MULTILAYER CERAMIC SEMI-ANTENNA

2.4 GHz ISM Band Working Frequency

RFANT5220110A0T

FEATURES

- ☐ Surface Mounted Devices with a small dimension of 5.2 x 2.0 x 1.1 mm^3 meet future miniaturization trend.
- ☐ Embedded and LTCC (Low Temperature Co-fired Ceramic) technology is able to future integrate with system design as well as beautifying the housing of final product.
- ☐ High Stability in Temperature / Humidity Change
- ☐ Free Impedance Matching

APPLICATIONS

- ☐ Bluetooth
- ☐ Wireless LAN
- ☐ HormRF
- ☐ ISM band 2.4GHz wireless applications

DESCRIPTION

Our new ceramic embedded semi-antenna specified for 2.4 GHz ISM Band application, as shown in below "CONSTRUCTION". Both of Wireless LAN IEEE 802.11b and Bluetooth ™ typically located on this unlicensed frequency band which range covers from 2.4GHz to 2.4835GHz. To fulfil the friendly usage for antenna, this semi-antenna has been designed to a typical 150MHz bandwidth through Walsin's advanced LTCC (Low Temperature Co-fired Ceramic) technology and superior product design via 3D EM Simulation Skill.

This semi-antenna has a rectangular ceramic body with a tiny dimension of 5.2x 2.0 x 1.1 mm^3 meet the future SMT automation and miniaturization requirements on modern portable devices.

CONSTRUCTION

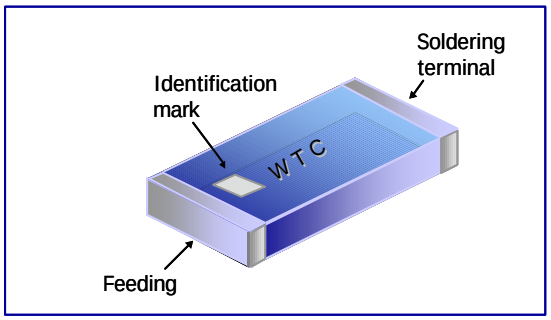


Fig 1. Outline of 2.4GHz Semi- Antenna

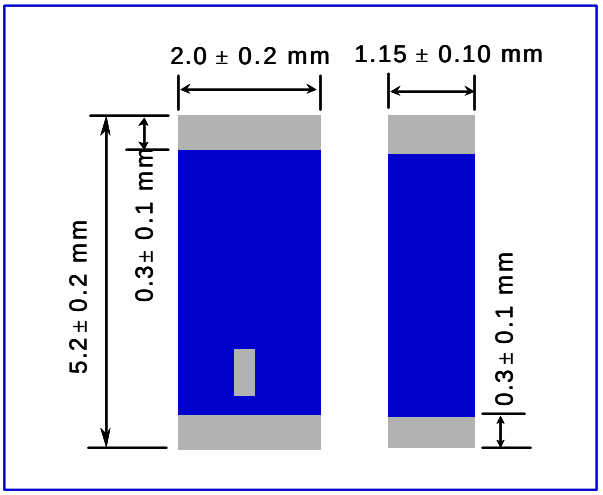
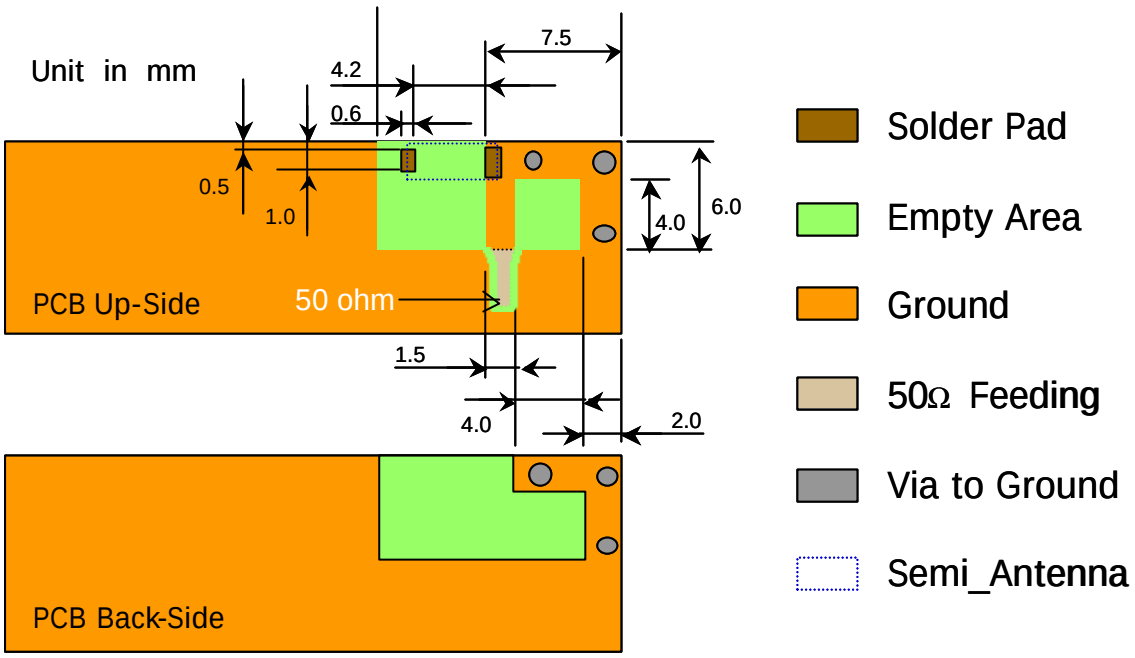


Fig 2. Dimension

MARKING: Upon customer requested, max. 3-digit code is allowed.

SOLDER LAND PATTERN DESIGN

Figure



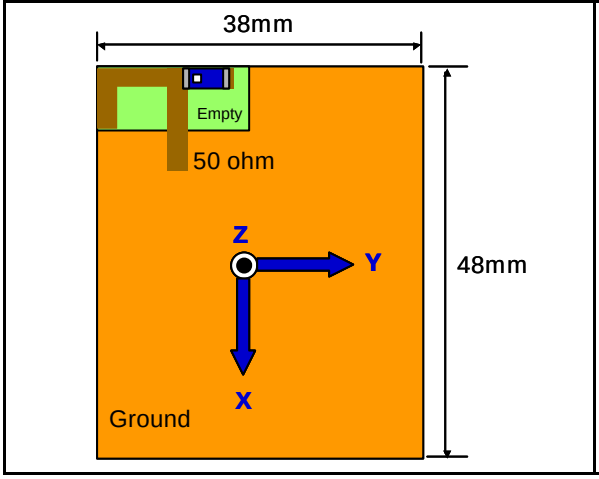
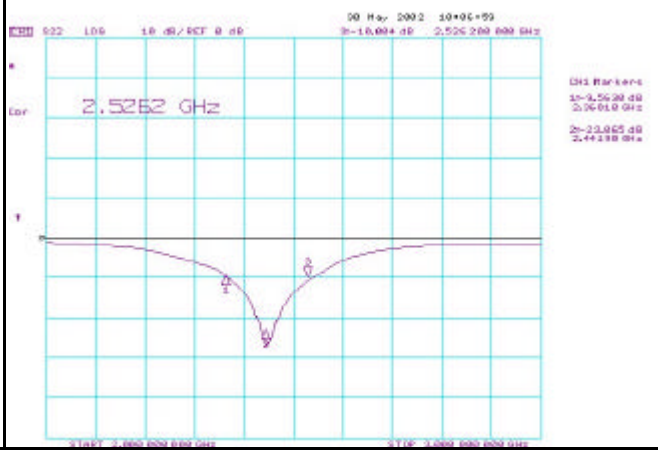
ELECTRICAL CHARACTERISTICS

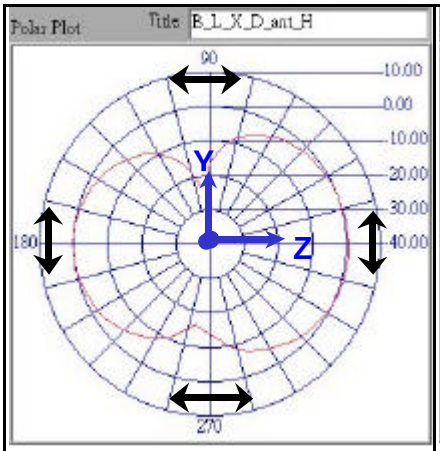
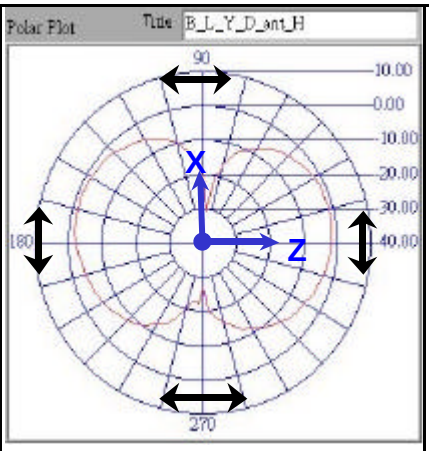
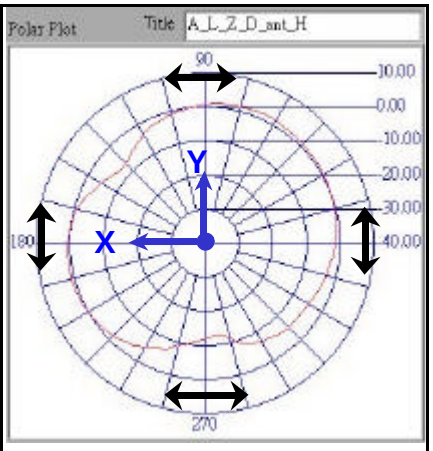
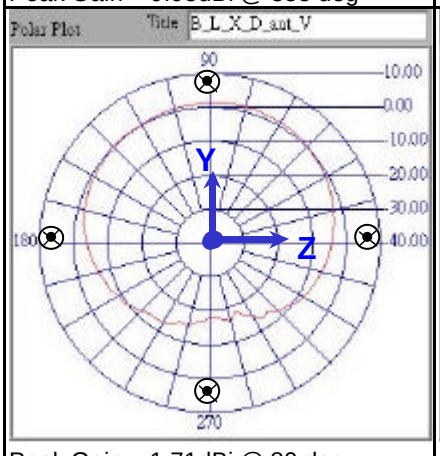
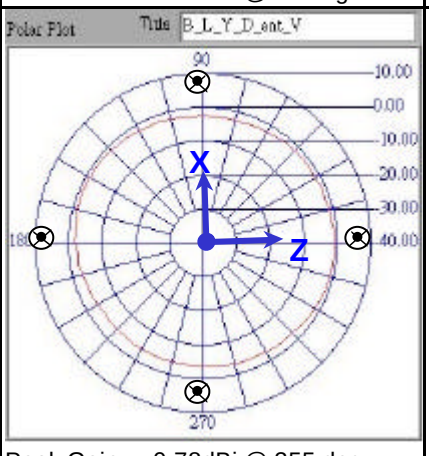
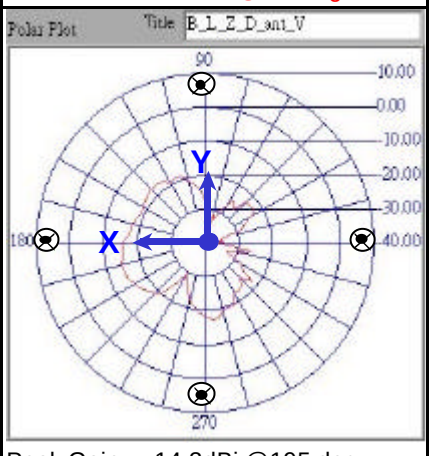
Item	Specification
Central frequency	2.450 GHz (Note-1)
Bandwidth	150MHz (typical)
Gain	0 ~ 2 dBi
VSWR	2 max.
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50Ω
Rated Power (max.)	3 Watts
Maximum Input Power	5 Watts for 5 minutes

Note-1. Central Frequency, Gain and Bandwidth should be defined after customers' application approval.

RADIATION PATTERN

Radiation Pattern and Gain were dependent on measuremen t board design. The specification of RFANT5220110A0T semi antenna was measured based on the PCB size and installation position as shown in the below figure

Test Board (38mm x 48mm)	Return Loss (S11)
	

		
Peak Gain = 0.95dBi @ 355 deg	Peak Gain = -1.08dBi @ 15 deg	Peak Gain = 1.74dBi @ 60 deg
		
Peak Gain = 1.71dBi @ 80 deg	Peak Gain = -0.78dBi @ 355 deg	Peak Gain = -14.3dBi @195 deg

The performance of embedded ceramic antenna is sensitive influenced by customer's ground area, PCB board size, thickness, material, mechanical design and the material of housing for end product. The performance is guaranteed based on the installation as shown in above, to reserve a "Π" network is suggested for final matching if the housing included.
Our engineers have significant expertise on embedded antenna designs and applications. We can work closely with you to ensure the requirements are met, and optimise the antenna performance when installing on your application.

ORDERING CODE

RF	ANT	522011	0	A	0	-	T
RF device	**Product code** ANT : Antenna	**Dimension code** Per 2 digits of Length, Width, Thickness : e.g. : 522011 = Length 52, Width 20, Thickness 11	**Unit of dimension** 0 : 0.1 mm 1 : 1.0 mm	**Application** A : 2.4GHZ ISM Band B : GSM 900/1800 Dual Band C : GSM 900 D : GSM 1800 E : GPS F : W-CDMA G : PHS	**Specification** Code from 0 ~ 9 dependent on different electrical specification		**Packing** T : 7" Reeled G : 10" Reeled B : Bulk X : SFC product