

DATA SHEET

WIRELESS COMPONENTS

FR4 Chip Antenna
ANT1204F002R0433A

433MHZ
I204 Series



FEATURES

- Compact size
- Omni-directional Radiation
- Tape & reel automatic mounting
- Reflow process compatible
- RoHS compliant

APPLICATIONS

- Smart meter
- Industrial remote control
- ISM band equipment

ORDERING INFORMATION

All part numbers are identified by the series, packing type, material, size, antenna type, working frequency and packing quantity.

PART NUMBER

ANT I204 F 002 R 0433A
(1) (2) (3) (4) (5) (6)

(1) PRODUCT

ANT = Antenna

(2) SIZE

I204=12×4

(3) ANTENNA TYPE

L, F, A=Chip antenna

(4) SERIAL NO.

002

(5) PACKING STYLE

R = Tape and Reel

(6) WORKING FREQUENCY

0433=433 MHz

PHYCOMP CTC

CAN431 I059020431K

I2NC

431 I05902043

SPECIFICATION

Table 1

DESCRIPTION	VALUE
Centre Frequency	433 M Hz
Bandwidth	28M Hz (Typ.)
Return Loss	6.5 dB min
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Peak Gain	0.79 dBi (Typ.)
Impedance	50 Ω
Operating Temperature	- 40~105 °C
Maximum Power	1 W
Termination	Cu / Au (Environmentally-Friendly Leadless)
Resistance to Soldering Heats	260°C , 10sec.

NOTE

I. The specification is defined on Yageo evaluation board

DIMENSIONS

Table 2 Machinal Dimension

	DIMENSION
L (mm)	12.30 $\pm$ 0.20
W (mm)	4.00 $\pm$ 0.20
T (mm)	1.60 $\pm$ 0.20
A (mm)	0.50 $\pm$ 0.20

OUTLINES

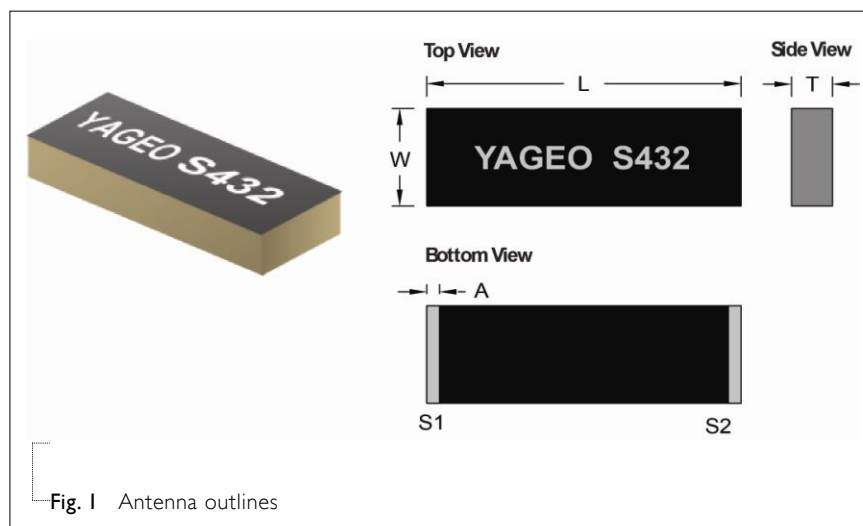
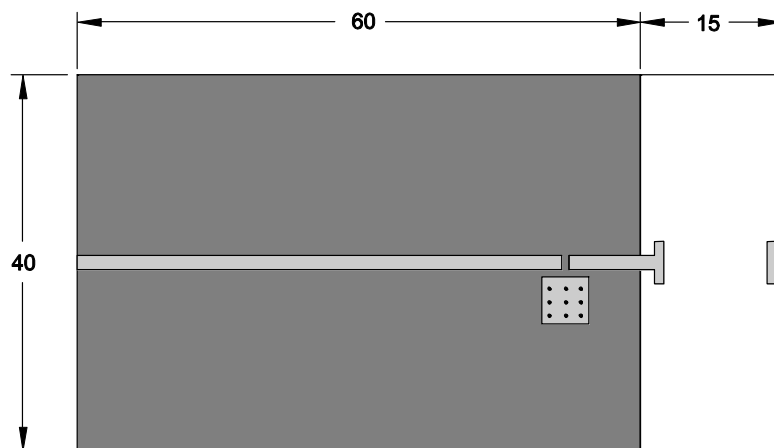


Table 3 Termination configuration

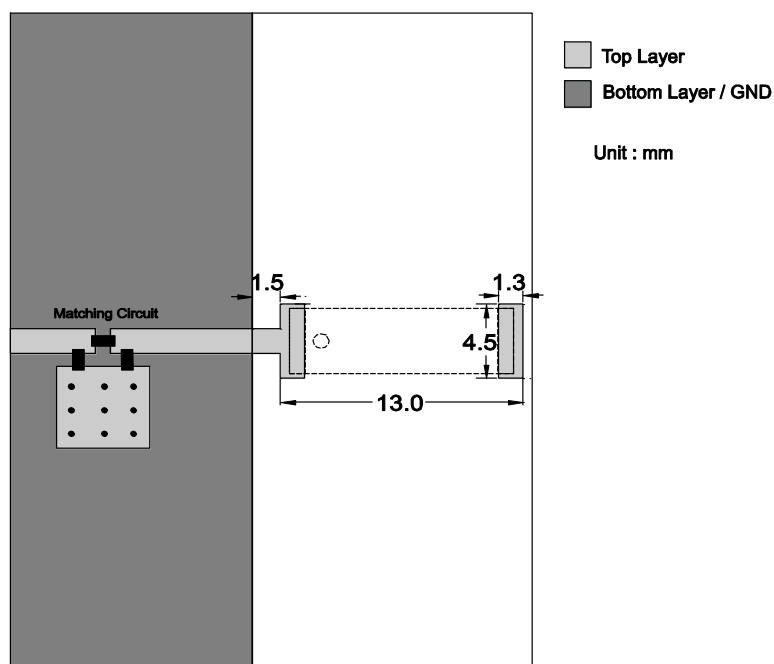
TERMINAL NAME	FUNCTION
S1	Feeding Point
S2	Soldering Point

REFERENCE DESIGN OF EVALUATION BOARD



Unit : mm

Fig. 3 Outlook and dimension of evaluation board

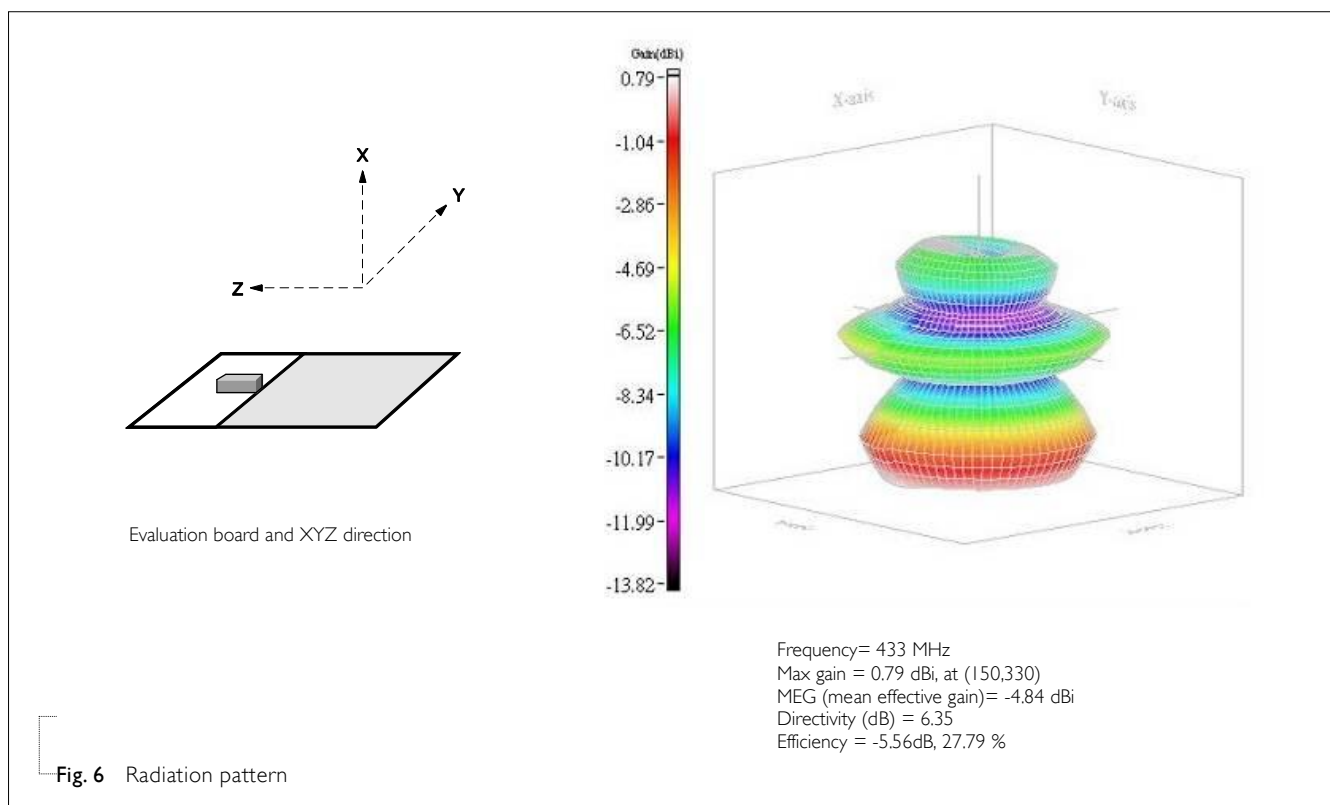
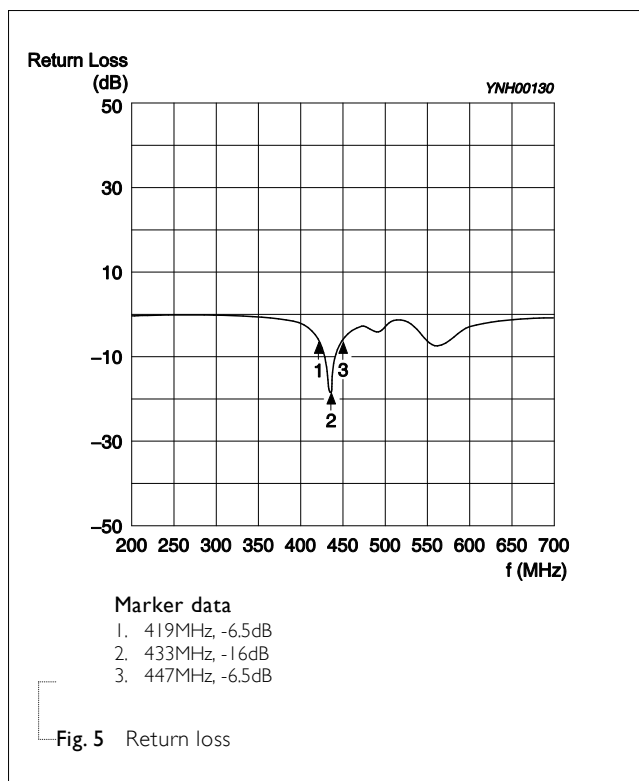


Unit : mm

Fig. 4 Details of soldering Pad

YNH00129

ELECTRICAL PERFORMANCES

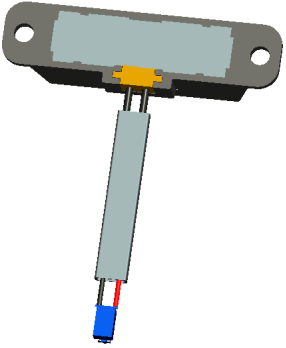


REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
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Version 0	Aug. 05, 2013	-	- New data sheet for SMD type antenna, 433MHz application, I204 series
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Product Approval Sheet

Product Name	ANTENNA, LF: 2P-50mm (133KHz)	Product Image)
Model	Indoor LF Antenna	
Part No.	1-3602-00008	
Manufacturer	RF Controls Co. Ltd	

DESIGN	CHECK	APPROVAL
		
2019.02.01.	2/1	

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1. Revision History

Rev.	Contents	Description	Organization	Date
0	Production Release			
1	Resonance Frequency change (134KHz -> 133KHz)	Re-Approval	R&D Team	Immediately
2				
3				
4				

2. Product Descriptions

2.1 Outlines

2.1.1 Product Name

Indoor LF Antenna

2.1.2 Goal

This product is a transmission antenna and is mounted inside heavy equipment of Doosan Infracore. It functions to transmit an encrypted 133KHz LF signal for approval of security values to the user's smart key inside the vehicle, and vehicle control is possible when user authentication is completed in the smart key.

2.2 Application Range

Doosan Infracore Heavy Equipment to be developed after ** Month 2019

2.3 Warranty

1 year after vehicle delivery (hours of use: 2,960 hrs)

3. Rated Specifications

3.1 Environment and Operation

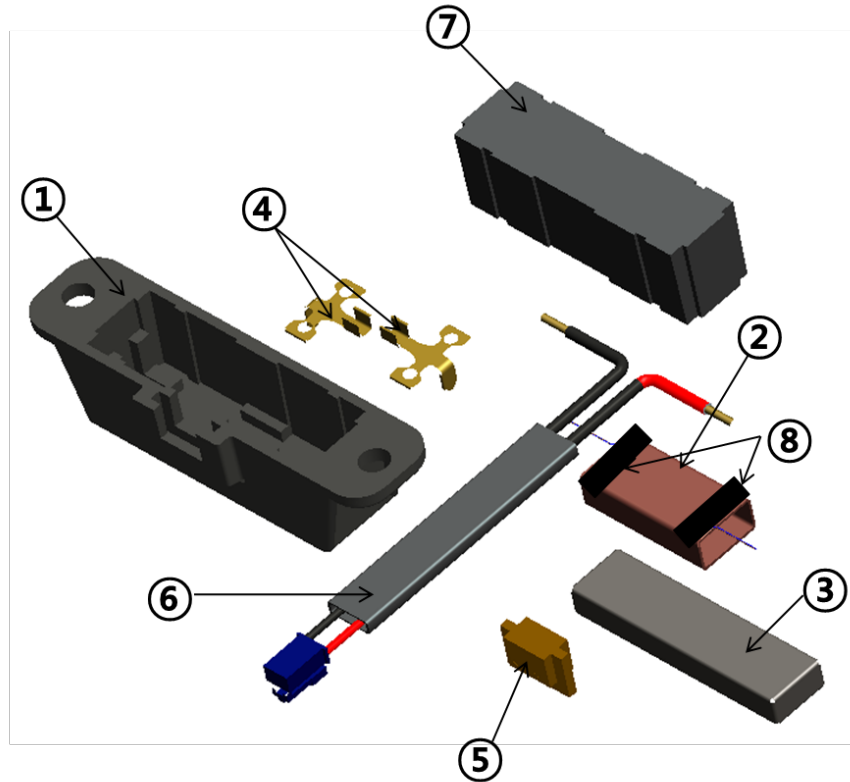
Environmental & Operation Specification		
No	Parameter	Specification
1	Storage Temperature	-40°C to 105°C
2	Operation Temperature	-30°C to 85°C

3.2 Electrical

Electrical Specification		
No	Parameter	Specification
1	Resonance Frequency	133KHz $\pm$ 5%
2	Inductance	211uH $\pm$ 5%
3	VSWR	3 : 1 or less @ 133KHz

3.3 Components

3.4.1 Body Antenna Assembly



PART DESCRIPTION				
No	P/No	P/Name	Q'ty	Remark
1	0000517	LF HOUSING	1	Indoor/Outdoor Common
2	0000521	COIL	1	Indoor/Outdoor Common
3	0000520	FERRITE BAR	1	Indoor/Outdoor Common
4	0000518	TERMINAL A	2	Indoor/Outdoor Common
5	0000519	SEALPART	1	Indoor/Outdoor Common
6	0000527	CABLE ASSY	1	Yeonho SMH200-02
7	0000523	EPOXY	1	Indoor/Outdoor Common
8	0000560	ISOLATED TAPE	1	Indoor/Outdoor Common

4.1.1 Indoor LF Antenna Assembly



5. Related Standards

5.1 Environmental Test

Common	Performance Test	Basic Function Test	12	Performance Test after connecting test Jig	Check Specification
Indoor LF Antenna	Environmental Test	Low Temp. Test	6	Proceed at $-40\pm 2^{\circ}\text{C}$ for 100 hours and leave at room temperature for 2hrs	After completion of the test, the change in the performance value of the DUT is within 10%
	Environmental Test	High Temp. Test	6	Proceed at $+85\pm 2^{\circ}\text{C}$ for 100 hours and leave at room temperature for 2hrs	After completion of the test, the change in the performance value of the DUT is within 10%

6. Reliability Test

6.1 Environmental Test Results

Low Temperature Test		S i g n	Design	Check	Check	승 인
			J.H. Ko			W.K. Kim
Report No.	RFC-0104-003	Date		2019.01.04		
Test Date	2018.12.27~2018.12.31	Organization/Tester		R&D Team / J.H. Ko		
1. General Status						
Request Team	RFC Co. Ltd R&D Team	Purpose		Reliability Test		
Requester	J.H. Ko	Test Item		low Temperature Test		
2. Test Target						
Car	Wheel Loader/ Excavator	Part No.		0000515		
Model	ANTENNA,LF:2P-50mm(133KHz)	LOT NO.		#1 ~ #6		
3. 시험현황						
Management No.	RFC-0104-003	Test Equipment		Constant Temp. Chamber		
Test Site	RF Controls Co. Ltd	Number of Samples		6 EA		
4. Test Methods and Criteria						
Test Method	Proceed at -40±2°C for 100 hours and leave at room temperature for 2hours					
Criteria	▶ After completion of the test, the change in the performance value of the DUT is within 10%					
5. Test Results : " PASS " (Refer: Attached DATA)						
6. Remarks - Reliability Test						
※ This is a test report only for samples submitted by the above request team and cannot be used for propaganda, litigation, or other legal requirements						

Low Temperature Test

Indoor LF Antenna		3 : 1 or less @ 133KHz		
		Before Test	After Test	Rate of Change
	#1	1.70	1.76	3.53%
	#2	1.43	1.50	4.90%
	#3	1.44	1.52	5.56%
	#4	1.60	1.65	3.12%
	#5	1.84	1.93	4.89%
	#6	1.31	1.36	3.82%
	VSWR	OK		

Test Image



High Temperature Test		S i g n	Design	Check	Check	승 인
			J.H. Ko			W.K. Kim
Report No.	RFC-0104-004	Date		2019.01.04		
Test Date	2018.12.27~2018.12.31	Organization/Tester		R&D Team / J.H. Ko		
1. General Status						
Request Team	RFC Co. Ltd R&D Team	Purpose		Reliability Test		
Requester	J.H. Ko	Test Item		High Temperature Test		
2. Test Target						
Car	Wheel Loader/ Excavator	Part No.		0000515		
Model	ANTENNA,LF:2P-50mm(133KHz)	LOT NO.		#7 ~ #12		
3. 시험현황						
Management No.	RFC-0104-004	Test Equipment		Constant Temp. Chamber		
Test Site	RF Controls Co. Ltd	Number of Samples		6 EA		
4. Test Methods and Criteria						
Test Method	Proceed at +85±2°C for 100 hours and leave at room temperature for 2hours					
Criteria	▶ After completion of the test, the change in the performance value of the DUT is within 10%					
5. Test Results : " PASS " (Refer: Attached DATA)						
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