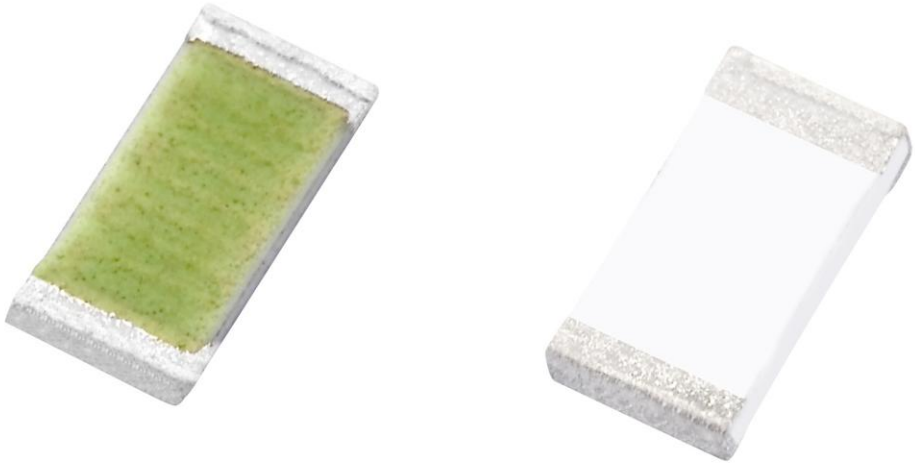
SPECIFICATION

Part No.	:	**CA.50**
Product Name	:	5150-5900 MHz Ceramic Chip Monopole Antenna Wi-Fi/ WHDMI / 5GHz ISM Band
Feature	:	3.2mm *1.6mm * 0.5mm Low profile Peak gain 3.4 dBi Compact Size RoHS Compliant



1. Introduction

Taoglas´ 5150-5900 MHz ceramic chip antenna is specifically designed for Wi-Fi/ WHDMI/ High Bandwidth 5GHz band applications. It is a high efficiency miniature SMD edge mounted ceramic monopole antenna with small footprint requirement. This ceramic chip antenna uses the main PCB as its ground plane, thereby increasing antenna efficiency. It is tuned for different PCB sizes by simply changing the value of the matching circuit. CA.50 antenna electrical properties are symmetrical therefore the antenna can be soldered to the board from either side. At 3.2mm*1.6mm*0.5mm, it is one of the smallest antennas available worldwide. This antenna is delivered on tape and reel.

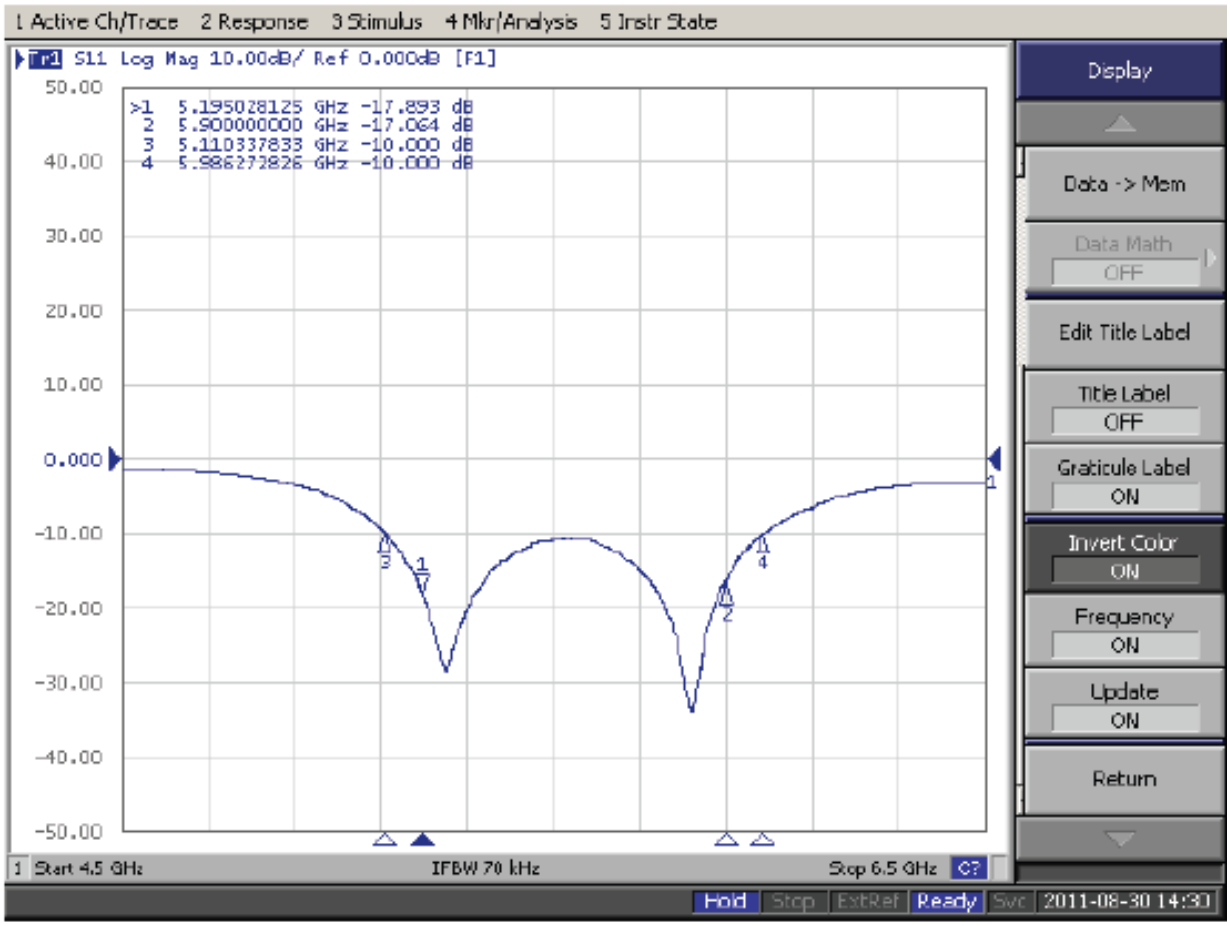
Applications

IEEE802.11a (5150-5900 MHz)
WHDMI PCMCIA cards, USB dongles, High Bandwidth Video Transmission

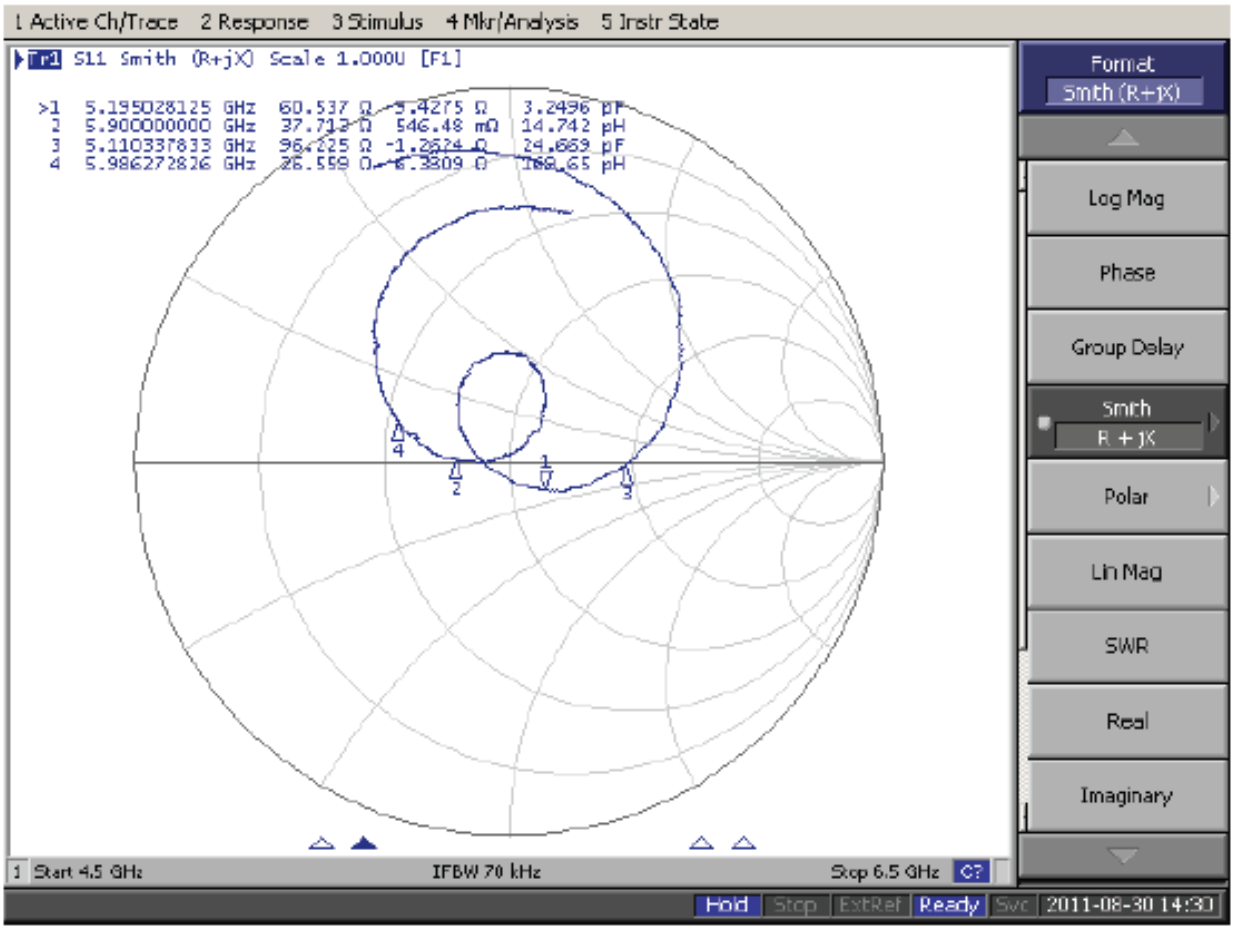
2. Specification Table

Electrical	
Center Frequency (MHz)	5500
Bandwidth (MHz)	750 min.
Peak Gain (dBi)	3.4 (typical)
Efficiency (%)	79 (typical)
VSWR	2 max.
Impedance (Ω)	50Ω
Polarization	Linear
Radiation Pattern	Omni
Input Power(W)	50
MECHANICAL	
Dimensions (mm)	3.2 x 1.6 x 0.5
Ground plane (mm)	40x40
Material	AS 6
ENVIRONMENTAL	
Temperature Range	-40°C to 85°C
Temperature Coefficient of Frequency (ppm/°C)	0±20 max. (@-40°C to 85°C)
Humidity	Non-condensing 65°C 95% RH

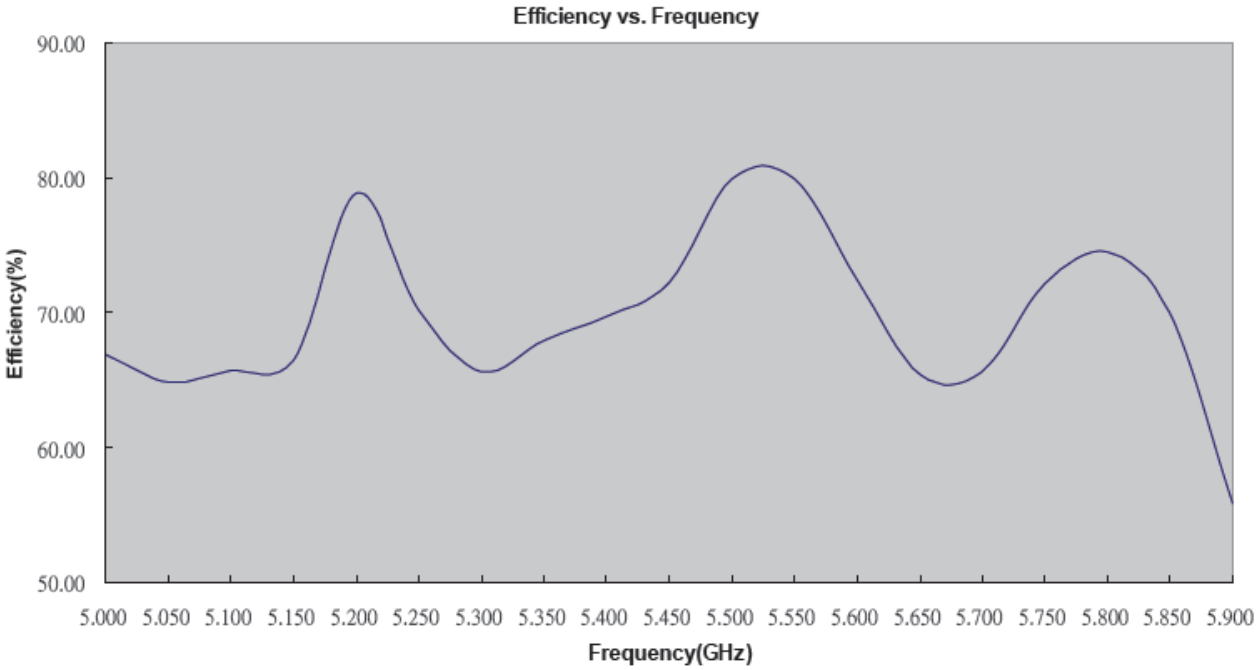
3. Return Loss



4. Smith Chart



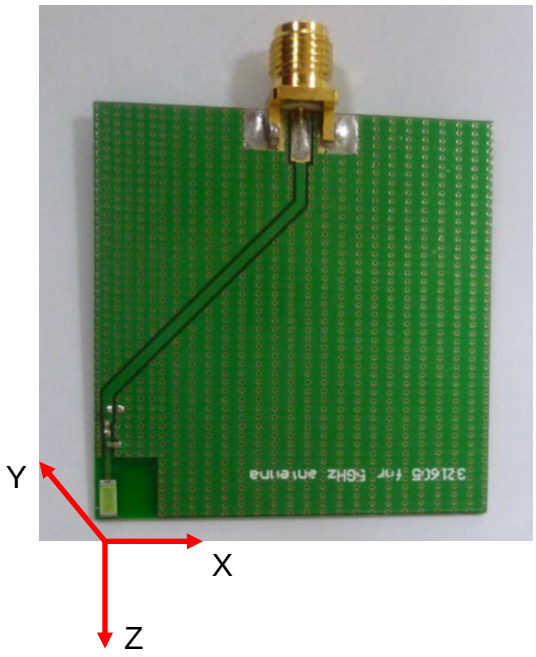
5. Efficiency



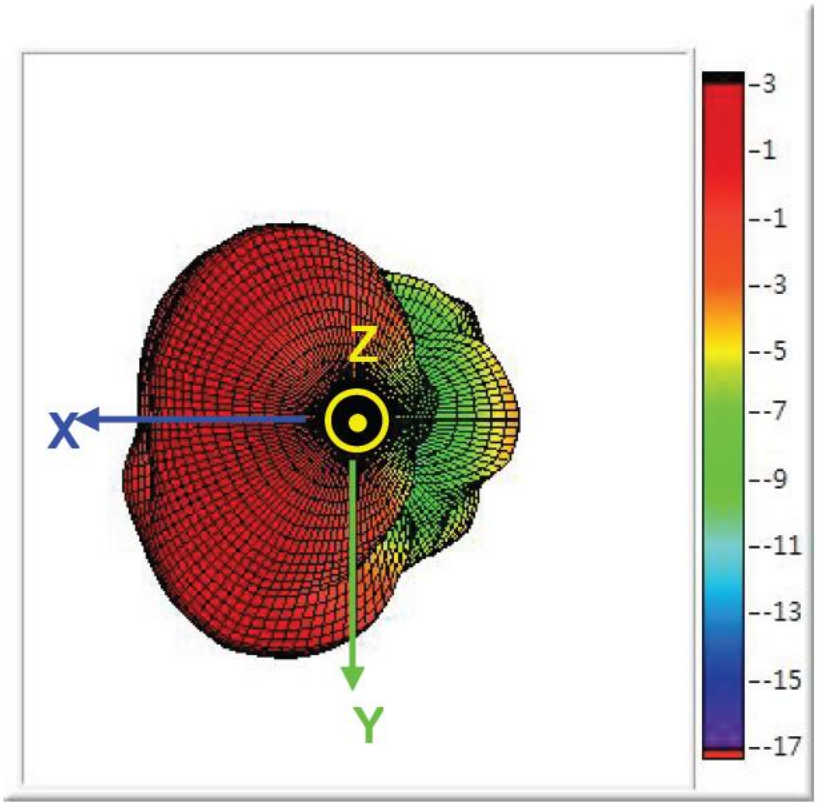
Frequency(GHz)	5.000	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450
Efficiency(dB)	-1.75	-1.88	-1.82	-1.77	-1.03	-1.54	-1.83	-1.68	-1.57	-1.41
Efficiency(%)	66.83	64.86	65.75	66.53	78.89	70.15	65.61	67.92	69.66	72.28
Gain(dBi)	2.66	2.22	2.00	2.76	3.22	2.56	2.25	2.53	2.77	3.45

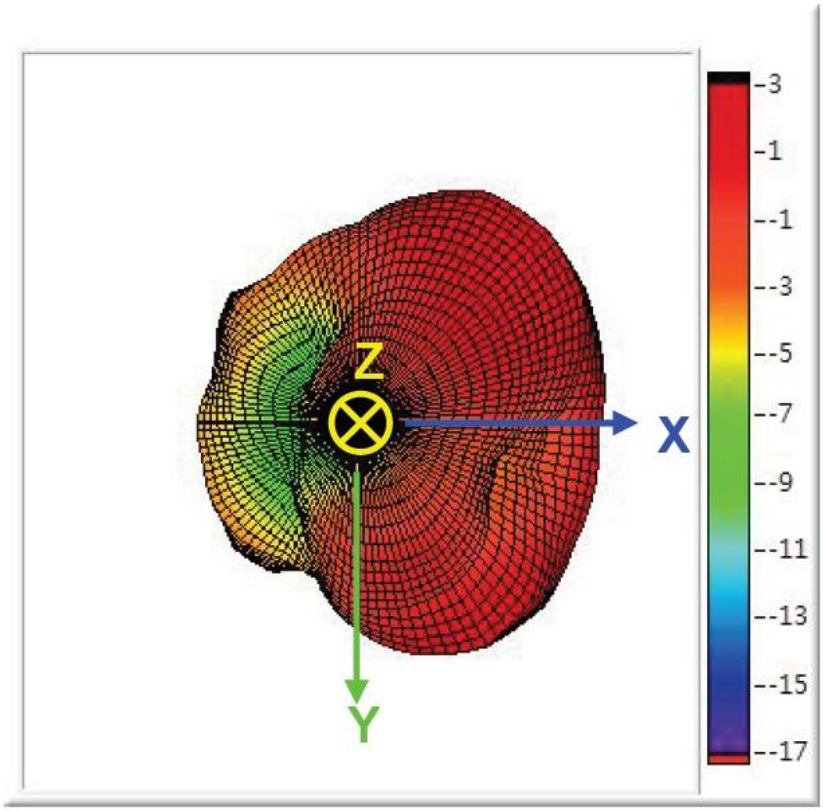
Frequency(GHz)	5.500	5.550	5.600	5.650	5.700	5.750	5.800	5.850	5.900
Efficiency(dB)	-0.97	-0.97	-1.40	-1.84	-1.83	-1.42	-1.28	-1.55	-2.53
Efficiency(%)	79.98	79.98	72.44	65.46	65.61	72.11	74.47	69.98	55.85
Gain(dBi)	3.42	3.35	3.14	2.80	2.86	3.28	3.59	3.40	2.56

6. Antenna Radiation Patterns



6.1 3D Gain pattern @ 5150 MHz

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X
Y
-3
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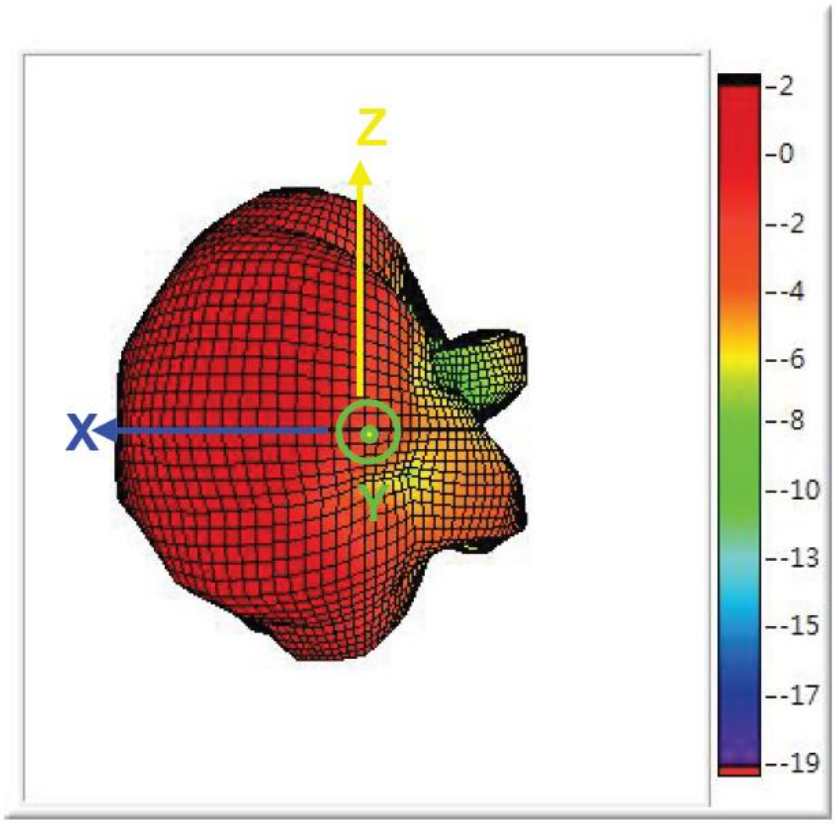
Z
X
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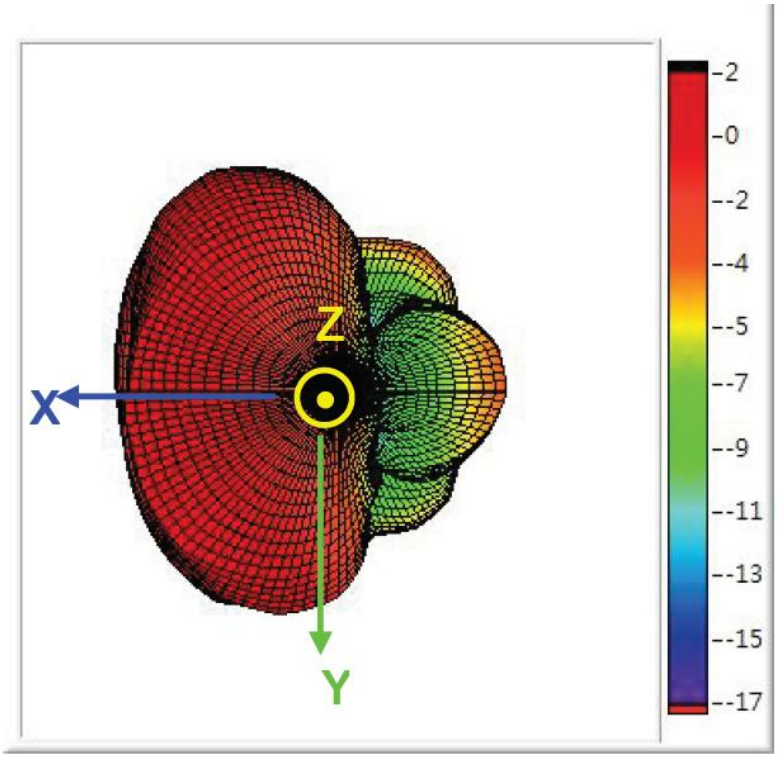
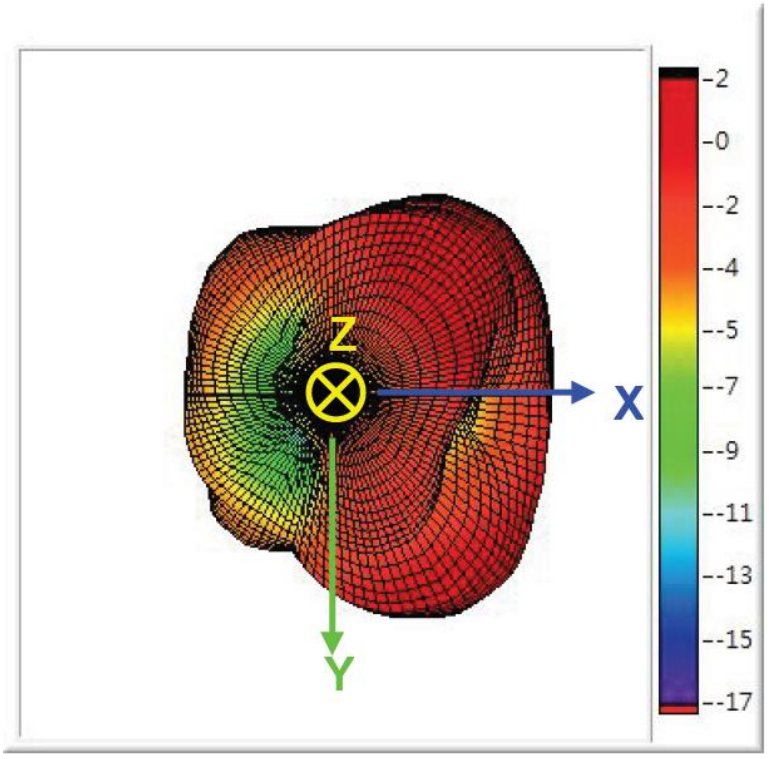
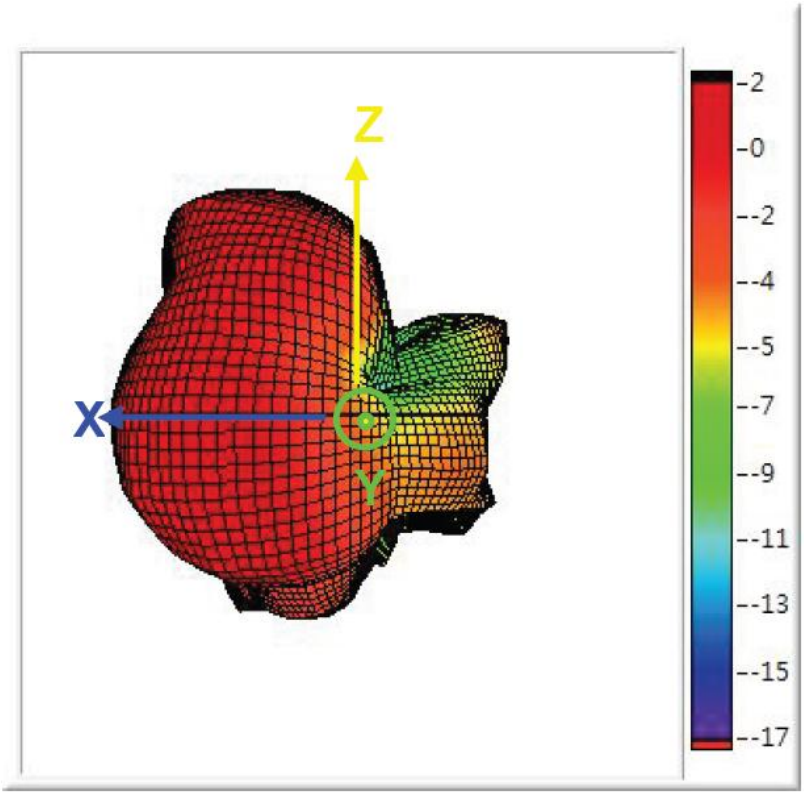
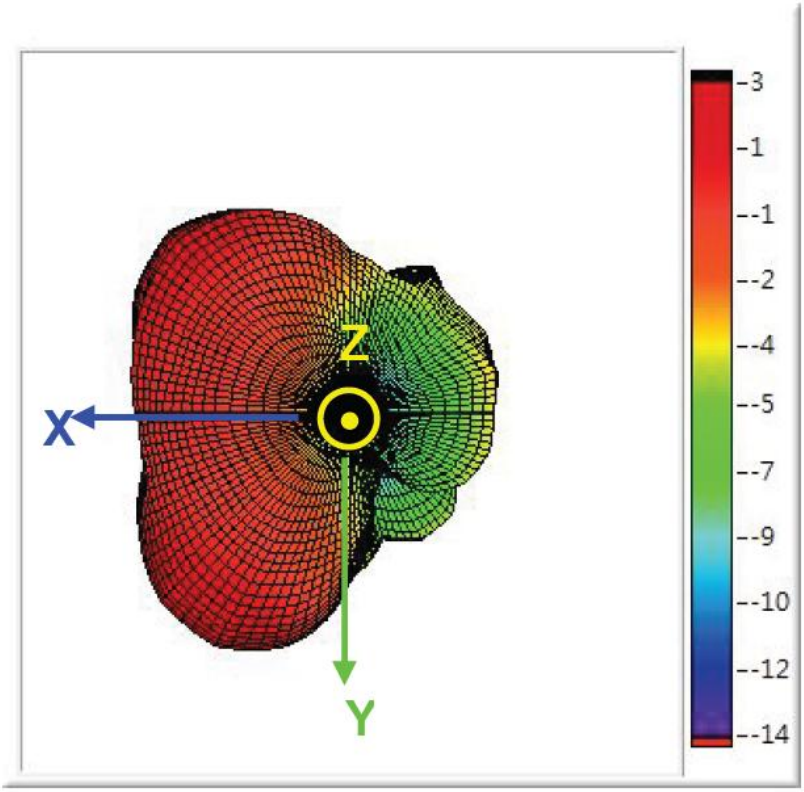
6.2 3D Gain pattern @ 5350 MHz

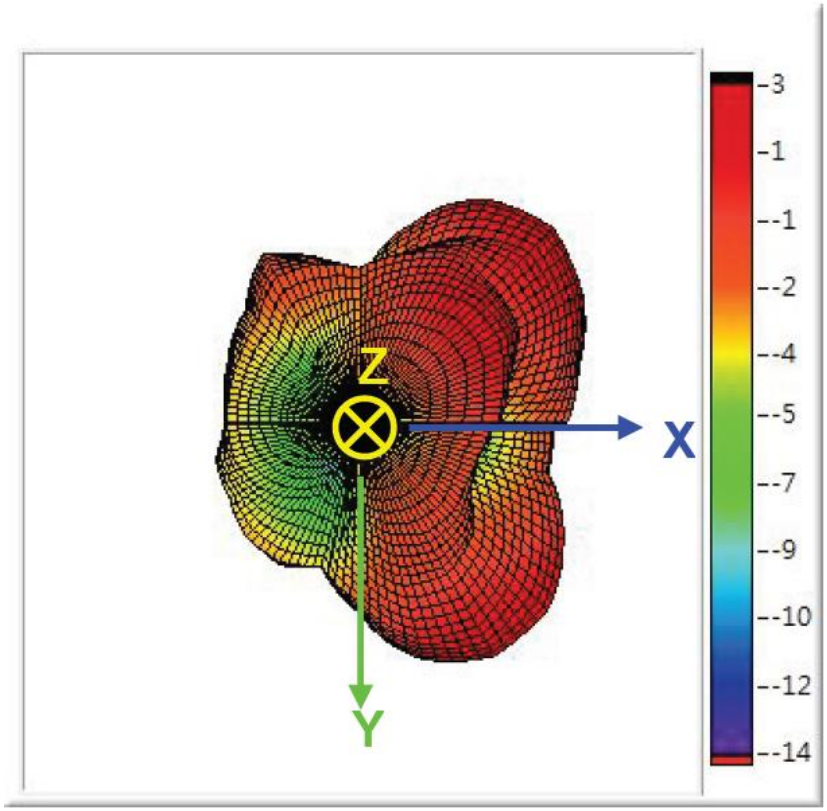






6.3 3D Gain pattern @ 5700 MHz

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--12
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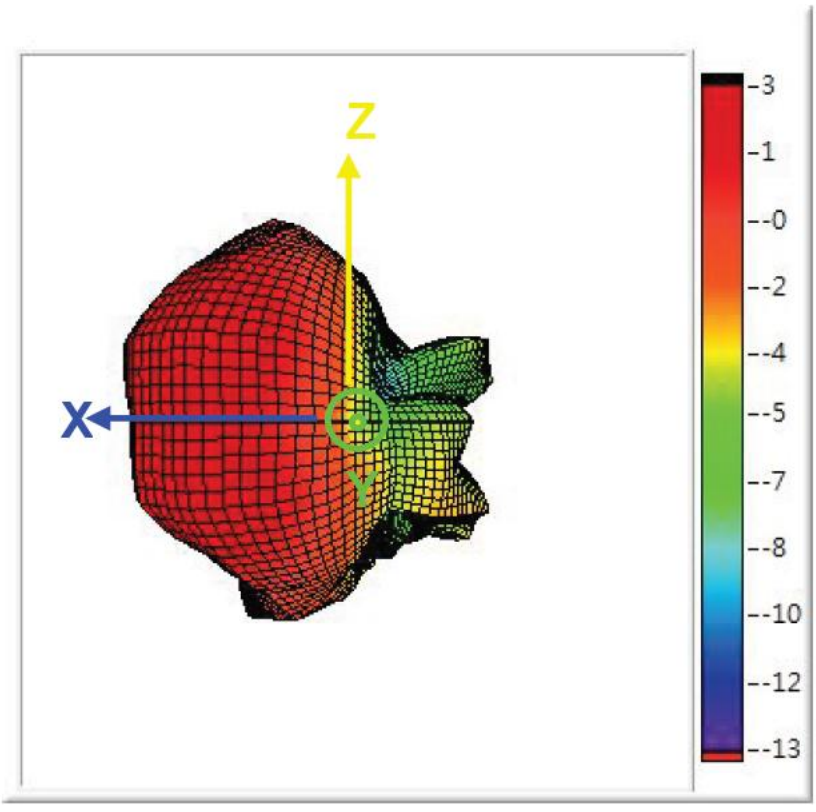
Z
X
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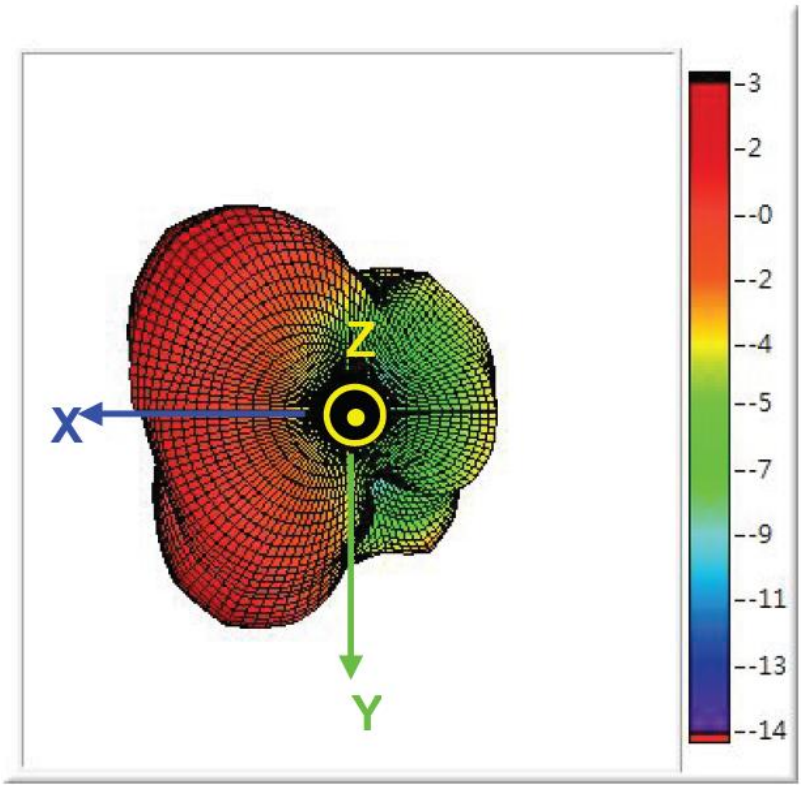
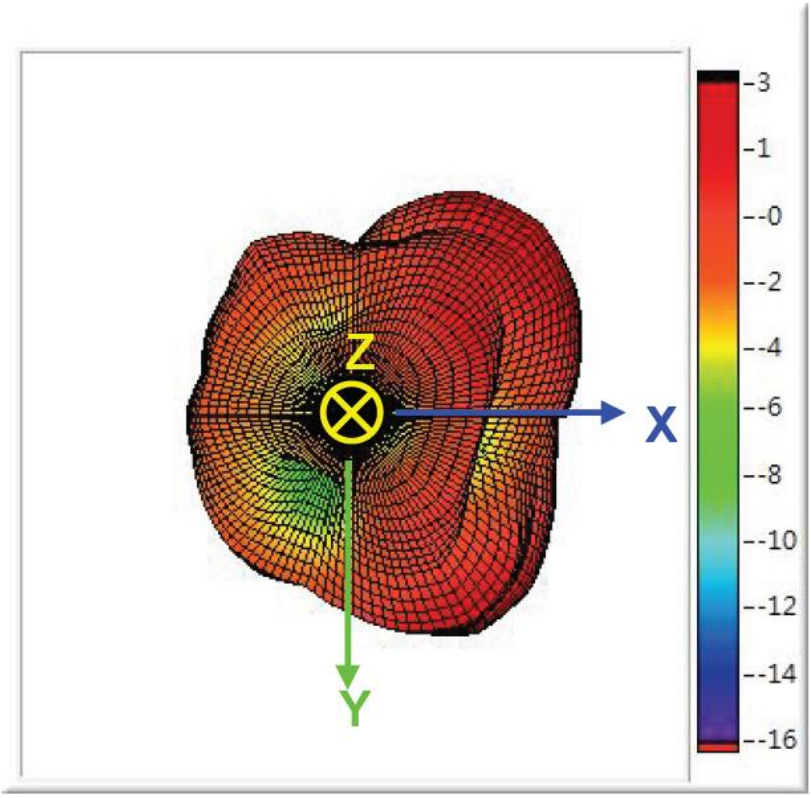
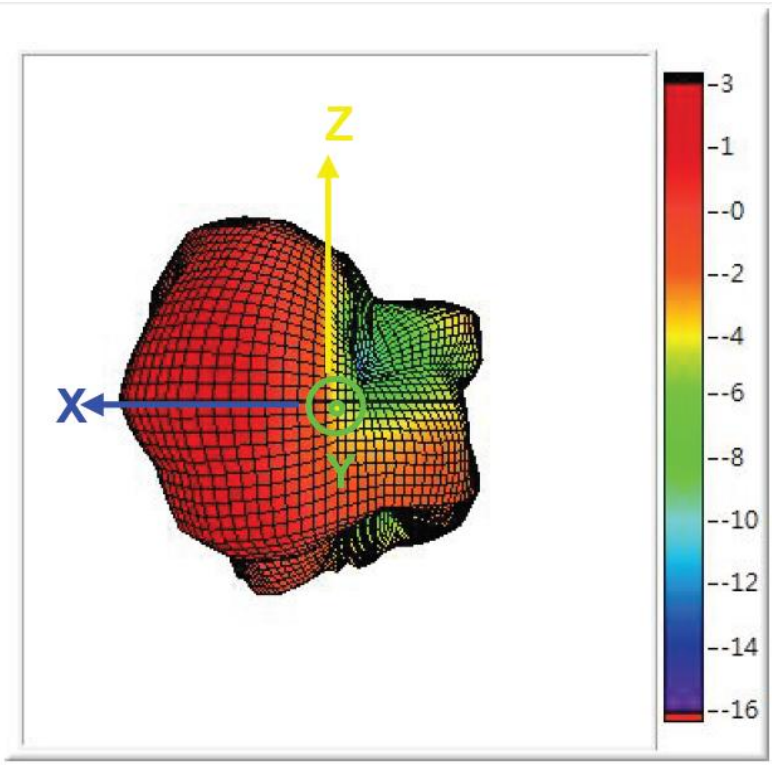
6.4 3D Gain pattern @ 5850 MHz






Z
X
Y
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-1
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--12
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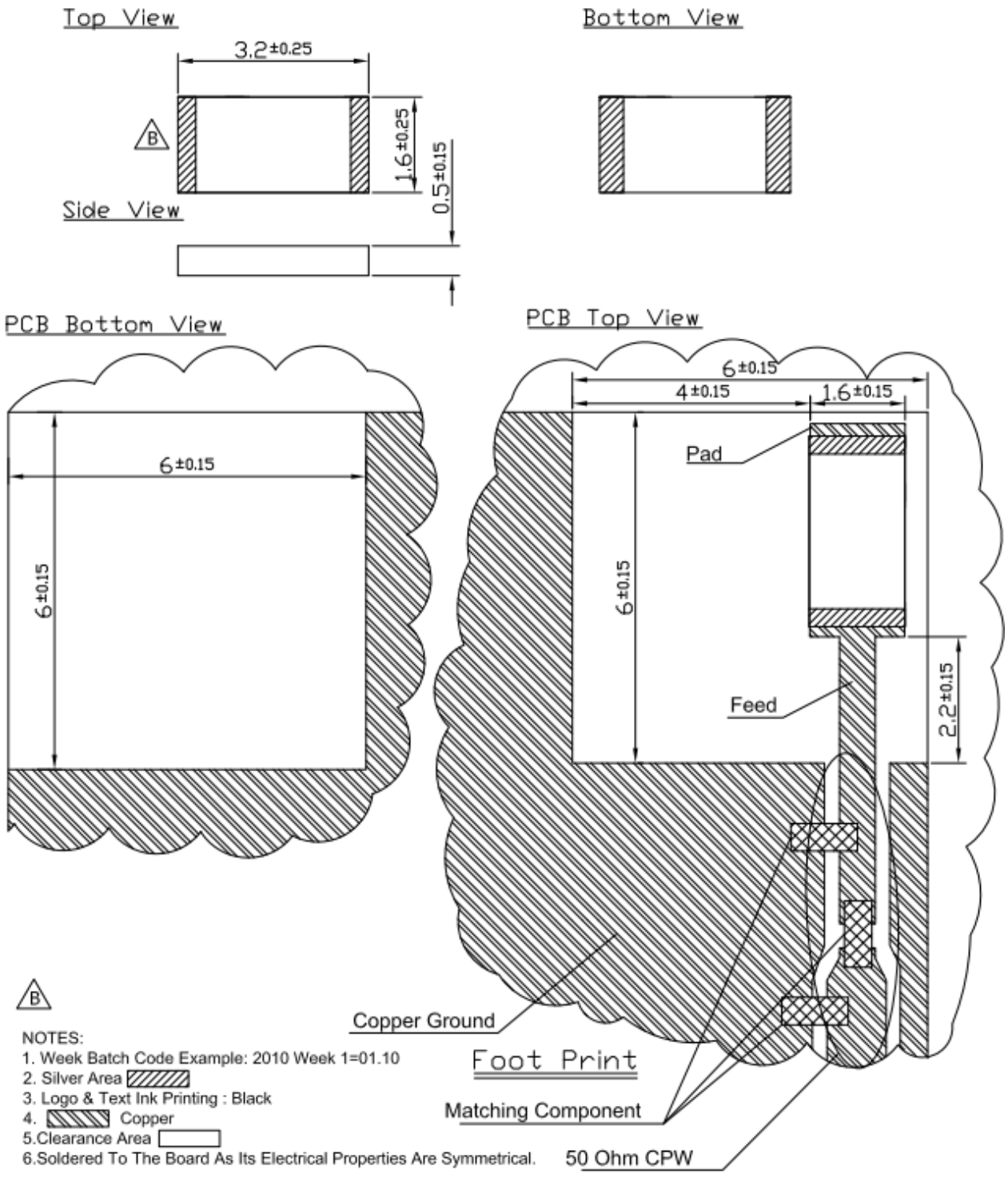
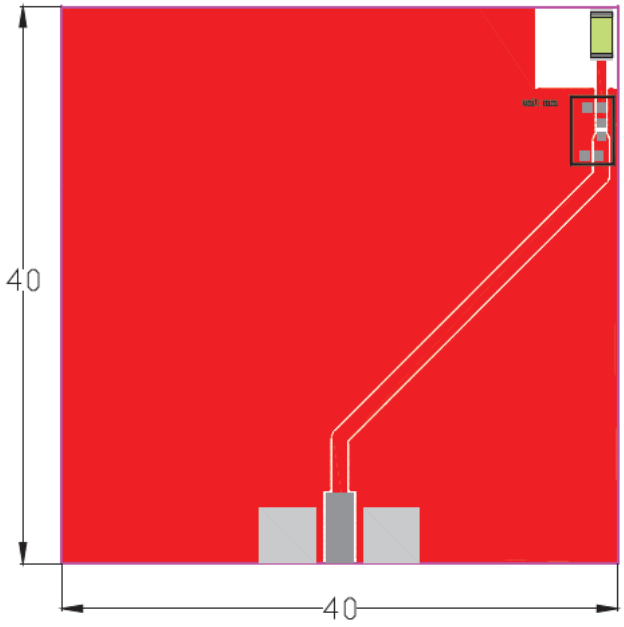
--16

7. Mechanical Drawing

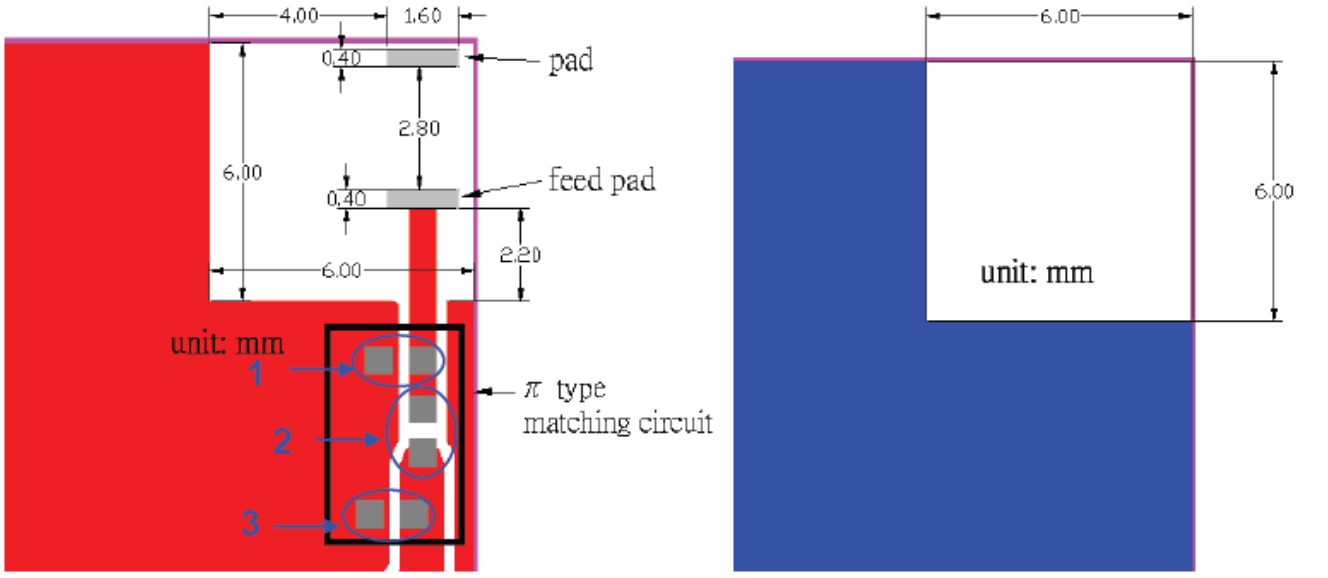




Unit：mm

8. Layout Guide

Solder Land Pattern:

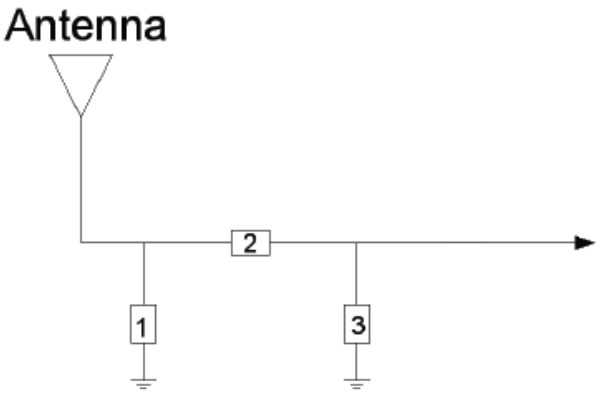


Top View

Back View

Unit : mm

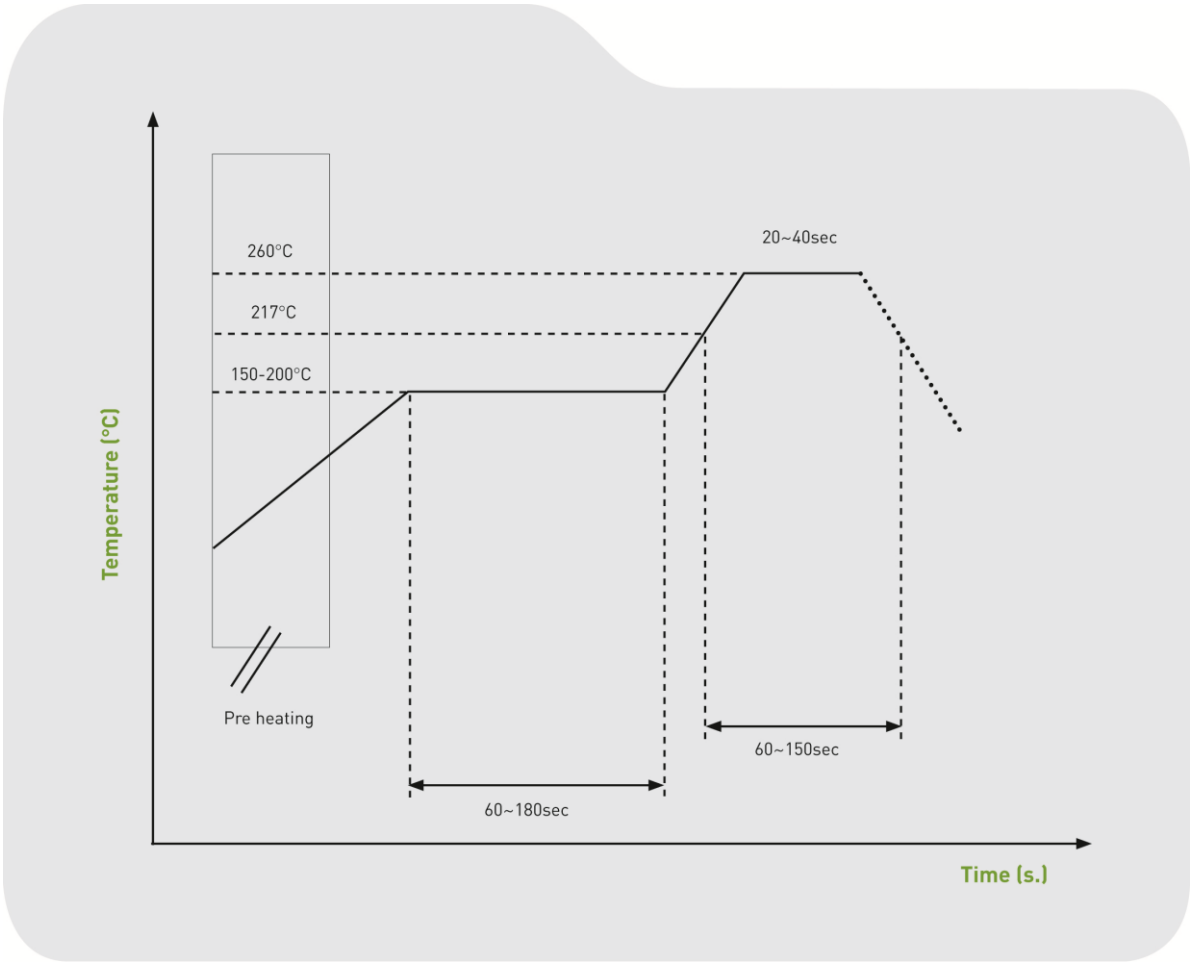
Matching circuit: (Center frequency is 5500MHz at 40x40mm ground plane)



System Matching Circuit Component		
Location	Description	Vendor
1	0.3pF	DARFNO(0402)
2	4.7pF	DARFNO(0402)
3	0.47pF	DARFNO(0402)

9. Soldering Conditions

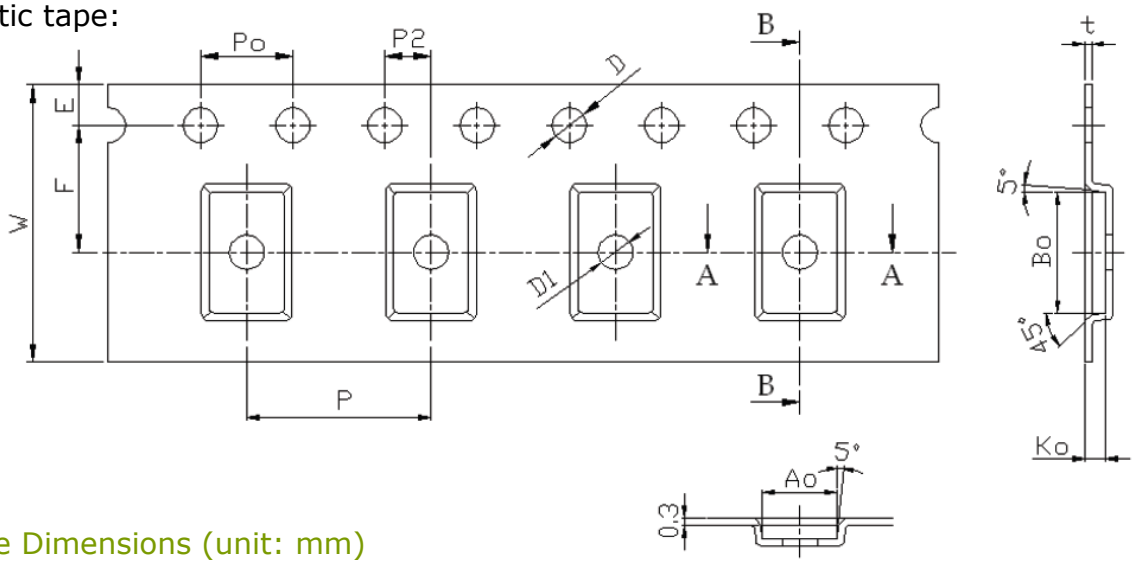
Typical Soldering profile for lead-free process:



10. Packing

Quantity: 6000pcs/ Reel

Plastic tape:



Tape Dimensions (unit: mm)

Feature	Specification	Tolerance
W	12.00	±0.30
P	8.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 / -0.00
D1	-	±0.10
Po	4.00	±0.10
10Po	40.00	±0.20

Pocket Dimensions (unit: mm)

Feature	Specification	Tolerance
Ao	1.9	+0.20 -0.10
Bo	3.5	
Ko	0.60	±0.05
t	0.30	±0.05

1. Cumulative tolerance of 10 pocket hole pitch: ±0.20mm
2. Carrier camber not to exceed 1mm in 250mm
3. Ao and Bo measured on a plane above the inside bottom of the pocket
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier
5. All dimensions meet EIA-481-B requirements
6. Material – Clear non Anti-Static Polystyrene, Black Conductive Polystyrene

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