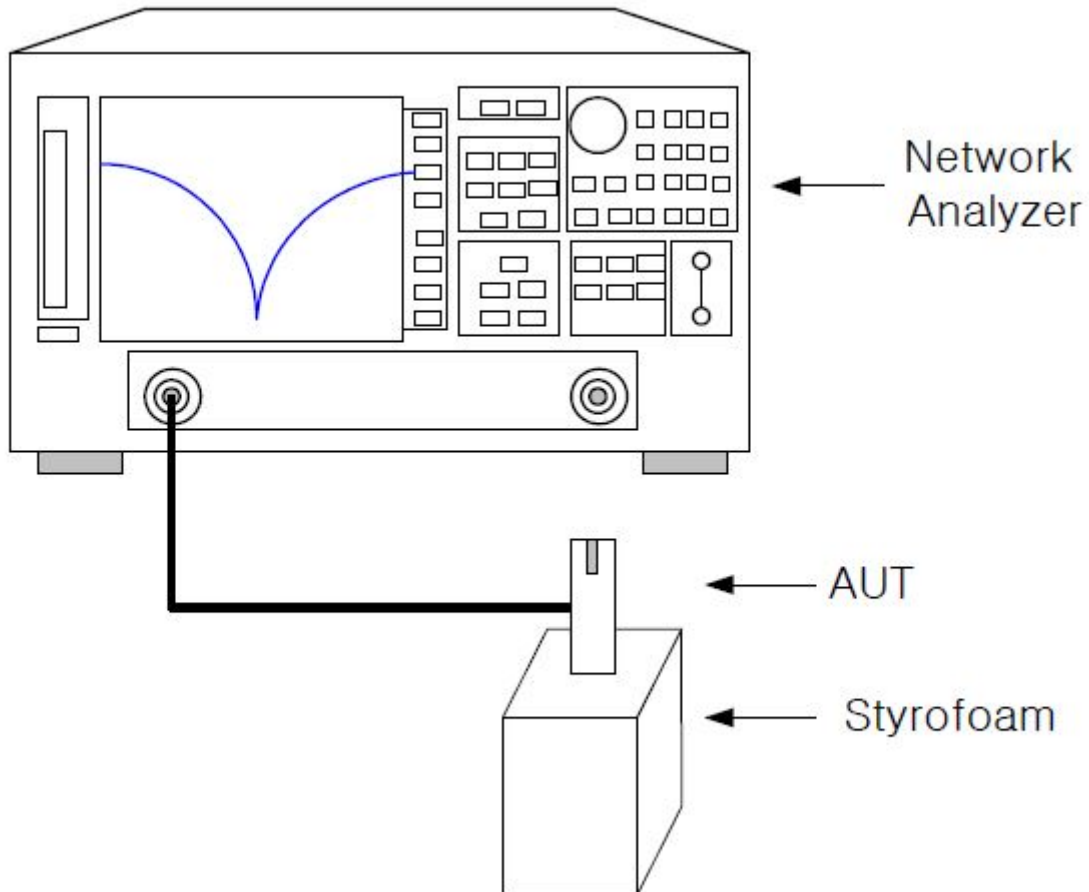




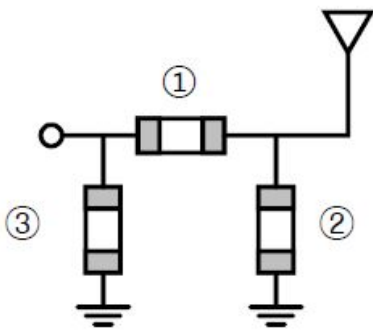
[Dimensions]

## PCB Design for Test

### Diagram for VSWR measurement



### Matching Circuit (recommend for reference test board only)

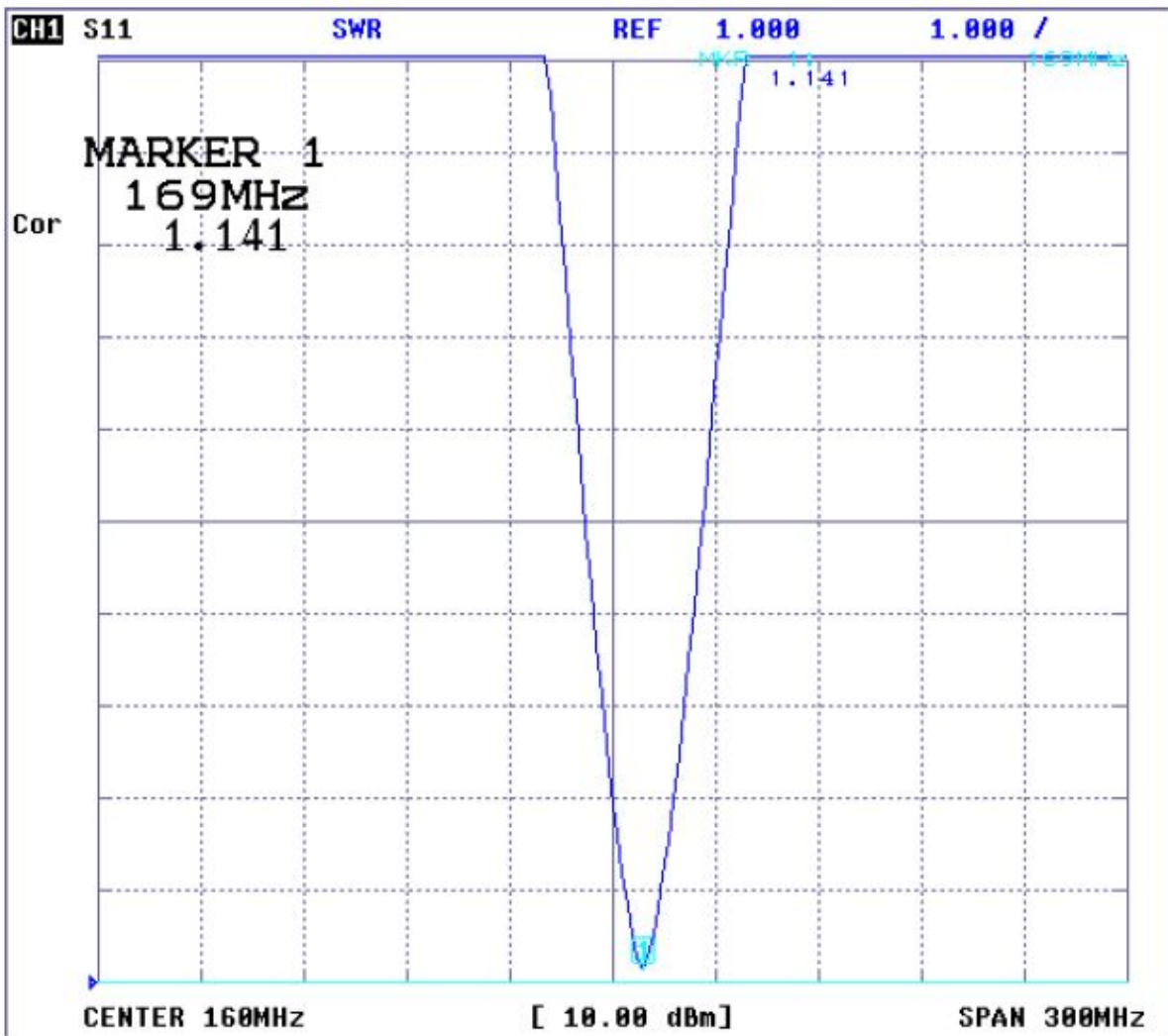


	①	②	③
Matching Value	270 nH	1pF	68nH

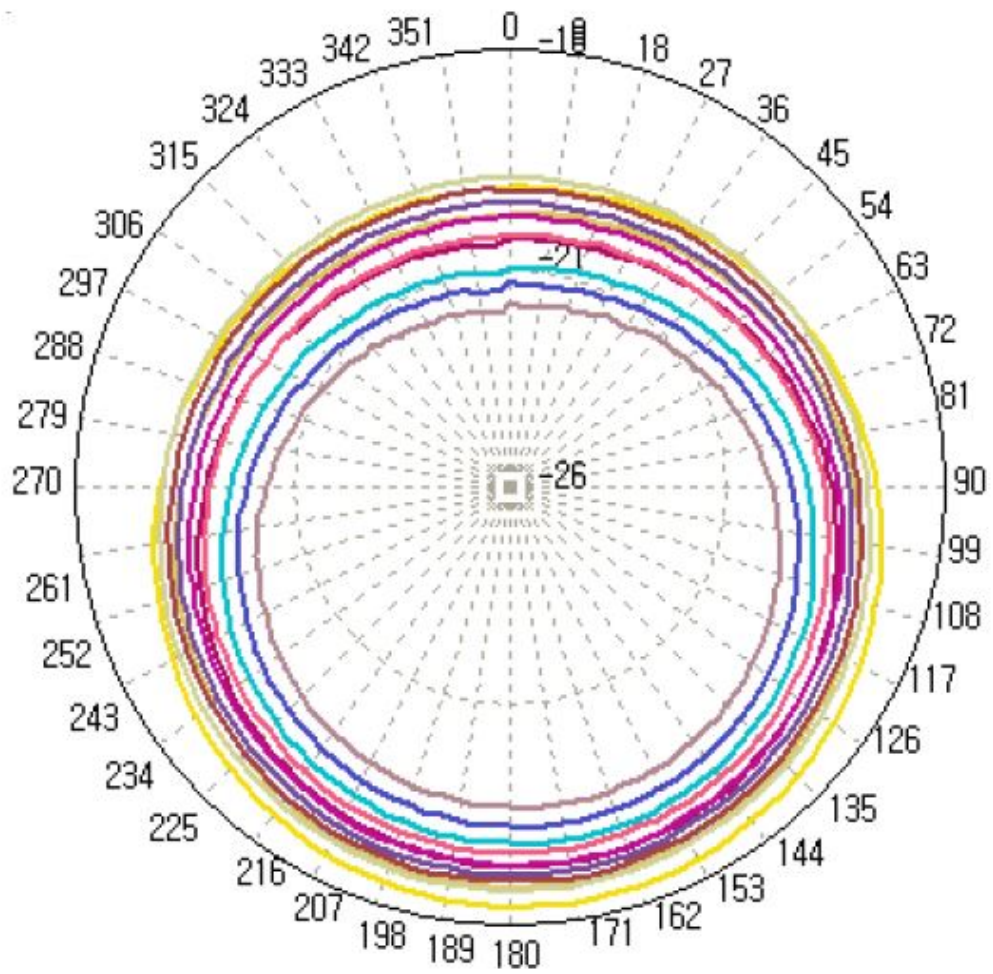
For usable matching, the **ground stability** must be guaranteed with **sufficient via holes** and the **case effects** should be considered. Finally, using one or more lumped chip elements and a tuning stub are recommended for better results.

## Electrical Characteristic

### VSWR



✓ The results are measured on the 100x45mm<sup>2</sup> evaluation board(EVB).

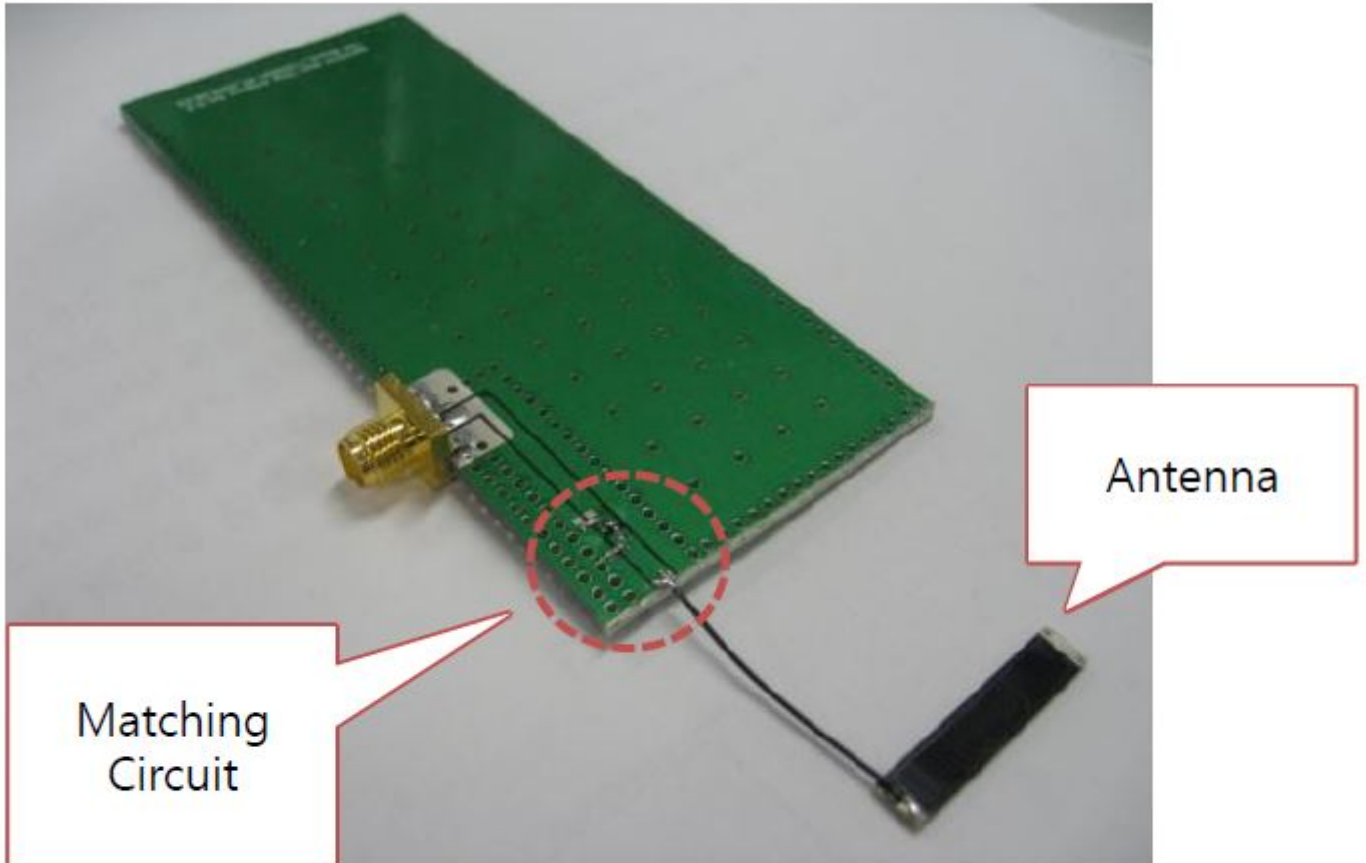




Frequency	Peak Value		Minimum Value		Avg. Gain
[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]
164	-18.637	177	-22.006	351	-20.081
165	-18.199	177	-21.54	357	-19.625
166	-17.806	171	-21.13	357	-19.234
167	-17.298	174	-20.475	351	-18.683
168	-16.804	174	-19.793	351	-18.139
169	-16.372	174	-19.183	357	-17.645
170	-17.601	171	-20.28	351	-18.83
171	-17.317	171	-19.851	0	-18.494
172	-17.112	174	-19.539	0	-18.237
173	-16.93	174	-19.236	0	-18.01
174	-16.755	174	-18.95	0	-17.788

## LAYOUT RECOMMENDATIONS

### Layout



✓100x45mm<sup>2</sup> evaluation board(EVB) + Antenna

### Design Guide

#### Placement

- Antenna should be placed to the edge of PCB.
- Place the chipset near the antenna.
- Place the matching circuit as close as possible the antenna.
- Antenna should be placed far from LCD and conducting materials like battery, EMI shielding materials, metal case, etc

## Reliability

No	Item	Test Condition	Test Requirements
1	Thermal Shock (Temperature Cycle)	<ol style="list-style-type: none"> <li>1. 1 cycle / step 1 : <math>-40 \pm 3^\circ\text{C}</math>, 30 min     step 2 : <math>+125 \pm 3^\circ\text{C}</math>, 30 min</li> <li>2. Number of cycle : 30</li> <li>3. Measure after left for 48 hrs min. at room temperature</li> </ol>	<ol style="list-style-type: none"> <li>1. No visual damage</li> <li>2. Within electric spec (VSWR)</li> </ol>
2	High Temperature Resistance	<ol style="list-style-type: none"> <li>1. Temperature : <math>+125 \pm 5^\circ\text{C}</math></li> <li>2. Time : <math>1000 \pm 24</math> hrs</li> <li>3. Measure fc after left for 24 hrs min. at room temperature</li> </ol>	<ol style="list-style-type: none"> <li>1. No visual damage</li> <li>2. Within electric spec (VSWR)</li> </ol>
3	Low Temperature Resistance	<ol style="list-style-type: none"> <li>1. Temperature : <math>-40 \pm 5^\circ\text{C}</math></li> <li>2. Time : <math>1000 \pm 24</math> hrs</li> <li>3. Measure fc after left for 48 hrs min. at room temperature</li> </ol>	<ol style="list-style-type: none"> <li>1. No visual damage</li> <li>2. Within electric spec (VSWR)</li> </ol>
4	Humidity (Steady Condition)	<ol style="list-style-type: none"> <li>1. Humidity : 85 % RH</li> <li>1. Temperature : <math>+85 \pm 3^\circ\text{C}</math></li> <li>2. Time : <math>1000 \pm 24</math> hrs</li> <li>3. Measure fc after left for 48 hrs min. at room temperature</li> </ol>	<ol style="list-style-type: none"> <li>1. No visual damage</li> <li>2. Within electric spec (VSWR)</li> </ol>

## Caution and Warranty

At warehouse:

The temperature should be within 0 ~ 30°C and humidity should be less than 75% RH. The product should be used within 6 months from the time of delivery.

## Soldering

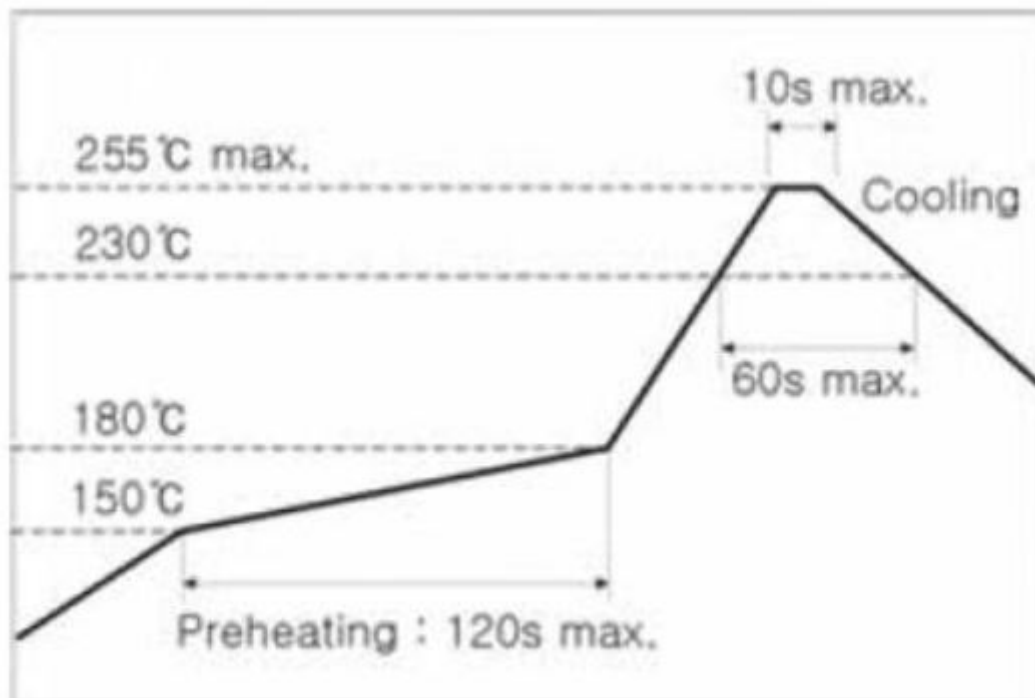
Manual Soldering( By Iron) – Pb free

- Soldering Temperature : 300°C ± 5°C, 3sec max.

(Solder : Sn/Ag/Cu:96.5/3.0/0.5)

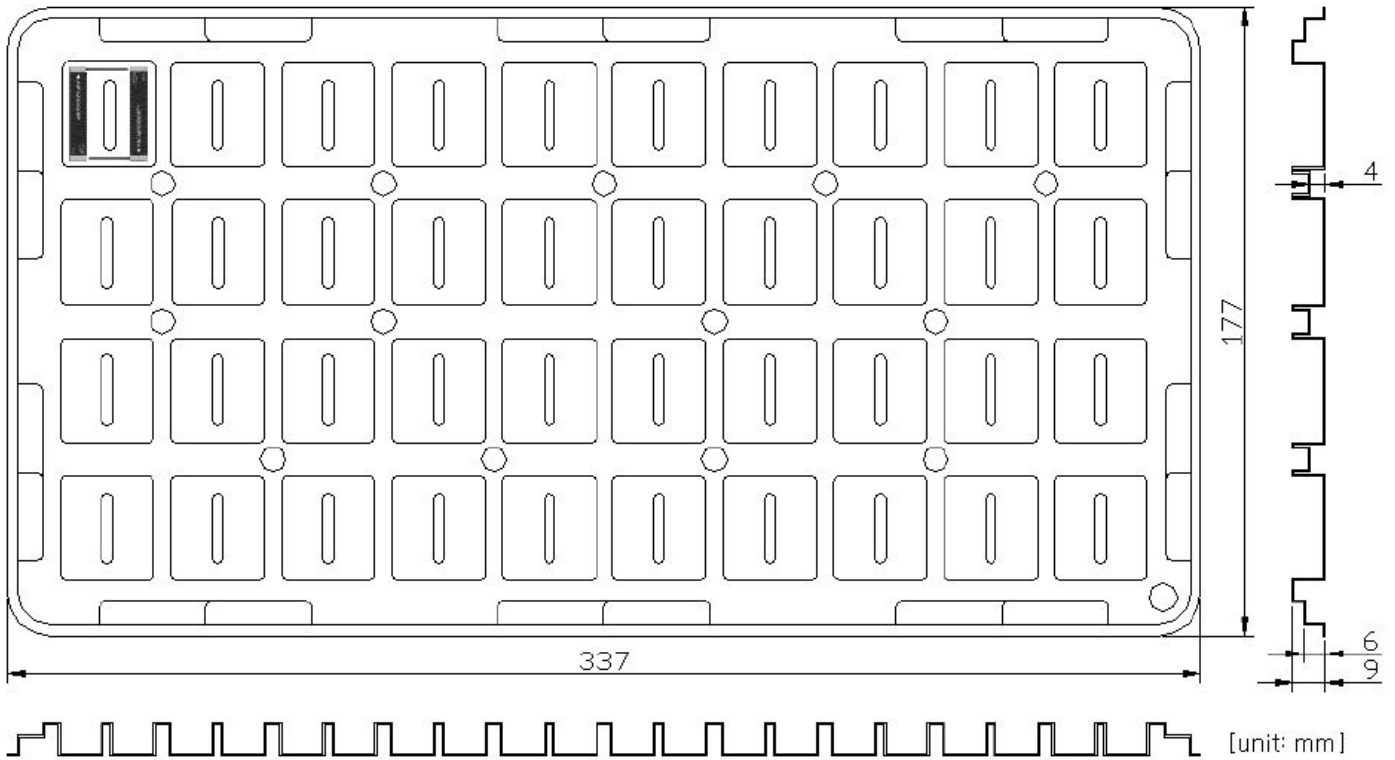
- Must comply with above soldering condition to prevent from degradation of antenna performance.

## Reflow condition



## Packaging

### Tray Dimension (unit : mm)



### Packaging Quantity

Item	Quantity	Dimension
Tray	80ea	337(L) * 177(W) * 9.0(H) (mm3)
Outer Box (Medium)	1920ea (24 tray)	375(L) * 200(W) * 205(H)(mm3)
Outer Box (Large)	3840ea (48 tray)	390(L) * 375(W) * 205(H)(mm3)