



M10385 Internal FM Antenna Module (SMD)

Antenova's **M10385** is an internal FM antenna module designed to address the growing market for FM Radio functionality in mobile devices such as mobile phones, PNDs, PMPs, Digital Photo Frames and Media Tablets. Antenova's innovative printed circuit board (PCB) internal antenna module design enables effective wireless FM radio transmit/receive function without the need for an external antenna.

The M10385 is an active antenna module consisting of Antenova's patent pending FM antenna with a matching circuit and low noise amplifier (LNA) in a small 30 x 5mm package, with the convenience of a standard surface mount device (SMD).

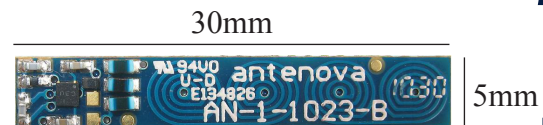
The M10385 is intended for planar mount to the host PCB, and a minimum clearance of 2mm between the antenna and the host PCB ground plane is recommended for the best FM signal reception.

Applications:

- Mobile phones/ Smart phones
- PNDs / PMPs / PDAs
- Digital Photo Frames (DPFs)
- Notebooks / Netbooks / Media Tablets

Features:

- Internal antenna module
- Surface Mount Device
- Small size (weighs 0.2 g)
- High Performance
- Easily interfaced to any FM receiver

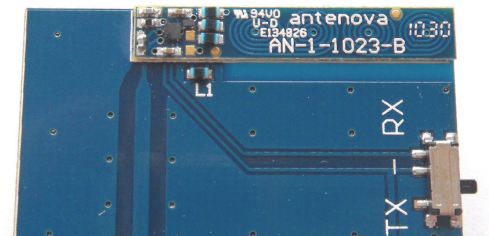


1.5mm Total Height
(incl components)

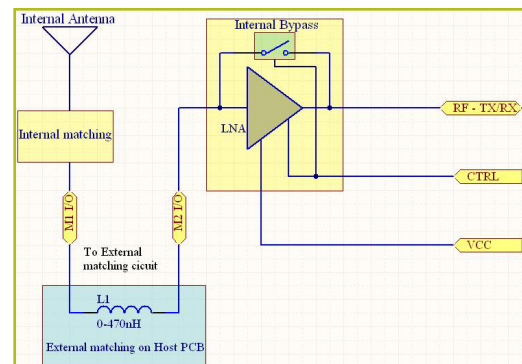
Top View



Bottom View



Typical Mount



Block Diagram

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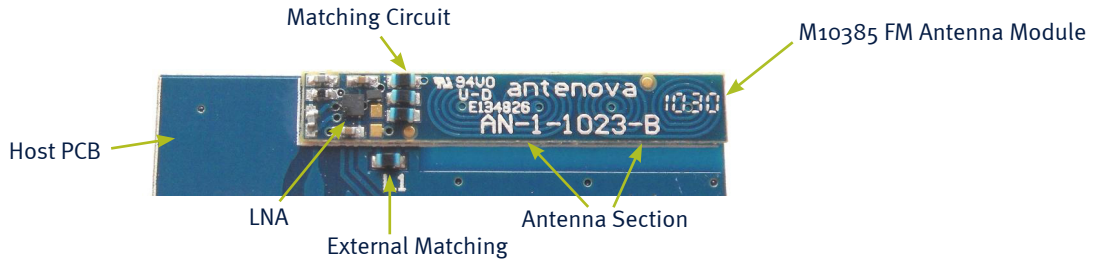
electrical

Frequency:	87.5 - 108 MHz
Impedance:	50Ω
Voltage Supply:	2.8V (2.6-3.3)
Current Consumption:	5.0mA (Typical)
Noise Figure (NF)	1.5 dB
Gain	13.5dB

mechanical

Dimensions :	30mm x 5mm
Weight:	0.2g
Element Substrate:	0.6mm FR4 (Halogen Free)
Mounting:	Planar at edge of device PCB
Groundplane:	40mm x 100 mm preferred*

* Smaller groundplane size will reduce performance, and longer groundplane size will improve performance



Practical tests of channel pick up and audible sound quality were performed with a commercially available mobile phone with the factory fitted internal FM antenna, the same phone using its headphone antenna, the M10385 fitted on a 100mmx40mm handset size test board and the M10385 fitted on a 150mmx100mm DPF size test board. The outdoor test results shown in the table below indicates the M10385 FM antenna module, which is approx. 75% smaller in size than the original factory fitted antenna, significantly outperformed the factory fitted internal FM antenna on both test boards and very comparable to the external headphone antenna. It is worth noting that the M10385 demonstrated more stable tuning than the headset antenna which experienced frequent de-tuning when the headset antenna (wires) experience motion/movement.

FM Station Selection (dependant on location)	Antenova M10385 on 100mm x 40mm test board	Antenova M10385 on 150mm x 100mm test board	Comparison Phone using factory fitted internal FM antenna	Comparison Phone using headphones as antenna
Frequency (MHz)				
88.9	4	5	0	4
89.7	5	6	0	6
90.1	5	6	0	6
91.1	1	4	0	2
91.9	6	6	2	6
92.3	4	7	1	6
93.3	2	4	1	5
94.4	7	7	0	7
96	7	7	6	7
98.5	5	5	3	6
99.3	7	7	0	7
99.7	7	7	2	7
101.5	7	7	6	7
101.9	5	7	4	7
103	5	6	0	7
105.6	5	6	1	7
106.4	7	5	5	7
107.1	4	3	2	7
107.9	5	7	3	7
Total Score	98	112	36	118



Certificate No: 4598

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