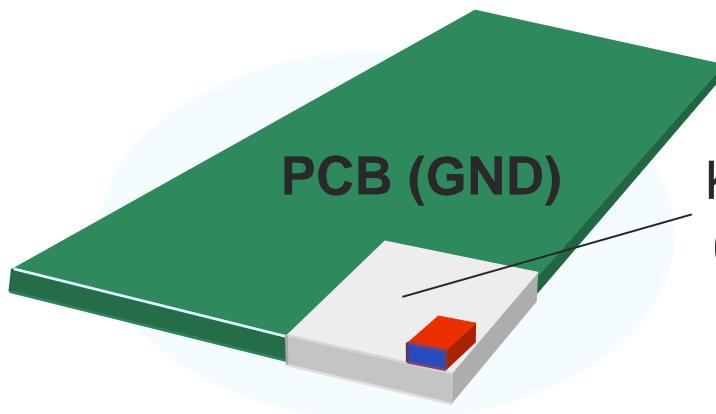


AF 216M245001

Antenna Design Guide



2.4GHz Helical Monopole Antenna



2.4GHz: AF 216M245001



**Keep Out Area
(No GND Area)**

Recommended Size
 $5 \times 8 \text{ mm (} 40\text{mm}^2 \text{) or more}$
(Larger area provides the better performance.)

Antenna Layout

Corner of PCB

Radiation Pattern

Normal (Omni)

Data Sheet

Shapes

L= 2.5 ± 0.2 mm
 W= 1.6 ± 0.2 mm
 T= 1.6 ± 0.2 mm

Feature

* Ultra Small
 * Wide Band



Actual data

Efficiency : -1.5dB (70%)
 Peak Gain : 1.5dBi
 Average Gain : 0.0dBi (ZX plane-Vertical polarization)

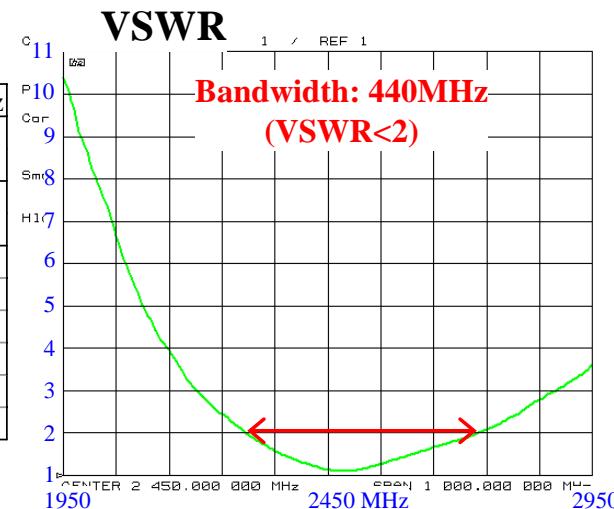


*on Taiyo Yuden's Evaluation Board
 (52 x 10 mm)

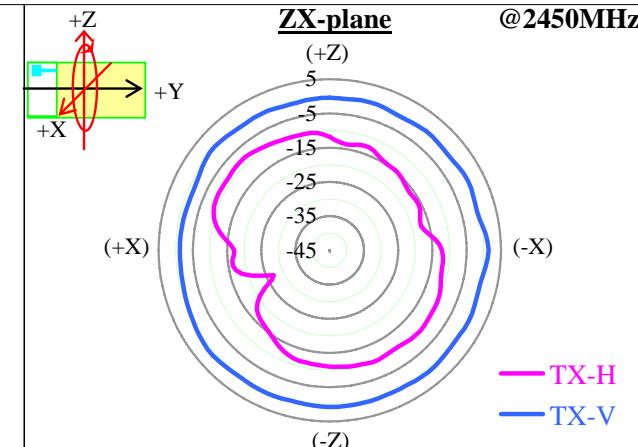
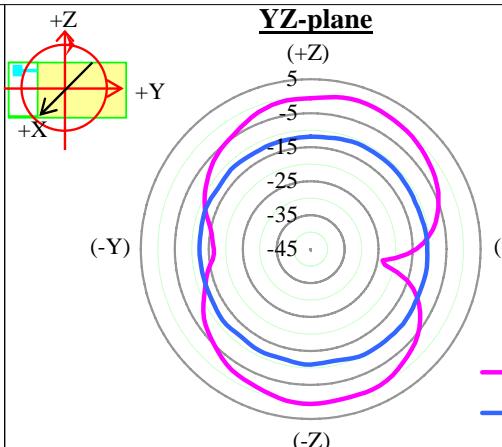
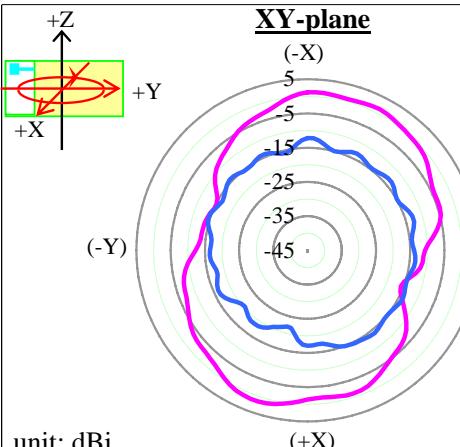
*Element-GND Distance : 3.5 mm

Electrical Characteristics

		2400MHz	2450MHz	2500MHz
Efficiency [dB]		-1.6 (69%)	-1.5 (70%)	-1.5 (71%)
Peak gain [dBi]		1.5	1.5	1.8
Average gain [dBi]	XY-plane	TX-H -3.0	TX-H -2.8	TX-H -2.9
		TX-V -15.1	TX-V -15.2	TX-V -15.0
	YZ-plane	TX-H -2.8	TX-H -2.9	TX-H -3.2
		TX-V -11.5	TX-V -11.4	TX-V -11.1
	ZX-plane	TX-H -12.0	TX-H -11.8	TX-H -11.4
		TX-V 0.0	TX-V 0.0	TX-V 0.1

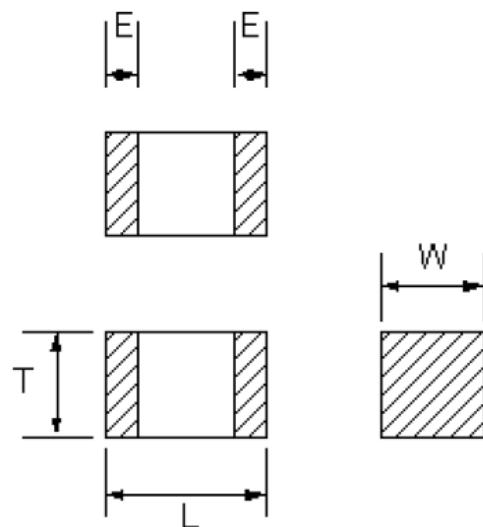


Radiation Pattern

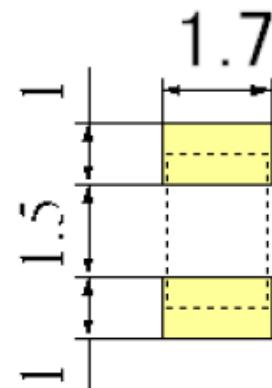


Dimensions and Land pattern

External Dimensions



Recommended Land Pattern



Unit : mm

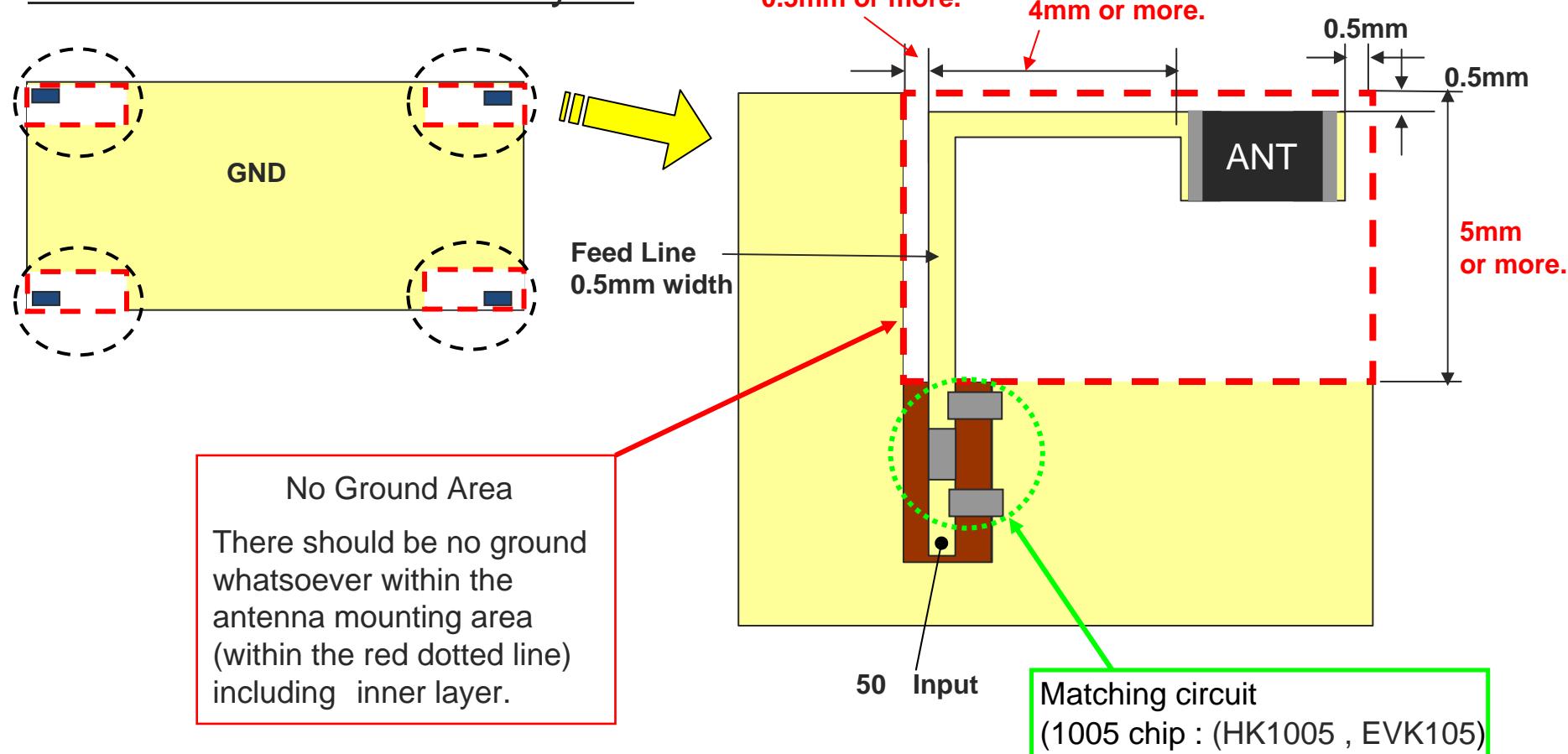
記号	L	W	T	E
寸法	2.5 ± 0.2	1.6 ± 0.2	1.6 ± 0.2	0.5 ± 0.3

[单位: mm]



Design Guide

Recommended Pattern Layout



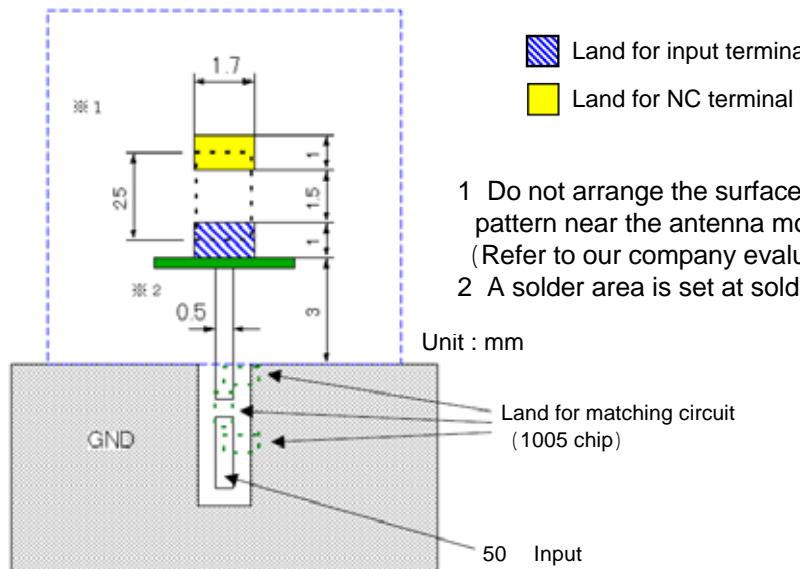
Our recommendation is mounting position had better on the corner of PCB.

Design Guide

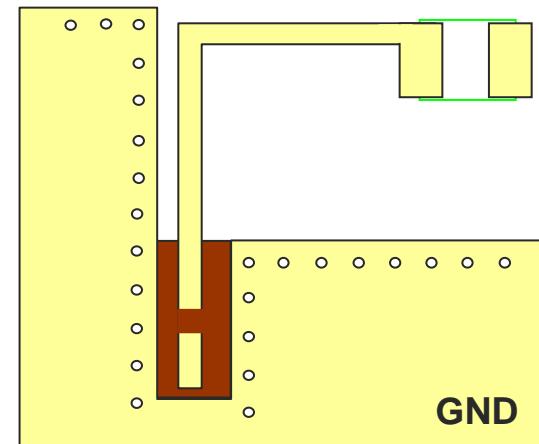
Precautions

- Surface GND layer around the antenna area should be connected with inner GND layer via through hole.
- Matching circuit line should be designed as 50 .
- Thickness of PCB can be flexible.
- Matching circuit should be placed as close as possible to the antenna.
- Use of Taiyo Yuden HK1005 and EVK105 series as matching components are highly recommended for the optimized result.
- 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



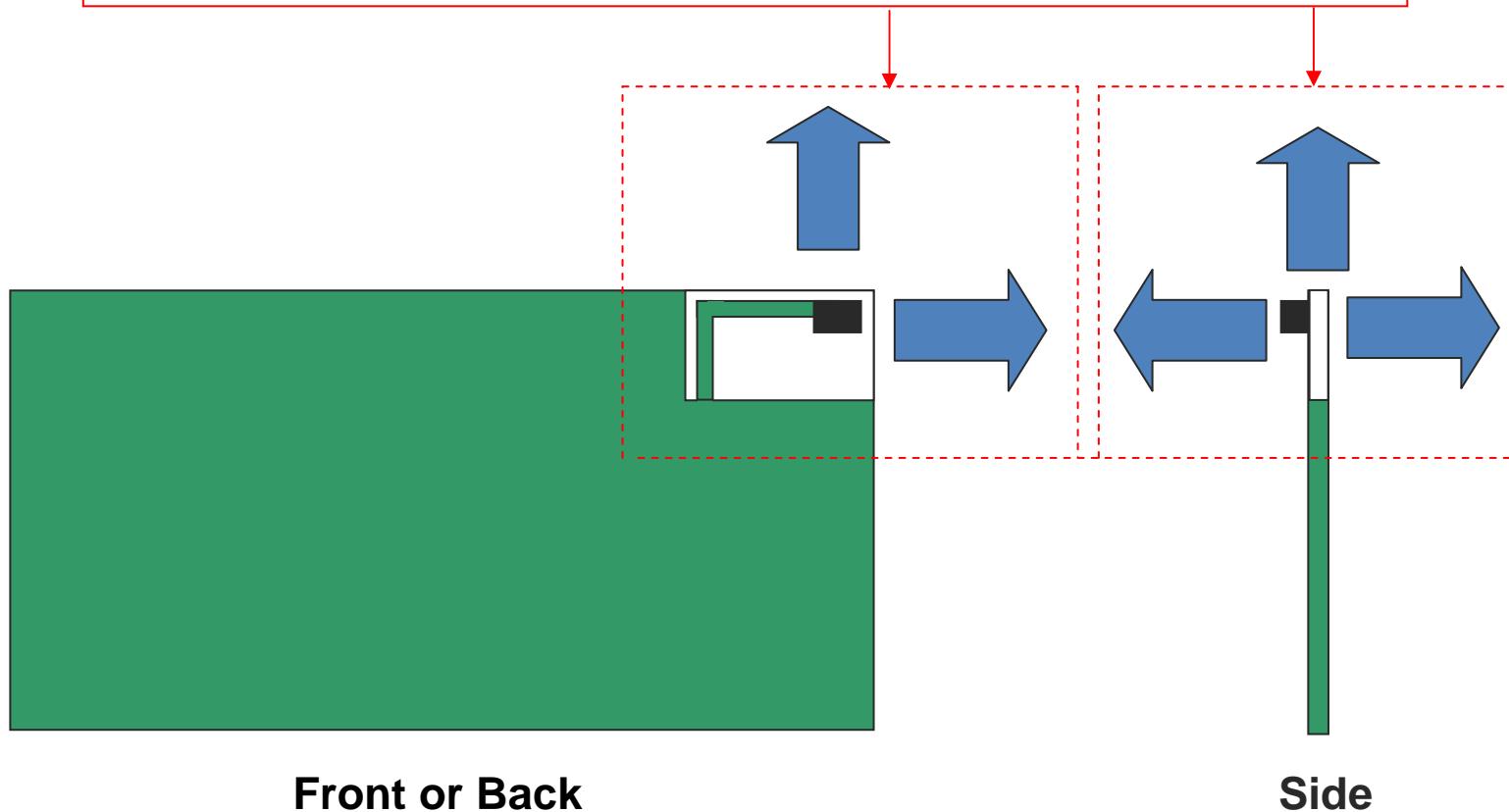
Example of through hole



Design Guide

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