

GENERAL DESCRIPTION

>> F2M03GLA is a Low power embedded Bluetooth™ v2.0+EDR module with built-in high output antenna. The module is a fully Bluetooth™ compliant device for data and voice communication. With a transmit power of up to +7dBm and receiver sensibility of down to -83dBm combined with low power consumption the F2M03GLA is suitable for the most demanding 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+EDR qualified and it is certified according to CE and FCC, which give fast and easy Plug-and-Go implementation and short time to market.

>> The F2M03GLA comes with an on board highly efficient omni-directional antenna that simplifies the integration for a developers Bluetooth™ solution. The high output power combined with the low power consumption makes this module ideal for handheld applications and other battery powered devices.

>> F2M03GLA has by default the exceedingly reliable and powerful easy-to-use Wireless UART firmware implementing the Bluetooth™ Serial Port Profile (SPP). All information sent to the serial interface is transmitted transparently via Bluetooth™ to the connected remote device. F2M03GLA is also available with Headset, Hands Free or HCI firmware. Optional firmwares: DUN, AGP, OBEX, HID or HCRP.

APPLICATIONS

- >> Industrial and domestic appliances
- >> Cable replacement
- >> Medical systems
- >> Automotive applications
- >> Stand-alone sensors
- >> Embedded systems
- >> Cordless headsets
- >> Computer peripherals (Mice, Keyboard, USB dongles, etc.)
- >> Handheld, laptop and desktop computers
- >> Mobile phones



KEY FEATURES

- >> Fully qualified end product with Bluetooth™ v2.0+EDR, CE and FCC
- >> Low power consumption
- >> Integrated high output antenna
- >> Transmit power up to +7dBm
- >> Range up to 150m (line of sight) between two F2M03GLA units
- >> Piconet and Scatternet capability, support for up to 7 slaves
- >> Require only few external components
- >> Industrial temperature range -40°C to +85°C
- >> Enhanced Data Rate (EDR) compliant with v2.0.E.2 of specification for both 2Mbps and 3Mbps modulation modes
- >> USB v2.0 compliant
- >> Serial interface up to 4Mbps
- >> Extensive digital and analog I/O interface
- >> PCM interface for up to 3 simultaneous voice channels
- >> Support for custom applications
- >> Large external memory for custom applications
- >> Support many Bluetooth™ profiles
- >> 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: -83dBm
 - > Frequency: 2.4GHz ISM band
 - > Chipset: CSR BC4-EXT
- >> Integrated high output antenna
- >> External 8Mbit Flash for complete system solution
- >> 10 digital and two 8bit analog I/O
- >> UART or USB host processor interface
- >> Optional I²C compatible interface
- >> Full speed USB v1.1 interface supports OHCI and UHCI host interfaces. Compliant with USB v2.0
- >> Serial interface of up to 4Mbps
- >> 13-bit PCM interface for Audio applications
- >> Operating temperature: -40°C to +85°C
- >> Physical size (LxWxH) [mm]: 28.5x15.2x2.0
- >> Weight: 1.2g
- >> Supply voltage: regulated 2.2-4.2 VDC

CONTACT INFORMATION

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

Your distributor:



FIRMWARE

- >> Default: Wireless UART compliant with the Serial Port Profile (SPP) with an easy to use command interface
- >> Standard: HCI for USB-interface, Headset and Hands Free
- >> Optional: DUN, AGP, OBEX, HID and HCRP

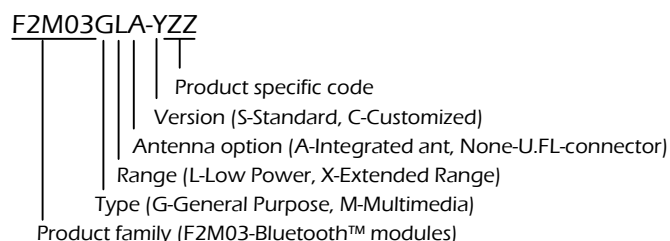
CLASSIFICATIONS

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

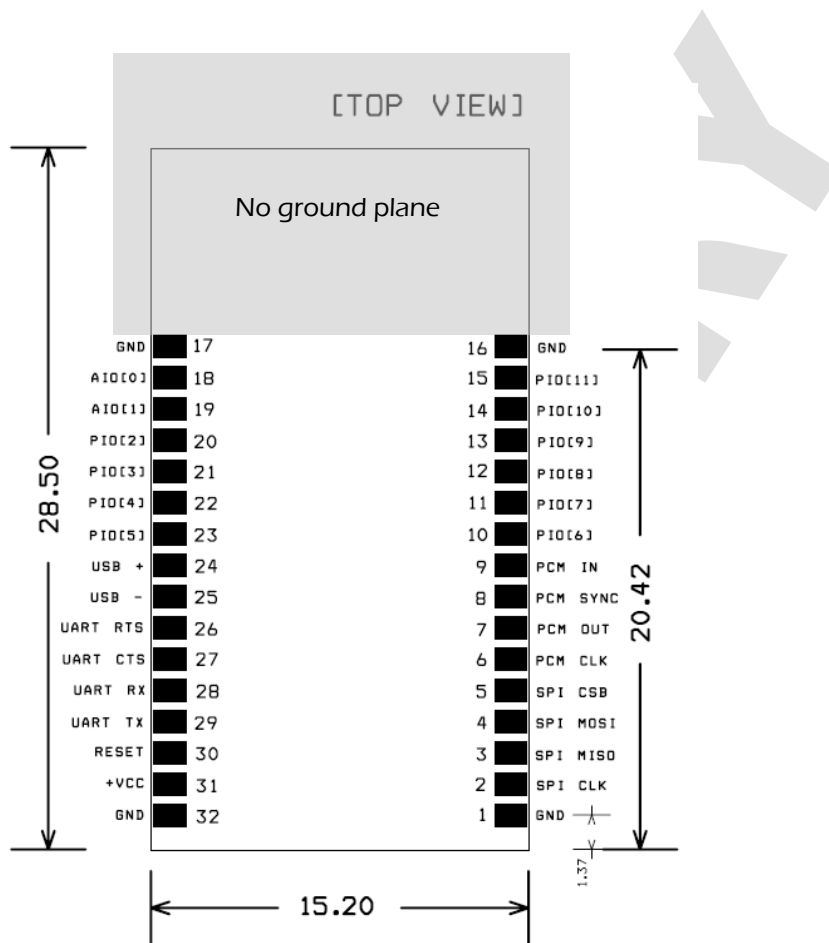
EVALUATION KITS AND RELATED PRODUCTS

- >> Evaluation kit:
 - > F2M03GLA-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
 - > F2M03MLA Multimedia low power module with ant
 - > F2M03MX Multimedia extended range module with U.FL

PRODUCT CODES



PIN OUT



Pin out for the F2M03GLA

- >> 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 situation 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: 0.8x1.2
 - > Pitch: 1.27
 - > All dimensions are in [mm]



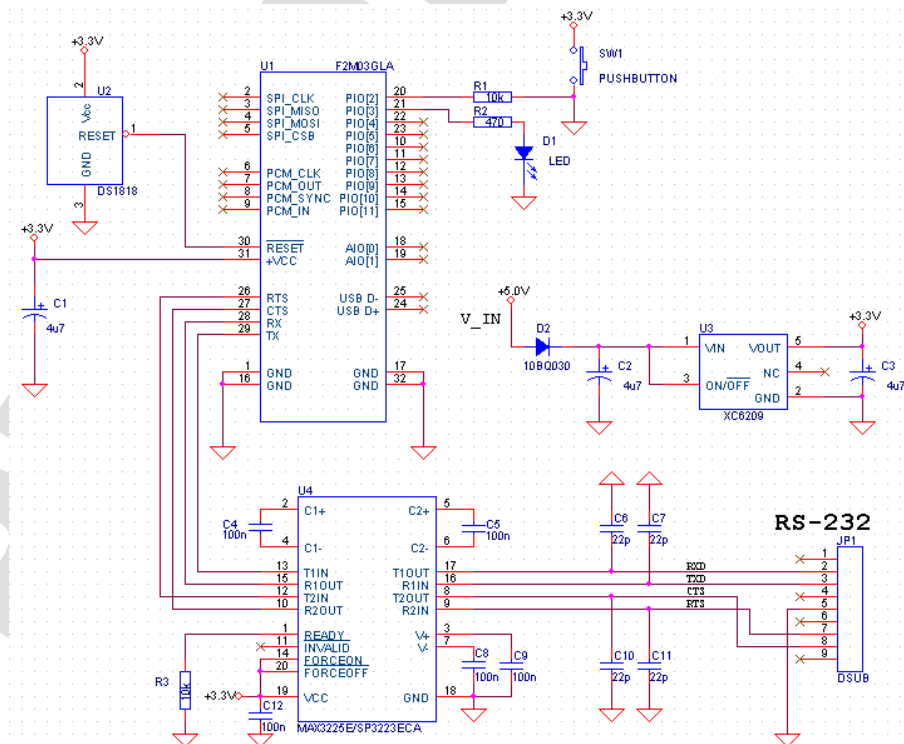
TYPICAL APPLICATION SCHEMATIC

- >> A typical application schematic for the Wireless UART firmware is shown in the figure below.
- >> The module must be provided with a clean power from a LDO with fast transient response. The XC6209B332 from TOREX is a good choice.
- >> All capacitors in the schematic are ceramic and must be mounted as close as possible to its respectively IC.
- >> The module must be started up with a reset. It is preferred to do this with a reset-circuit such as the DS1818 from Dallas Semiconductor or alternately using an I/O from a microcontroller*. Reset cannot be done using an R-C network.

LAYOUT GUIDELINES

- >> All GND pads must be connected directly to a flooded ground-plane. If more than one ground layer is used then make a good connection between them using many via holes. VCC should be connected to the LDO using a wide trace.
- >> For more application information see available application notes at www.free2move.net or contact Free2move's support team: support@free2move.se

* It is important to have a pull-down (1.8k) from the microcontroller's output to the reset input of the module to ensure proper reset throughout the initialization of the microcontroller during power on.



Typical application schematic for the F2M03GLA module using the WU-firmware