

SPECIFICATION FOR APPROVAL

MESSRS:

MODEL:



No.	Customer P/N	Kwang Sung P/N	Descriptions	ERP Code
1		KMA93A2450X-M01	Multi-layer Chip Antenna 1. Center frequency : 2450MHz 2. Gain : 2dBi max. 3. VSWR : 2:1 max. 4. Polarization : Linear 5. Azimuth Beam Pattern: Omni-directional 6. Impedance : 50 Ω	

DATE: 2007. 01. 10



KWANG SUNG

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承認 (APPROVAL)		
作成	検討	承認
年	月	日

관리번호:KS03QR0010-A

A4 (210x297)mm

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MULTILAYER CHIP ANTENNA		

PART NO	KMA93A2450X-M01
ERP CODE	

APPROVED	DRAWN	DESIGNED	CHECKED	APPROVED
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	Jan. / 10	Jan. / 10		Jan. / 10

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1. Scope

This specification covers the characteristics of the multi-layer chip antenna for the cordless phone, Wireless-LAN and Bluetooth.

2. Part Numbering

KMA	93	A	2450	X	M01
①	②	③	④	⑤	⑥

1) Product ID.

Product ID	Full Name
KMA	Kwang-Sung Multi-layer Chip Antenna

2) Dimension. (L x W)

Code	Dimension (L x W)
93	9.0 mm x 3.0 mm
62	6.0 mm x 2.0 mm

3) Type.

Code	Type
A	A-type
B	B-type

4) Nominal Center Frequency.

Code	Center Frequency
2450	2450MHz

5) Material.

Code	Material
X	X200-W

6) Serial no.

Code	Symbol name
M01	Series number

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3. Materials

3-1. Materials : Dielectric Ceramic.

3-2. Internal Electrode : Silver(Ag)

3-3. External Electrode : Ag/Ni/Au or Ag/Ni/Sn.

4. Electric Characteristics

Characteristics	Specification
Nominal Center Frequency (fo)	2450MHz
Band Width	200 MHz min.
Gain	2dBi max. (at 25℃)
Polarization	Linear
V.S.W.R	2 : 1 max
Azimuth Beam Pattern	Omni-directional
Input / output impedance	50Ω
Measuring conditions	Equipment used : HP 8719ES
	Jigs used : Kwang-sung Standard Jig

※ test condition : Temperature 25±2℃ Humidity 45～75%R

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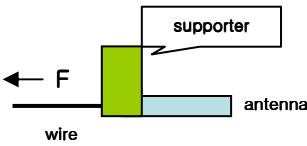
5. Environmental Characteristics

The device should satisfy the electrical characteristics specified in paragraph 4 after the following tests.

Measurements should be done after putting in the typical condition (20~30℃/ 55~75%RH) for 2hours minimum.

※**Test condition** : Temperature 25±2℃

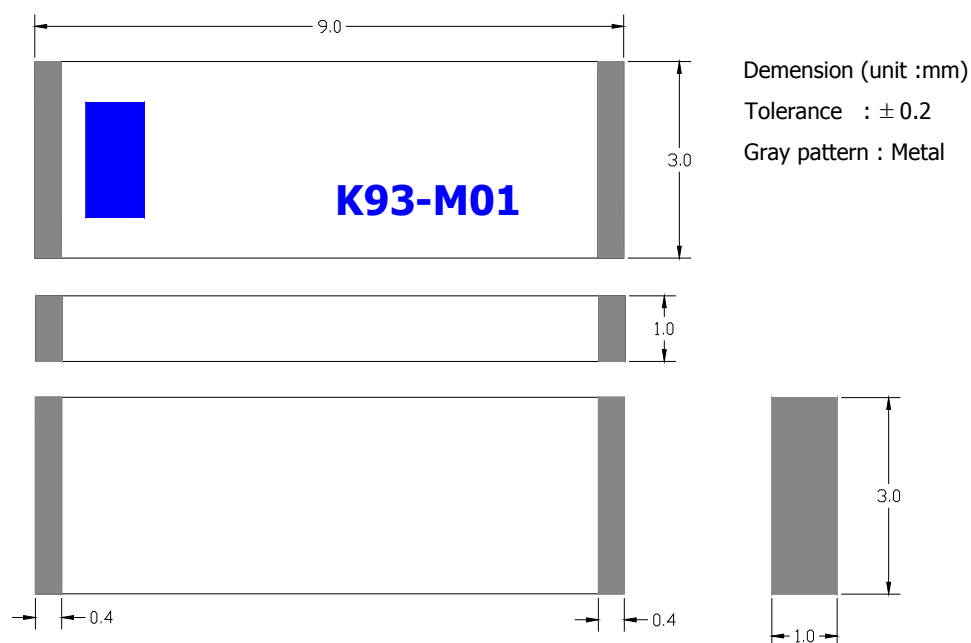
Humidity 45~75%RH

Sub clause number and Test item		Condition of test	Performance requirements
5-1	Tensile strength	 <p>Wire: 0.6~0.8 tined Cu wire</p>	No visual damage and strength(F) > 4kgf
5-2	Heat Proof	Temperature 85±2℃ for 96±2 hours Measure condition : left for 24hrs min. at room temp. (used KSE standard board)	No visual damage and $\Delta f < 1.5\%$ $(\Delta f = f_i - f_c / f_i)$ f_i : center frequency of initial condition (room temp.) f_c : center frequency after being cycled.
5-3	Cold Proof	Temperature -30±2℃ for 96±2 hours Measure condition : left for 24hrs min. at room temp. (used KSE standard board)	No visual damage and $\Delta f < 1.5\%$ $(\Delta f = f_i - f_c / f_i)$ f_i : center frequency of initial condition (room temp.) f_c : center frequency after being cycled.
5-4	Moisture Proof	Temperature 40±2℃ Humidity 95%RH for 96 hours Measure condition : left for 24hrs min. at room temp. (used KSE standard board)	No visual damage and $\Delta f < 1.5\%$ $(\Delta f = f_i - f_c / f_i)$ f_i : center frequency of initial condition (room temp.) f_c : center frequency after being cycled.
5-5	Adhesive Strength of Termination	Applied force on SMD chip till detached point from PCB.	No mechanical damage and strength(F) > 7kgf
5-7	Solder Heat Proof	Re-flowed at 250±5℃ for 10±1seconds	More than 40% of the terminal electrode shall be covered with new solder.

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6. Dimensions and Mechanical Specifications.

6-1. Dimensions



L=9.0, W=3.0, t=1.0

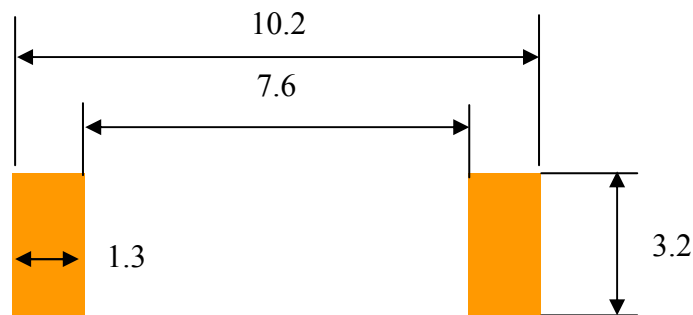
6-2. Mechanical Specifications.

Items	Specification
Dimensions(L x W x H)	9.0 x 3.0 x 1.0 mm
Operating Temp.	-35 ~ +85 °C
Internal Electrode	Ag
External Electrode	Ag/Ni/Au or Ag/Ni/Sn

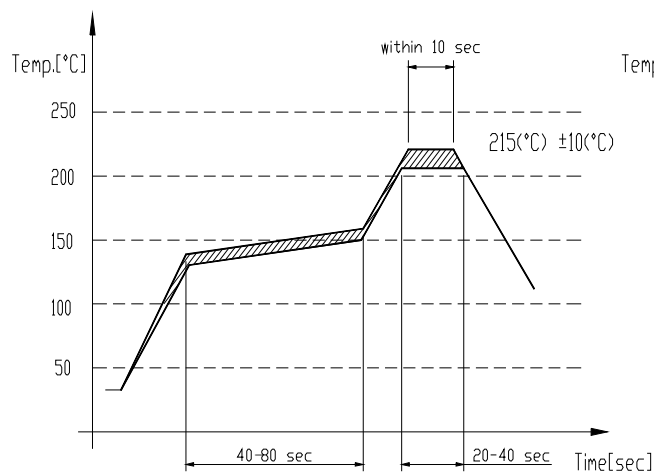
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7. Recommended Land Pattern

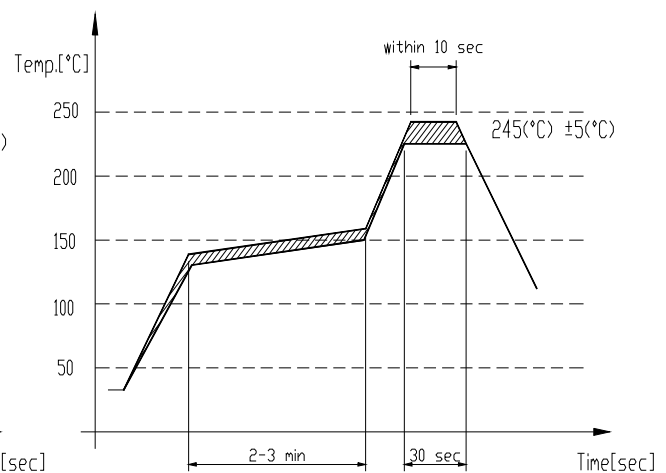
7-1. Land pattern. (Top View)



8. Reflow Soldering Standard Conditions.



a) non Pb-free



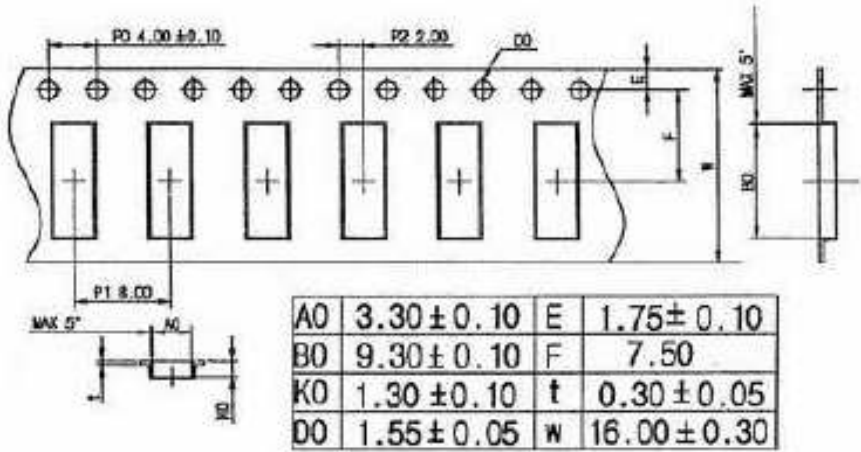
b) Pb free

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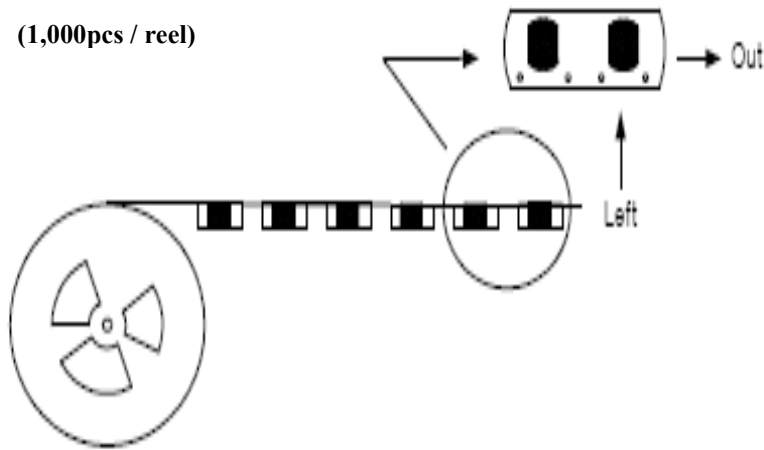
CHIP MULTILAYER LC FILTER

9. Package specifications

9-1. Dimensions of Carrier Tape (unit: mm)



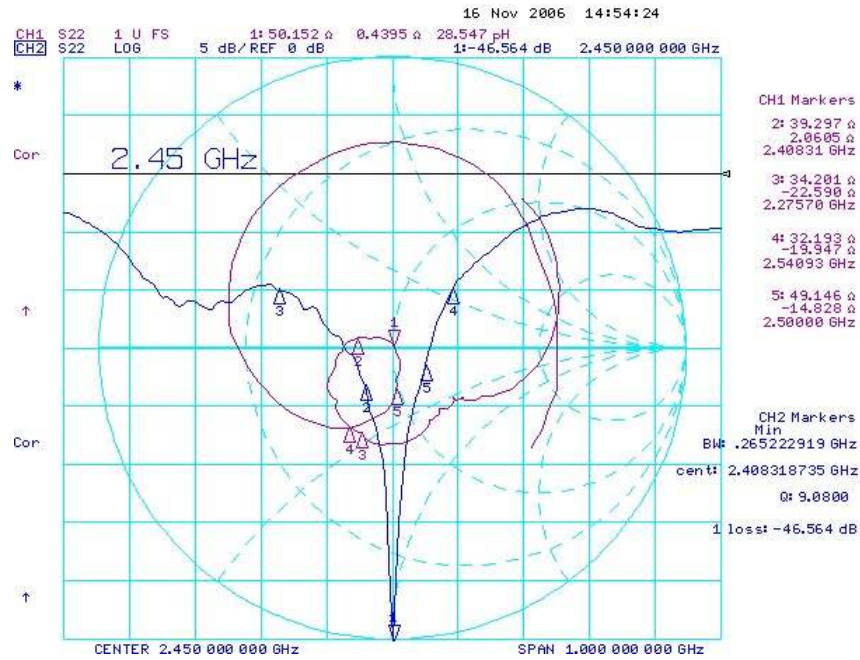
9-2. style of Reel



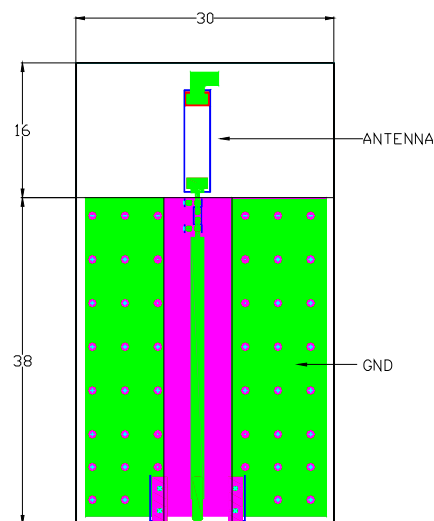
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10. Frequency Characteristic.

10-1. S11 (return loss and Smith chart)

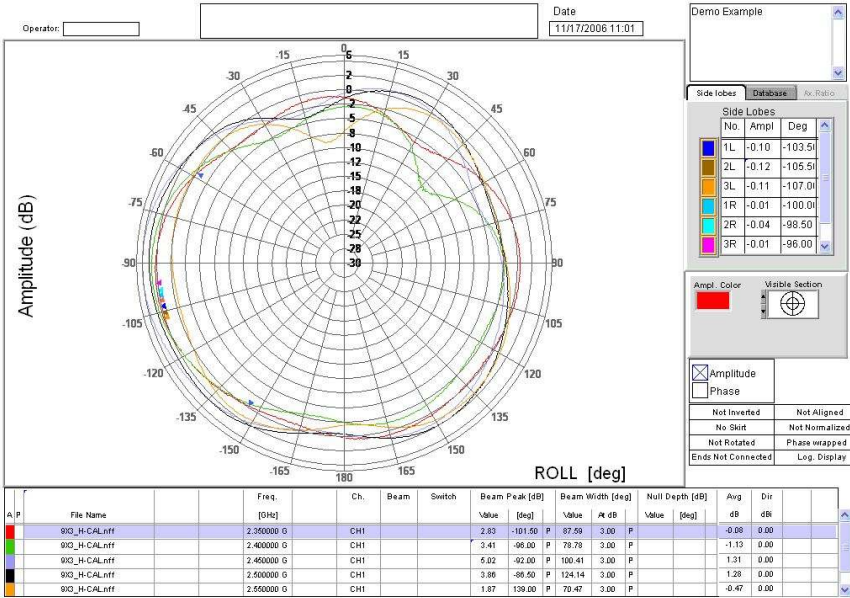


10-2. Bluetooth matching on the reference board

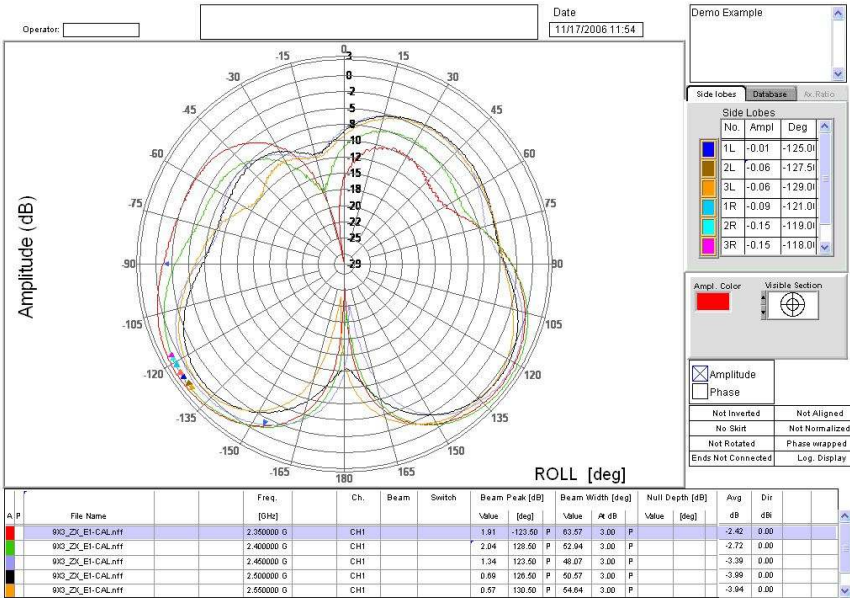


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11. Radiation Characteristic.



a) Azimuth



b) Elevation