

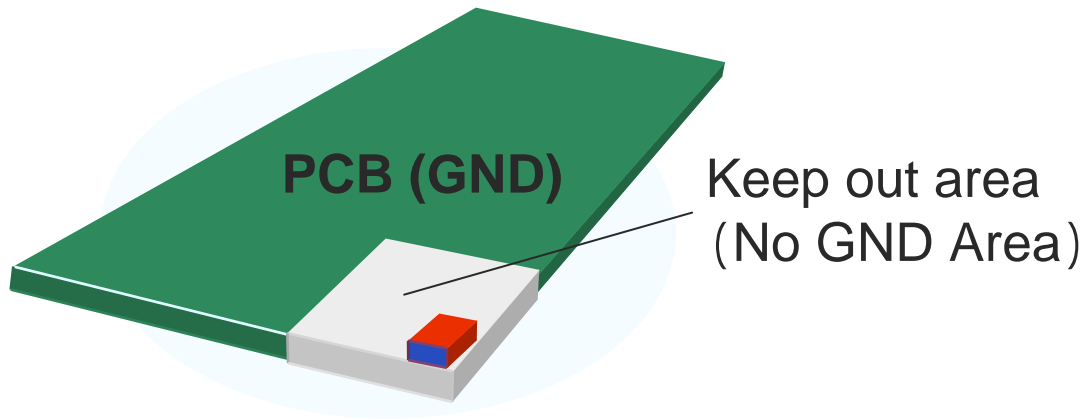
AF 216M245001

Antenna Design Guide



2.4GHz Helical Monopole Antenna

2.4GHz: AF 216M245001



Keep Out Area
(No GND Area)

Recommended Size
5 x 8 mm (40mm²) 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



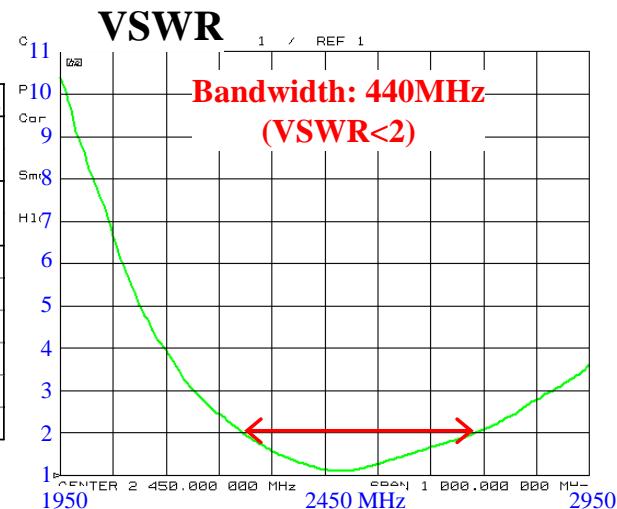
Actual data

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

@2450MHz

Electrical Characteristics

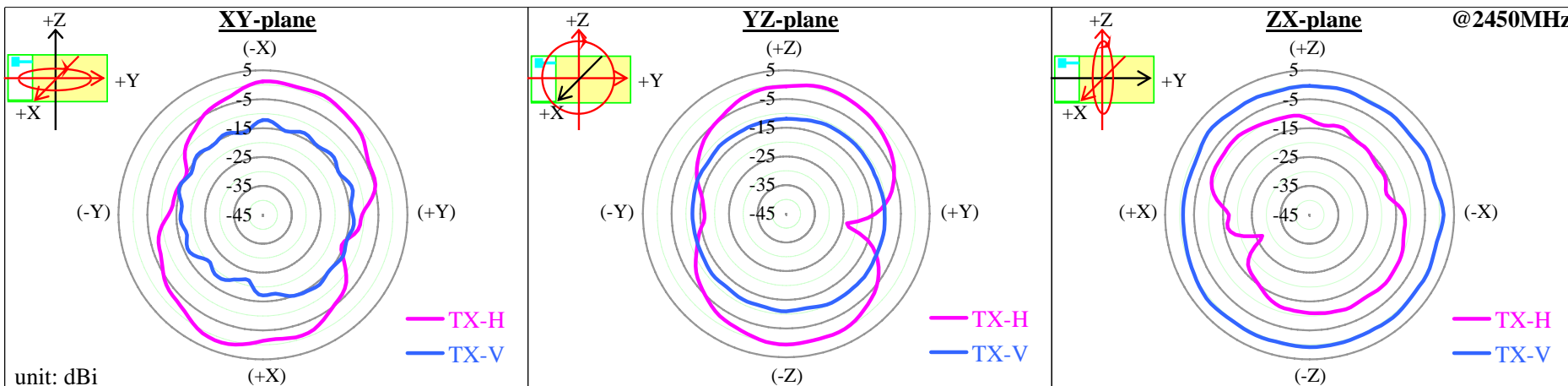
			2400MHz	2450MHz	2500MHz
Efficiency [dB]			-1.6 (69%)	-1.5 (70%)	-1.5 (71%)
Peak gain [dBi]			1.5	1.5	1.8
Average gain [dBi]	XY-plane	TX-H	-3.0	-2.8	-2.9
		TX-V	-15.1	-15.2	-15.0
	YZ-plane	TX-H	-2.8	-2.9	-3.2
		TX-V	-11.5	-11.4	-11.1
	ZX-plane	TX-H	-12.0	-11.8	-11.4
		TX-V	0.0	0.0	0.1



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

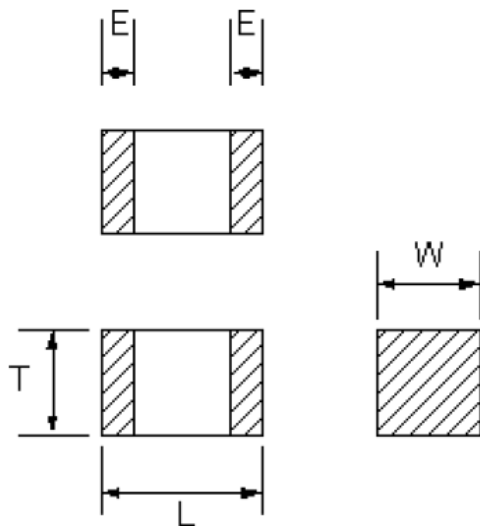
*Element-GND Distance : 3.5 mm

Radiation Pattern



Dimensions and Land pattern

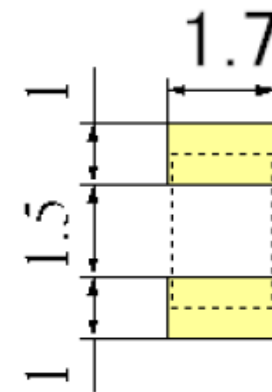
External Dimensions



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

[単位: mm]

Recommended Land Pattern

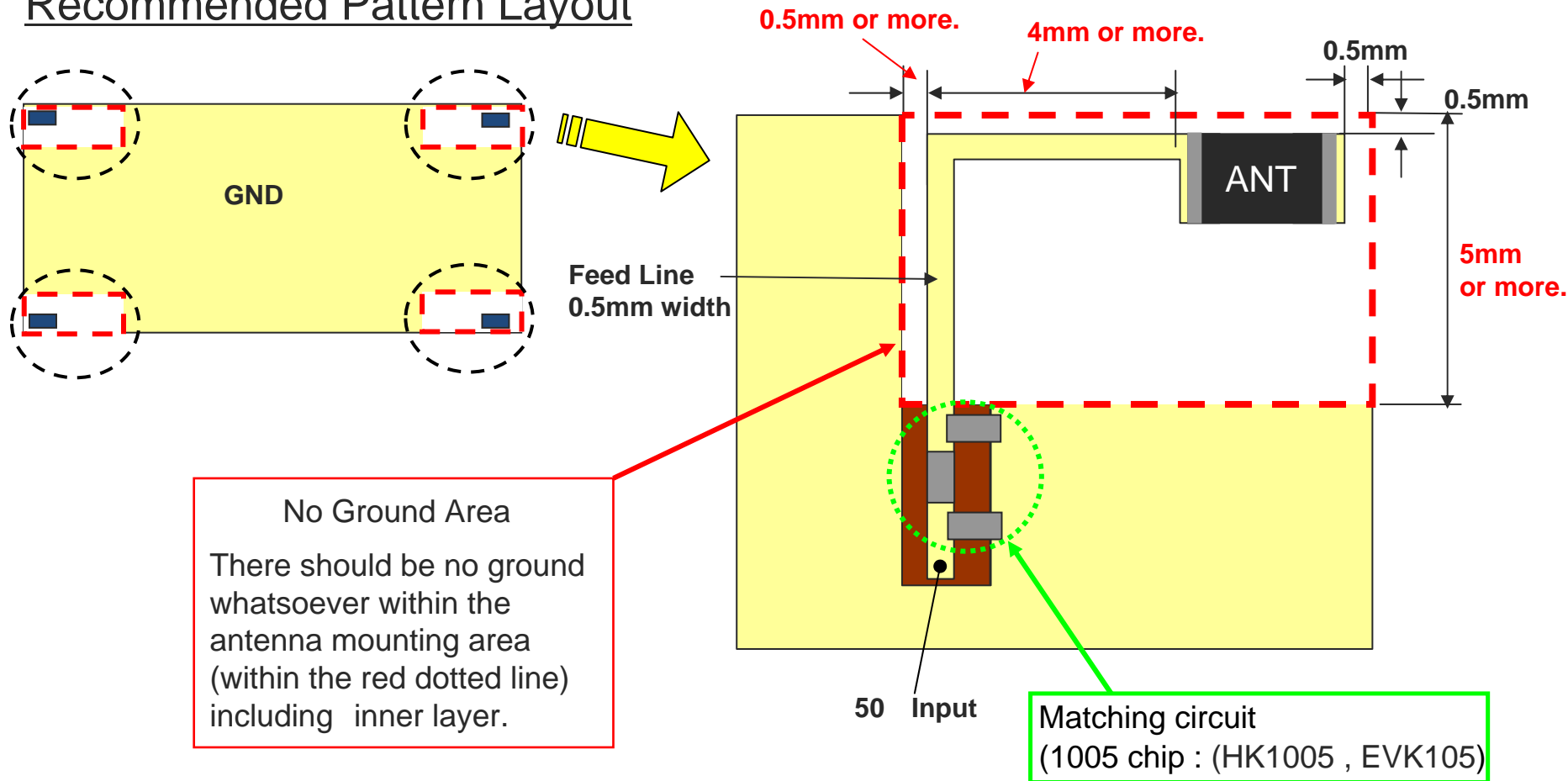


Unit : mm



Design Guide

Recommended Pattern Layout



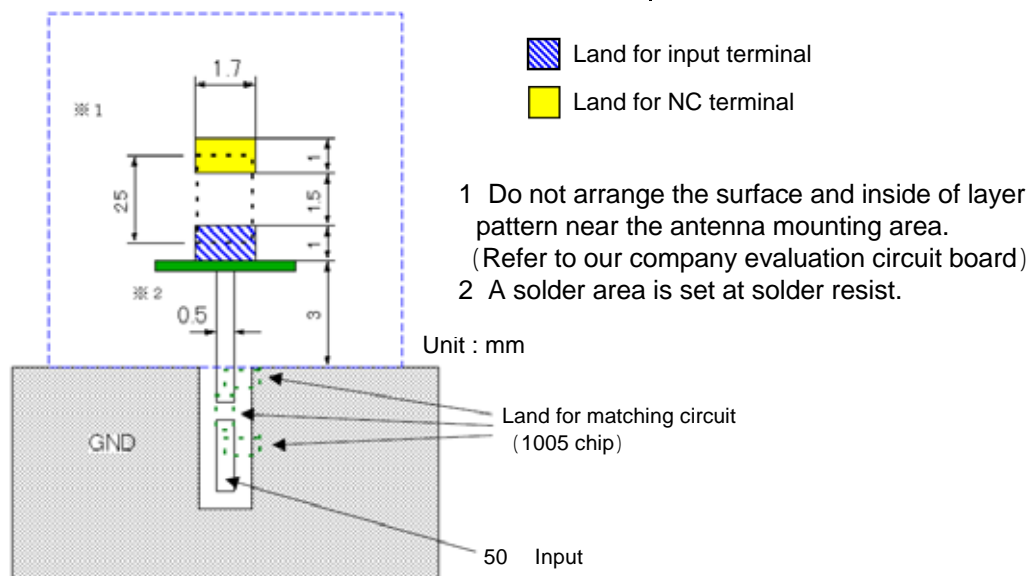
Our recommendation is mounting position had better on the corner of PCB.

Design Guide

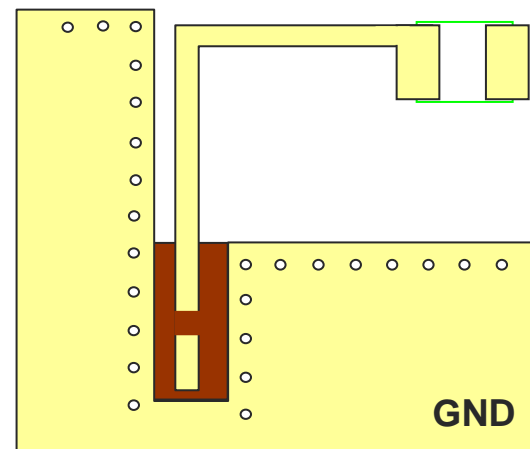
Precautions

- . 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 Ω .
- . 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



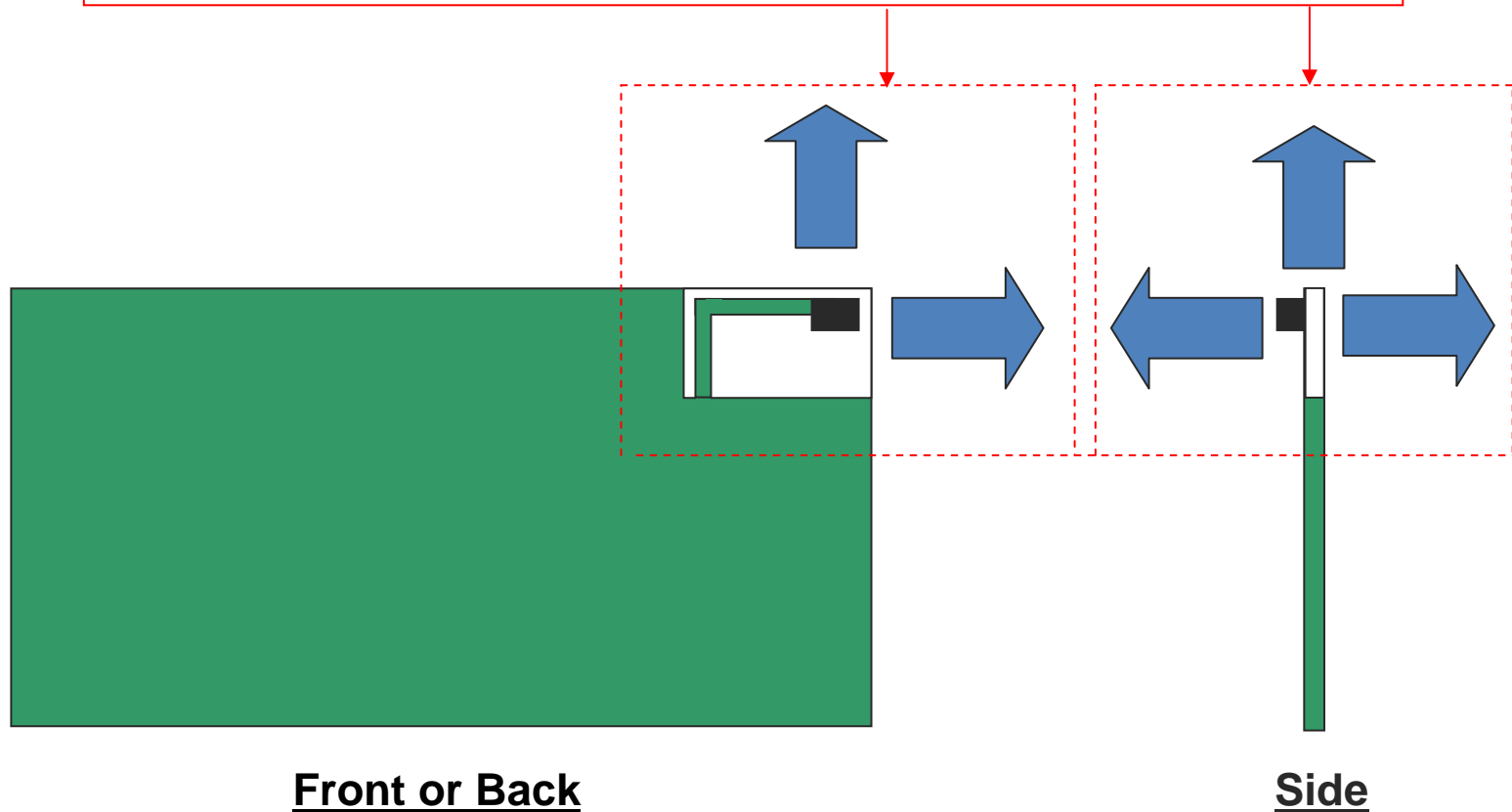
Example of through hole



Design Guide

Metal Avoidance Area

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



TAIYO YUDEN