

GENERAL DESCRIPTION

>> F2M03MLA is a low power embedded Bluetooth™ v2.0 multimedia module with an on board antenna, integrated stereo amplifier and a 32 bit digital signal processor (DSP) allowing enhanced audio algorithms such as MP3 decoding and advanced echo cancellation as well as other general purpose applications. The module is a fully Bluetooth™ compliant device for audio and data communication. With a transmit power of up to +7dBm and receiver sensibility of down to -81dBm combined with stereo sound and low power consumption the F2M03MLA is suitable for the most demanding audio applications. Developers can easily implement a wireless solution into their product even with limited knowledge in Bluetooth™ and RF. The module is fully Bluetooth™ v2.0 qualified and it is certified according to CE and FCC, which give fast and easy Plug-and-Go implementation and short time to market.

>> With its extremely small outline and the on board highly efficient omni-directional antenna the F2M03MLA module remarkably simplifies the integration of any Bluetooth™ solution. The high output power combined with advanced audio features and low power consumption makes this module ideal for demanding battery powered audio applications.

>> F2M03MLA has by default three firmwares: Stereo Headset, Hands Free and the A2DP profile. The module can optionally be delivered with: HCI, DUN, OBEX, HID and HCRP.

>> All audio firmwares can be delivered with highly efficient echo cancellation and clear voice capture support improving the sound quality remarkably.

APPLICATIONS

- >> Stereo headphones
- >> Automotive hands-free kits
- >> Echo cancellation
- >> High performance telephony headsets
- >> Industrial and domestic appliances
- >> Medical systems
- >> Automotive applications
- >> Stand-alone sensors
- >> Embedded systems
- >> Cordless headsets
- >> Handheld, laptop and desktop computers
- >> Mobile phones



KEY FEATURES

- >> Fully qualified end product with Bluetooth™ v2.0, CE and FCC
- >> Low power consumption
- >> Integrated high output antenna
- >> Transmit power up to +7dBm
- >> Range up to 150m (line of sight)
- >> Piconet and Scatternet capability, support for up to 7 slaves
- >> Require only few external components
- >> Industrial temperature range -40°C to +85°C
- >> Serial interface up to 1.5Mbps
- >> Extensive digital and analog I/O interface
- >> 16-bit Stereo codec
- >> 32-bit Kalimba DSP for enhanced audio applications and other general purpose applications
- >> Many digital audio options: PCM, I²S and SPDIF
- >> Support for custom applications
- >> Large external memory for custom applications
- >> Support for 802.11b/g Co-Existence
- >> Lead Free and RoHS compliant

TECHNICAL DETAILS

HARDWARE

- >> Bluetooth™ class 1 radio
 - > Nominal transmit power: +7dBm
 - > Nominal sensitivity: -81dBm
 - > Frequency: 2.4GHz ISM band
 - > Chipset: CSR BC3-MultiMedia
- >> Integrated high output antenna
- >> Internal 8Mbit Flash for complete system solution
- >> 16-bit stereo audio codec
- >> I²S and SPDIF interfaces
- >> 13-bit PCM interface
- >> Integrated amplifiers for microphones and speakers
- >> Built-in 32MIPs Kalimba DSP
- >> 8 digital and one 8-bit analog I/O
- >> Host processor interface: UART/USB
- >> Optional I²C compatible interface
- >> Serial interface up to 1.5Mbps
- >> Operating temperature: -40°C to +85°C
- >> Physical size (LxWxH) [mm]: 18.5x13.2x2.0
- >> Weight: 0.5g
- >> Supply voltage: regulated 2.2-4.2 VDC

CONTACT INFORMATION

- >> Please find your local distributor below or visit www.free2move.net to find your distributor in your country and for further information about our products.

Your distributor:



FIRMWARE

- >> Default: Stereo Headset, Hands Free and A2DP profile
- >> Optional: HCI, DUN, OBEX, HID and HCRP
- >> All audio firmwares can be delivered with high efficient echo cancellation and clear voice capture support to improve the sound quality remarkably

CLASSIFICATIONS

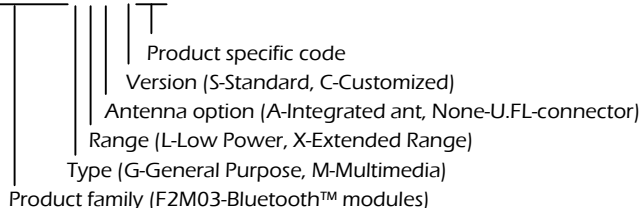
- >> Bluetooth™ v2.0
- >> Lead free and RoHS compliant
- >> CE and FCC

EVALUATION KITS AND RELATED PRODUCTS

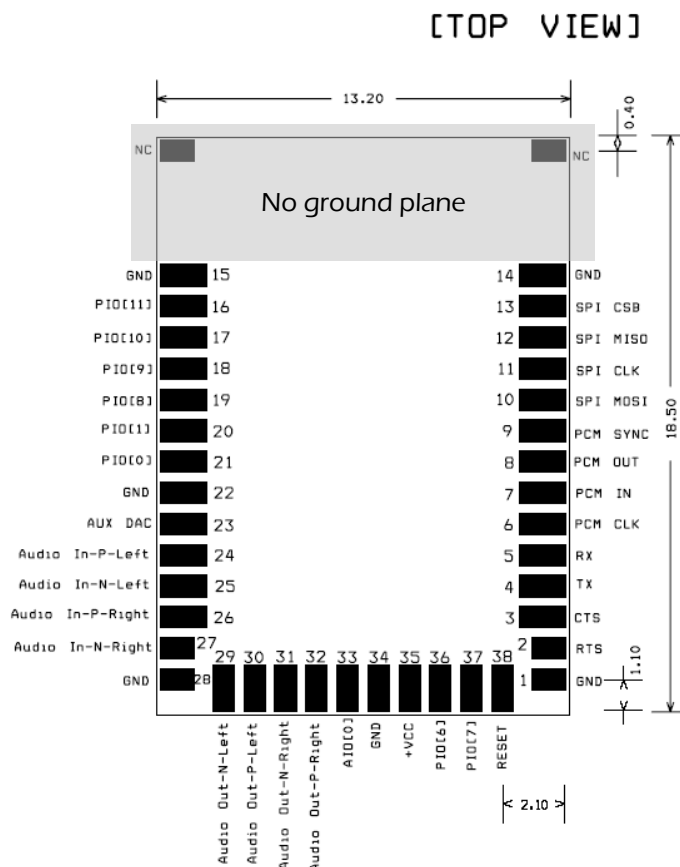
- >> Evaluation kit:
 - > F2M03MLA-KIT-YY
 - YY- Product code (01-Single Kit, 02-Dual Kit)
- >> Related products:
 - > F2M03GX Extended range module with U.FL-connector
 - > F2M03GXA Extended range module with antenna
 - > F2M03GLA Low power module with antenna
 - > F2M03MX Multimedia extended range module with U.FL

PRODUCT CODES

F2M03MLA-YZZ



PIN OUT



- >> The module uses bottom pads for soldering optimized for an automatic solder line. It is also possible to solder the module manually by using hot air soldering. For manual soldering, solder pads may in some situations be made slightly larger to allow easier heating process.
- >> To achieve good RF performance for the antenna, it is advisable to place a ground plane beneath the part of the module where the antenna is not mounted. Except from the ground plane it is preferable that there are as few components and other material as possible nearby the antenna. Free air is the best surrounding for the antenna.
 - > Grey area at the module should be transparent, thus no ground plane.
 - > When using multilayer PCB, through plating is necessary.
- >> General:
 - > Pad size: 1.4x0.6 and 0.8x0.6
 - > Pitch: 1.0
 - > All dimensions are in [mm]