NGCL1032US0R868G1TRF

868 MHz ISM Chip Antenna

9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

Features

- Stable and reliable performance
- Supports ISM 868 MHz Band
- Low Profile, Compact Size
- Low Temperature coefficient of frequency
- RoHs Complaint

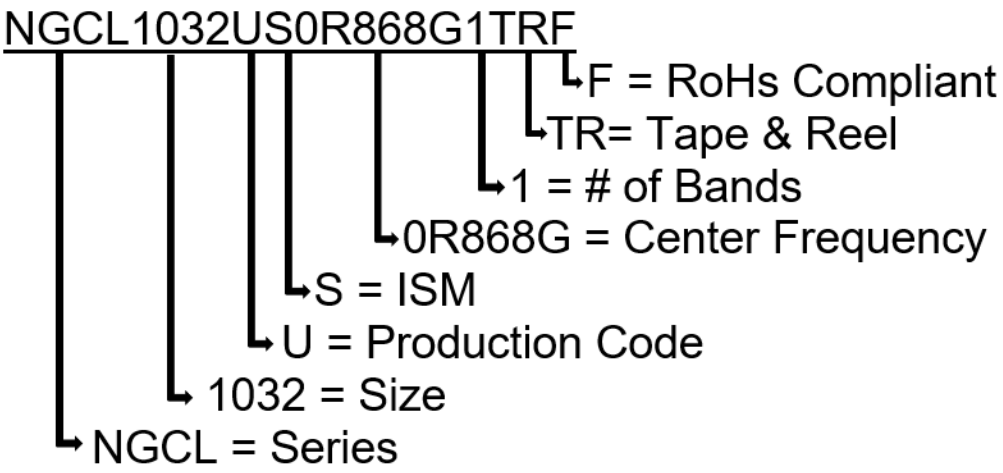
Applications

- ISM Band System
- RFID System

Specifications

Electrical	
Frequency Range	863 ~ 870 MHz
Center Frequency	868 MHz
VSWR	2 Max.
Peak Gain	0.34 dBi Typ.
Efficiency	58%
Maximum Input Power	2 W
Polarization	Linear
Impedance	50Ω
Environmental	
Operating Temperature	-40℃~+85℃
Temperature Coefficient of Frequency	0 ± 20 max (@ -20℃ ~ 80℃)
Storage Temperature	-5℃~+40℃ -40℃~+85℃ - 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



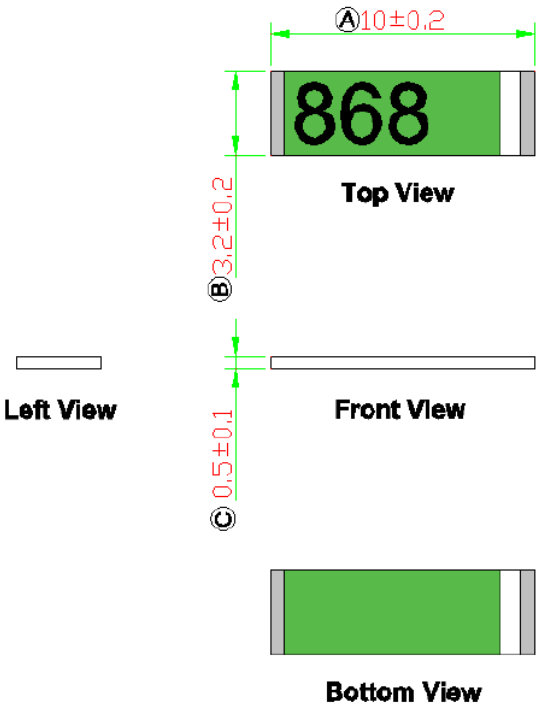
Pin Definition

Top View

Bottom View

PIN	1	2
Soldering PAD	Signal	Tuning / Ground

Dimension Drawing

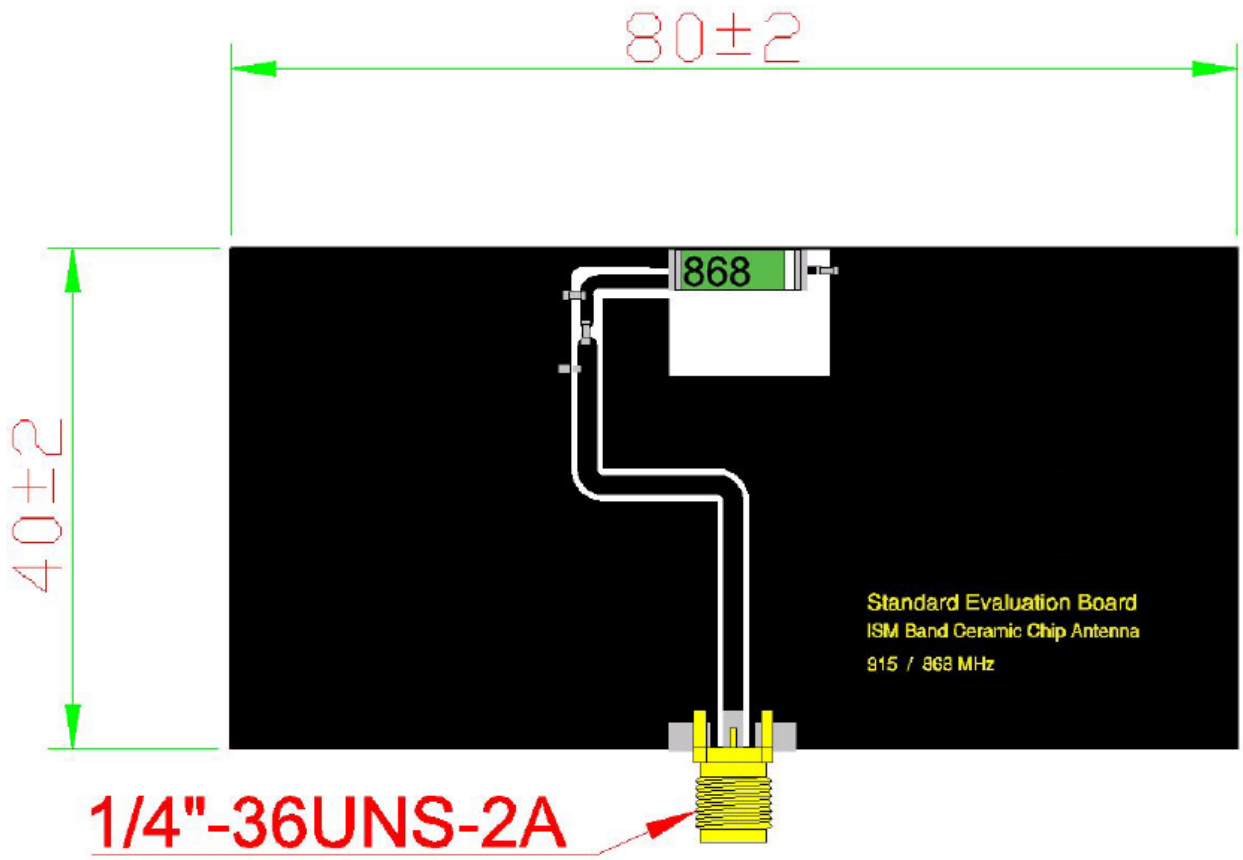


NOTE:
1.All materials are RoHS 2.0 compliant.
2."Ⓐ~Ⓒ" Critical Dimensions.
3."( )" Reference Dimensions.

Dimensions (mm) & Mechanical

Body Length (A)	10 ± 0.2
Width (B)	3.2 ± 0.2
Thickness (C)	0.5 ± 0.1
Connection Type	SMT
Ground Plane	80 mm x 40 mm
Material	Ceramic

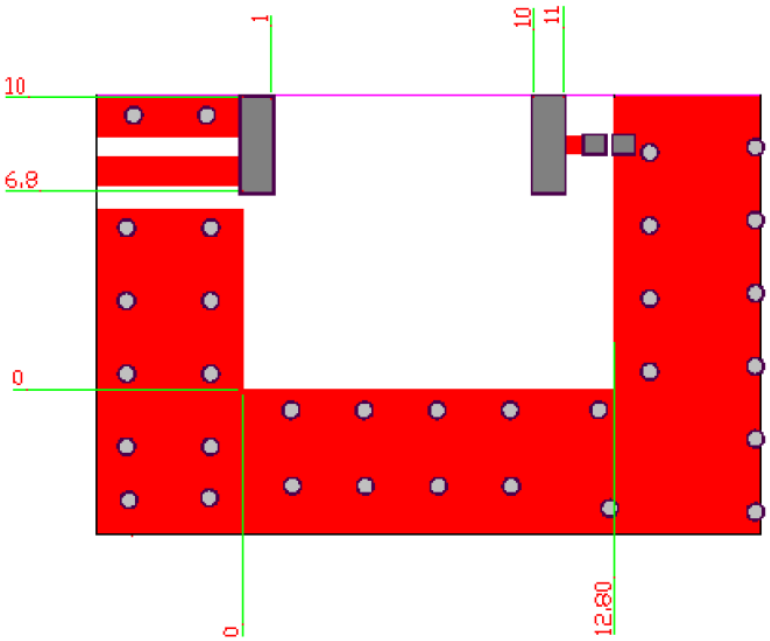
Evaluation Board

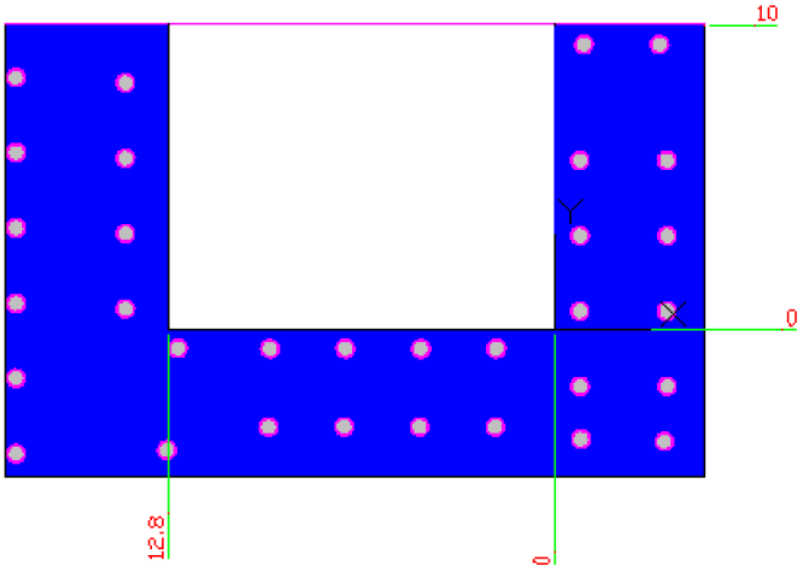


Unit：mm

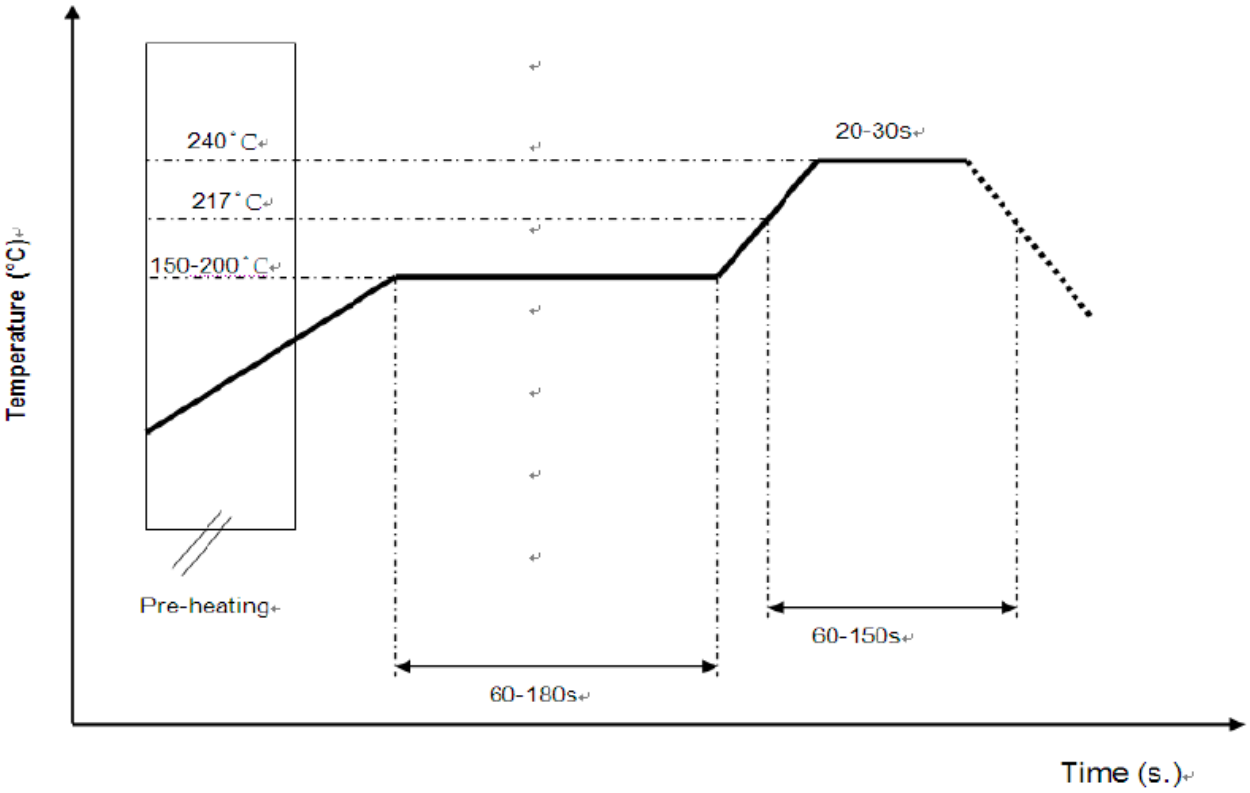
Solder Land Pattern

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



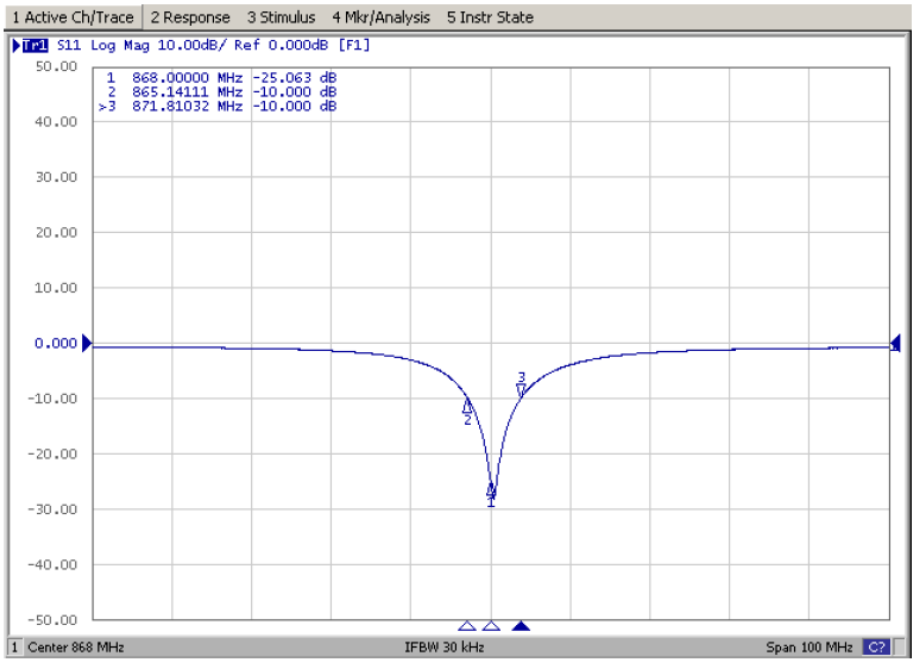


Soldering Conditions

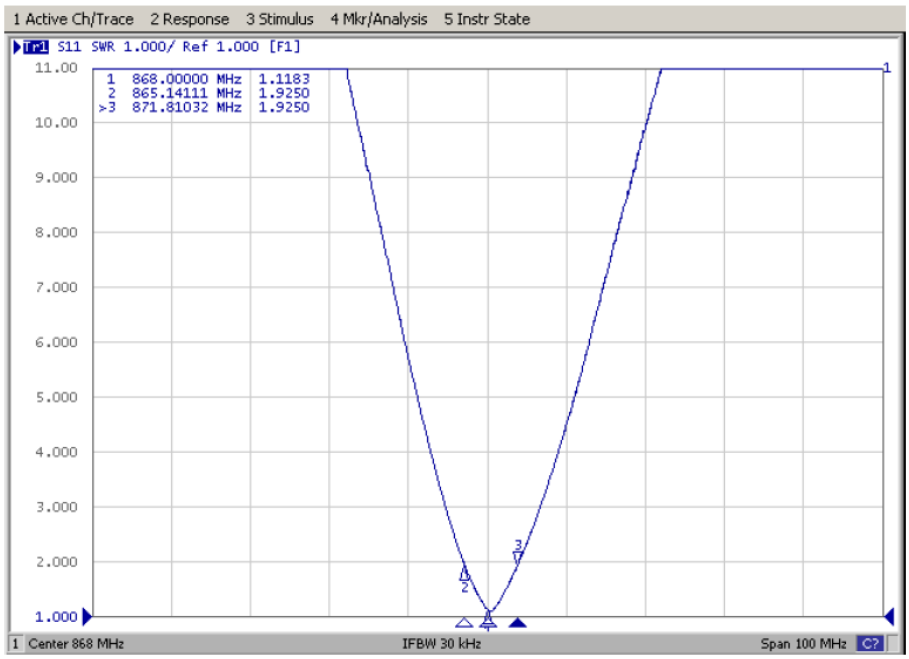


*Recommended solder paste alloy: SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste

Return Loss (S_{11})

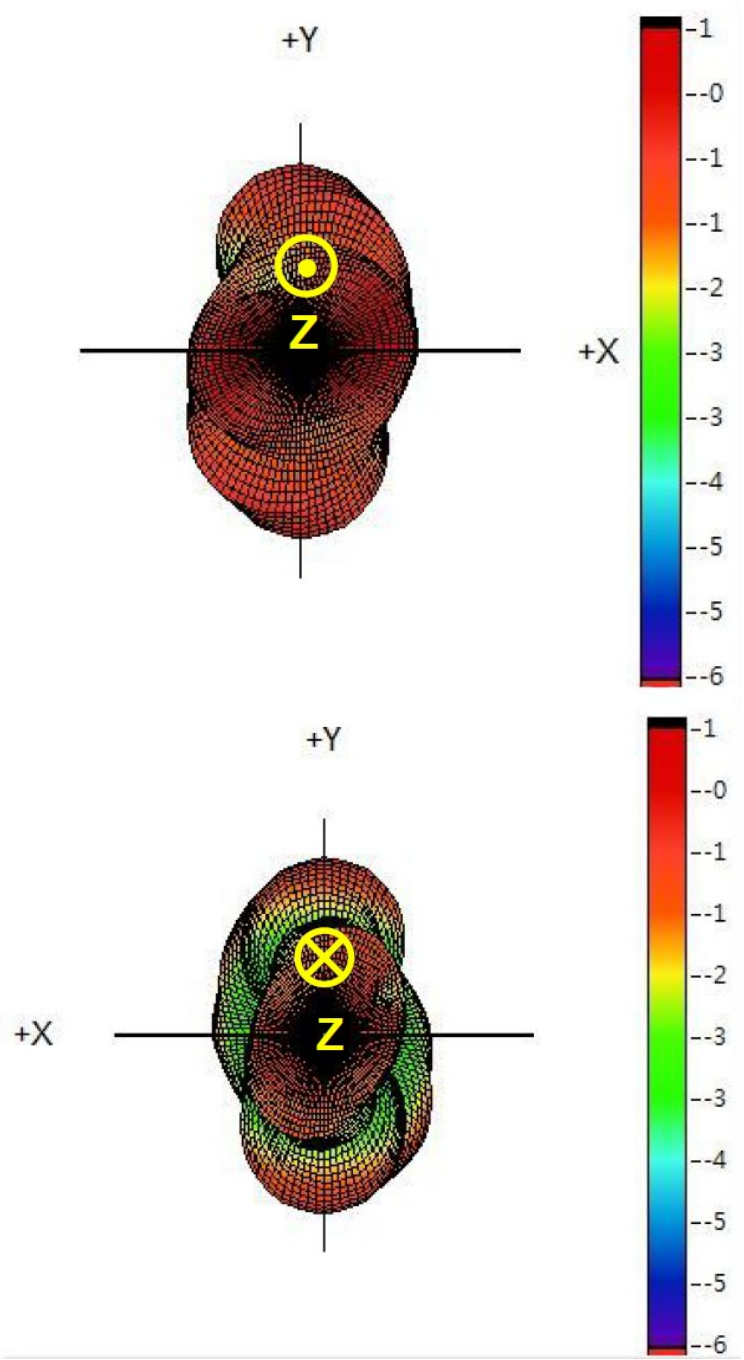


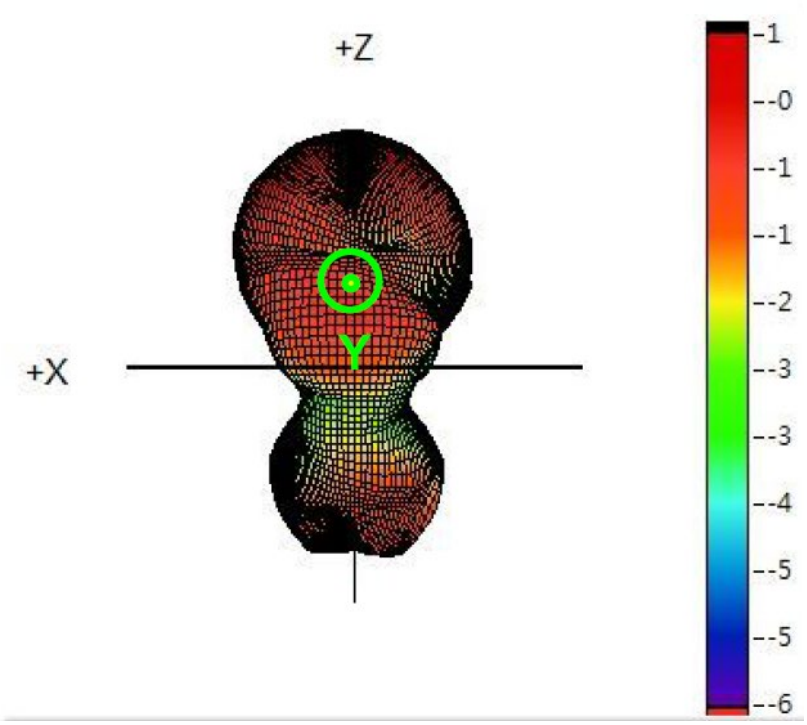
VSWR (S_{11})

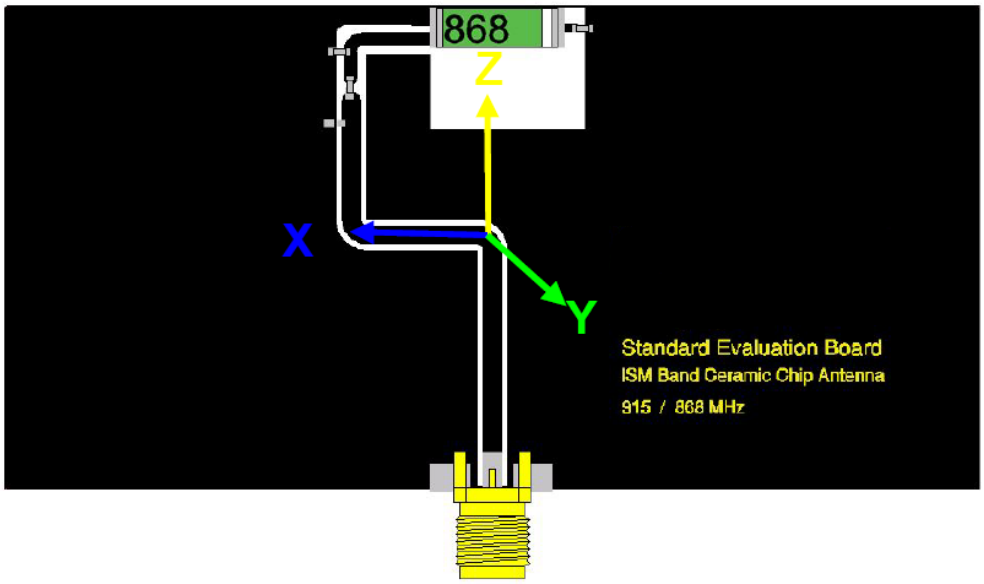


Antenna Radiation Pattern

3D Gain Radiation @ 868 MHz




+Z
+X
Y
-1
--0
--1
--1
--2
--3
--3
--4
--5
--5
--6

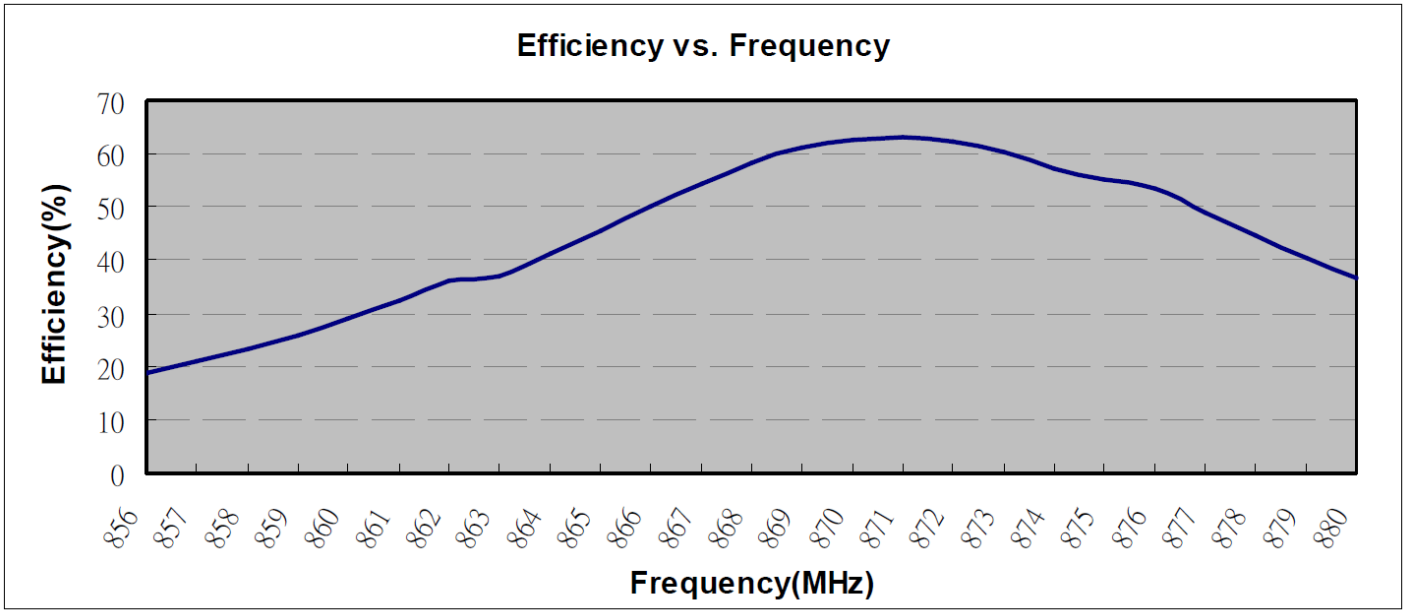

868
Z
X
Y
Standard Evaluation Board
ISM Band Ceramic Chip Antenna
915 / 868 MHz

3D Efficiency Table

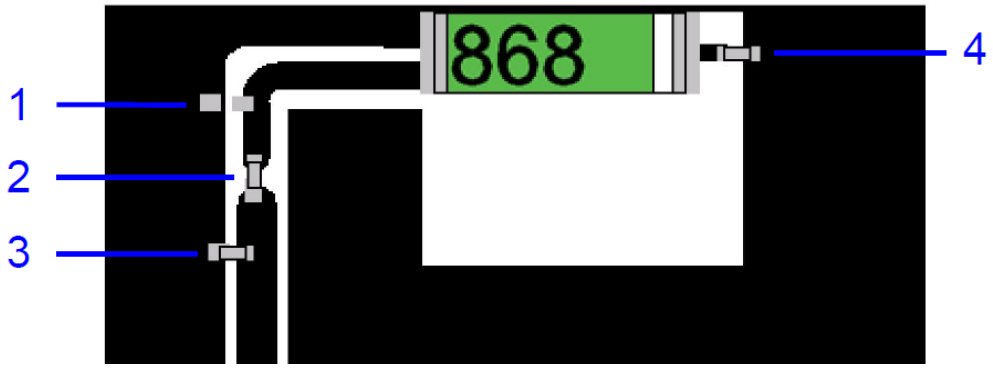
Frequency (MHz)	856	857	858	859	860	861	862	863	864	865	866	867	868
Efficiency (dB)	-7.3	-6.8	-6.3	-5.9	-5.4	-4.9	-4.4	-4.3	-3.8	-3.4	-3.0	-2.6	-2.4
Efficiency (%)	18.9	20.9	23.3	26.0	29.0	32.4	36.1	37.1	41.3	45.6	50.1	54.4	58.3
Gain (dBi)	-4.6	-4.3	-3.9	-3.4	-2.6	-2.2	-1.9	-1.6	-1.0	-0.7	-0.2	0.2	0.3

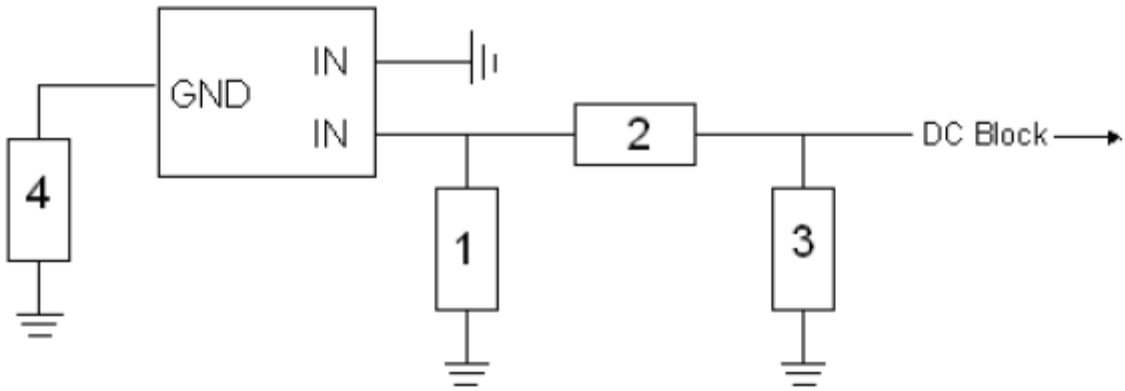
Frequency (MHz)	869	870	871	872	873	874	875	876	877	878	879	880
Efficiency (dB)	-2.1	-2.0	-2.0	-2.1	-2.2	-2.4	-2.6	-2.7	-3.1	-3.5	-3.9	-4.4
Efficiency (%)	61.2	62.7	63.2	62.3	60.2	57.2	55.2	53.6	49.0	44.6	40.5	36.7
Gain (dBi)	0.3	0.2	0.2	0.2	0.1	-0.1	-0.1	-0.2	-0.5	-0.9	-1.3	-1.8

3D Efficiency vs Frequency



Matching Circuit





System Matching Circuit Component

Location	Description	Tolerance	NIC Part Number
1	N/A	-	-
2	0Ω, (0402)	-	NRC04Z0TRF
3	3.3pF, (0402)	±0.05pF	NMC-Q0402NPO3R3A50TRPF
4	12pF, (0402)	±5%	NMC-Q0402NPO120J50TRPF

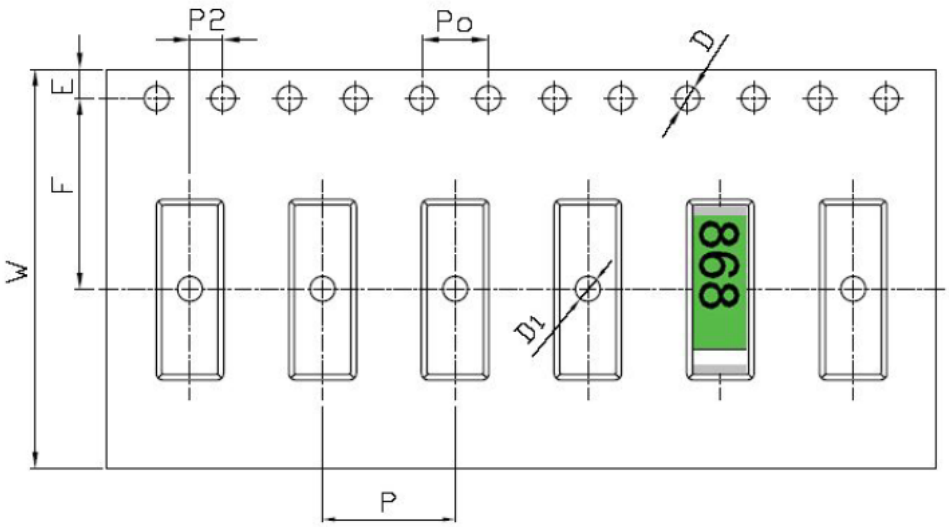
Packing

(1) Quantity/Reel: 6000 pcs/Reel

(2) Unit Weight: 0.05 ± 0.005 g / pcs

(3) Plastic tape: Black Conductive Polystyrene.

a. Tape Drawing



b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
W	24.00	±0.30
P	8.00	±0.10
E	1.75	±0.10
F	11.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 0.00
D1	1.50	±0.10
Po	4.00	±0.10
10Po	40.00	±0.20