

NGCL5030US0R433G1TRF

433 MHz ISM Chip Antenna



Features

- Stable and reliable performance
- Low Profile, Compact Size
- Low Temperature coefficient of frequency
- RoHs Compliant

Applications

- ISM 433 band
- Smart Meters
- Wireless alarm and security system
- Industrial monitoring and control
- IOT applications
- LPD433



Specifications

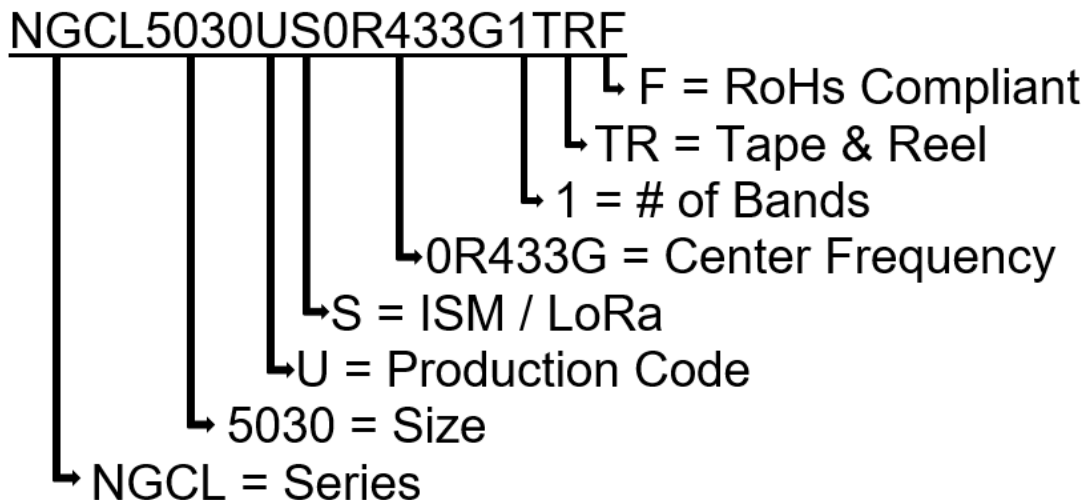
Electrical

Frequency Range	433.05 ~ 434.79MHz	
Center Frequency	433 MHz	
Ground Plane Dimensions	150 mm x 100 mm	80 mm x 40 mm
Peak Gain	0.2 dBi typ.	-7.3 dBi typ.
Efficiency	62% typ.	12% typ.
V.S.W.R	2.0 max	
Maximum Input Power	2 W	
Polarization	Linear	
Impedance	50 Ω	

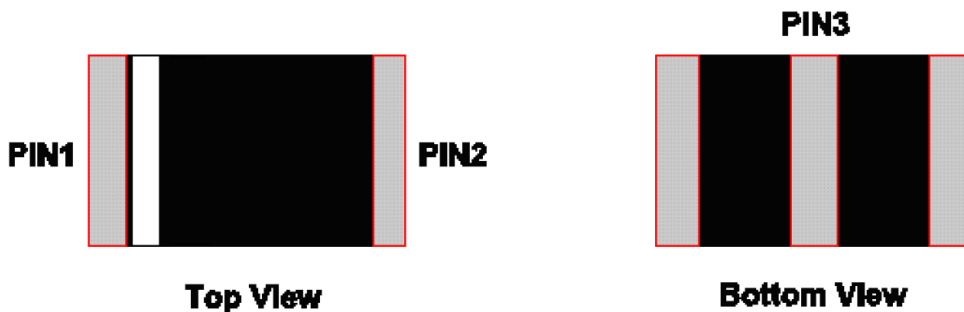
Environmental

Operating Temperature	-40°C~+85°C
Storage Temperature	-5°C~+40°C -40°C~+85°C - After mounting on PCB
Relative Humidity	10% to 70% - Operating & Storage after mounting on PCB 20% to 70% - Storage
Shelf Life	1 year
RoHs Compliant	Yes

Part Number Breakdown

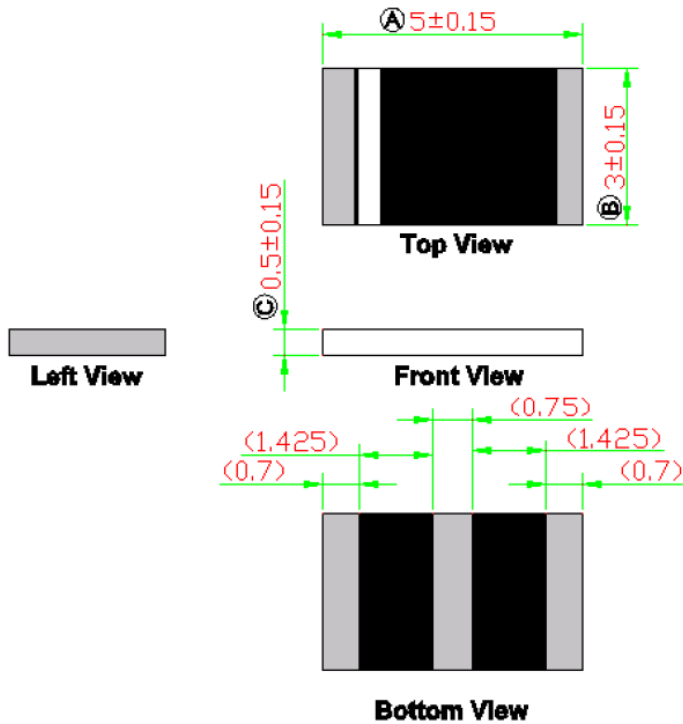


Pin Definition



Item	PIN 1	PIN 2	PIN 3
Terminal	Signal	Tuning / Ground	Soldering Pad

Dimension Drawing



NOTE:

1. All materials are RoHS 2.0 compliant.
2. "A~C" Critical Dimensions.
3. "()" Reference Dimensions.

Dimensions (mm) & Mechanical

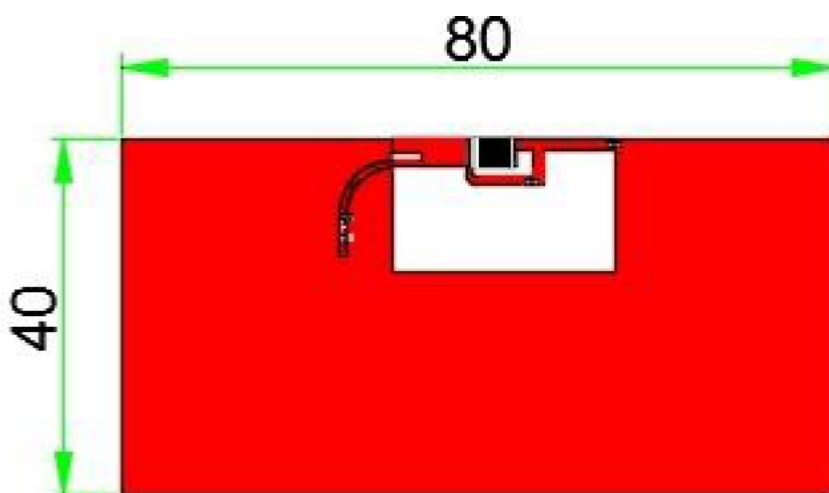
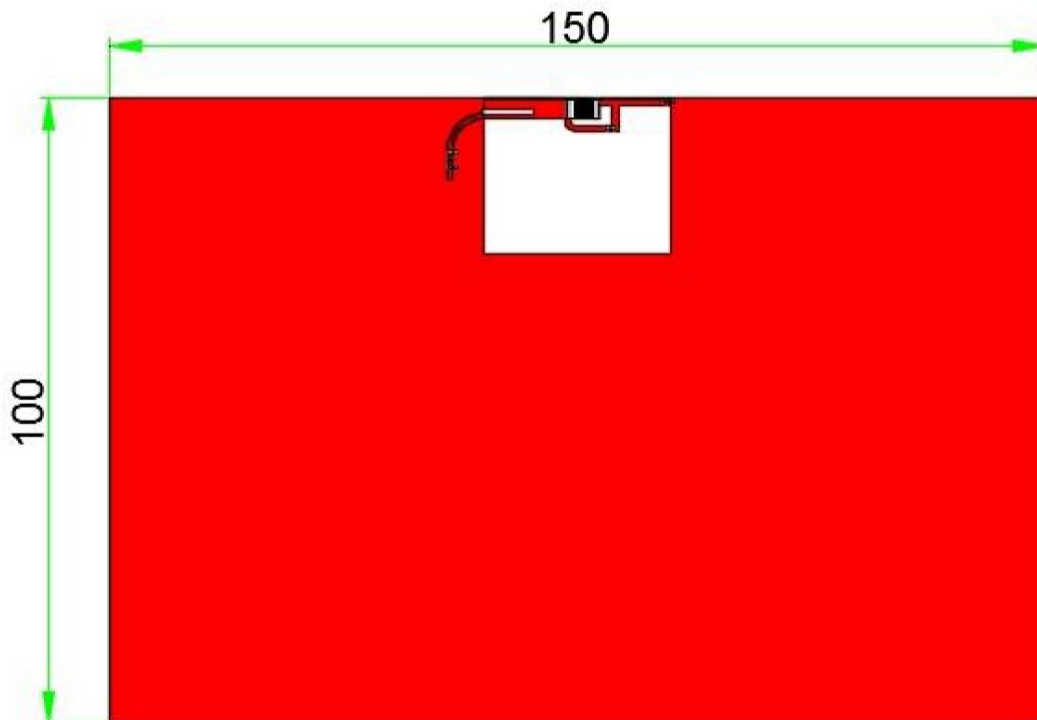
Body Length (A)	5.0 ± 0.15
Width (B)	3.0 ± 0.15
Thickness (C)	0.5 ± 0.15
Connection Type	SMT
Material	Ceramic

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Evaluation Board



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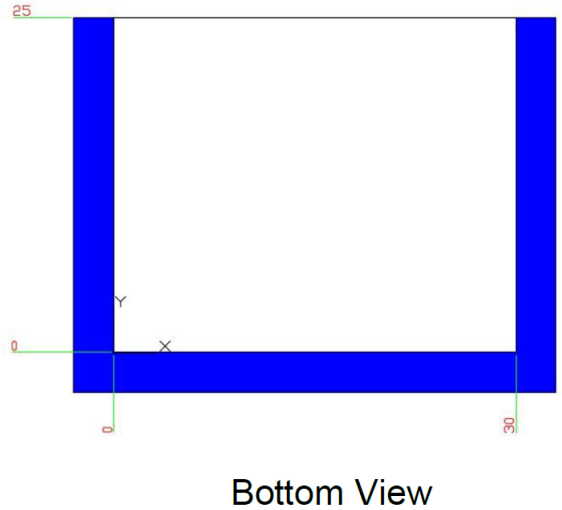
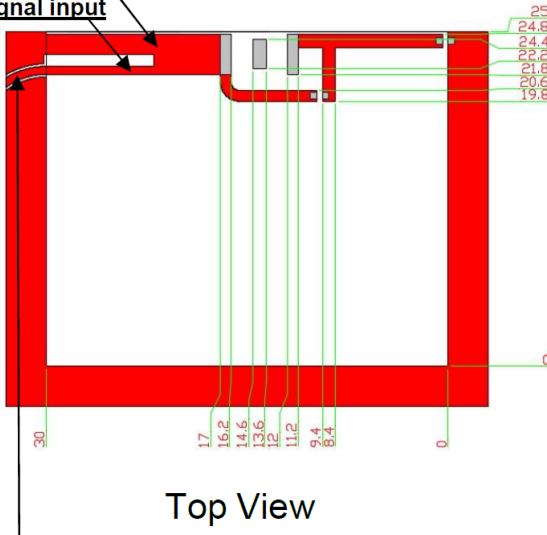


Solder Land Pattern

The gray areas represent the solder land pattern. Any recommendations on the matching circuit will be provided according to the customer's installation conditions.

With 150 x 100 mm² Evaluation Board

Grounding pin
Signal input



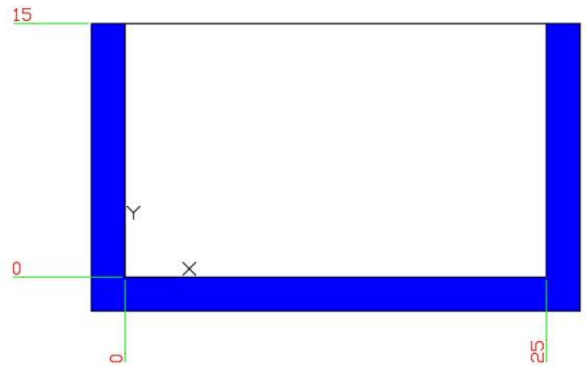
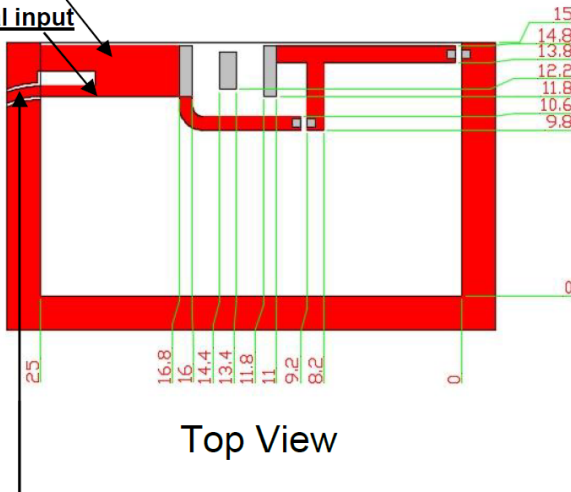
Top View

Bottom View

Transmission Line with 50Ω Impedance Characteristic

With 80 x 40 mm² Evaluation Board

Grounding pin
Signal input

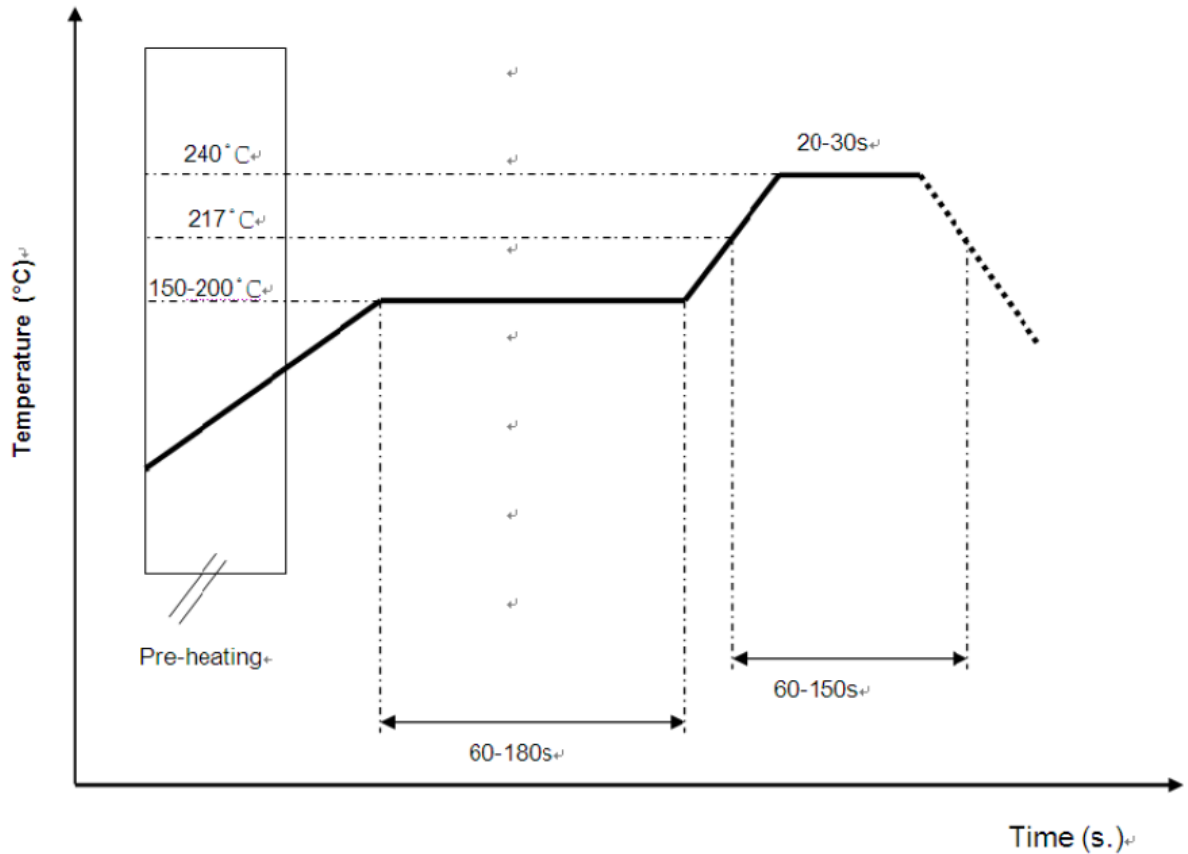


Top View

Bottom View

Transmission Line with 50Ω Impedance Characteristic

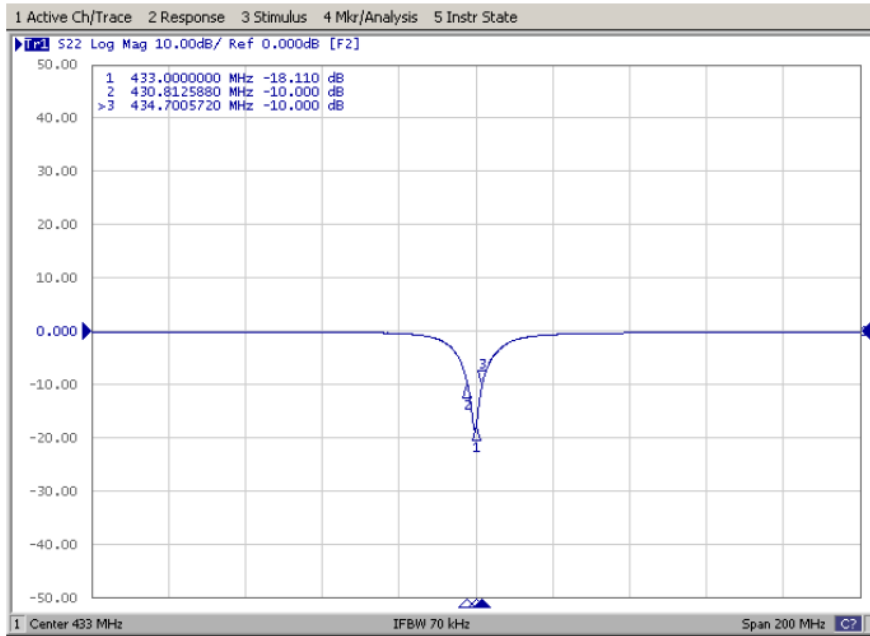
Typical Soldering Conditions



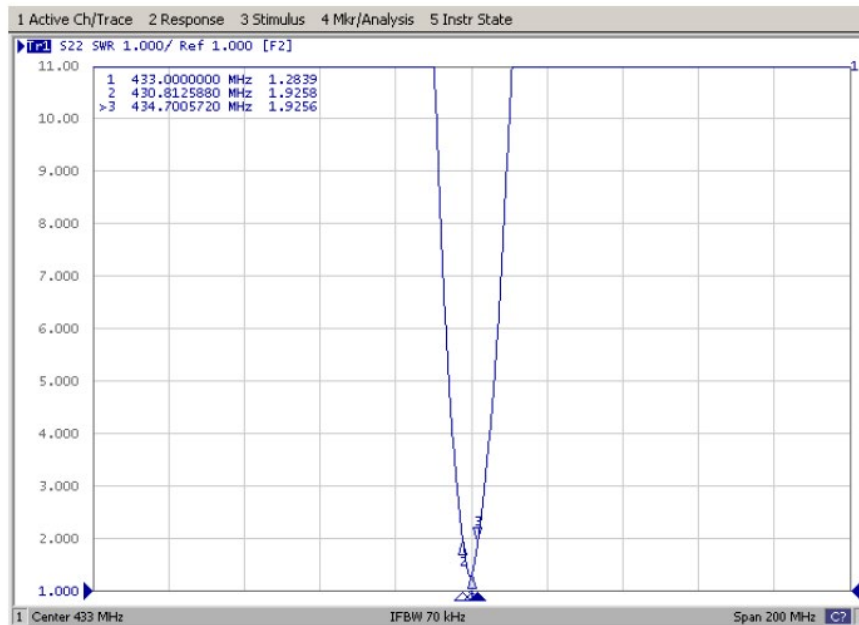
*Recommended solder paste alloy: SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste.

Return Loss for 150 mm x 100 mm Ground Plane

Return Loss (S_{11})



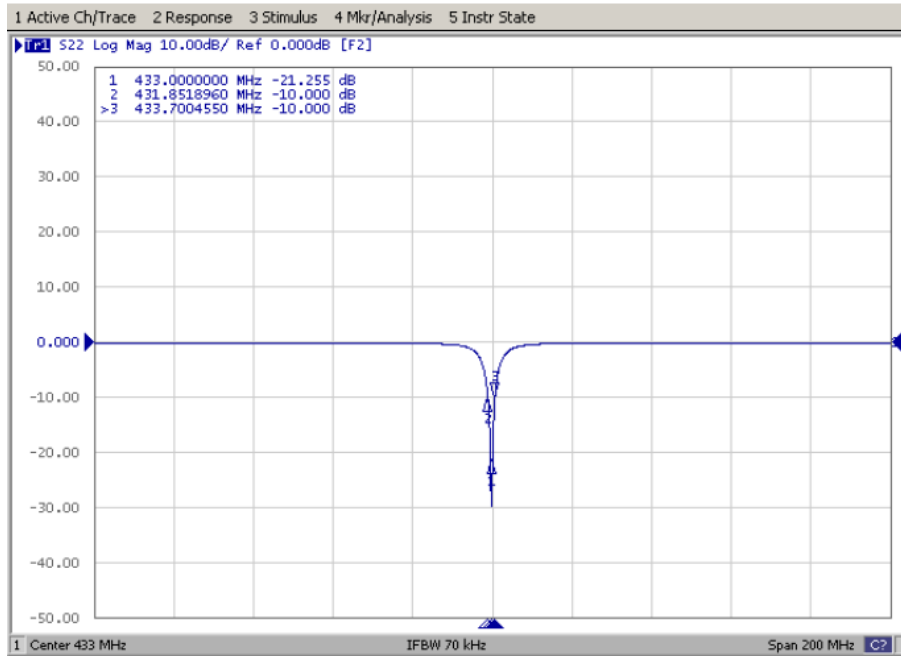
VSWR (S_{11})



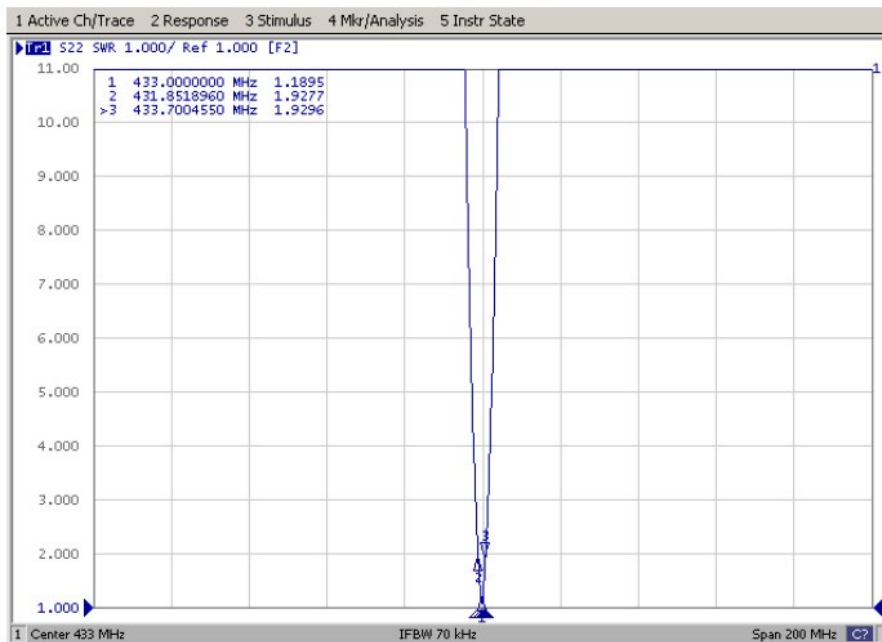


Return Loss and VSWR for 80 mm x 40 mm Ground Plane

Return Loss (S_{11})

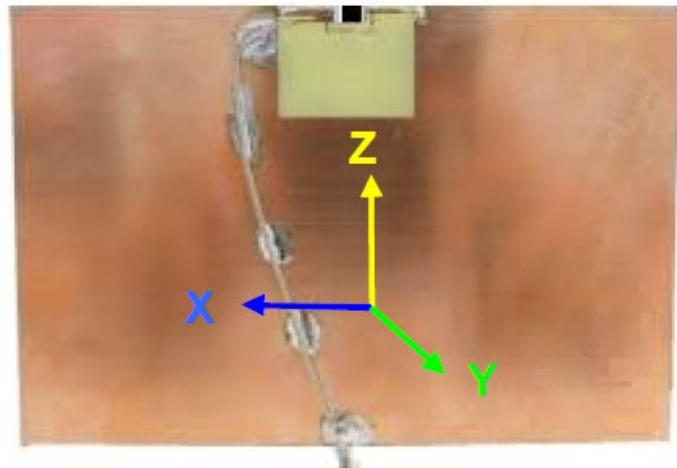
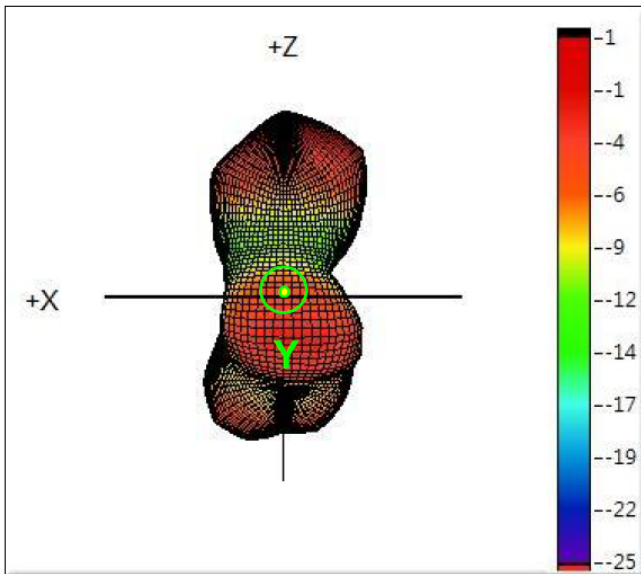
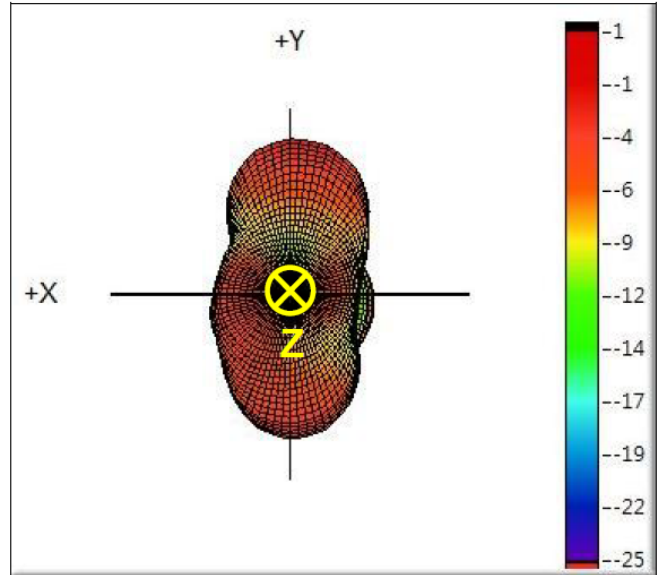
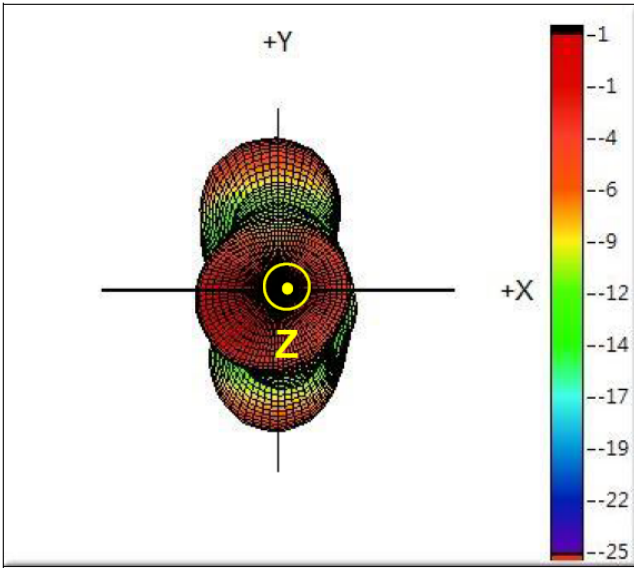


VSWR (S_{11})



Antenna Radiation Pattern

3D Gain Radiation ON 150 mm x 100 mm Evaluation Board@ 433 MHz

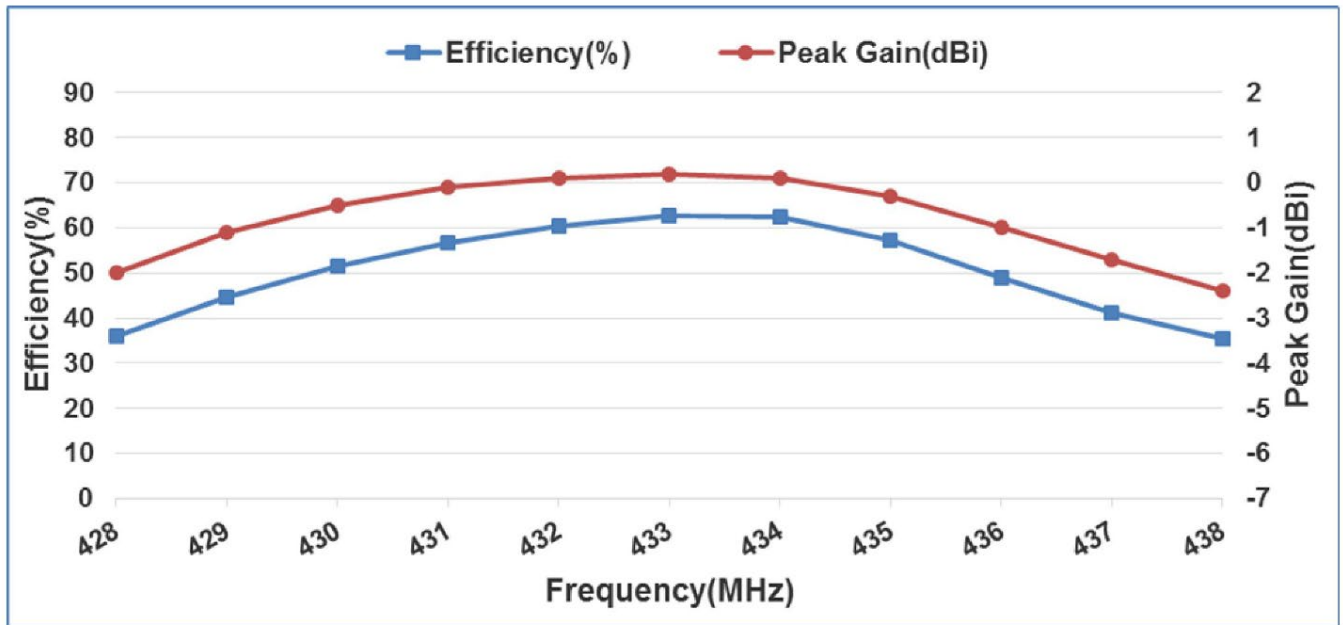




Efficiency Table for 150 mm x 100 mm Ground Plane

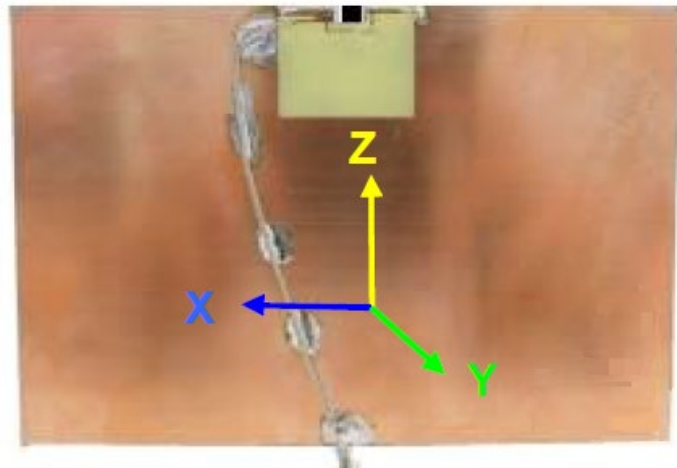
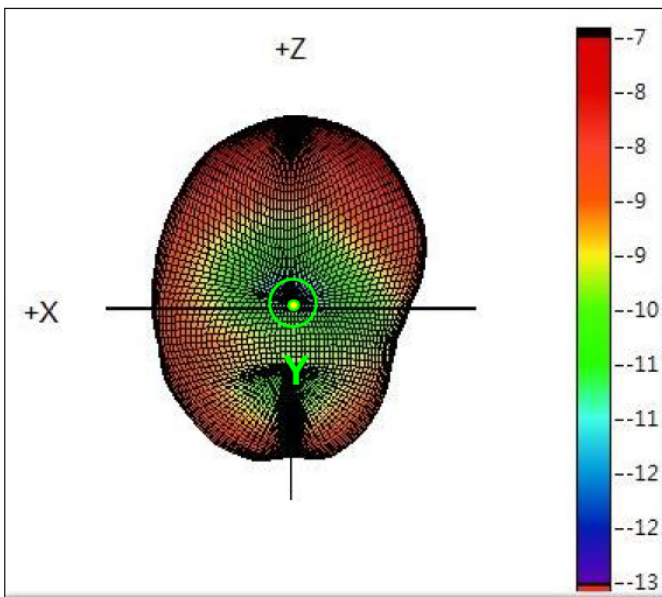
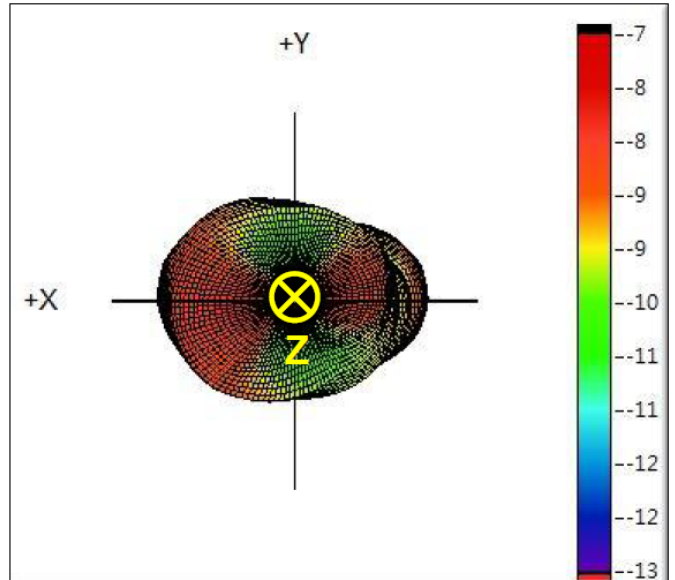
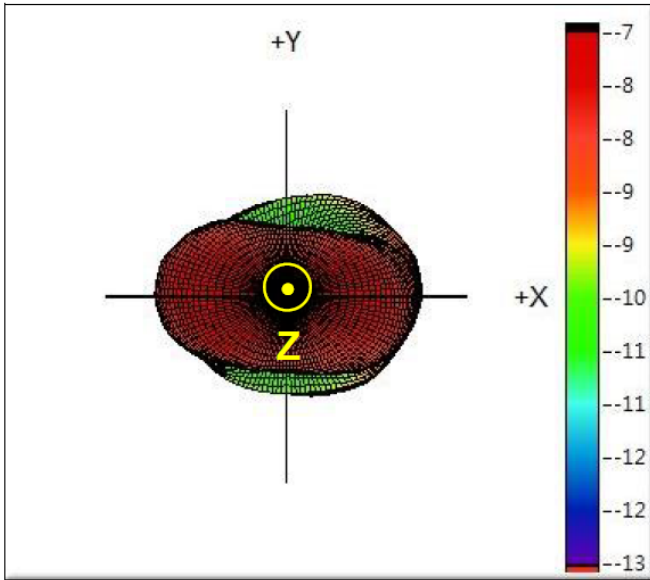
Frequency (MHz)	428	429	430	431	432	433	434	435	436	437	438
Efficiency (dB)	-4.4	-3.5	-2.9	-2.5	-2.2	-2.0	-2.1	-2.4	-3.1	-3.9	-4.5
Efficiency (%)	36.1	44.6	51.6	56.6	60.3	62.8	62.4	57.2	49.0	41.2	35.3
Peak Gain (dBi)	-2.0	-1.1	-0.5	-0.1	0.1	0.2	0.1	-0.3	-1.0	-1.7	-2.4

Efficiency vs Frequency



Antenna Radiation Pattern

3D Gain Radiation on 80 mm x 40 mm Evaluation Board @ 433 MHz

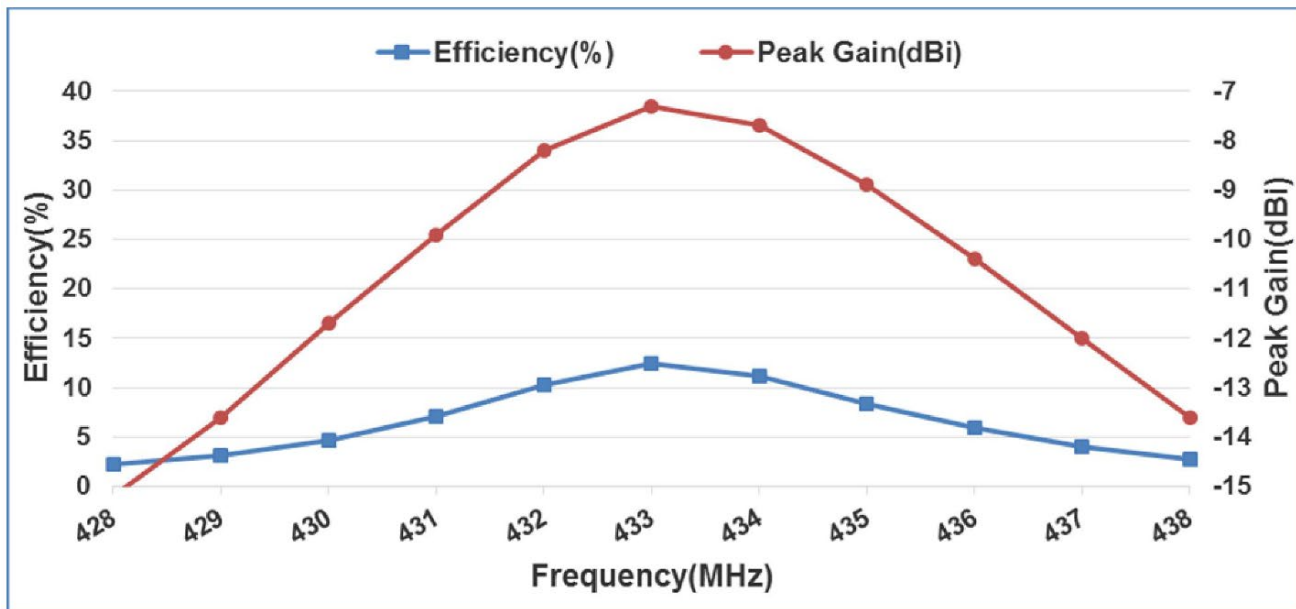




Efficiency Table for 80 mm x 40 mm Ground Plane

Frequency (MHz)	428	429	430	431	432	433	434	435	436	437	438
Efficiency (dB)	-16.7	-15.1	-13.3	-11.5	-9.9	-9.1	-9.5	-10.8	-12.3	-14.0	-15.6
Efficiency (%)	2.2	3.1	4.7	7.1	10.3	12.4	11.2	8.4	5.9	4.0	2.7
Peak Gain (dBi)	-15.2	-13.6	-11.7	-9.9	-8.2	-7.3	-7.7	-8.9	-10.4	-12.0	-13.6

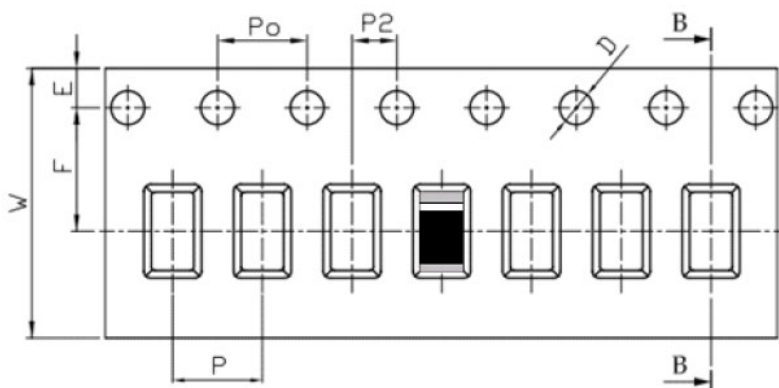
Efficiency vs Frequency



Packing

- (1) Quantity/Reel: 6000 pcs/Reel
- (2) Plastic tape:

a. Tape Drawing



b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
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
Po	4.00	±0.10
10Po	40.00	±0.20