

APPROVAL SHEET

OverAir™ SMD Antenna series

RoHS Compliance

PN: CA-C01

2.4 GHz ISM band antenna

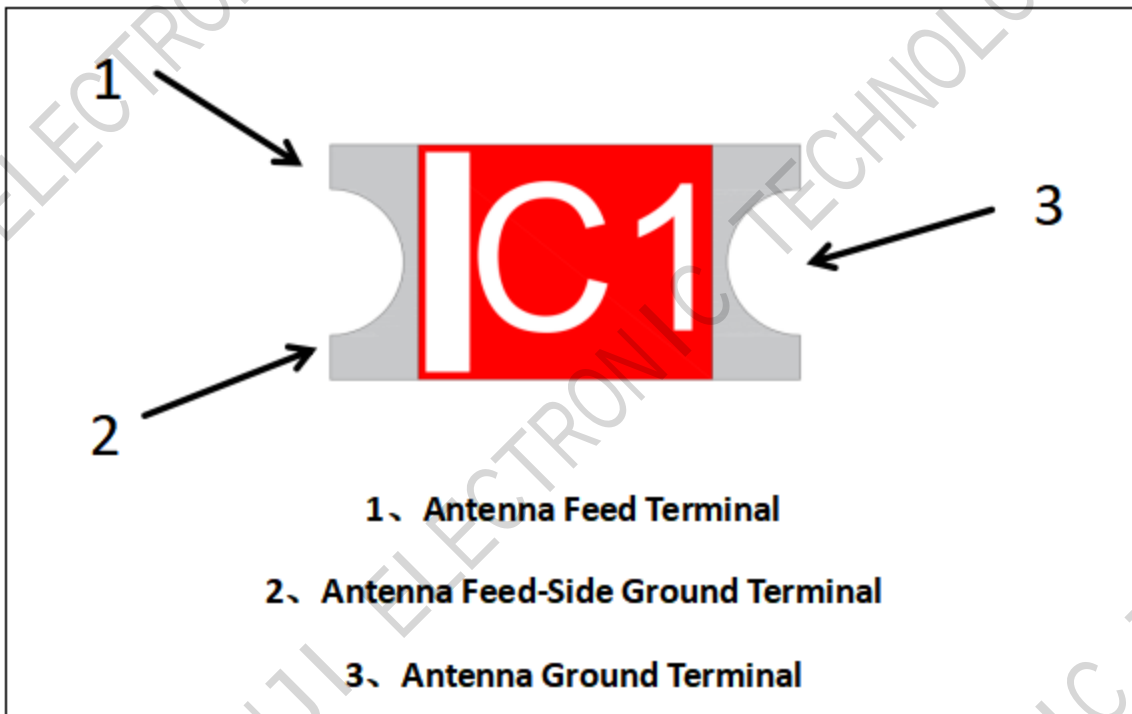
FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 3.20 X 1.60 X 0.40mm³ meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

APPLICATIONS

1. 2.4GHz ISM band RF applications
2. Bluetooth, ZigBee, Wireless, HomeRF

CONSTRUCTION



DIMENSIONS

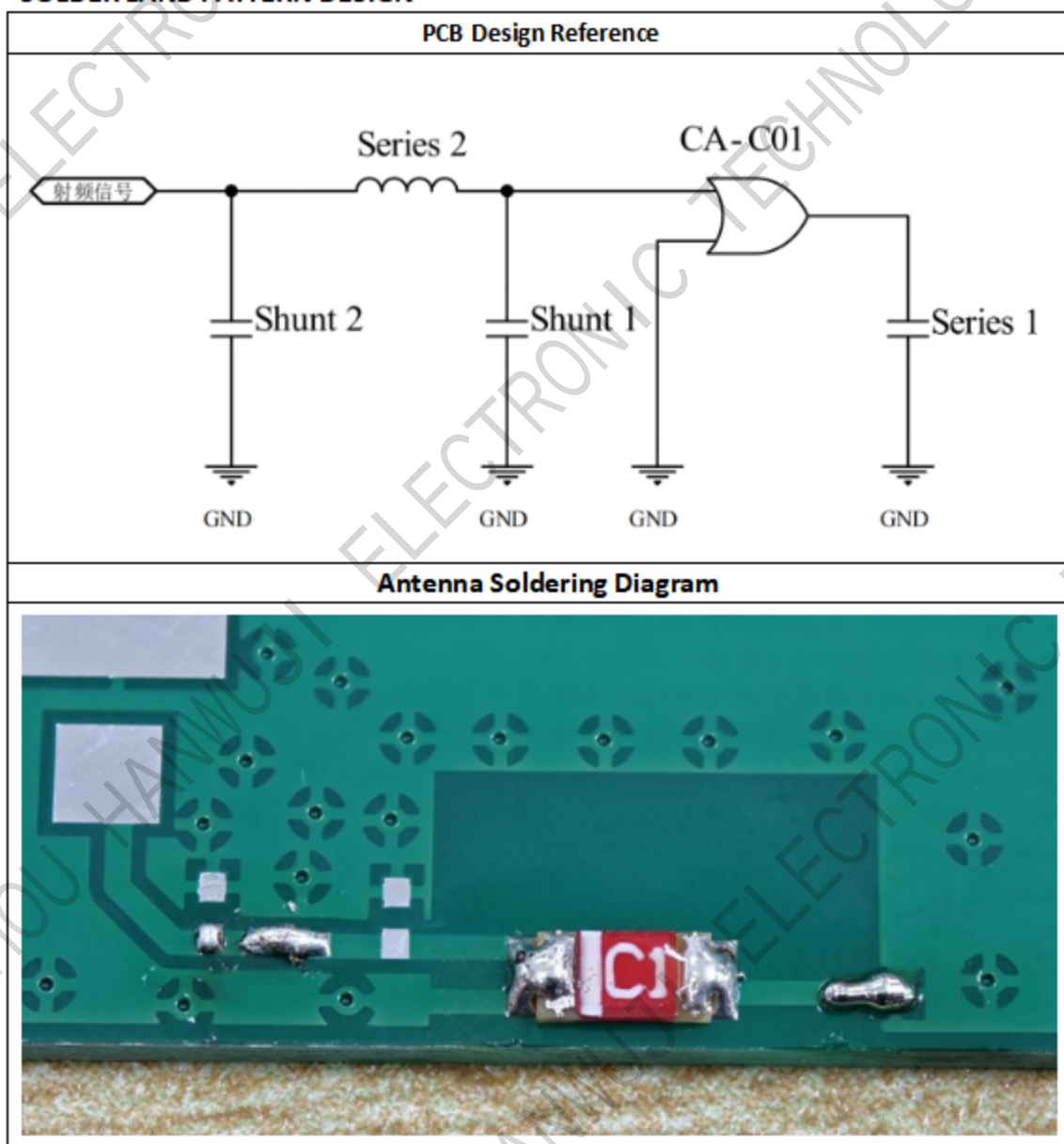
Figure	Symbol	Dimension(mm)
	L	3.20 ± 0.10
	W	1.60 ± 0.10
	T	0.40 ± 0.05
	a	0.60 ± 0.10

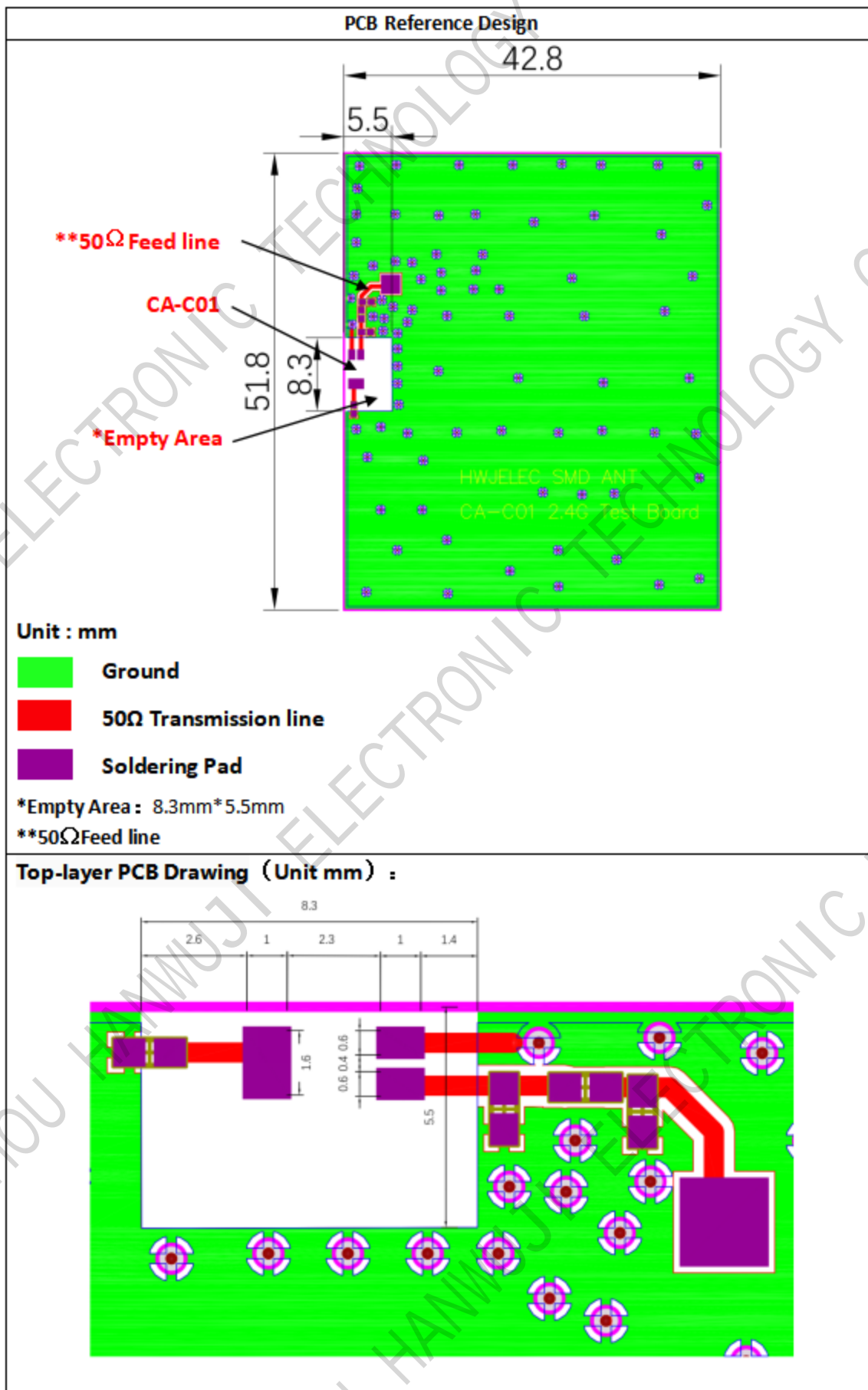
ELECTRICAL CHARACTERISTICS

CA-C01	Specification
Working Frequency	2450±50MHz
Band Width	>100MHz
Impedance	50Ω
Gain(dBi)	2.96
VSWR	<2
Operation Temperature	-40℃~+85℃
Power Capacity	3W

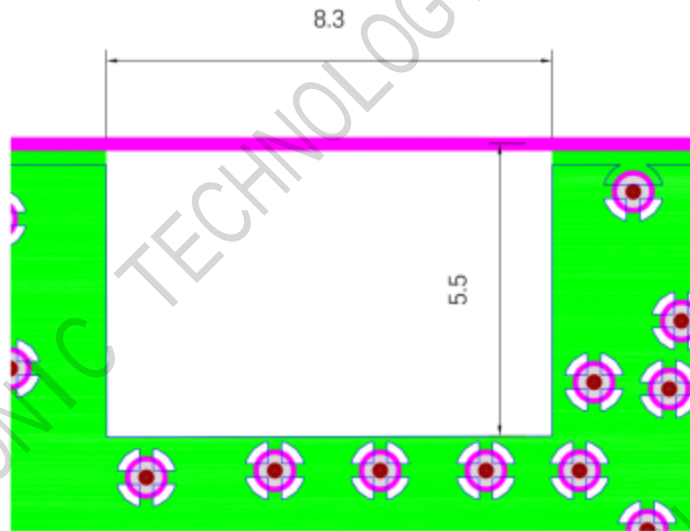
The working frequency need be adjusted to 2.45GHz with matching circuit.

SOLDER LAND PATTERN DESIGN





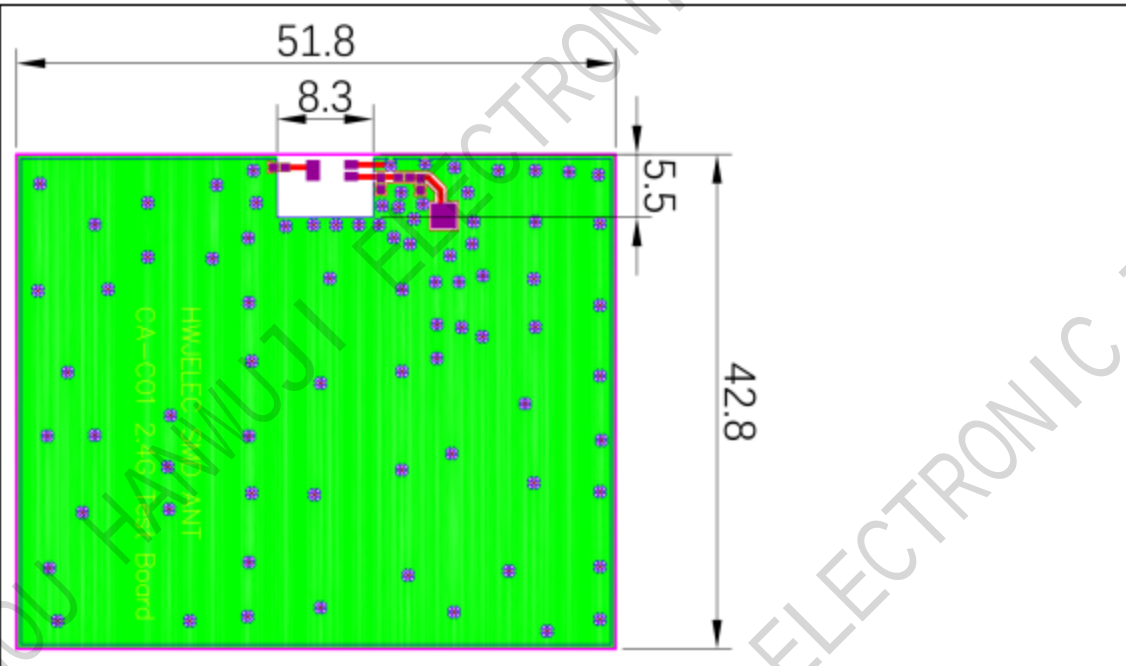
Bottom-layer PCB Drawing (Unit mm) :



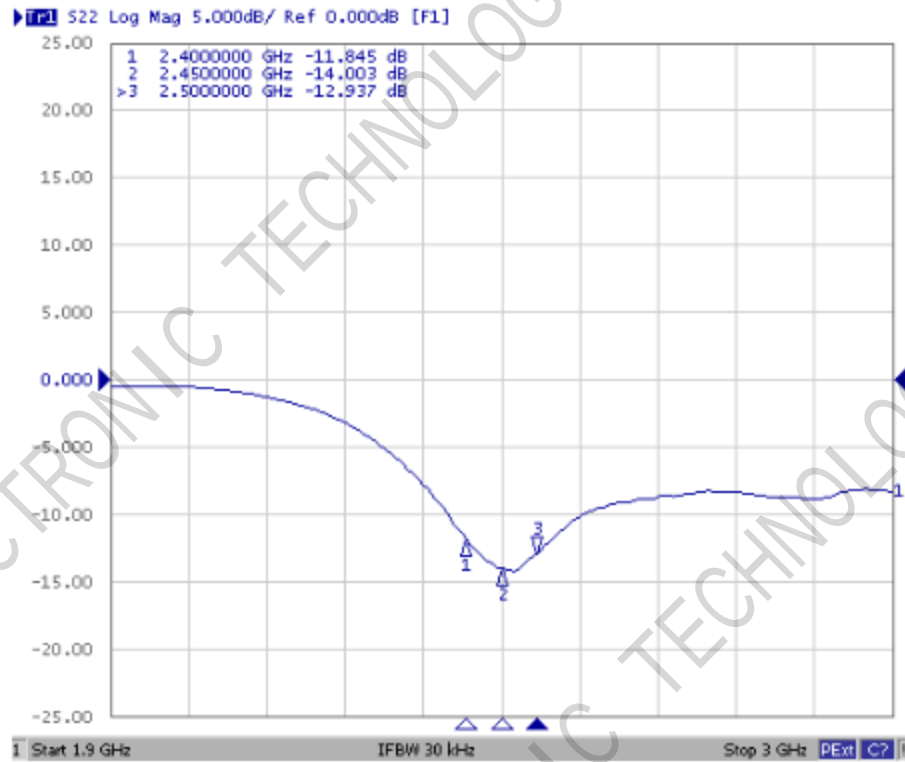
Matching component value

Series 1	0.75pF
Shunt 1	1pF
Series 2	1.8nH
Shunt 2	NC

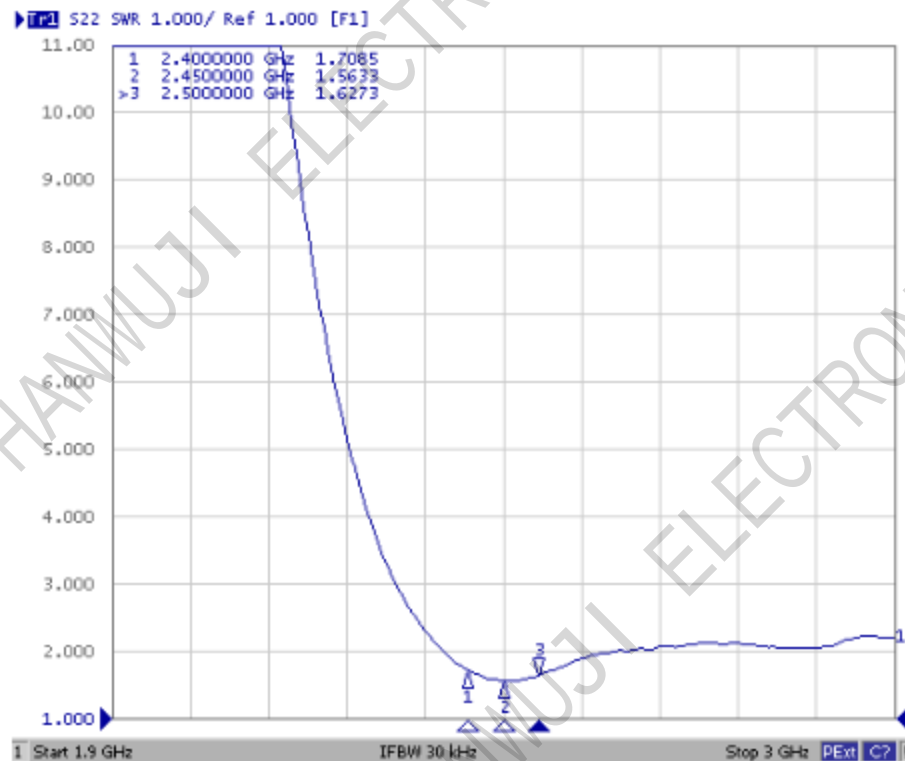
Antenna on Test Board (Thickness 1.0mm)



Antenna S11 on Test Board

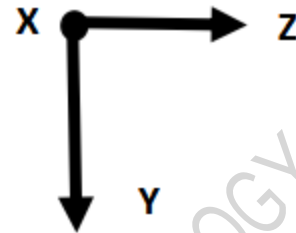
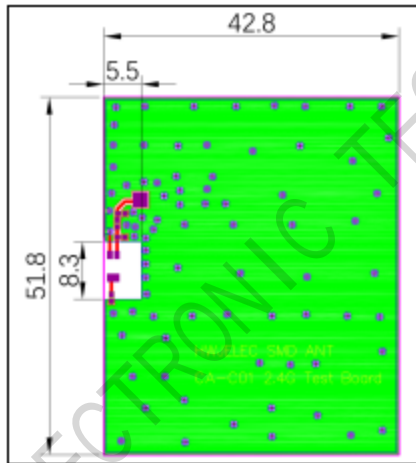


Antenna VSWR on Test Board



Efficiency and RADIATION PATTERN

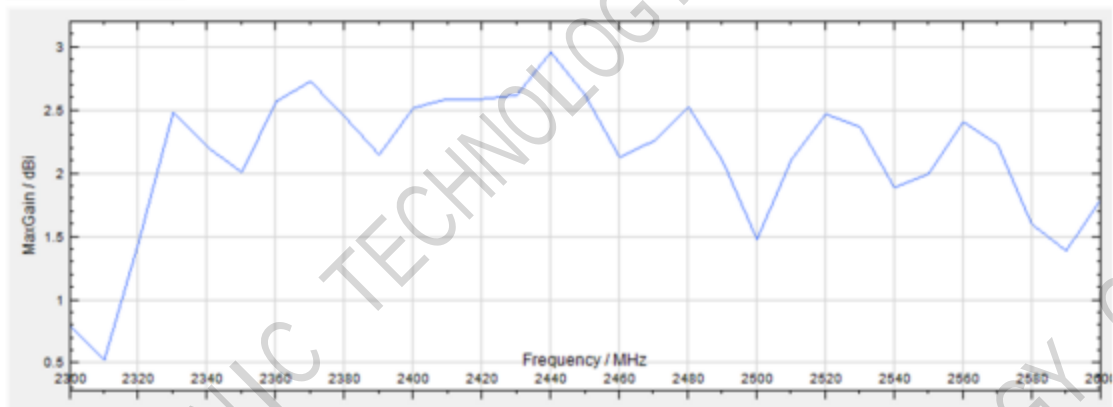
Efficiency , Radiation Pattern and Gain were dependent on measurement board design. The specification of CA-C01 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.



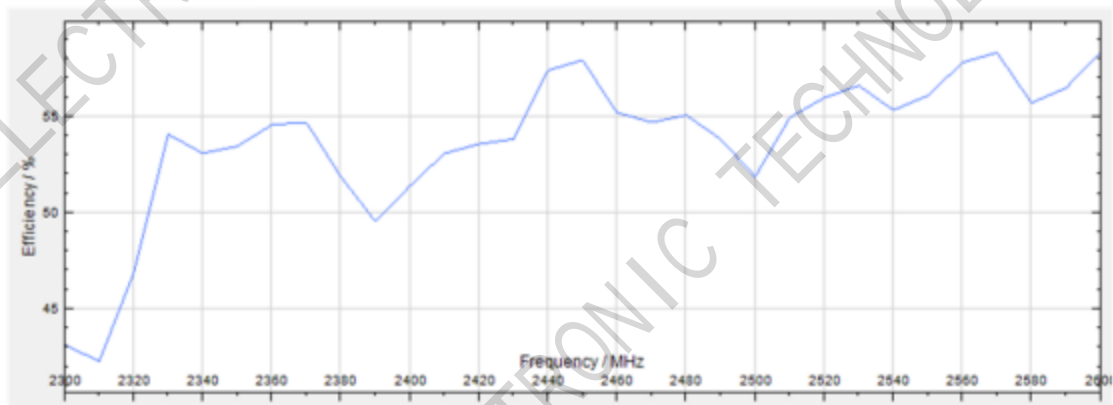
Gain and Efficiency

Frequency/MHz	MaxGain/dBi	Efficiency / %
2400	2.52	51.4
2410	2.59	53.09
2420	2.59	53.58
2430	2.62	53.83
2440	2.96	57.41
2450	2.62	57.94
2460	2.13	55.21
2470	2.26	54.7
2480	2.53	55.08
2490	2.1	53.83
2500	1.48	51.88

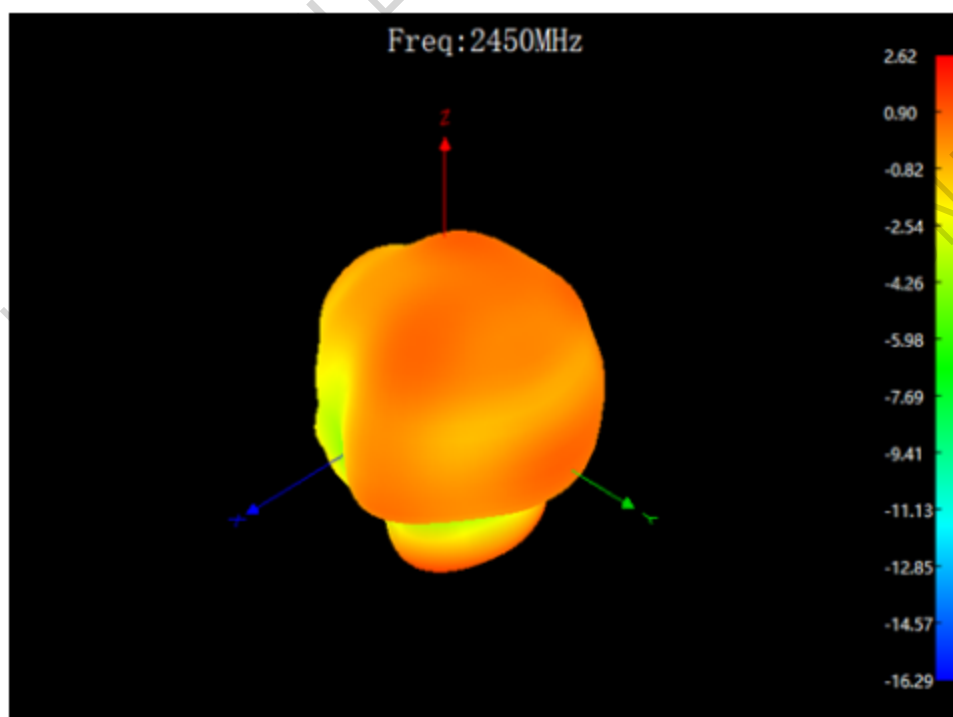
Antenna Gain



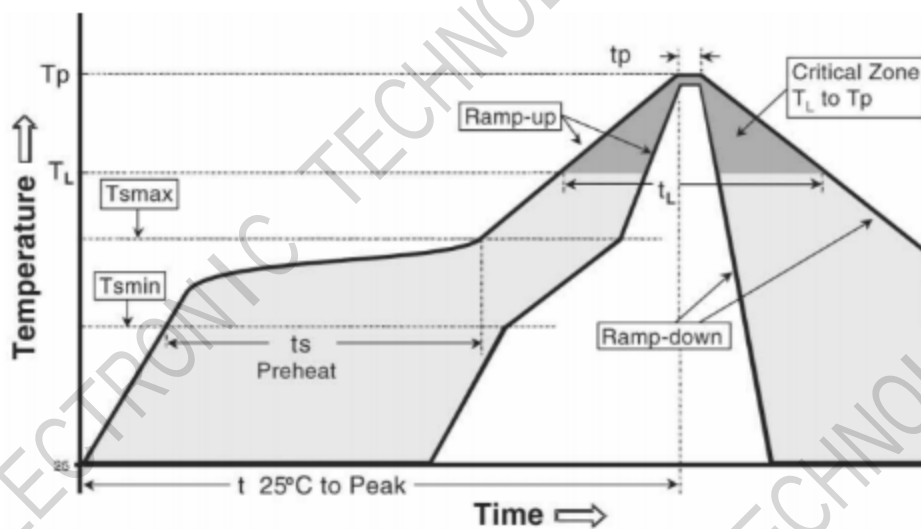
Antenna Efficiency



3D direction diagram

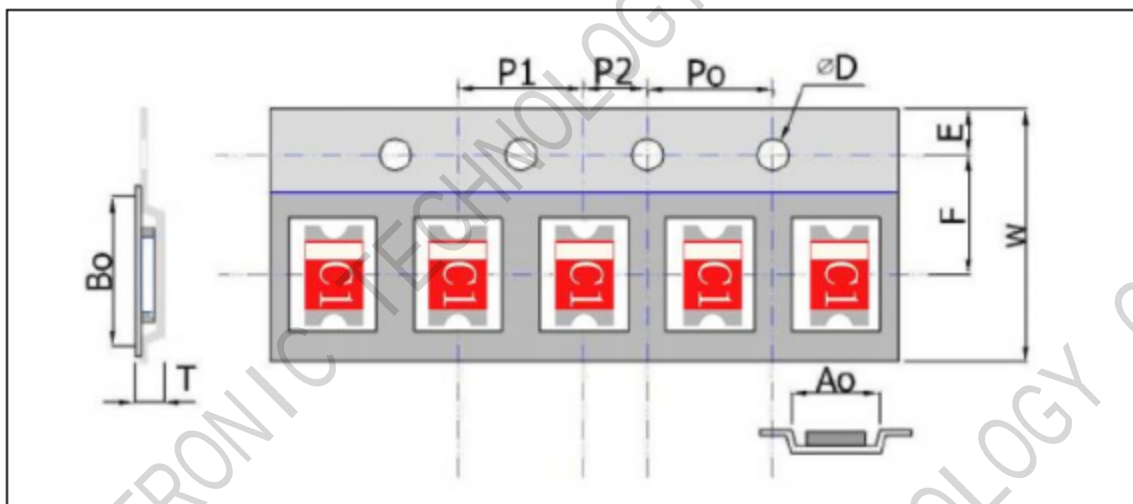


Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (T _{max} to T _p)	3 °C / second (max.)
PREHEAT	- Temperature Min (T_{min}) - Temperature Max (T_{max}) - Time (t_{min} to t_{max})	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (T_L) - Total Time above T_L (t_L)	217 °C 60-150 seconds
PEAK	- Temperature (T_p) - Time (t_p)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

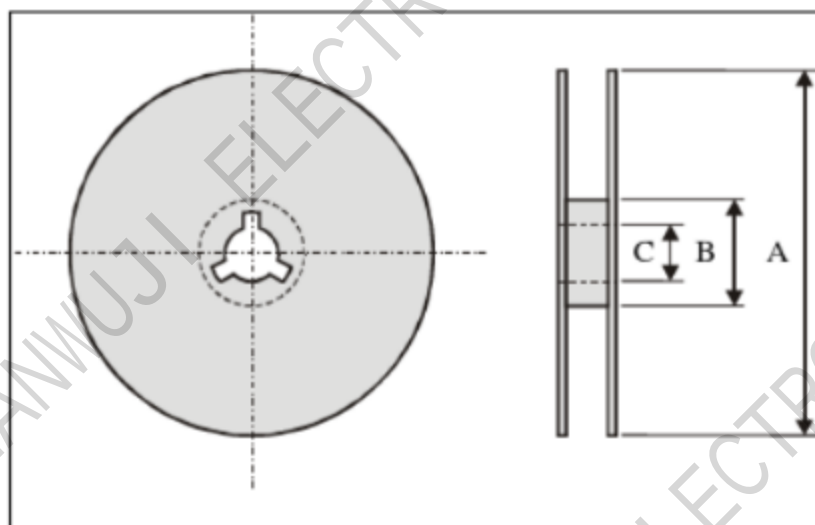
PACKAGING



Plastic Tape specification (unit:mm)

Index	A_0	B_0	ϕD	T	W
Dimension (mm)	2.0 ± 0.1	3.6 ± 0.1	1.55 ± 0.05	0.9 ± 0.1	8.2 ± 0.1
Index	E	F	P_0	P_1	P_2
Dimension (mm)	1.75 ± 0.1	3.2 ± 0.1	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.1

Reel dimensions



Index	A	B	C
Dimension(mm)	178	60	13.5

Typing Quantity: 3000 pieces per reel.

CAUTION OF HANDLING**Storage environment condition**

Products should be storage in the warehouse on the following conditions:

Temperature : -10℃~+40℃

Humidity : 30% to 70% relative humidity

Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.

Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.

Products should be storage under the airtight packaged condition.

Contact Us

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