PG20210928-A03

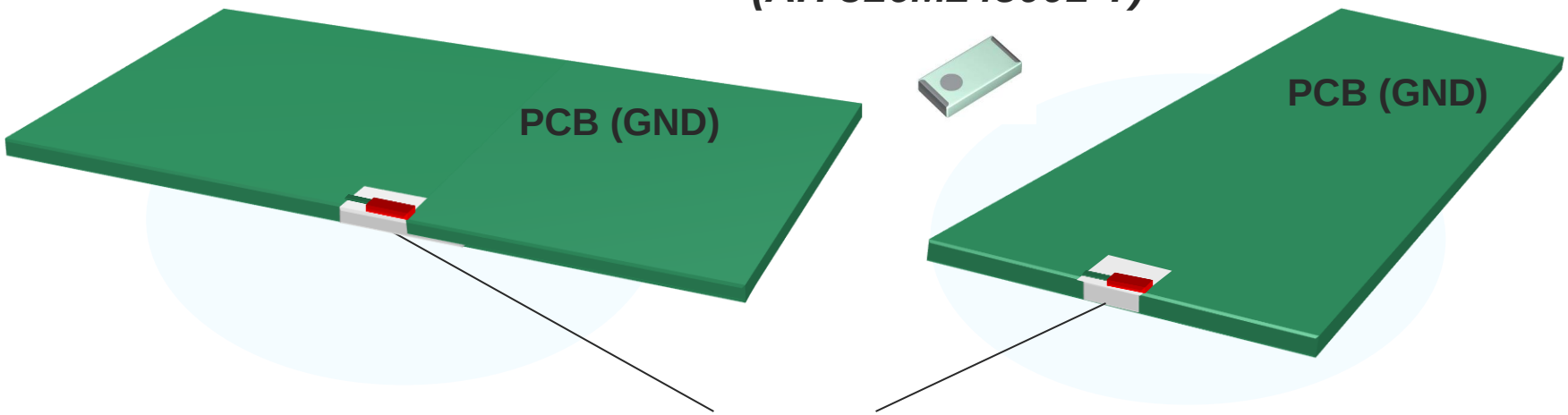
TSA5NA2K2G45NS001T

(AH 316M245001-T)

Antenna Design Guide

2.4GHz　RadiEdge Antenna

TSA5NA2K2G45NS001T
(AH 316M245001-T)



Keep Out Area
（No GND Area)

Recommended Size
5 x 6 mm (30m㎡)
(This minimal area provides the best performance)

Antenna Layout

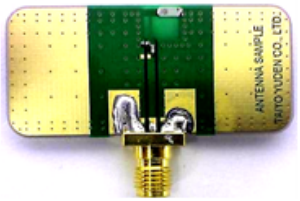
Middle of PCB Edge

3216mm (1206inch) Monopole Antenna

TSA5NA2K2G45NS001T (AH 316M245001-T) for 2.4GHz

Shapes

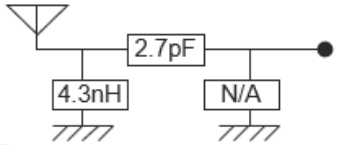
L= 3.2 ± 0.15 mm
W= 1.6 ± 0.15 mm
T= 0.5 ± 0.1 mm



*on Taiyo Yuden's Evaluation Board
(45 x 20 mm)

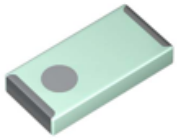
*antenna keep out area : 6 x 5 mm

*Matching Circuit (Evaluation Board)



Feature

* Ultra Small
* Low Profile
* High Performance
* Small Keep-out Area



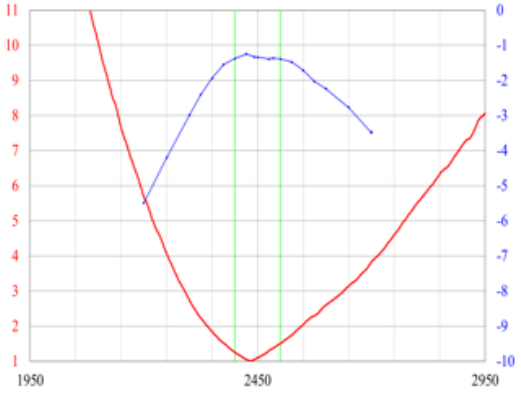
Actual data

Efficiency : -1.3dB (73%)
Peak Gain : 1.9dBi @2450MHz
Average Gain : 0.0dBi (ZX plane-Vertical polarization)

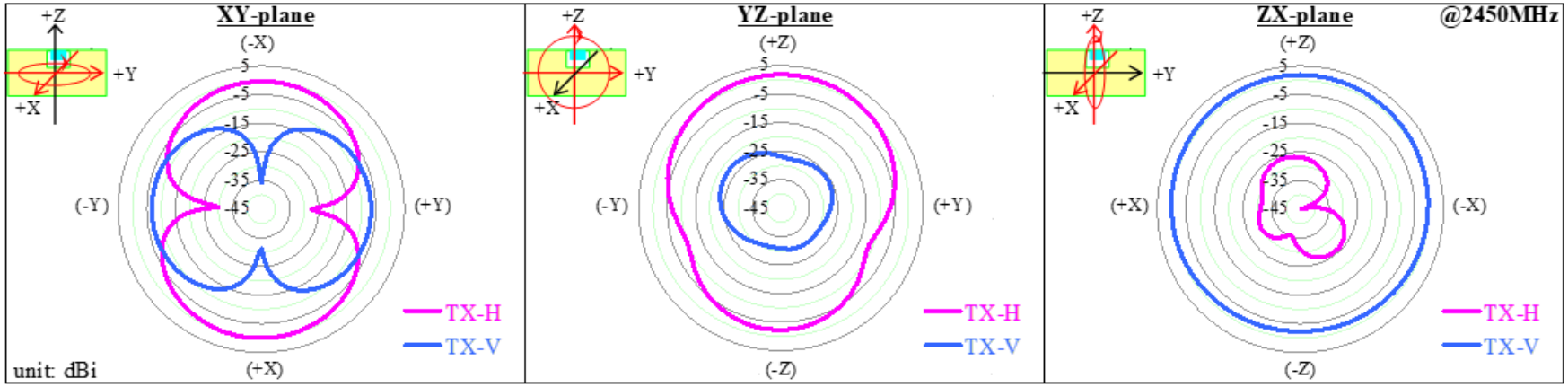
Electrical Characteristics

			2400MHz	2450MHz	2500MHz
Efficiency [dB]			-1.4 (73%)	-1.3 (73%)	-1.4 (73%)
Peak gain [dBi]			1.9	1.9	1.6
Average gain [dBi]	XY-plane	TX-H	-3.1	-3.2	-3.0
		TX-V	-9.4	-9.7	-10.4
	YZ-plane	TX-H	-2.1	-2.1	-2.3
		TX-V	-26.8	-26.3	-25.4
	ZX-plane	TX-H	-29.2	-29.2	-27.9
		TX-V	-0.1	0.0	0.0

VSWR & Efficiency



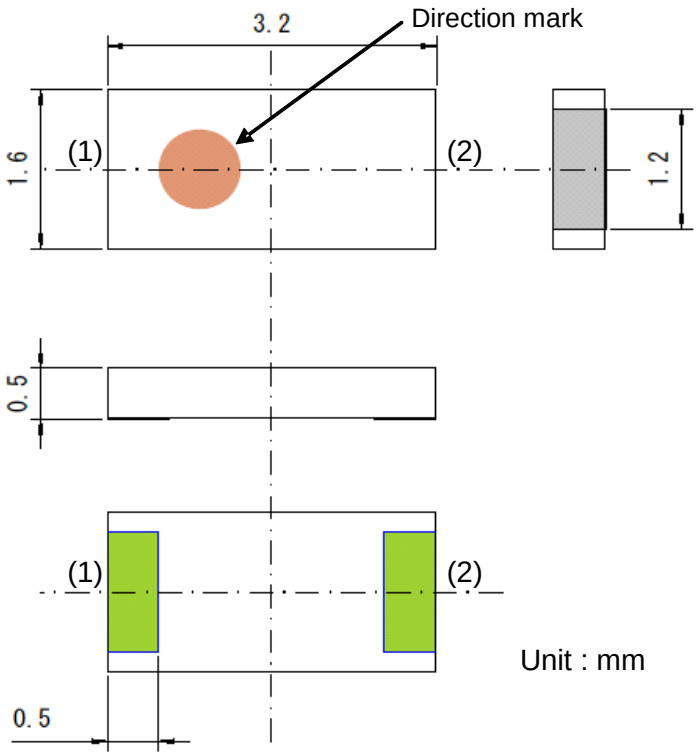
Radiation Pattern



The data is reference only. Electrical characteristics vary depending on environment or measurement condition.
TAIYO YUDEN reserves the right to make change to the Date at any time without notice.
Before making final selection, please check product specification

Dimensions and Land pattern

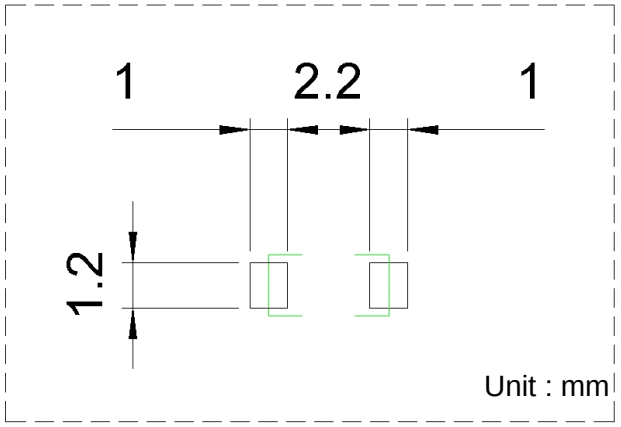
External Dimensions

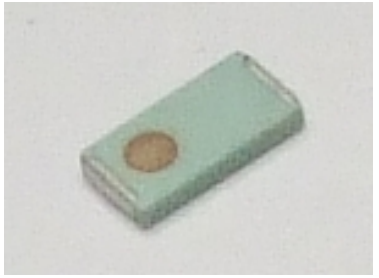


Unit : mm

Terminal No.	Terminal Name
(1)	FEED
(2)	GND

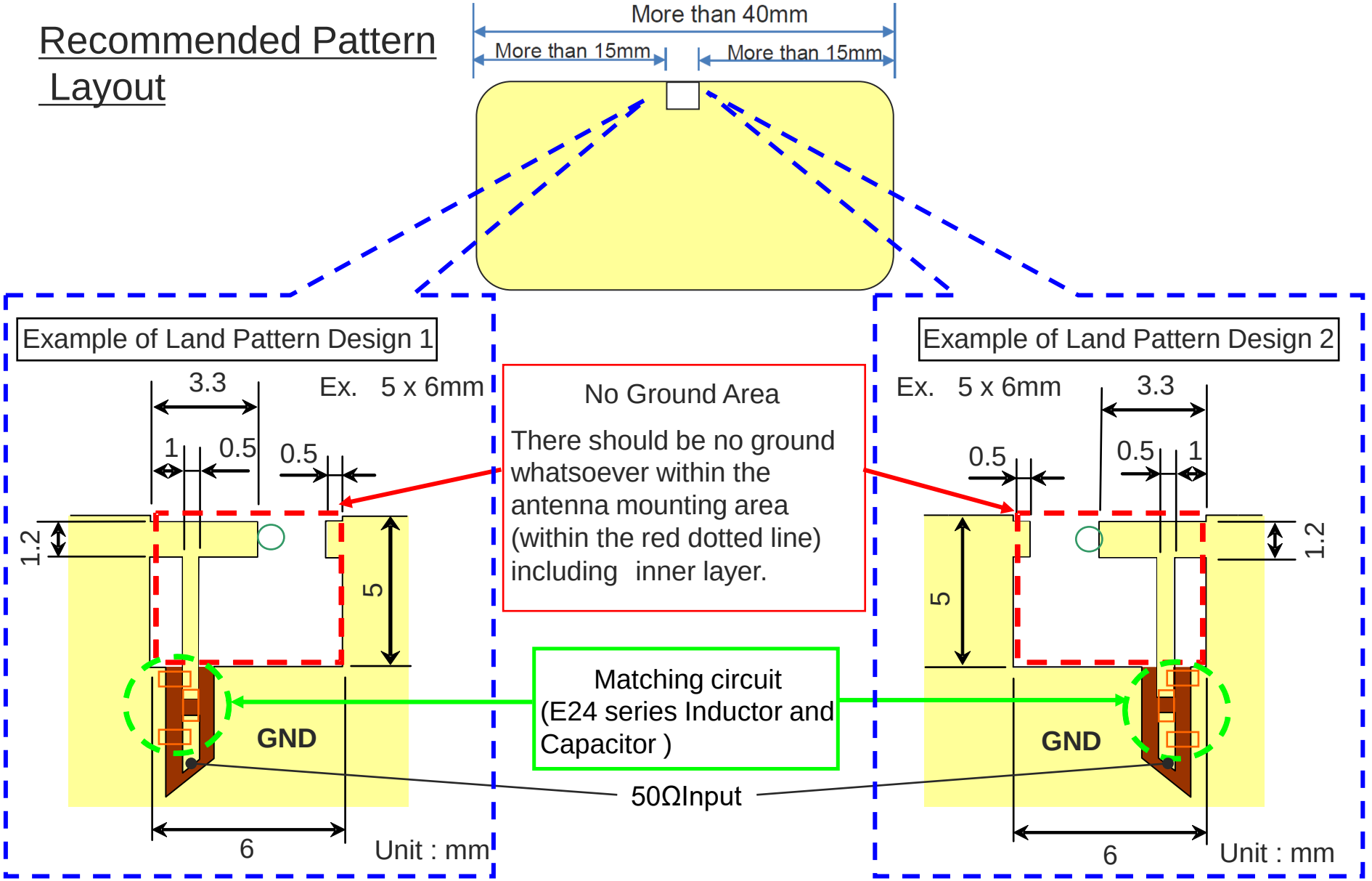
Example of Land Pattern





Design Guide

Recommended Pattern Layout

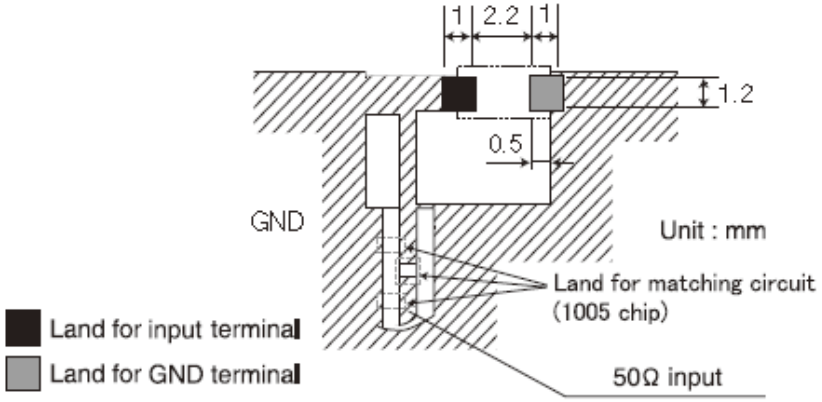


Design Guide

Precautions

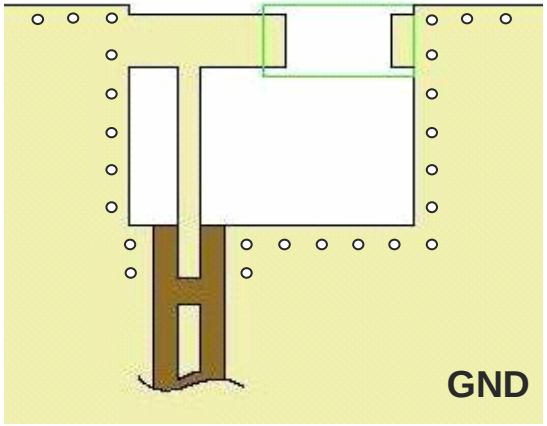
Ⅰ. Surface GND layer around the antenna area should be connected with inner GND layer via through hole.
Ⅱ. Matching circuit line should be designed as 50Ω.
Ⅲ. Thickness of PCB can be flexible.
Ⅳ. Matching circuit should be placed as close as possible to the antenna.
Ⅴ. Use of E24 series Inductor and Capacitor as matching components are 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



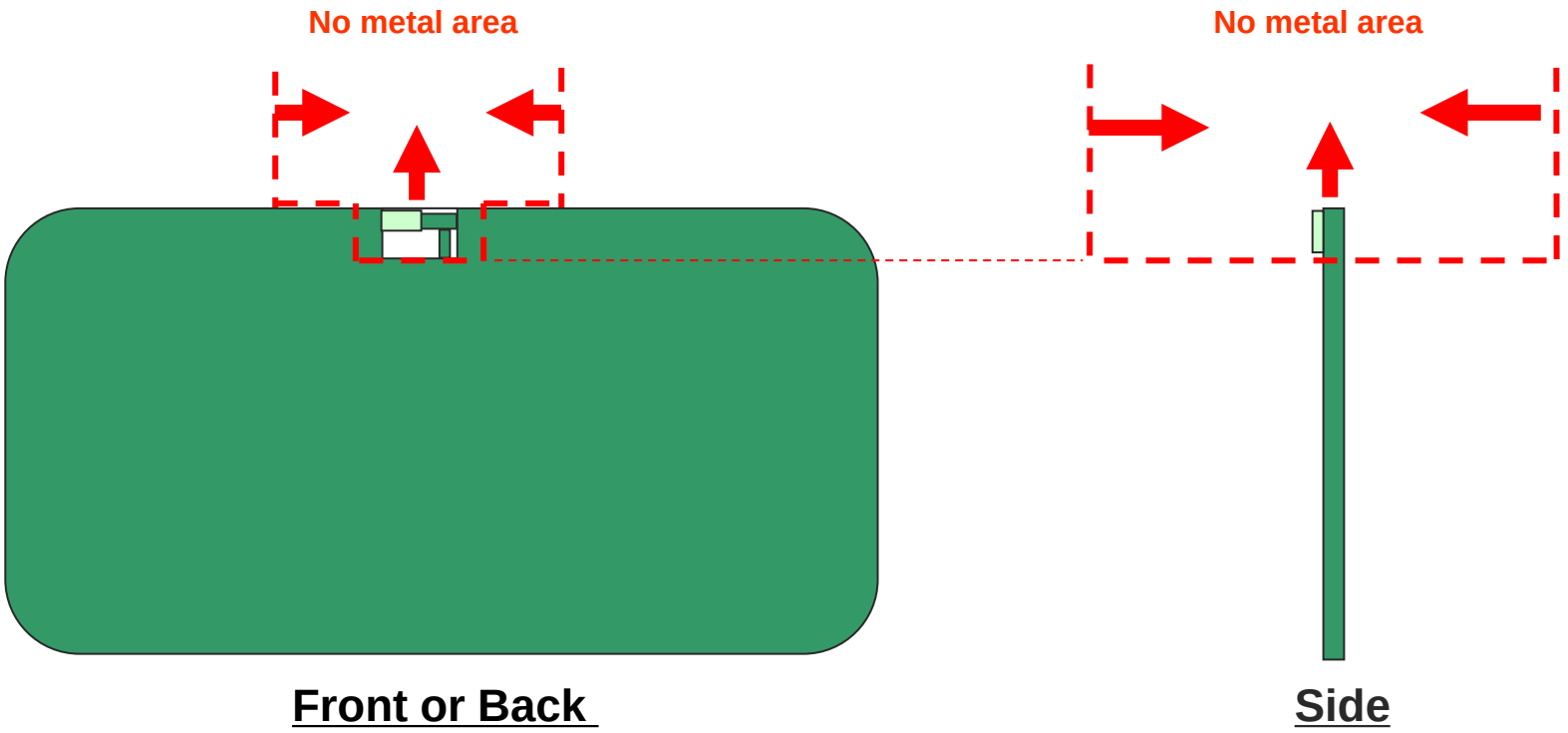
◎ Do not arrange the surface and inside of layer pattern near the antenna mounting area.

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.



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