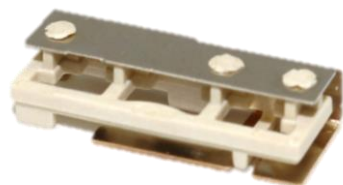


Part No. 1004454

WLAN / BT / Zigbee Embedded Stamped Metal Antenna

2.4 / 5.2 / 5.8 GHz (802.11 a/b/g/n/c + Japan)

Supports: Wi-Fi applications, Agriculture, Automotive, Bluetooth, Zigbee, WLAN, Smart Home, Healthcare, Digital Signage



Wi-Fi Dual Band Stamped Metal Embedded Antenna

2.4 GHz; 5 GHz

KEY BENEFITS

Stay-in-Tune

Ethertronics antenna technology provides superior RF field containment, resulting in less interaction with surrounding components.

Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

Reliability

Products are the latest RoHS version compliant

APPLICATIONS

- Embedded design
- Cellular, Headsets, Tablets
- Gateway, Access Point
- Handheld
- Telematics
- Tracking
- Healthcare
- M2M, Industrial devices
- Smart Grid
- OBD-II

Ethertronics' Stamped Metal series of Isolated Magnetic Dipole™ (IMD) antennas deliver on the key needs of device designers for higher functionality and performance in smaller/thinner designs. These innovative antennas provide compelling advantages for full WIFI dual-band enabled handheld devices, media players and other mobile devices.

Greater Flexibility

Ethertronics' first-in-class IMD technology enables you to develop concept designs that are more advanced and that deliver superior performance in reception critical applications.

Electrical Specifications

Typical Characteristics, on 120 x 180 mm PCB

Frequency	2400 – 2485 MHz	5100 – 5825 MHz
Peak Gain	2.7 dBi	4.8 dBi
Average Efficiency	74%	67%
VSWR Match	1.4:1 max	1.7:1 max
Feed Point Impedance	50 ohms unbalanced	
Polarization	Linear	
Power Handling	0.5 Watt CW	

Mechanical Specifications & Ordering Part Number

Ordering Part Number	1004454
Size (mm)	17.85 x 6.9 x 4.3
Mounting	SMT
Weight (grams)	0.48
Packaging	Tape & Reel, 1004454 – 5,000 pieces per reel
Demo Board	1004454-01

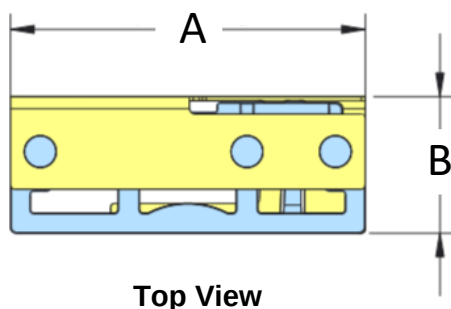
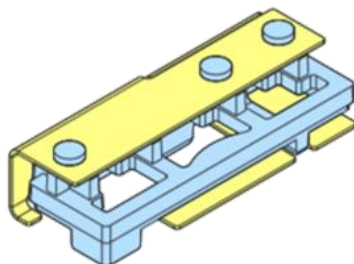


2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

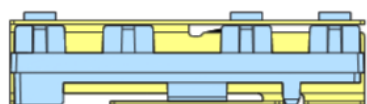
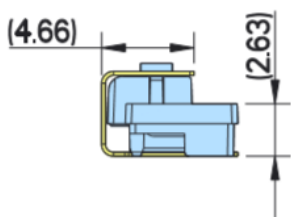
Antenna Dimensions

Typical antenna dimensions (mm)

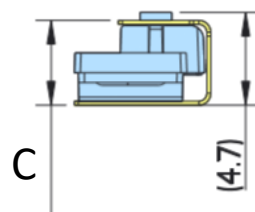
Part Number	A (mm)	B (mm)	C (mm)
1004454	17.85 ± 0.3	6.9 ± 0.3	4.3 ± 0.4



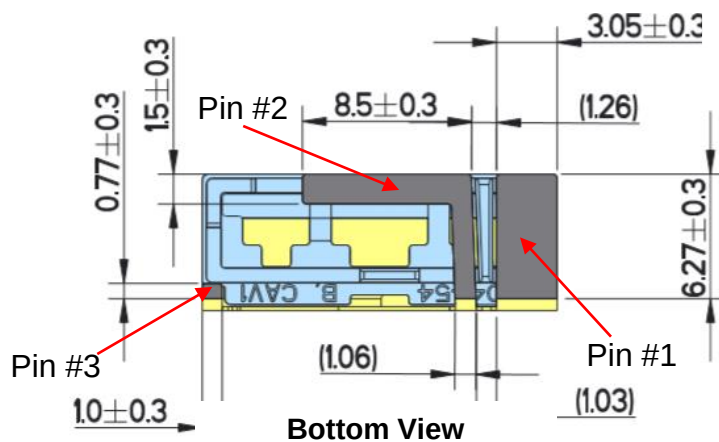
Top View



Front View



Pin	Description
1	Feed
2	Ground
3	Dummy Pad



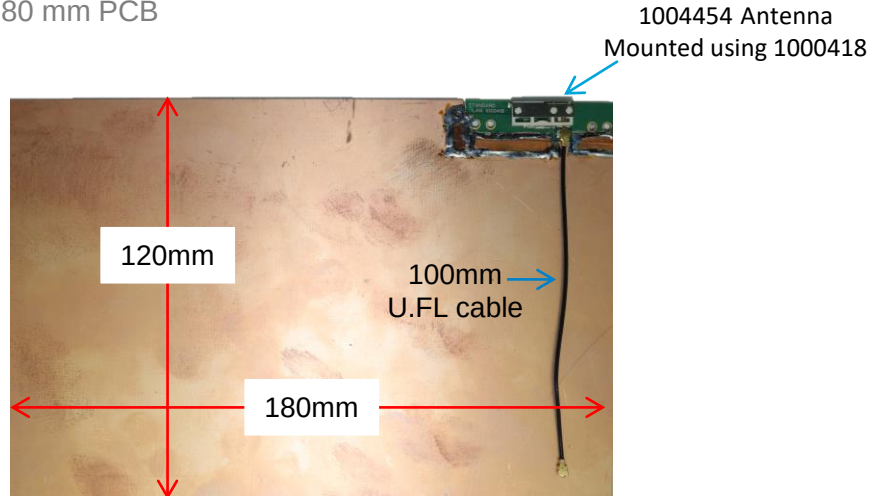
Bottom View



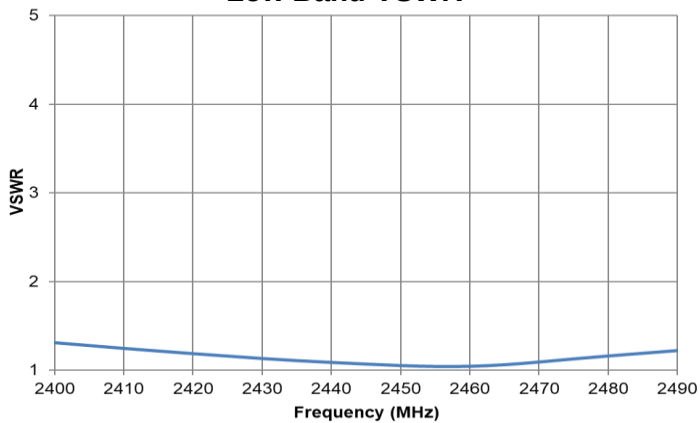
2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

VSWR and Efficiency Plots

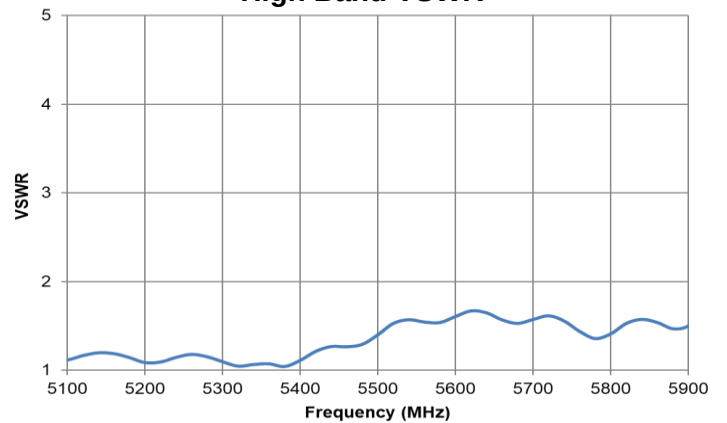
Typical Performance on 120 x 180 mm PCB



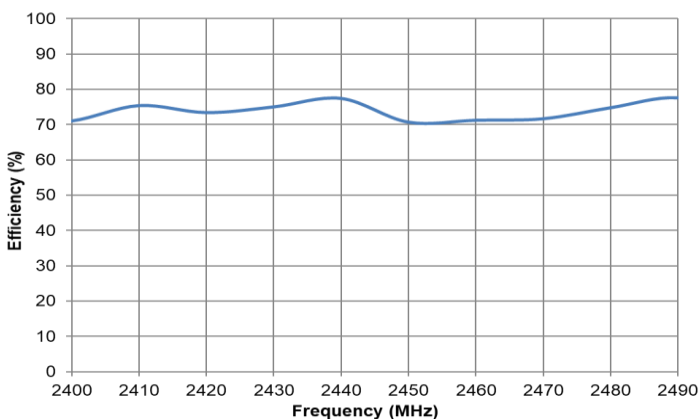
Low Band VSWR



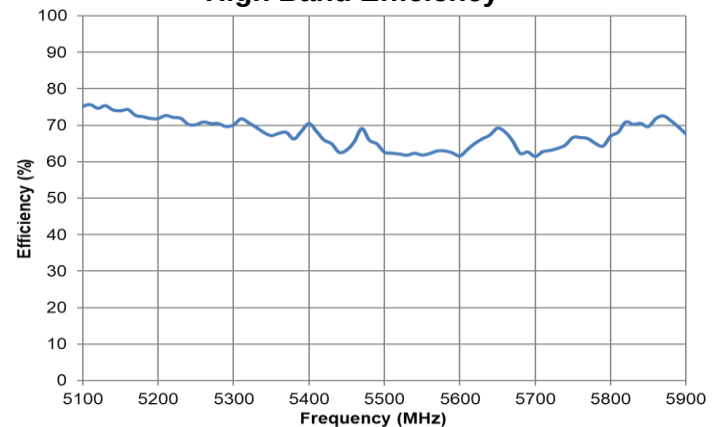
High Band VSWR



Low Band Efficiency



High Band Efficiency



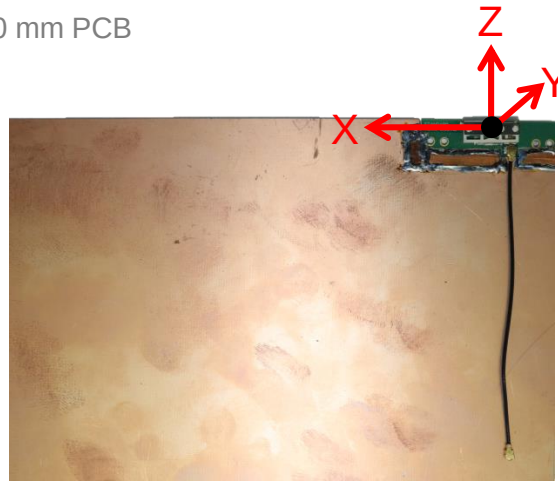


2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

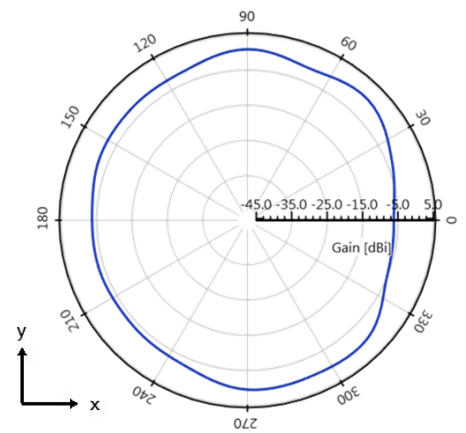
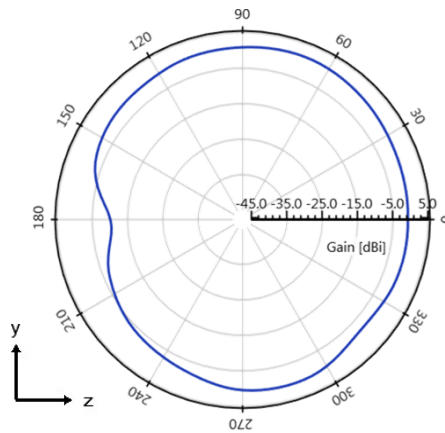
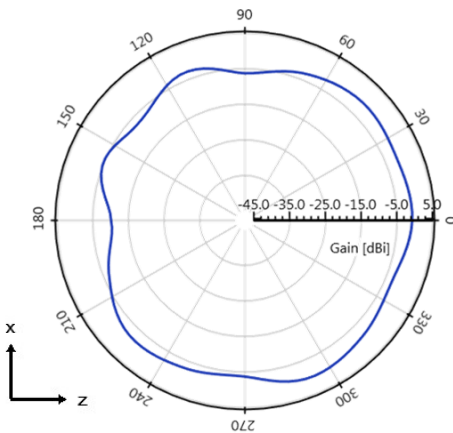
Antenna Radiation Patterns

Typical Performance on 120 x 180 mm PCB

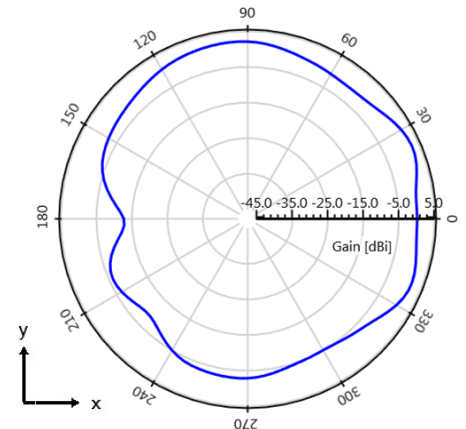
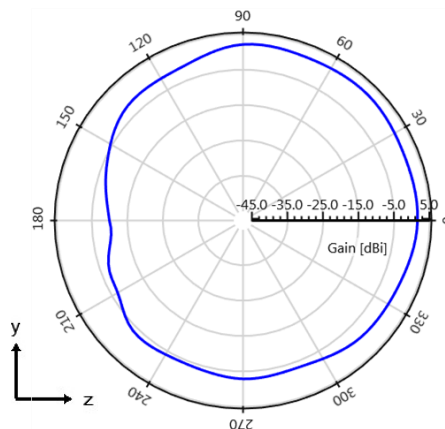
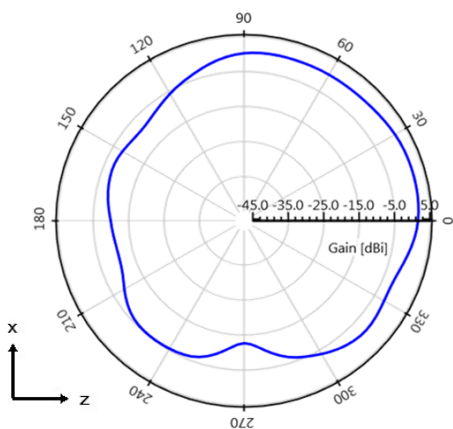
Measured @ 2400, 5100 MHz



Measured at 2400 MHz



Measured at 5100 MHz



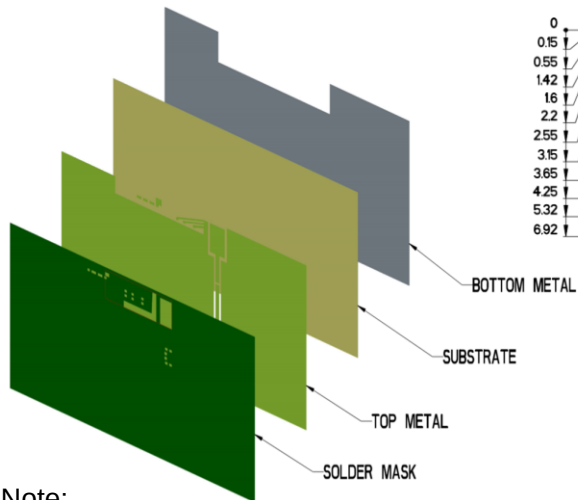


2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications

Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Antenna Layout (Minor Tuning Layout)

Typical layout dimensions (mm)



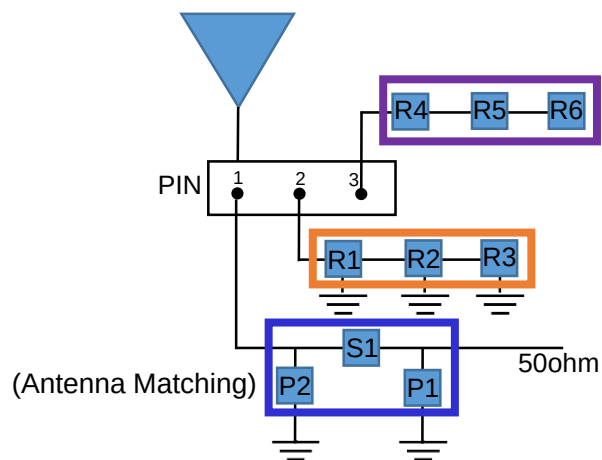
Note:

Layout has minor tuning capabilities to allow for small antenna footprint.

- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask

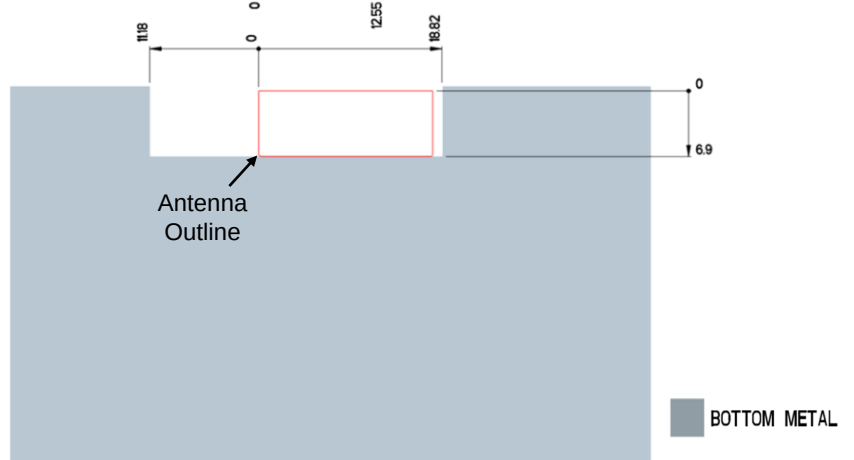
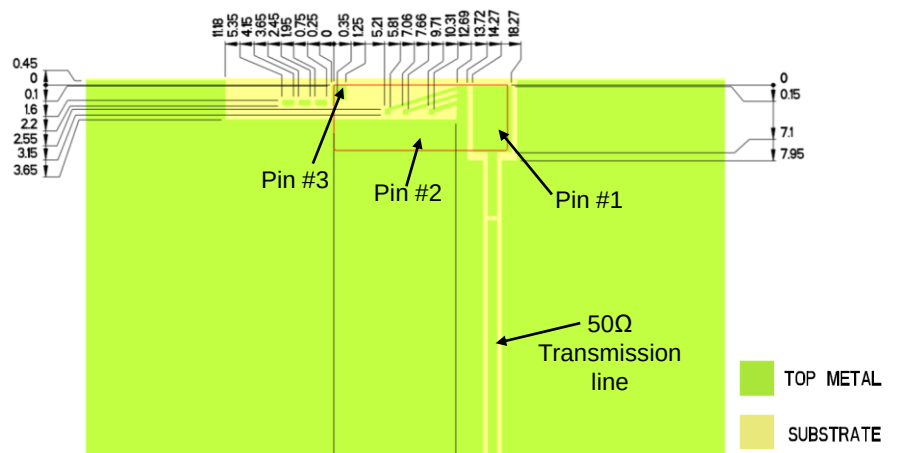
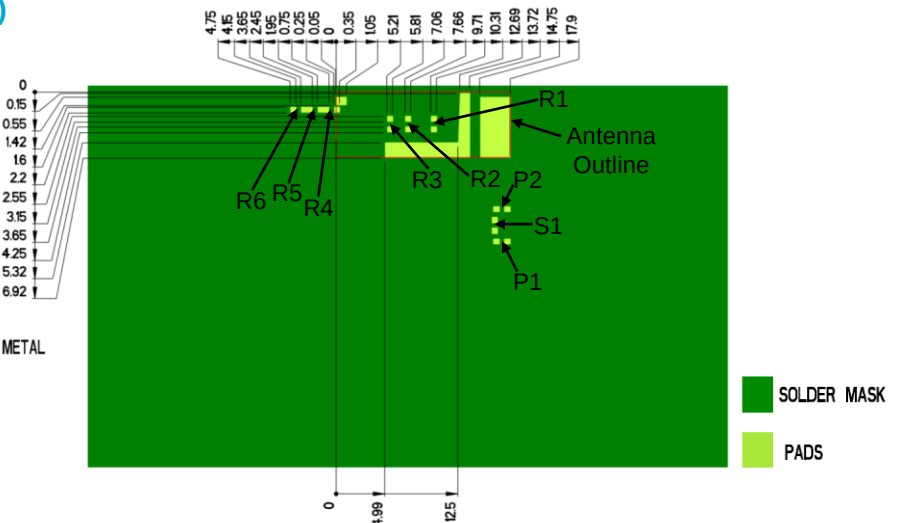
Pin Descriptions

Pin#	Description
1	Feed
2	Ground
3	Dummy Pad



Antenna Matching & Tuning Component Values

	P1	S1	P2	R1 – R3	R4 – R6
Default Values	DNI	0Ω	DNI	DNI	DNI
Component Tolerance	N/A	N/A	N/A	N/A	N/A

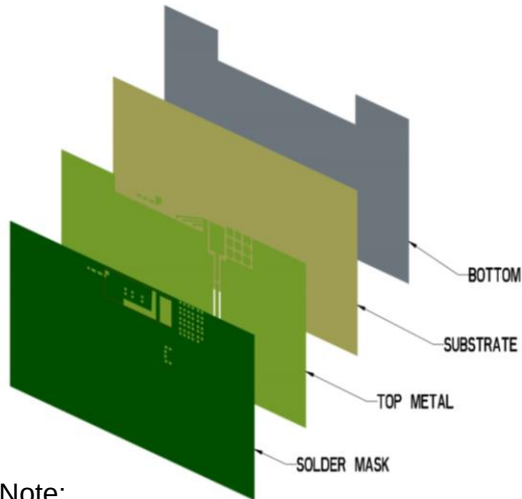


2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications

Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Antenna Layout (Major Tuning Layout)

Typical layout dimensions (mm)



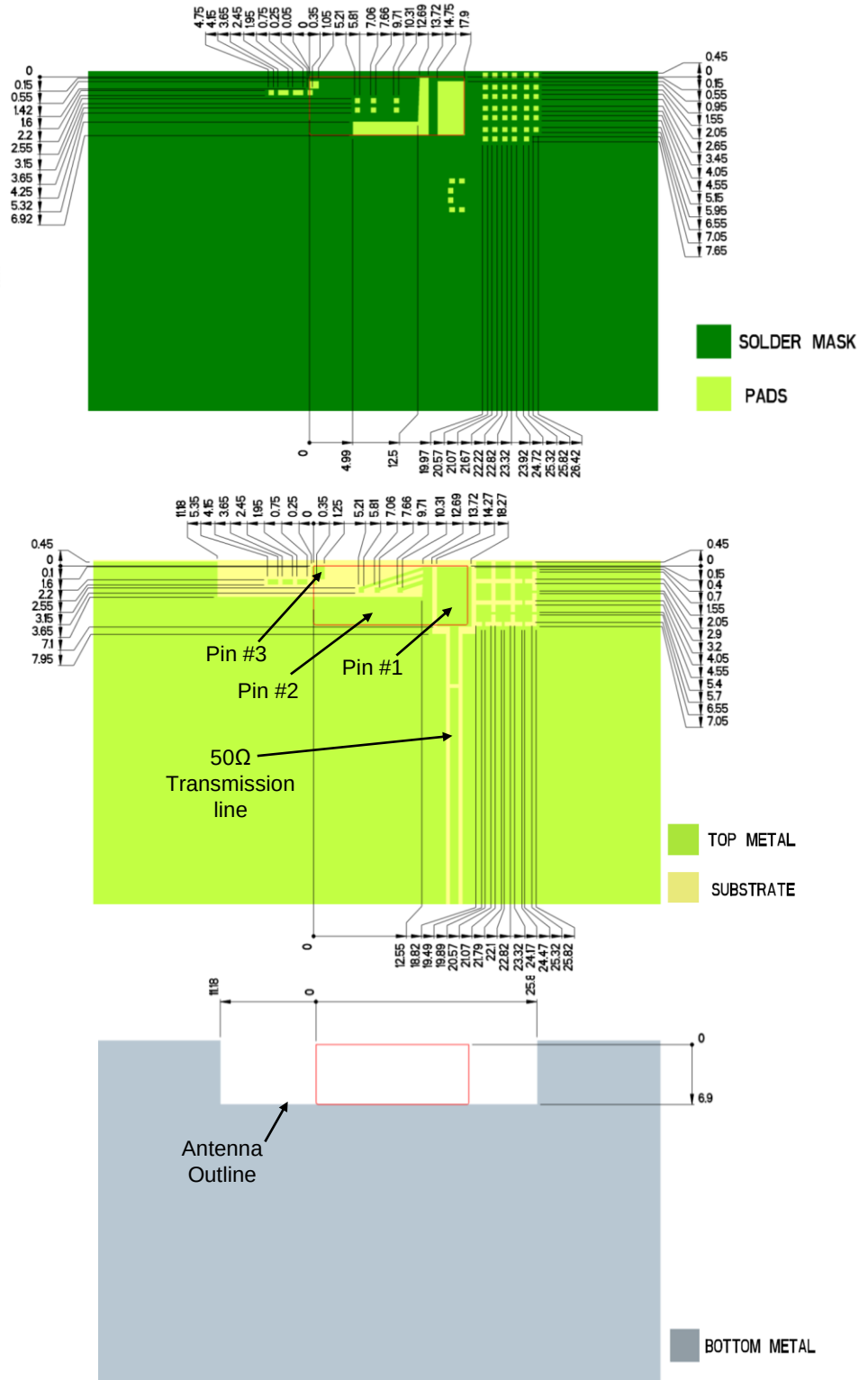
Note:

Layout has Major tuning capabilities to allow for robust tuning after board spin, instructions on [Antenna Matching Structure](#) page.

- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask

Pin Descriptions

Pin#	Description
1	Feed
2	Ground
3	Dummy Pad

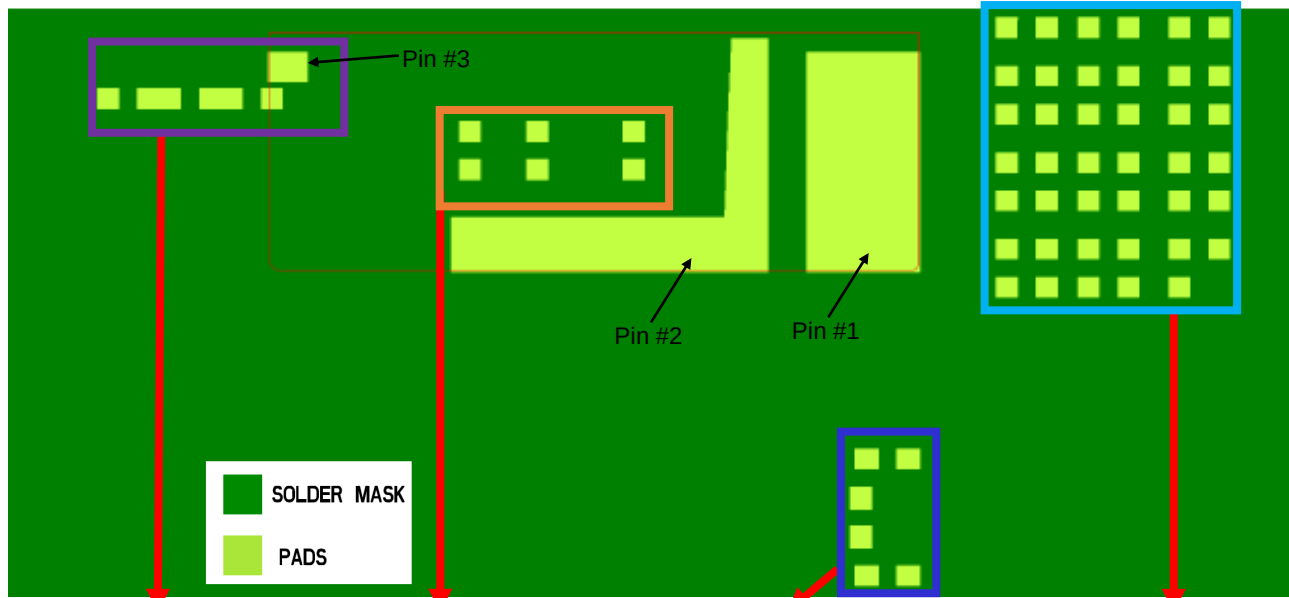




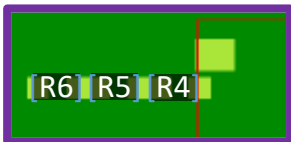
2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Antenna Matching Structure (Major Tuning Structure)

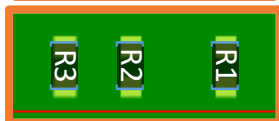
Typical matching values on 140 x 50 mm PCB



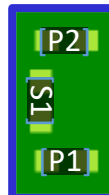
Low Band Tuning
(Add to Shift Low)



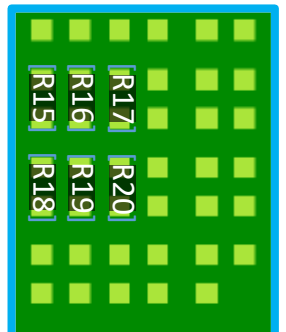
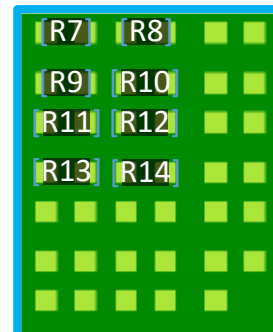
Low Band Tuning
(Add to Shift High)



Antenna Matching

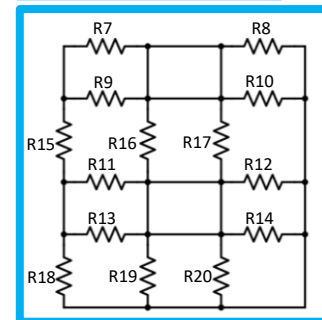
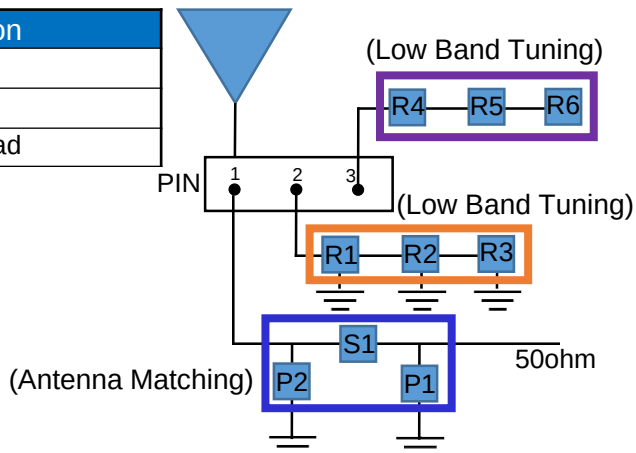


High Band Tuning
(Add to Shift High, DNI to Shift Low)



Pin Descriptions

Pin#	Description
1	Feed
2	Ground
3	Dummy Pad



*Extend ground towards antenna feed with 0Ω component(s). R7- R20 can improve high band bandwidth/ performance with ground coupling.

	P1	S1	P2	R1 – R3	R4 – R6	R7 – R14	R15 - R20
Default Values	DNI	0Ω	DNI	DNI	DNI	DNI	DNI
Tolerance	N/A	N/A	N/A	N/A	N/A	N/A	N/A