ioMate-USB1 V2.0 Infosheet

ioMate-USB1 V2.0

Tiny OEM interface module with CP2102 USB to USART converter.

ioMate-USB1 is a universal interface adapter module for connecting microcontrollers, FPGAs, etc. to the USB bus.

It is based on Silicon Laboratories' CP2102 USB-to-UART interface chip, which converts data traffic between USB and UART formats. ioMate.USB1 includes a complete USB 2.0 full-speed function controller, bridge control logic and a UART interface with transmit/receive buffers and handshake signals. A royality-free device driver for PC (Windows 98SE/2000/XP), Macintosh and Linux platforms is available for download at www.chip45.com.

CP2102 Customzing – Furthermore the CP2102 offers an integrated EEPROM for storing USB parameters like VID, PID, product string and serial number, hence providing the possibility to individualize a product based on ioMate.USB1, by customizing these parameters. Silabs offers a free Windows tool, as well as another tool for generating a customized Windows USB driver. By providing such a driver to your customers, your product will be recognized immediately when connected to a PC and will be registered in Windows control panel with it's unique product name. Later your product will be assigned the same COM port number each time it is conneced to the PC, which simplifies access to your product from PC applications.

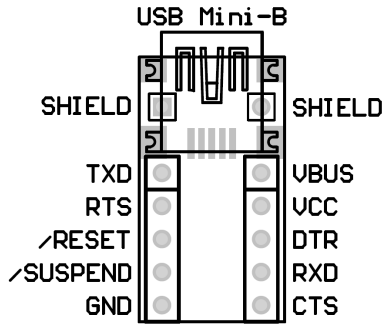
The tools and the corresponding application notes (AN144 and AN220) by Silabs are also available on http://www.chip45.com.

Due to the low price of ioMate-USB1, it is ideally suited as an assembling option for new system designs. Simply add an appropriate IC socket to your application and add USB functionality as required at any time.

Signals – ioMate.USB1 provides an open-drain /RESET signal, which can be used to either force a reset on ioMate.USB1 or drive the reset line of the application. If not used, /RESET can be left open.

The /SUSPEND output can trigger an interrupt and signal a USB bus suspend state. If not used, /SUSPEND can be left open.

New with version 2.0: The VBUS pin still provides the USB bus supply voltage. This pin is now internally connected to the CP2102 supply. Pin VCC now provides the 3.3V output voltage of the CP2102 internal regulator and can source up to 70mA output current for user applications. See datasheet for details current ratings and limiting values!



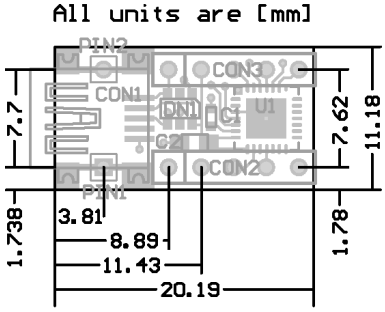
The two SHIELD pins are connected to the USB mini-B connector's shielding. It may used in the application for shielding or grounding purposes.

The remaining five signals provide the UART's receive (RXD) and transmit (TXD) signal, as well as the handshake/modem control sgnals request to send (RTS), clear to send (CTS) and data terminal ready (DTR).

ESD Protection – ioMate.USB1 provides an array of transient voltage suppressor diodes, which provide ESD protection according to EN61000-4 (ESD: Air – 15kV, Contact – 8kV, EFT: 40A – 5/50ns, Surge: 12A, 8/20µs – Level 1 Line-Gnd & Level 2 Line-Line).

***Note:** The UART signals are 3.3V CMOS/TTL compatible signals (5V tolerant), which can be connected to a microcontroller's UART, an FPGA etc. It is not possible to connect these signals directly to RS232 level signals! This might damage the ioMate-USB1 module!*

Formfactor – Dimensions of ioMate-USB1 have been chosen such, that a standard DIL16 pin header fits into the connector pads. This allows to simply plug ioMate-USB1 into a standard DIL14/16 IC socket in the application. The pins are arranged in the standard 2.54mm grid, hence most common pin headers or receptacles will fit into ioMate.USB1. Two (DIL14) or four (DIL16) pins have to be cut off underneath the USB mini-B connector, before assembly. The picture on the right shows the exact dimensions of ioMate.USB1.



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