![Morse Micro logo — reaching farther™]

PRODUCT BRIEF
MM6108-MF08651-US OVERVIEW

IEEE 802.11ah Sub-1 GHz 1/2/4/8 MHz BW MAC/PHY/Radio Wi-Fi HaLow Module

Overview

The MM6108-MF08651-US is a fully integrated Wi-Fi HaLow® module with long-range, low-power consumption and superior RF performance, featuring Morse Micro's MM6108 Wi-Fi HaLow SoC.

The MM6108-MF08651-US module has been designed in compliance with the IEEE 802.11ah standard, supporting data rates up to 32.5 Mbps with programmable operation between 902 MHz and 928 MHz.

This module includes ultra-long-reach PA, high linearity LNA, T/R switch, 32 MHz crystal oscillator and it has been designed for a simplified Wi-Fi HaLow® connection to an external host. Specifically, this supports applications where a user wants to replace their prior RF technology with a Wi-Fi HaLow® connection while leveraging the latest WPA3 security protocols.
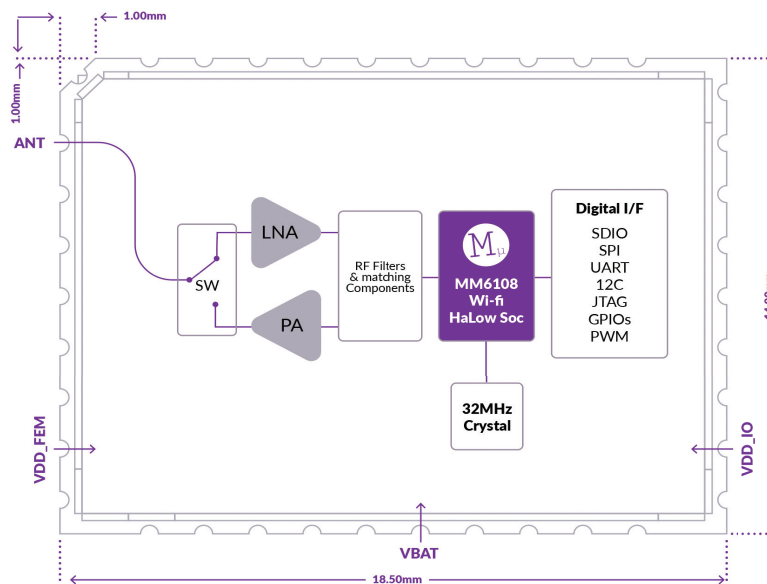
Battery-operated applications are supported by a combination of features which are inherently supported by the module. The IEEE 802.11ah standard provides for extended sleep times for battery-operated Stations (STAs or client devices), with longer durations than other prior IEEE 802.11a/b/g/n/ac generations. It also allows longer extended maximum idle times for clients to conserve energy without being removed from the access point's (AP's) list of associated devices.

For Internet of Things (IoT) applications:

- Surveillance cameras and sensors
- Cloud connectivity
- Building automation systems (BAS)
- Machine performance monitors and sensors
- Building access control & security
- Drone video and navigation communications
- Rural internet access
- Utility smart meter and intelligent grids
- Industrial automation controls
- Smart home automation
- Wi-Fi HaLow® access points and bridges
- Wi-Fi HaLow® client adapters/dongles

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Ultra-long-range, low-power Wi-Fi HaLow® module for IoT applications

Radio supporting worldwide sub 1 GHz bands

Single-stream max data rate of 32.5 Mbps

802.11ah OFDM PHY supporting WFA Wi-Fi HaLow® certification

802.11ah MAC supporting WFA Wi-Fi HaLow® certification

Power management unit (PMU) supporting ultra-low-power operation

SDIO 2.0 and SPI host interface options

GPIO/UART/I2C/PWM peripheral options

Wide spectrum of security features including WPA3

1/2/4/8 MHz channel bandwidth

Wi-Fi HaLow® modulation and coding scheme

MCS index	Modulation scheme	Coding rate	Phy rate (kbps) per BW			
			1 MHz	2 MHz	4 MHz	8 MHz
10	BPSK	1/2 x 2	167		N/A	
0	BPSK	1/2	333	722	1500	3250
1	QPSK	1/2	667	1444	3000	6500
2	QPSK	3/4	1000	2167	4500	9750
3	16-QAM	1/2	1333	2889	6000	13000
4	16-QAM	3/4	2000	4333	9000	19500
5	64-QAM	2/3	2667	5778	12000	26000
6	64-QAM	3/4	3000	6500	13500	29250
7	64-QAM	5/6	3333	7222	15000	32500

Contact us

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