

Application Note of Chip Dielectric Antenna

ANCW12G45SAA117 (3x9x1.8mm)



- ver. 2.3 -

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Microwave Products Department III

Kanazawa Murata Mfg.Co.,Ltd

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1. Purpose

Chip Dielectric Antenna is a special component. The characteristic is influenced by the condition of usage (i.e. size of PCB, the location of antenna, feeding point and etc).

This application note shows our recommendation locating and feed point of **ANCW1 series** Chip Dielectric Antenna on your PCB.

We hope you find the best condition of **ANCW1 series** Chip Dielectric Antenna on your PCB.

Note: If you want to use ANCW1 series for main antenna of cordless phone, cellular phone and other wireless application which is used near the human-body, you should consider the SAR. Please contact to us.

2. Standard Products of ANCW1 series

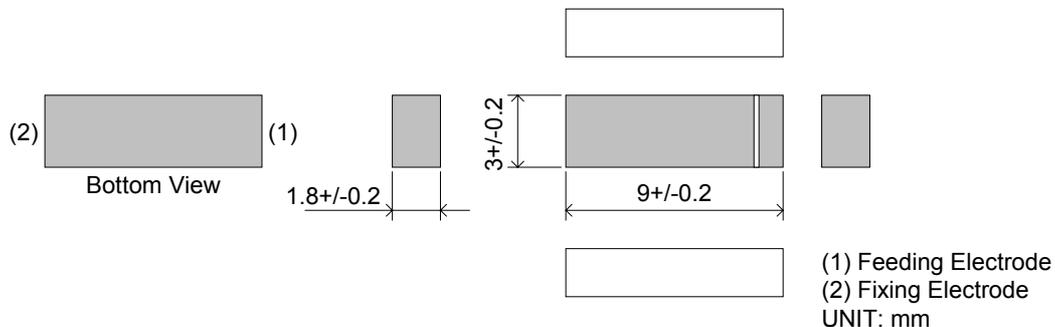
This is our standard products of **ANCW1 series** Chip Dielectric Antenna.

Standard Part Number	Size	Main Application	Frequency Flexibility
ANCW12G45SAA117	3x9x1.8mm	W-LAN2.4GHz/BT	1600MHz to 2600MHz

This antenna support from 1600MHz to 2600MHz frequency range.

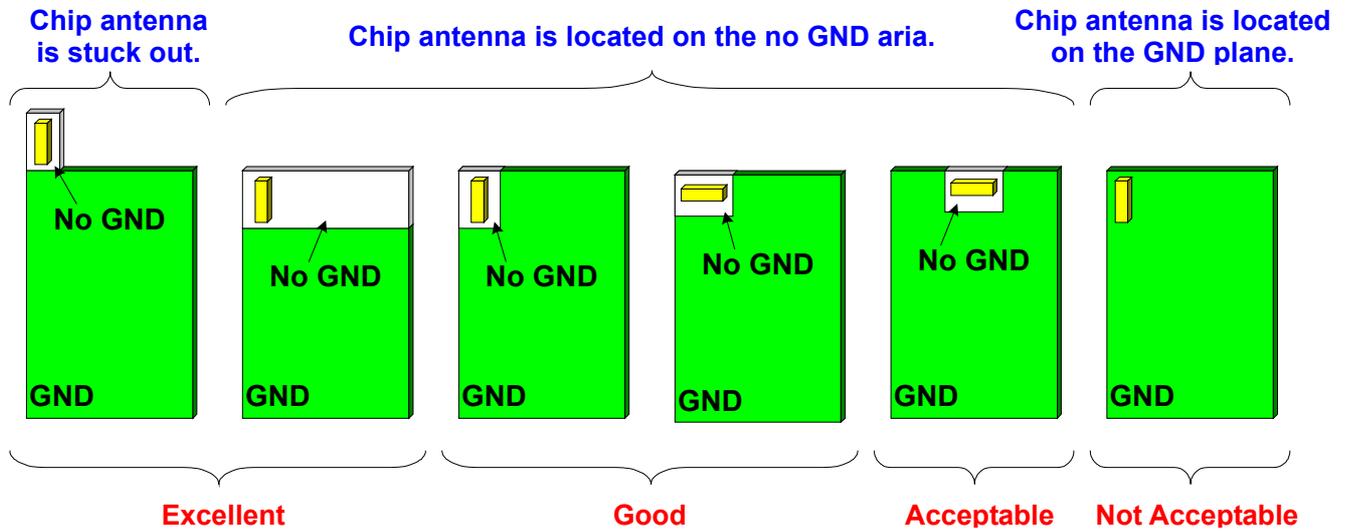
Example of other application is PHS, TD-SCDMA and others.

Dimensions of ANCW12G45SAA117



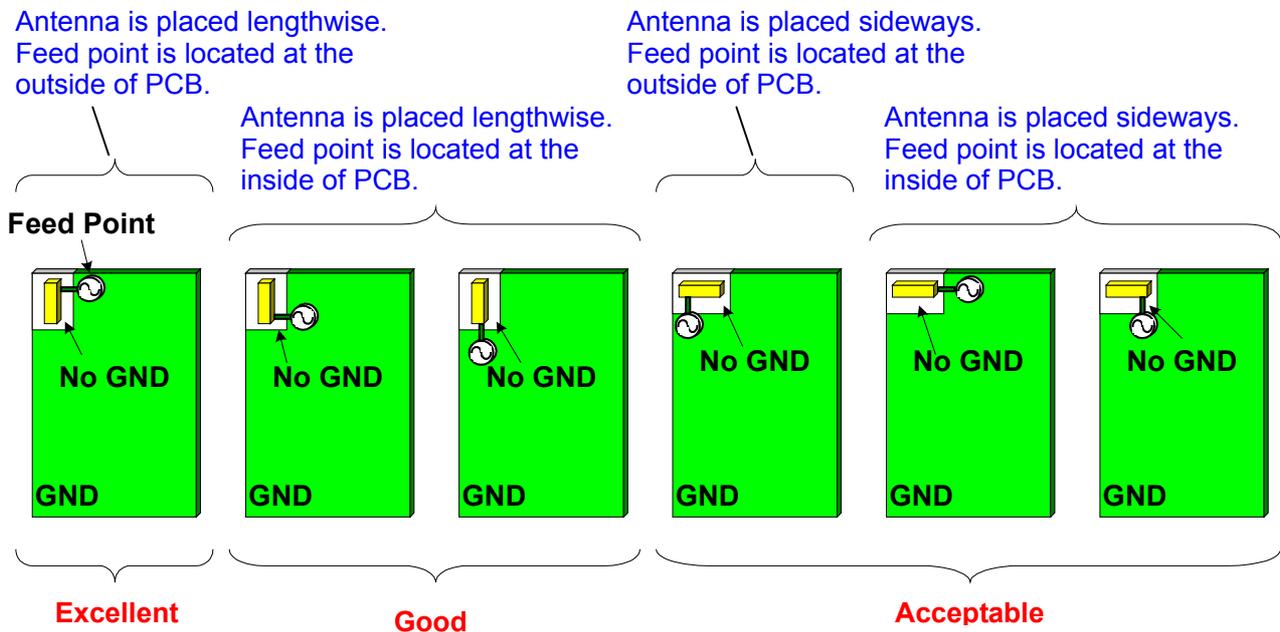
3. Chip Dielectric Antenna Position

M1 series and **W1 series** are not able to place on ground plane. You must remove the ground plane from under the antenna, opposite side and internal layer of PCB. The antenna is available at each side (left and right) of PCB.



4. Antenna Direction & Feed Point Position

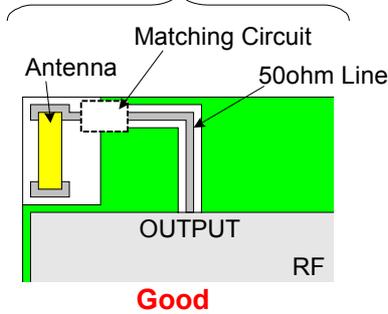
Basically, the recommendation of feed point is edge of PCB.



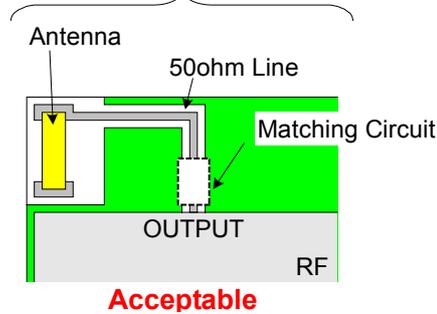
5. Matching Circuit Position

We recommend that the matching circuit is located near the antenna.

Matching Circuit is located at the top of 50ohm line that is nearest place from chip antenna.



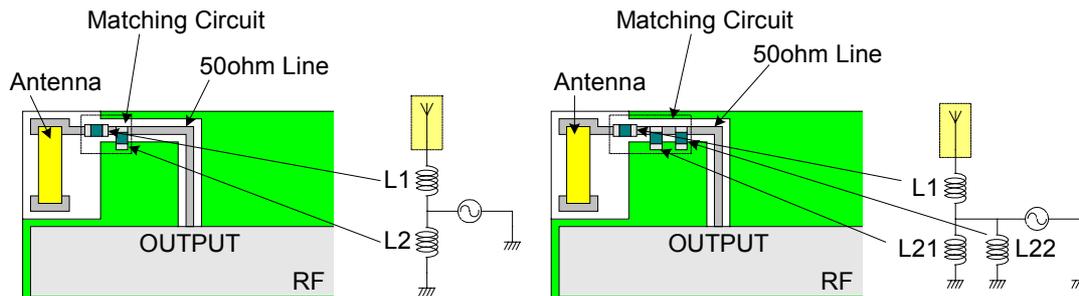
Matching Circuit is located at the top of 50ohm line that is farthest place from chip antenna.



6. Recommended Structure of Matching Circuit

L1 is in series and L2 is in shunt. If it is impossible to adjust the impedance by standard inductor range, please separate the L2 to L21 and L22 as shunt.

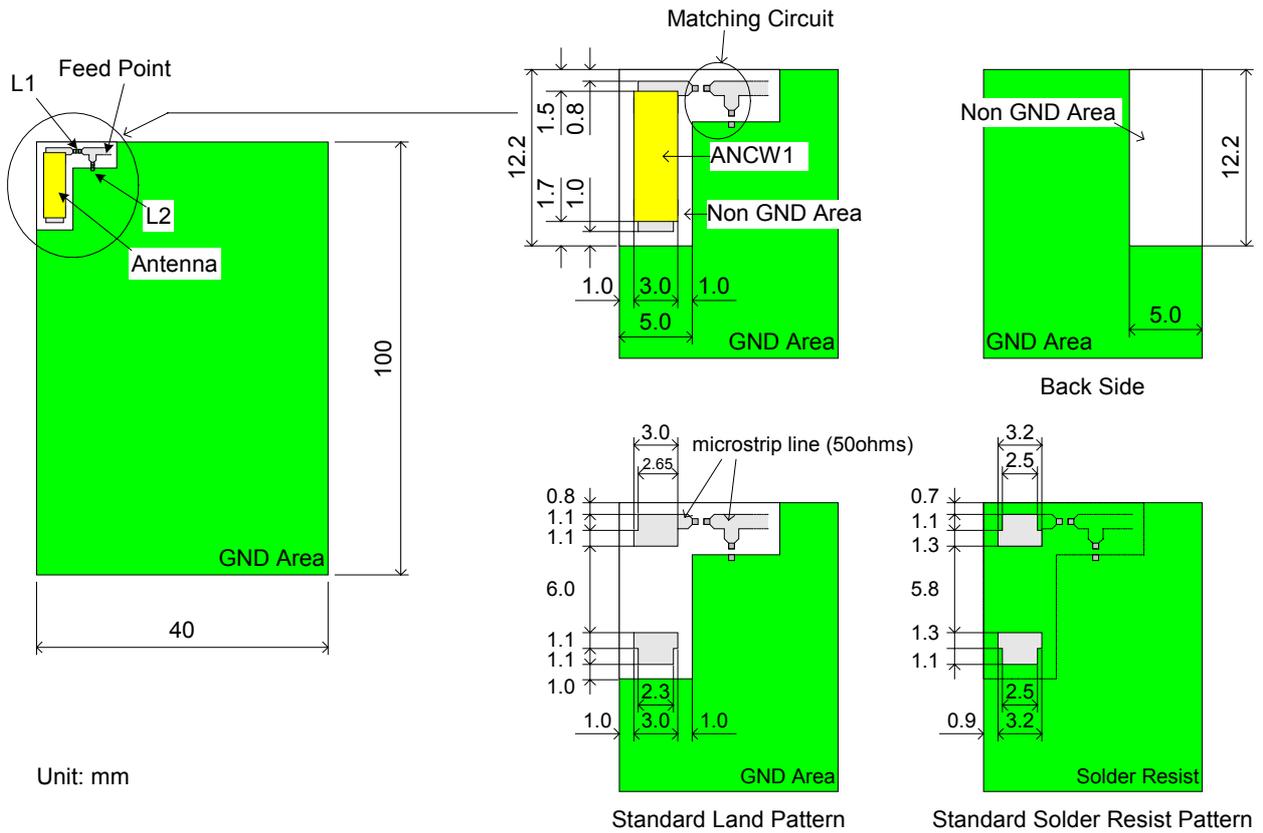
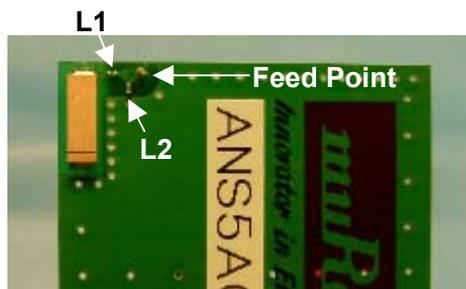
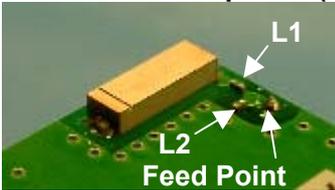
When series components are not needed, 0-ohm resistance is needed to mount there.



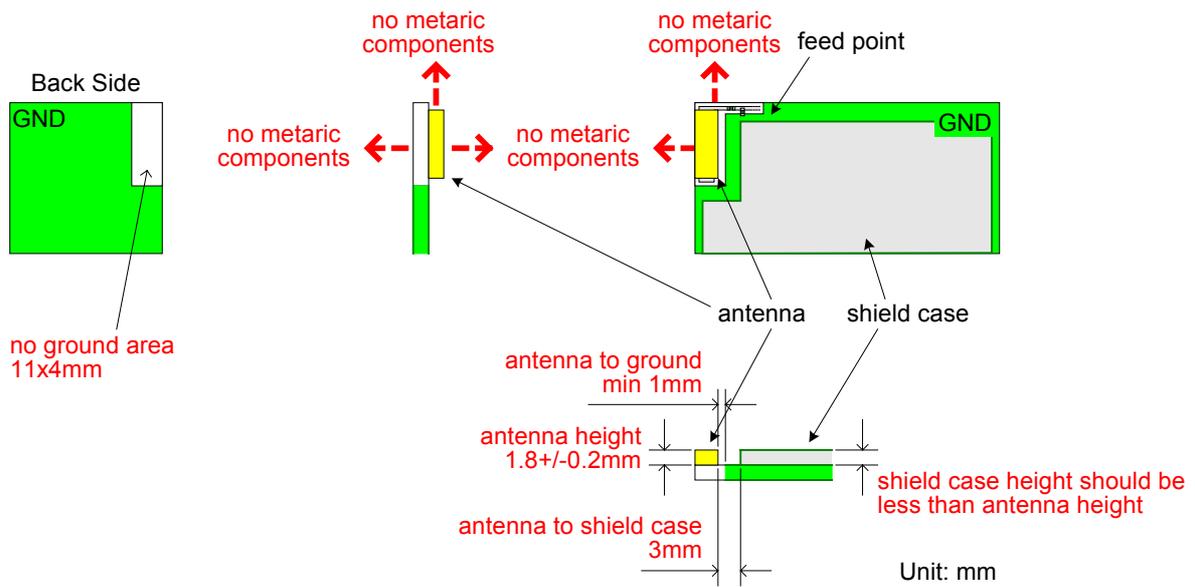
Matching Circuit Parameters

Application	2.4GHz W-LAN / BT	PHS	TDS-SCDMA
Matching Circuit			
Frequency (Fo)	2425MHz.	1913MHz	2024MHz
Band Width (BW)0	225MHz (VSWR < 3)	100MHz (VSWR < 3)	96MHz (VSWR < 3)
Efficiency	-0.8dBd at 2450MHz	-3.2dBd at 1906MHz	-3.2dBd at 2017.5MHz

Note: This electrical characteristics are guaranteed with our standard measurement condition which is used our standard land pattern and PCB in Section 7.

7. Standard PCB for ANCW12G45SAA117

8. Actual Mock-up PCB (100x40mm)


9. Recommended Layout of Antenna



The recommended distance of "antenna to ground" is more than 1mm.
 The recommended distance of "antenna to shield case" is more than 3mm.
 The recommended height of shield case is less than antenna height.

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