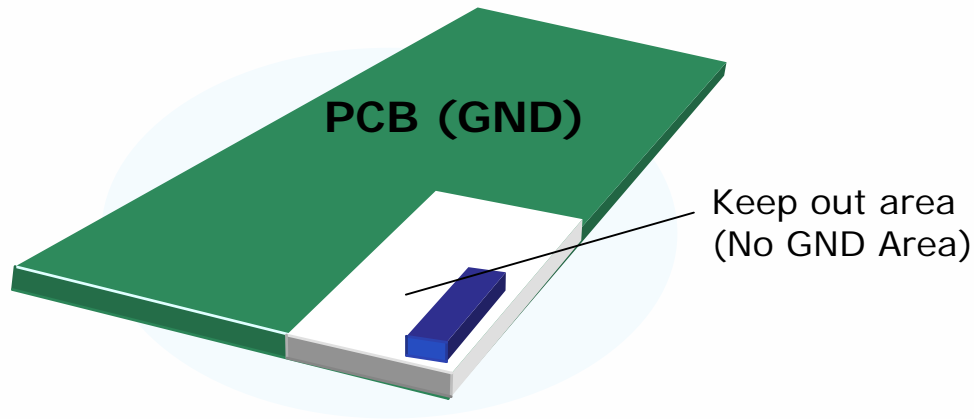


Antenna Design Guide

AF 816M157502



Ver. 1.1



1.5GHz: AF 816M157502



Keep Out Area
(No GND Area)

Recommended Size
5 x 13 mm (65mm²) or more
(Larger area provides the better performance.)

Antenna Layout

Corner of PCB

Radiation Pattern **Normal** (Omni)

1.5GHz Helical Monopole Antenna (for GPS)

Confidential

AF 816M157502

Shapes

L= 8.0 ± 0.2 mm
W= 1.6 ± 0.2 mm
T= 1.6 ± 0.2 mm

Feature

- * Small
- * High Performance
- * Linear Polarization



Actual data

Efficiency : -1.8dB (65%)
Peak Gain : 2.8dBi
Average Gain : -0.6dBi (ZX plane-Vertical polarization)
-3.4dBi (ZX plane-RHCP)

@1575MHz

Electrical Characteristics

@ 1575MHz		linear polarization		circular polarization	
Efficiency [dB]		-1.8 (65%)			
Peak gain		2.8 [dBi]		-0.2 [dBic]	
Average gain	XY-plane	TX-H	-3.6	LC	-5.7
		TX-V	-10.3	RC	-5.8
	YZ-plane	TX-H	-2.6	LC	-5.5
		TX-V	-34.2	RC	-5.6
	ZX-plane	TX-H	-11.9	LC	-3.2
		TX-V	-0.6	RC	-3.4

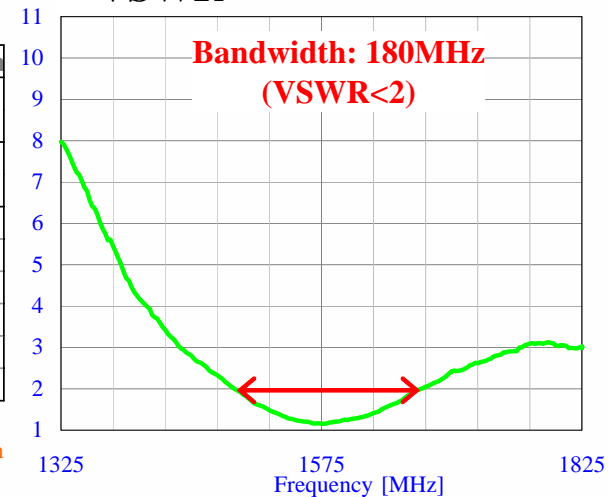
TX-H=Horizontal polarization

LC=Left-handed circular polarization

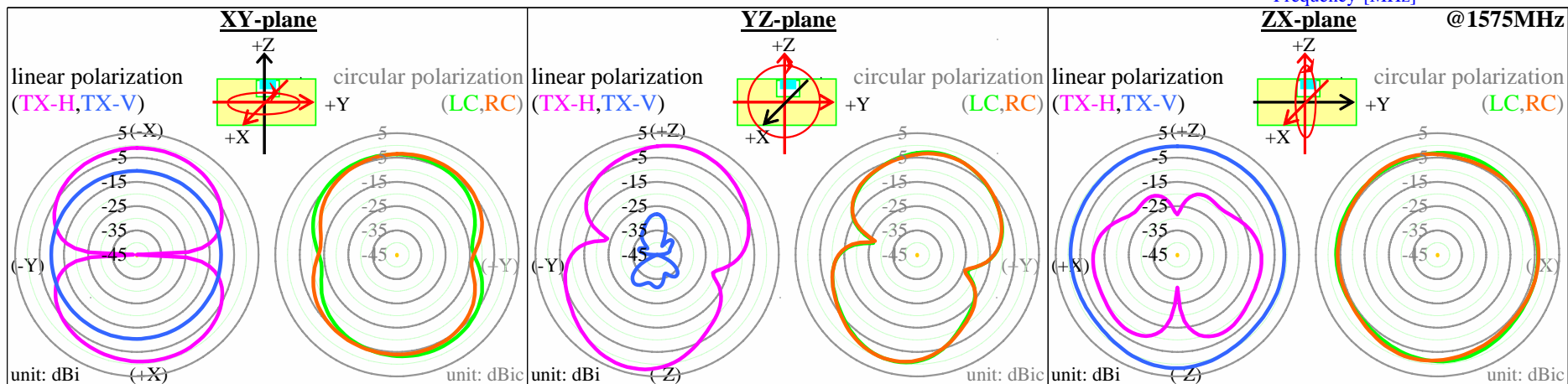
TX-V=Vertical polarization

RC=Right-handed circular polarization

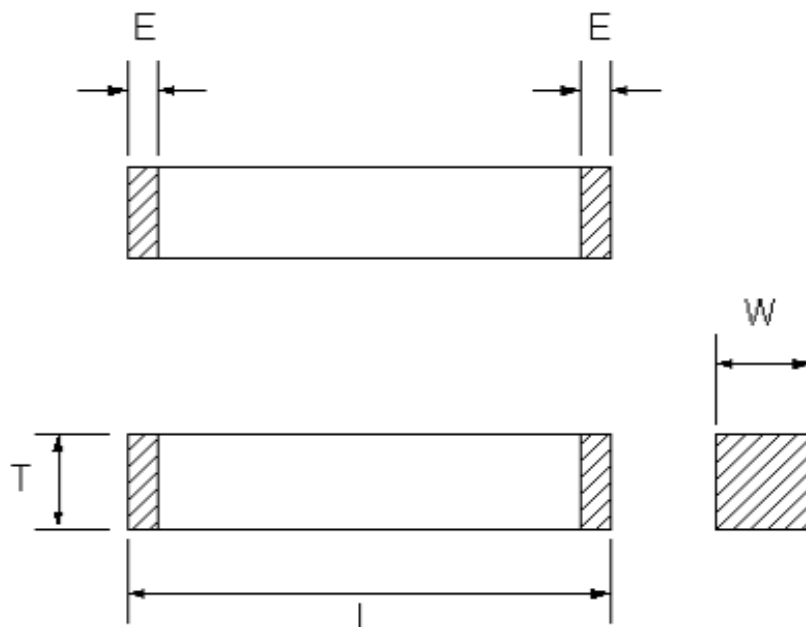
VSWR



Radiation Pattern



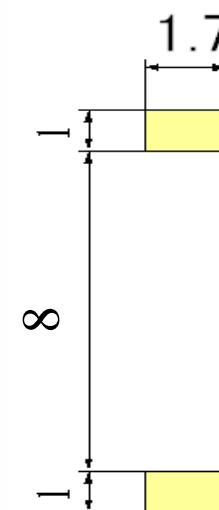
1. External Dimensions



寸法	L	W	T	E
サイズ	8.0 ± 0.2	1.6 ± 0.2	1.6 ± 0.2	0.5 ± 0.3

Unit : mm

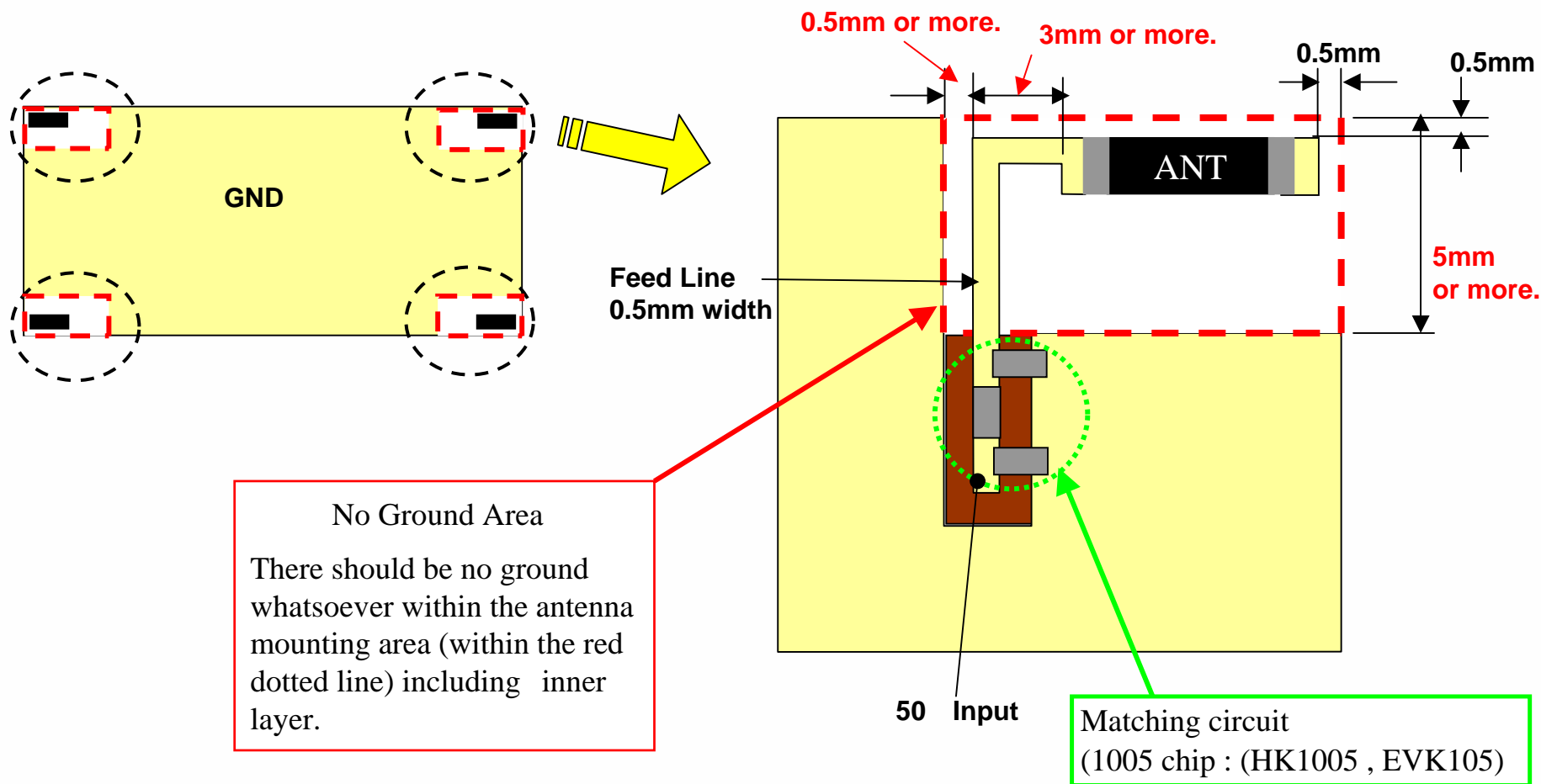
2. Recommended Land Pattern



Unit : mm



3-1. Recommended Pattern Layout Design

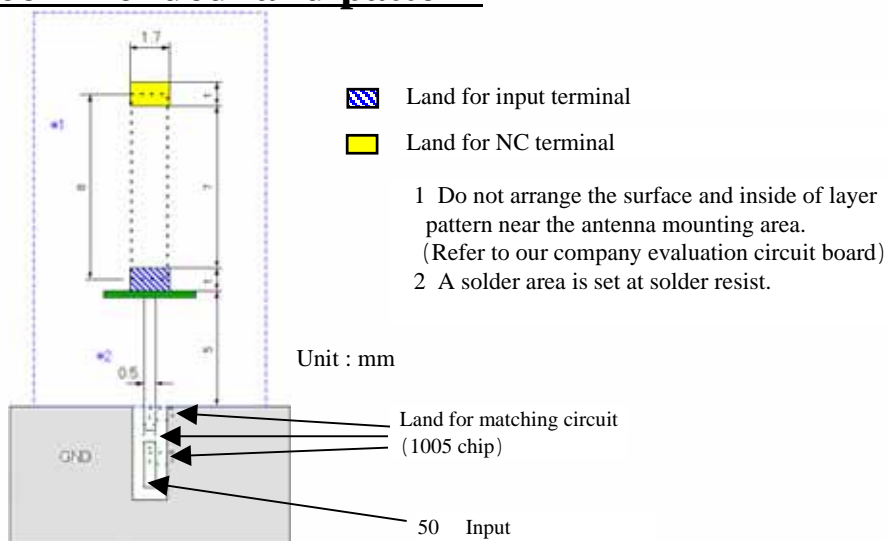


Our recommendation is mounting position had better on the corner of PCB.

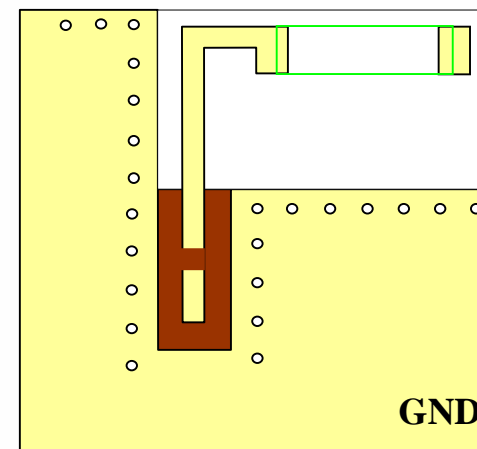
3-2. Precautions

- . Surface GND layer around the antenna area should be connected with inner GND layer via through hole.
- . Matching circuit line should be designed as 50Ω .
- . 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



3-3. Metal avoidance area

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

