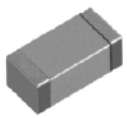
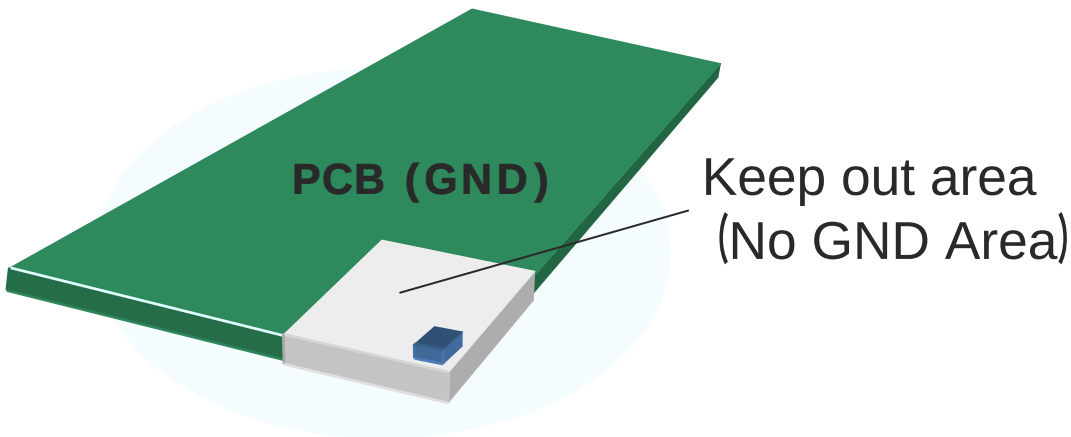
AH 212M245001
Antenna Design Guide

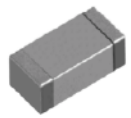


20121105V2.1

2.4GHz Monopole Antenna



2.4GHz: AH 212M245001



Keep Out Area (No GND Area)	Recommended Size 5 x 8 mm (40m㎡) or more (Larger area provides the better performance.)
Antenna Layout	Corner of PCB
Radiation Pattern	Normal (Omni)

Data Sheet

Shapes

L= 2.0 $^{+0.3}_{-0.1}$ mm
W= 1.25 ± 0.2 mm
T= 0.85 ± 0.2 mm

*on Taiyo Yuden's Evaluation Board
(52 x 10 mm)
*Element-GND Distance : 4.0 mm

Feature

* Ultra Small
* Low Profile

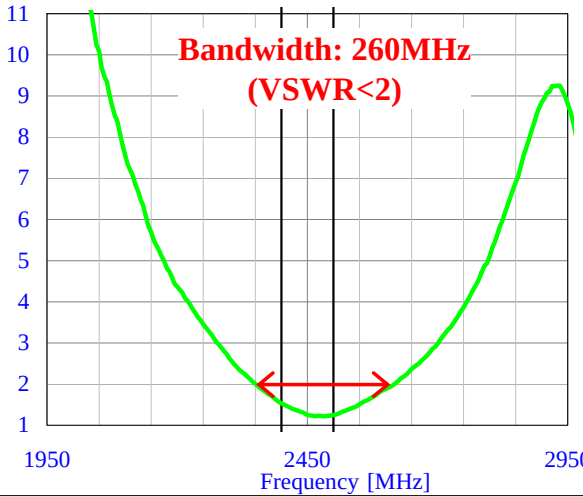
Actual data

Efficiency : -1.8dB (66%)
Peak Gain : 0.9dBi @2450MHz
Average Gain : -0.9dBi (ZX plane-Vertical polarization)

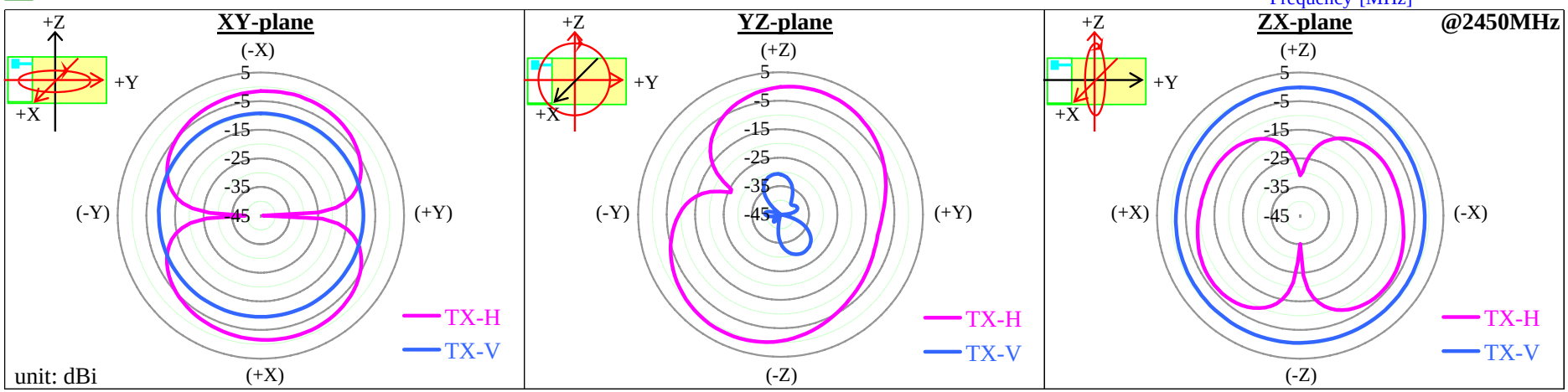
Electrical Characteristics

			2400MHz	2450MHz	2500MHz
Efficiency [dB]			**-1.9 (64%)**	**-1.8 (66%)**	**-1.7 (68%)**
Peak gain [dBi]			**0.9**	**0.9**	**1.3**
Average gain [dBi]	XY-plane	TX-H	-4.1	-4.0	-3.9
		TX-V	-9.8	-9.4	-8.7
	YZ-plane	TX-H	-3.0	-3.0	-2.9
		TX-V	-35.7	-35.1	-34.9
	ZX-plane	TX-H	-10.1	-9.8	-9.3
		TX-V	-1.0	-0.9	-0.9

VSWR

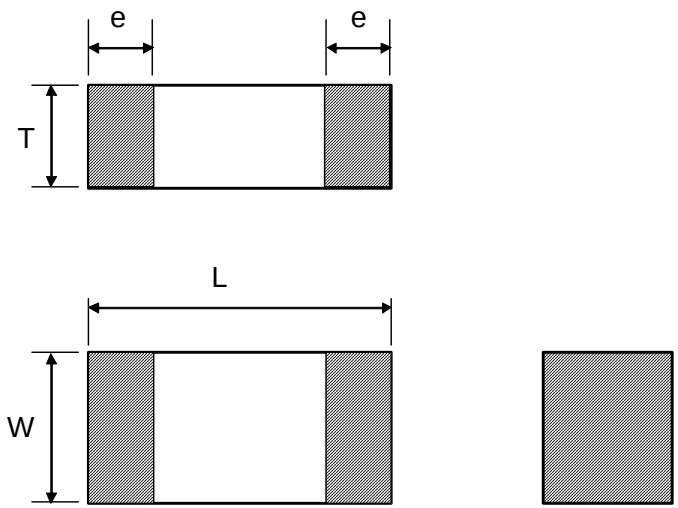


Radiation Pattern



Dimensions and Land pattern

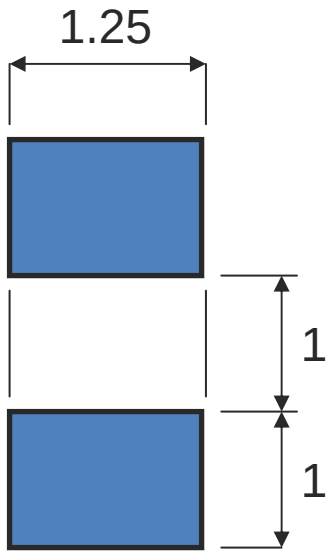
External Dimensions



	L	W	T	e
Size	2.0 $^{+0.3}_{-0.1}$	1.25±0.2	0.85±0.2	0.5±0.3

Unit : mm

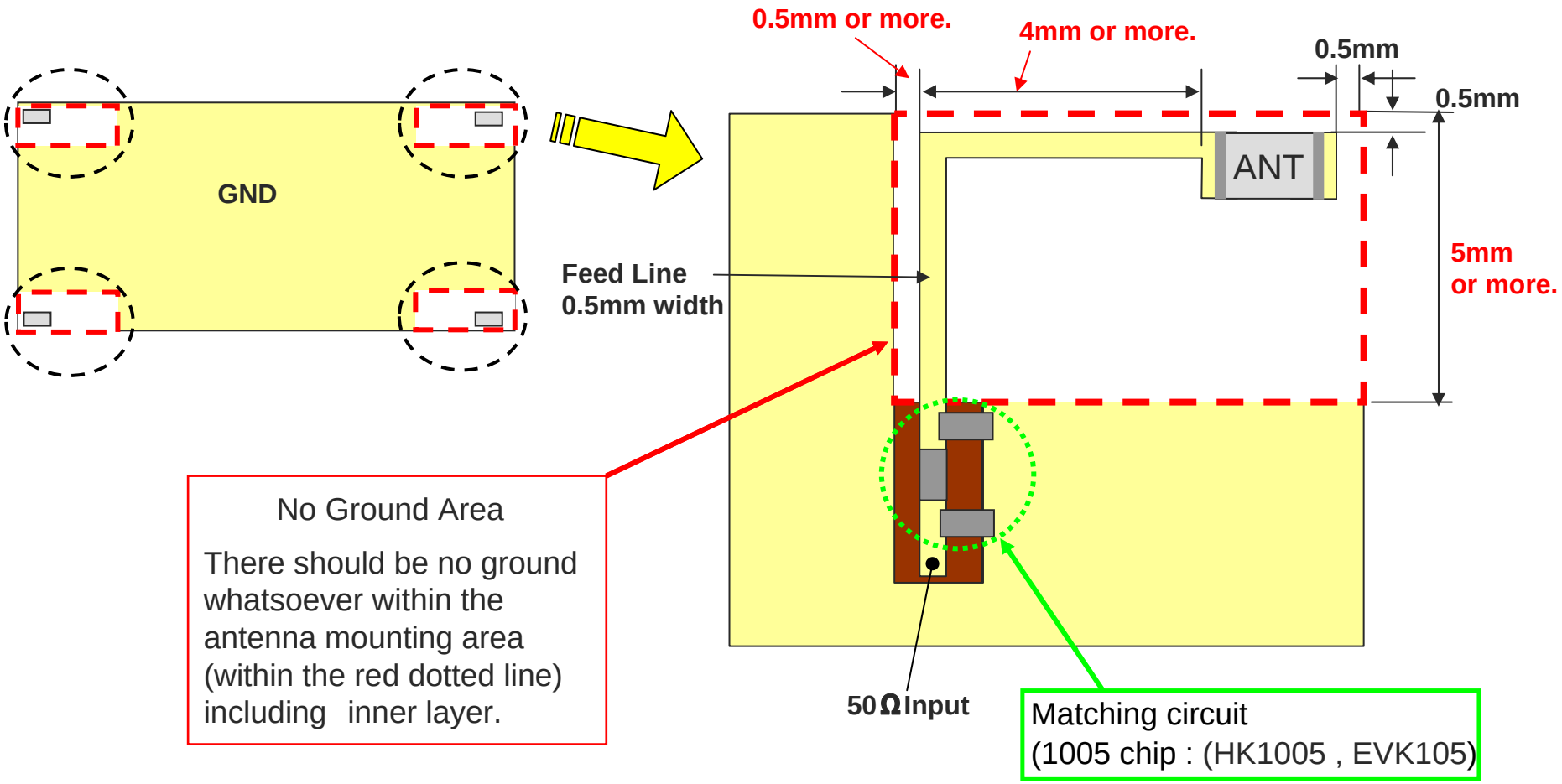
Recommended Land Pattern



Unit : mm

Design Guide

Recommended Pattern Layout



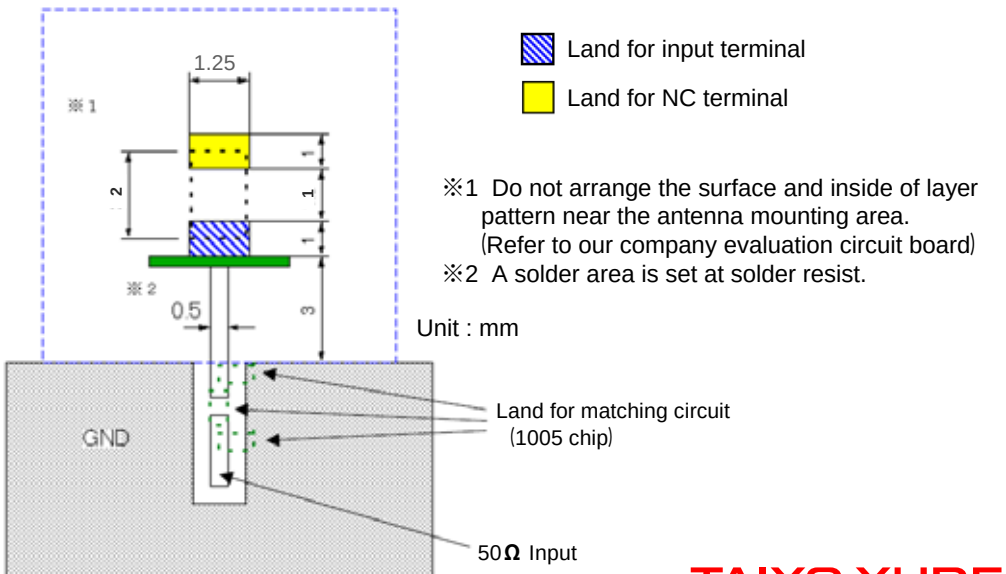
◎ Our recommendation is mounting position had better on the corner of PCB.

Design Guide

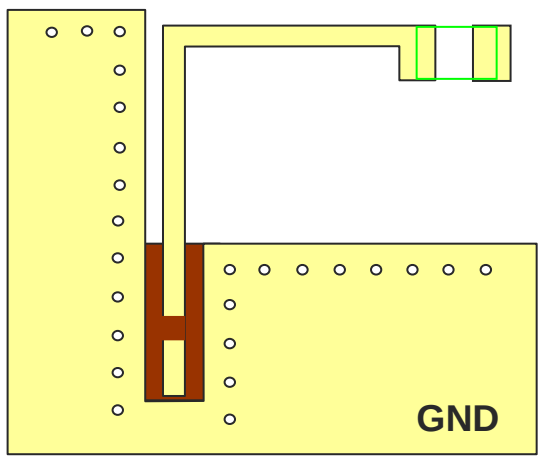
Precautions

Ⅰ. Surface GND layer around the antenna area should be connected with inner GND layer via through hole.
Ⅱ. Matching circuit line should be designed as 50Ω.
Ⅲ. Thickness of PCB can be flexible.
Ⅳ. Matching circuit should be placed as close as possible to the antenna.
Ⅴ. Use of Taiyo Yuden HK1005 and EVK105 series as matching components are highly recommended for the optimized result.
Ⅵ. Matching values may be required to get readjusted contingent upon the condition such as proximity to the metal and/or chassis, board size, etc.

Recommended land pattern

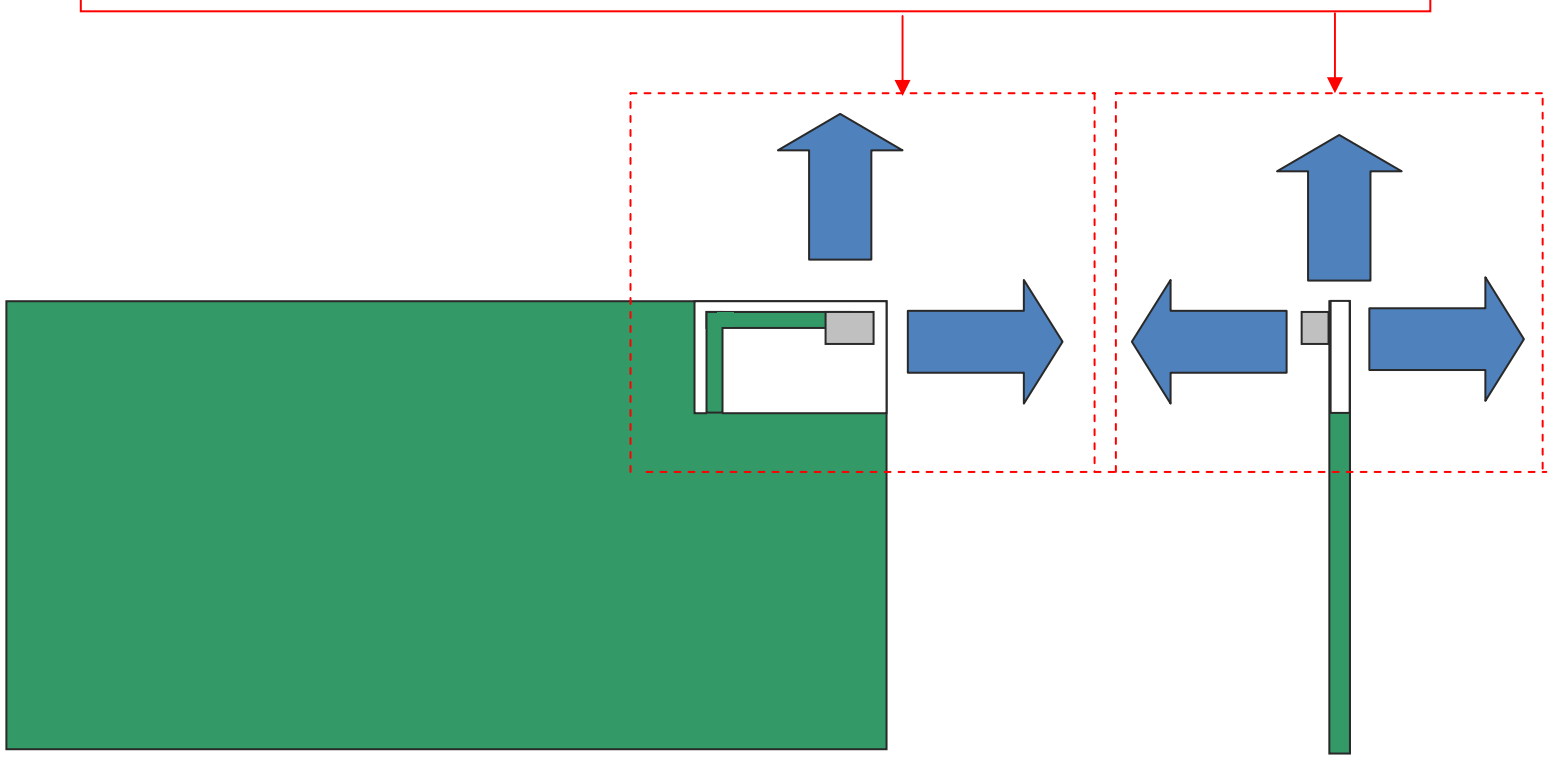


Example of through hole



Metal Avoidance Area

Please do not set close to a metal housing, paint including the metal, board GND, the metal chassis,etc.



Front or Back

Side

TAIYO YUDEN