

433 MHz Quarter Wave Antenna with SMA connector

Product Description

The ANT433QW-SMA is a rugged rubber coated quarter wave antenna for use in the 433 MHz band. The quarter wave antenna must be mounted on a ground plane for best performance.

Applications

- 433 MHz radio links
- Radio modems
- Outdoor installations

Features

- Whip antenna for 433 MHz
- Rugged rubber coated design
- Flexible moulded sheath
- SMA-Male connector
- No external matching components



Specification

Parameter		Unit
Frequency band	433	MHz
Radiating element	Quarter wave*	
Antenna peak gain**	0	dBi
Polarisation	Linear, vertical	
VSWR	< 2:1	
Power rating	5	W
Connector	SMA, male	
Dimensions	170 x 14.5 (height x diameter at base)	mm

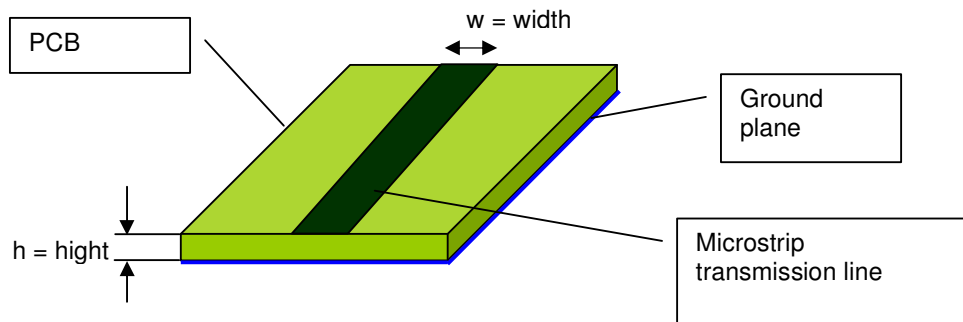
* Needs to be mounted on a ground plane

** Measured mounted on a ground plane

Antenna Connection

A quarter wave whip antenna above a ground plane yields 37 Ohm impedance and a matching circuit for 50 Ohm are usually not required. The RF pin on the RF module is matched to 50 Ohm. If the antenna connector is placed away from the module at the motherboard, the track between the RF pin and the connector must be a 50 Ohm transmission line. The track should be as short as possible in order to reduce transmission loss.

On a two layer board made of FR4 the width of a microstrip transmission line should be 1.8 times the thickness of the board, assuming a dielectric constant of 4.8. Example: For a $h = 1.6$ mm thick FR4 board, the width of the trace on the top side should be $w = 1.8 \times 1.6$ mm = 2.88 mm. The line should be run at the top of the board, and the bottom side should be a ground plane. See illustration below. The bottom side ground plane should be as large as possible to work as a counterweight and ground plane for the antenna.



If the antenna connector is mounted on the chassis, a 50 Ohm coaxial cable must be used from the module to the connector. A metal chassis is preferred as this will act as a ground plane. The coaxial cable shield should be connected to the chassis. If the chassis is non-conducting, a conducting (metal) plate should be placed at the base of the antenna to act as the ground plane.

The ground plane should always be as large as possible. As a rule of thumb, the radius of the plane as measured from the base of the antenna should be minimum $\frac{1}{4}$ wavelength (i.e. 16 cm at 433 MHz).

Document Revision History

Document Revision	Changes
1.0	First release

Product Status and Definitions

Current Status	Data Sheet Identification	Product Status	Definition
	Advance Information	Planned or under development	This data sheet contains the design specifications for product development. Specifications may change in any manner without notice.
	Preliminary	Engineering Samples and First Production	This data sheet contains preliminary data, and supplementary data will be published at a later date. Radiocrafts reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
X	No Identification Noted	Full Production	This data sheet contains final specifications. Radiocrafts reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
	Obsolete	Not in Production	This data sheet contains specifications on a product that has been discontinued by Radiocrafts. The data sheet is printed for reference information only.

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