

ANTENNA PRODUCTS

DATA SHEET

870 MHz Ceramic Chip Antenna in PIFA Mode (12*4 mm)

For JTTEL Application Specially

May. 2009. V1

R&D	Print date 09/11/13						
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K		Pre	Apr, 2009
						V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 1	sheet 190-1		A4
	Yageo Taiwan / Specialty						

**Small 870 PIFA Ceramic Chip Antenna for
700~1000MHz Application**

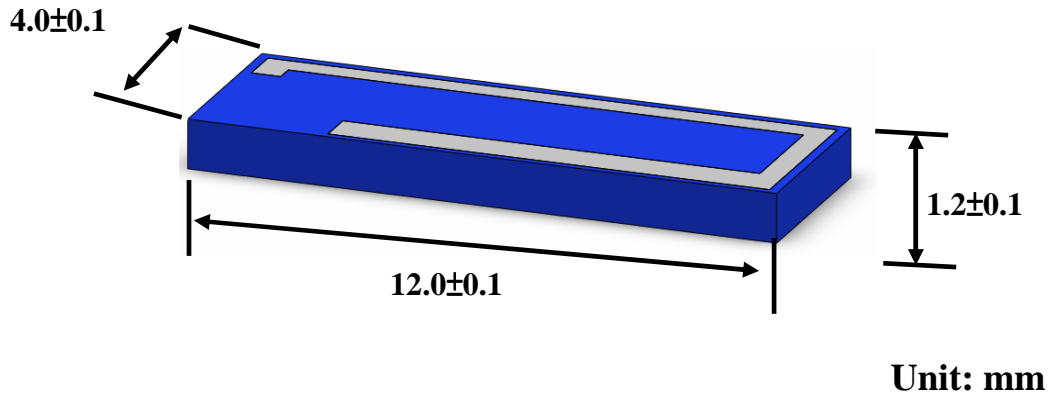
Product Specification

Quick Reference Data

Range of Central Frequency	700~1000MHz (base on actual PCB layout)
Bandwidth	20MHz(Min)
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Peak Gain	0.74 dBi
Impedance	50Ω
Operating Temperature	-25~85°C
Termination	Ni / Sn (Environmentally-Friendly Leadless)
Resistance to soldering heats	260°C , 10sec.
Maximum Power	1W

R&D	Print date 09/11/13							
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K			Pre	Apr, 2009
							V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 2	sheet 190-2		A4	
	Yageo Taiwan / Specialty							

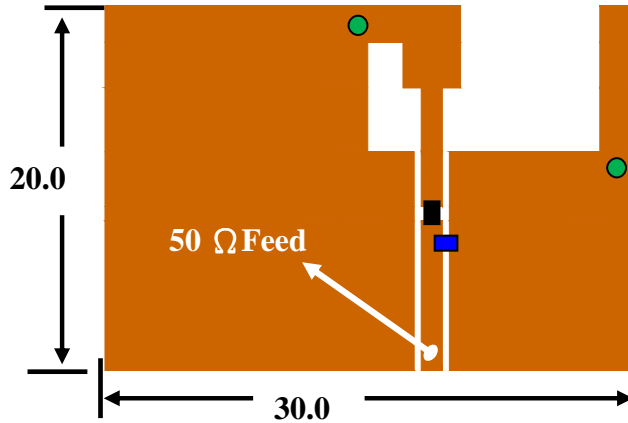
1. Mechanical Data (12 x4x 1.2 mm³)



R&D	Print date 09/11/13							
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K			Pre	Apr, 2009
							V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 3	sheet 190-3		A4	
	Yageo Taiwan / Specialty							

2. Evaluation Board Dimension and Outlook

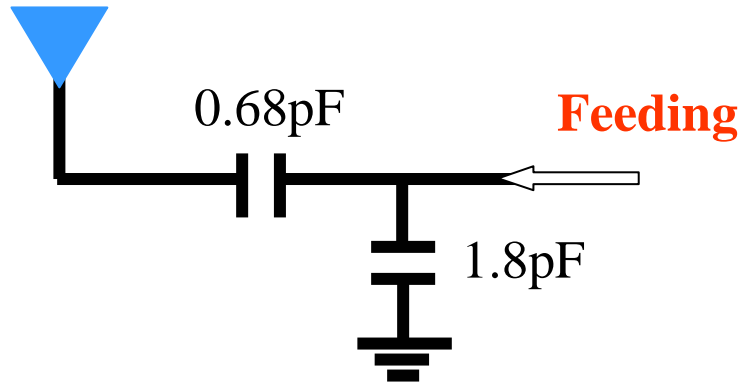
■ Illustration of Evaluation Board



■ 0.68pF ■ 1.8pF ■ Copper ● Short to ground Unit: mm

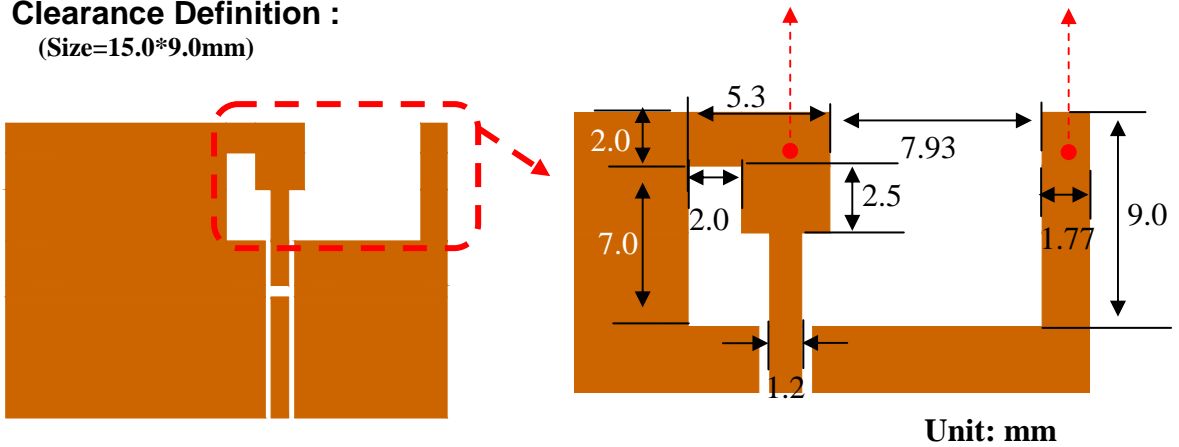
■ Suggested Matching Circuit :

Small 870 PIFA antenna

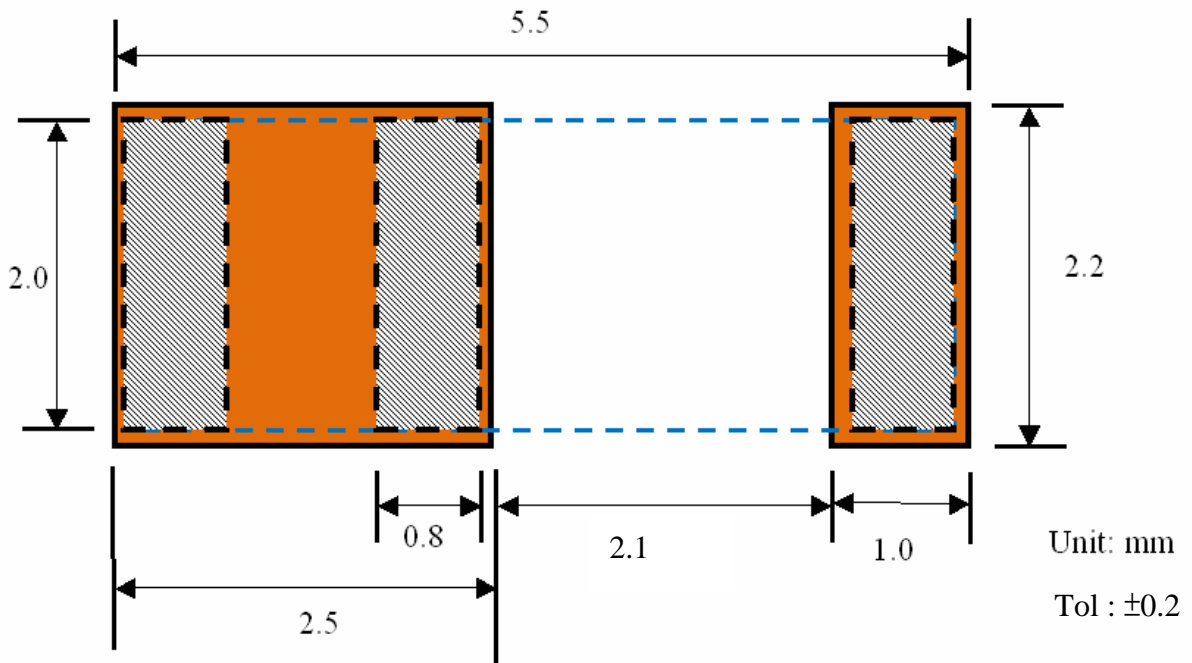


R&D	Print date 09/11/13						
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)		CAN4311 129 1X 0871K		Pre	Apr, 2009	
					V1	May, 2009	
Willing Chang Oscar Lu	Tommy Chen		Page 4	sheet 190-4			A4
	Yageo Taiwan / Specialty						

■ **Clearance Definition :**
(Size=15.0*9.0mm)

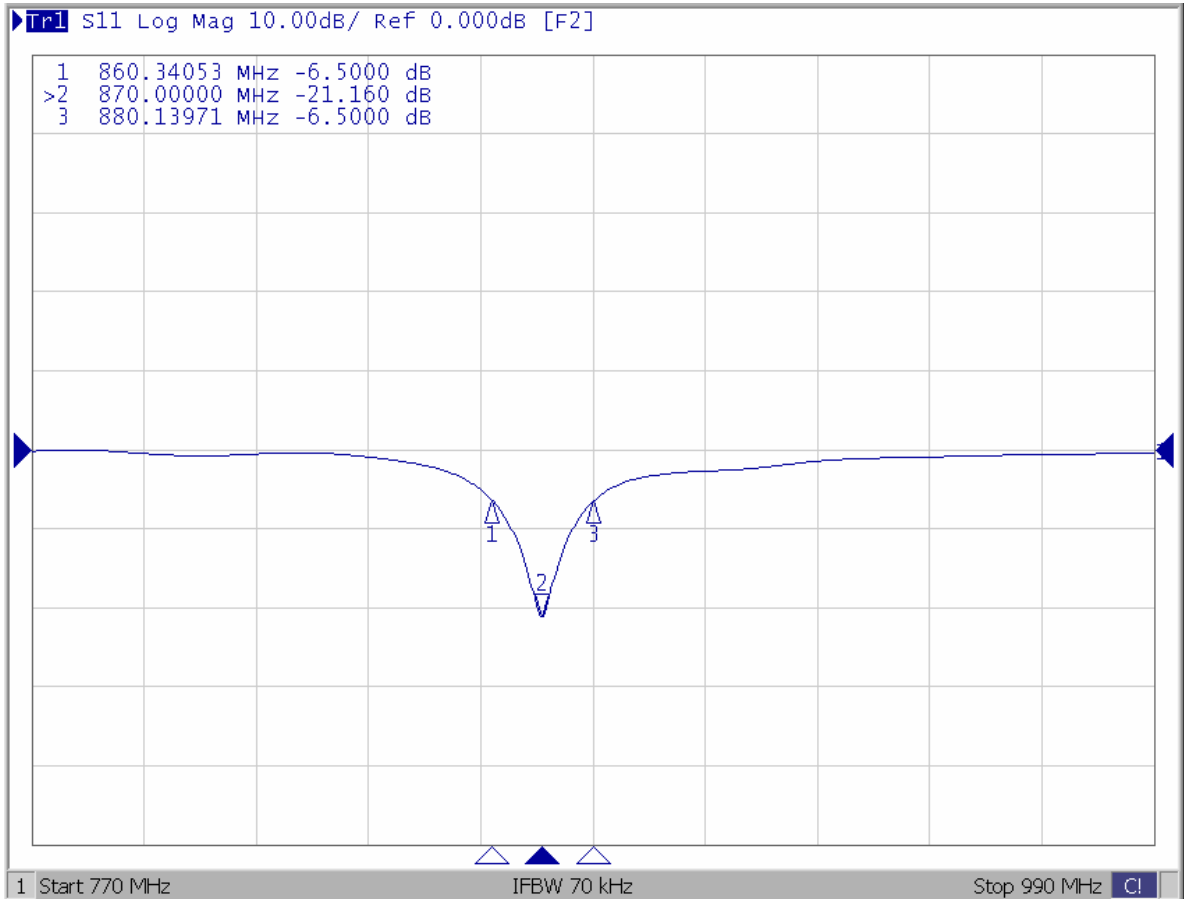


3. Soldering Pads Dimension and Footprint



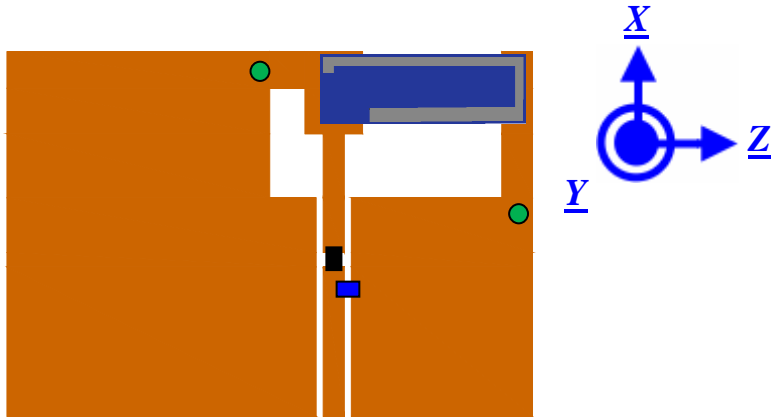
R&D	Print date 09/11/13			Pre	Apr, 2009
Willing Chang Oscar Lu	Tommy Chen	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)	CAN4311 129 1X 0871K	V1	May,2009
		Page 5	sheet 190-5		A4
Yageo Taiwan / Specialty					

4. Measured S-parameter



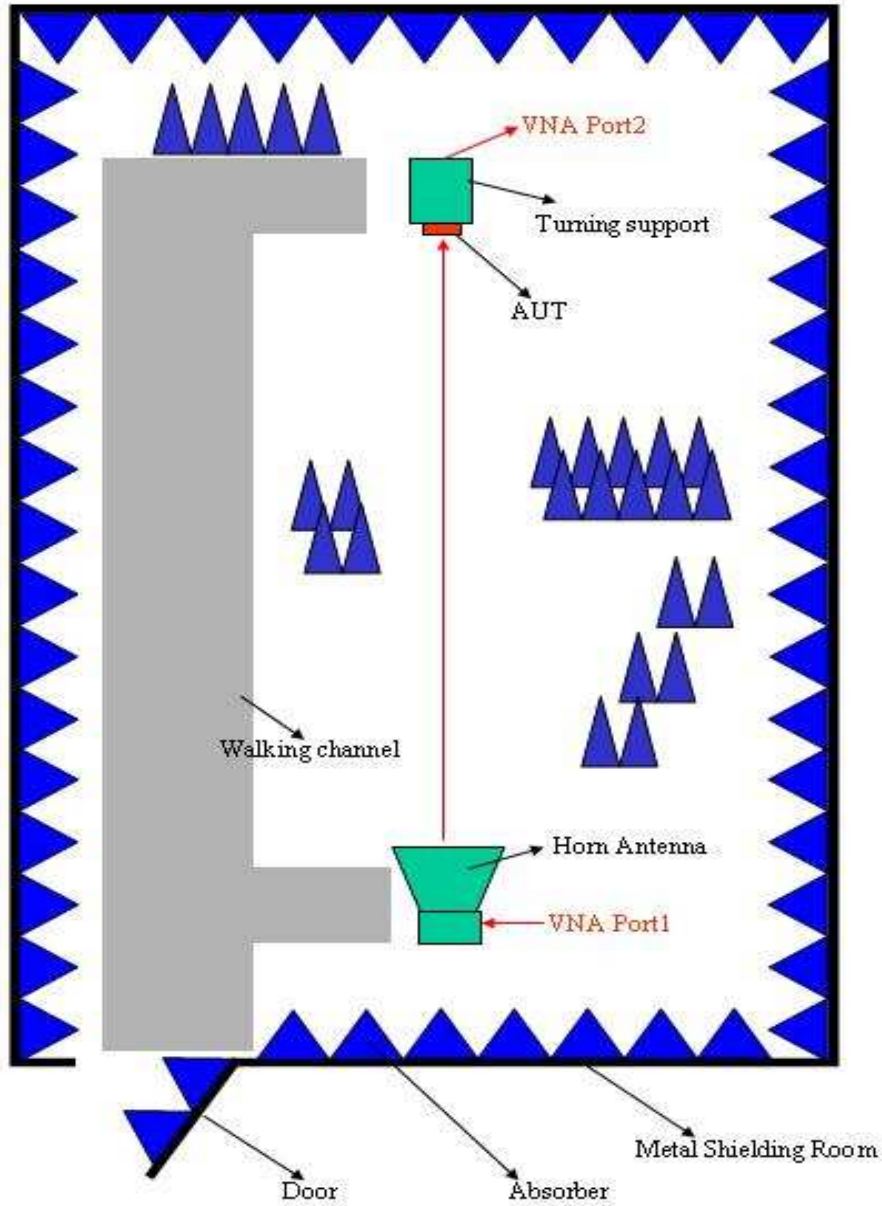
R&D	Print date 09/11/13				Pre	Apr, 2009
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)		CAN4311 129 1X 0871K		V1	May,2009
Willing Chang Oscar Lu	Tommy Chen		Page 6	sheet 190-6		A4
	Yageo Taiwan / Specialty					

5.The Definition of X-Y-Z Plane



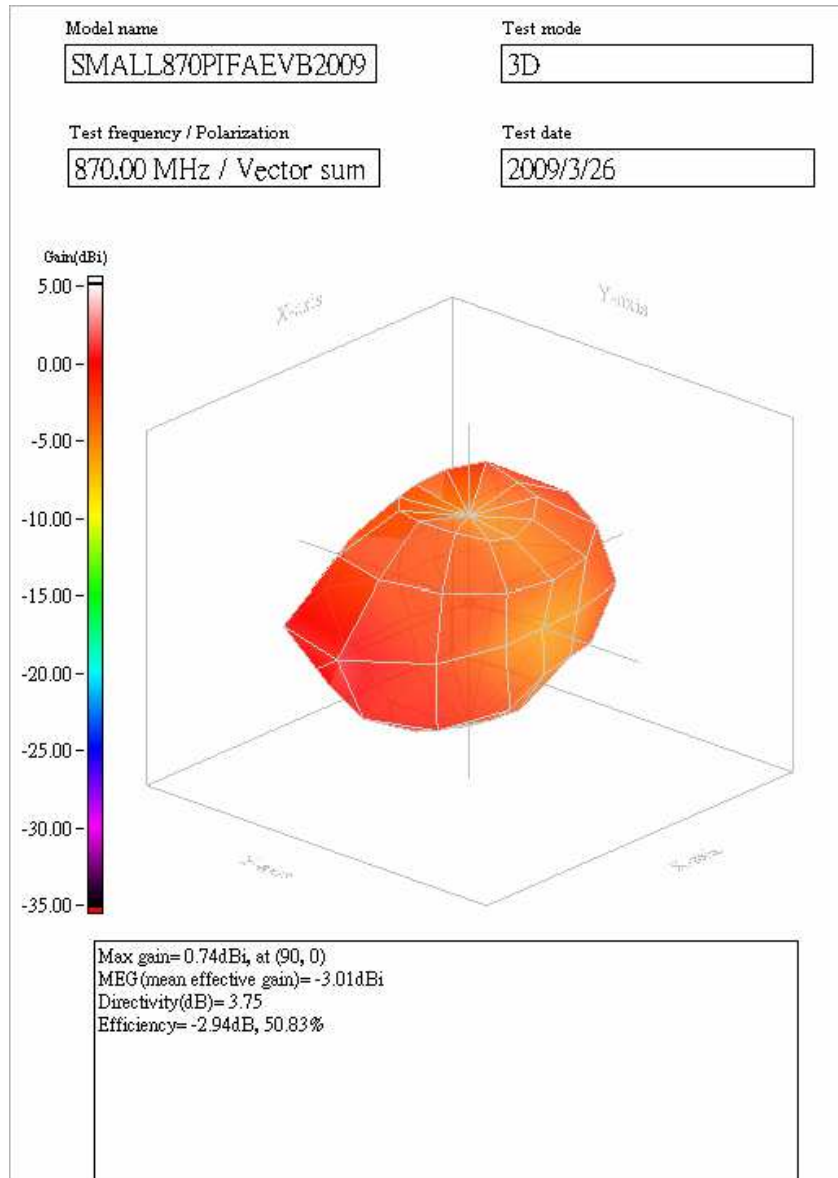
R&D	Print date 09/11/13						
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K		Pre	Apr, 2009
						V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 7	sheet 190-7		A4
	Yageo Taiwan / Specialty						

6. The Environment of Antenna Radiation Pattern
Anechoic Chamber Dimension=10(m) × 6(m) × 6(m)



R&D	Print date 09/11/13					
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)		CAN4311 129 1X 0871K		Pre	Apr, 2009
					V1	May,2009
Willing Chang Oscar Lu	Tommy Chen		Page 8	sheet 190-8		A4
	Yageo Taiwan / Specialty					

7. Radiation Pattern



R&D	Print date 09/11/13				
Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)	CAN4311 129 1X 0871K			Pre	Apr, 2009
				V1	May, 2009
Willing Chang Oscar Lu	Tommy Chen		Page 9	sheet 190-9	A4
Yageo Taiwan / Specialty					

8. Reliability Test

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.4		Mounting	The antenna can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive	No visible damage
4.5		Visual inspection and dimension check	Any applicable method using $\times 10$ magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Central Frequency at 20 °C	Standard test board in page 4
4.8		Adhesion	A force of 3 N applied for 10 s to the line joining the terminations and in a plane parallel to the substrate	No visible damage
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4	No visible damage
			Conditions: bending 0.5 mm at a rate of 1mm/s, radius jig. 340 mm, 2mm warp on FR4 board of 90 mm length	No visible damage
4.10	20(Tb)	Resistance to soldering heat	260 \pm 5 °C for 10 \pm 0.5 s in a static solder bath	Satisfy the original electrical specification after soldering.
		Resistance to leaching	260 \pm 5 °C for 30 \pm 1 s in a static solder bath	Using visual enlargement of $\times 10$, dissolution of the termination shall not exceed 10%

R&D	Print date 09/11/13							
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K			Pre	Apr, 2009
							V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 10	sheet 190-10		A4	
	Yageo Taiwan / Specialty							

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for 2 ± 0.5 s in $235 \pm 5^\circ\text{C}$.	The termination must be well tinned, at least 75% is well tinned at termination
4.12	4(Na)	Rapid change of temperature	-25°C (30 minutes) to $+85^\circ\text{C}$ (30 minutes); 100 cycles	No visible damage Central Freq. Change $\pm 6\%$
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60°C ; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change $\pm 6\%$
4.15		Endurance	500 ± 12 hours at 85°C ;	No visible damage 2 hours recovery Central Freq. Change $\pm 6\%$

R&D	Print date 09/11/13							
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K			Pre	Apr, 2009
							V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 11	sheet 190-11		A4	
	Yageo Taiwan / Specialty							

9. Ordering Information

The antennas may be ordered by using the Yageo ordering code. These code numbers can be determined by the following rules:

CAN43 11 1 29 1x 087 1K

Family Code

CAN 43 = Yageo Part No. for Antenna

Packing Type Code

11 = 180 mm/ 7" reel , blister taping

Materials Code

1 = High Frequency Material (blue)

Size Code

29 = 12* 4 mm (thickness = 1.2mm)

Antenna type

10 = 870MHz chip antenna series 1 (PIFA mode), type 0

17 = 870MHz chip antenna series 1 (PIFA mode), type 7

Working Frequency

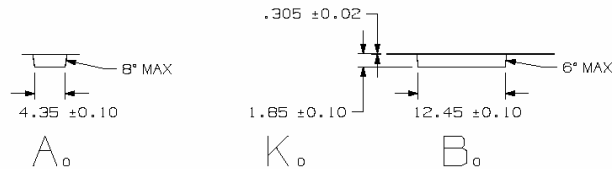
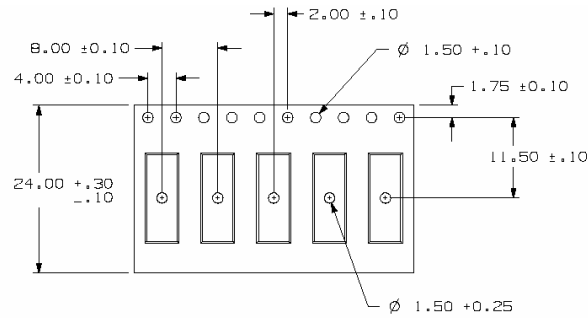
087 = 700~1000MHz

Packing Type Code

1K = 1000pcs in one reel.

R&D	Print date 09/11/13							
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K			Pre	Apr, 2009
							V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 12	sheet 190-12		A4	
	Yageo Taiwan / Specialty							

10. Taping Blister Tape

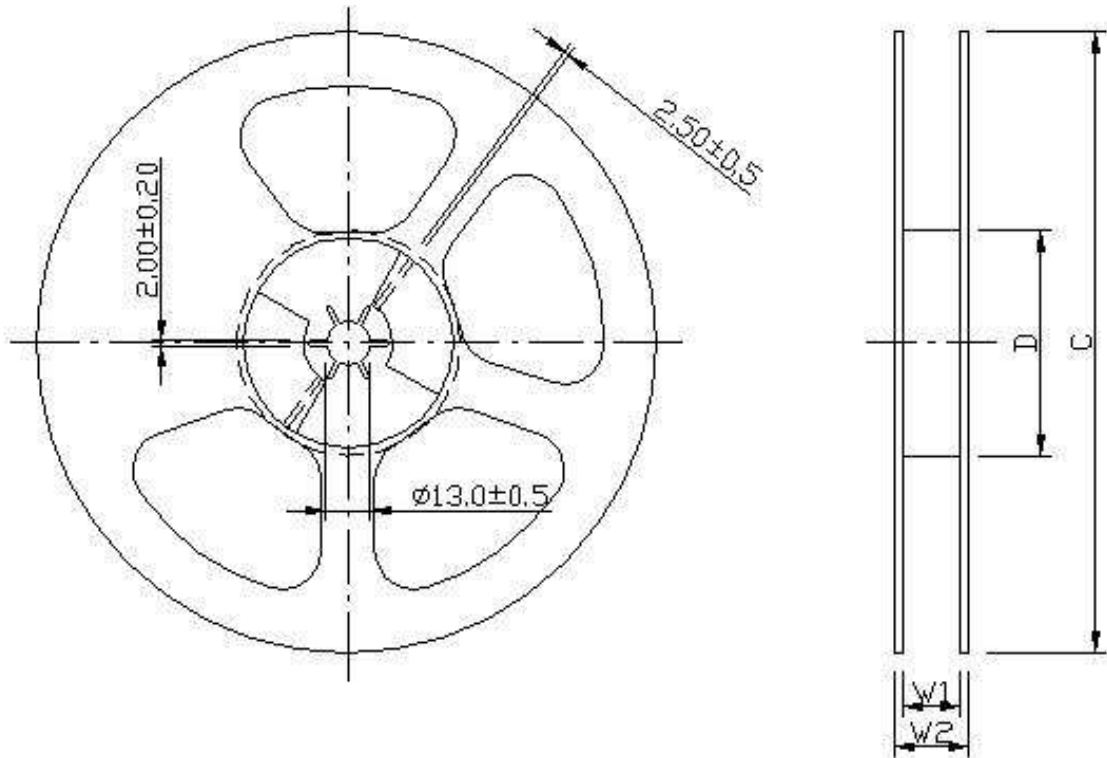


Dimension

Serial no	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	1.5±0.10
2	Pocket hole	D1	1.50±0.25
3	Distance sprocket hole/sprocket hole	Po	4.0±0.10
4	Distance pocket/pocket	P1	8.0±0.10
5	Distance sprocket hole/pocket	P2	2.0±0.10
6	Tape width	W	24.0±0.30
7	Distance sprocket hole/outside	E	1.75±0.10
8	Distance sprocket hole/pocket	F	11.50±0.10
9	Pocket length	Ao	4.35±0.10
10	Pocket length	Bo	12.45±0.10
11	Pocket depth	Ko	1.85 ± 0.10
12	Thickness of tape	T	0.3±0.10
13	10x sprocket hole pitch	10Po	40.0±0.20

R&D	Print date 09/11/13					
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)		CAN4311 129 1X 0871K		Pre	Apr, 2009
					V1	May,2009
Willing Chang Oscar Lu	Tommy Chen		Page 13	sheet 190-13		A4
	Yageo Taiwan / Specialty					

Reel Specifications



Product size code	Units per Reel	Tape Width (mm)	C (mm)	D (mm)	W ₁ (mm)	W ₂ (mm)
Antenna	1000	24	180.0±1.0	62±0.5	16±0.5	20.5±0.5

R&D	Print date 09/11/13						
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K		Pre	Apr, 2009
						V1	May, 2009
Willing Chang Oscar Lu	Tommy Chen		Page 14	sheet 190-14		A4	
	Yageo Taiwan / Specialty						

12. Tape Revision Control:

Revision	Date	Content	Remark
Preliminary	3 rd , Apr, 2009	New issued	
V1	18 th , May, 2009	Add definition for antenna type	

R&D	Print date 09/11/13						
	Multilayer Ceramic Antenna(PIFA Mode) for 870 MHz (12*4mm)			CAN4311 129 1X 0871K		Pre	Apr, 2009
						V1	May,2009
Willing Chang Oscar Lu	Tommy Chen			Page 15	sheet 190-15		A4
	Yageo Taiwan / Specialty						