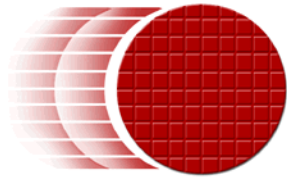


Preliminary - Subject to Change



FTDITM
Chip

**Future Technology
Devices International Ltd.**

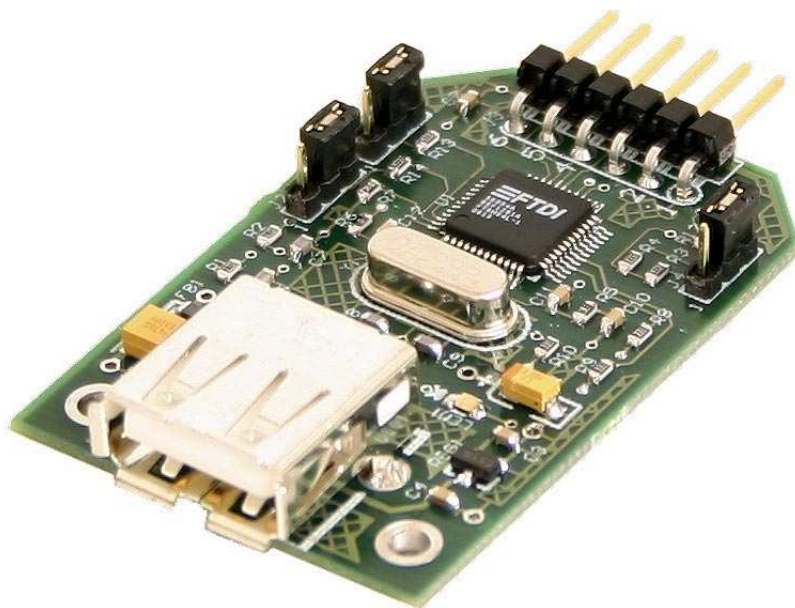


VINCULUM

BINDING USB TECHNOLOGIES

VMusic1

Vinculum VNC1L-1A Evaluation Module



<http://www.vinculum.com>

1. Introduction and Features

1.1 Introduction

The VMusic1 evaluation module is a product which not only lets you add USB Flash disk interfacing to your product, but also allows you to play back MP3 and other popular digital music formats directly from a USB flash disk. Extensions to the Vinculum DIFS command set allow you to play a selected file, as well as control the volume, balance, etc. of the sound channel, and monitor the status of the file being played. The Vinculum DIFS firmware also allows the VNC1L-1A's I/O interface to be selected between the serial UART or SPI using on-board jumper pins. The VMusic1 is ideal for adding MP3 playback from USB drive capability to home entertainment and in-car audio systems, as well as other appliances requiring audio playback capability from USB Flash disks. Not only is the VMusic1 ideal for evaluation and development of VNC1L-1A designs, but also an attractive quantity discount structure makes this module suitable for incorporation into finished product designs.

The Vinculum VNC1L-1A is the first of F.T.D.I.'s Vinculum family of Embedded SoC USB host controller integrated circuit devices. Not only is it able to handle the USB Host Interface, and data transfer functions but owing to the inbuilt MCU and embedded Flash memory, Vinculum can encapsulate the USB device classes as well. When interfacing to mass storage devices such as USB Flash drives, Vinculum also transparently handles the FAT File structure communicating via UART, SPI or parallel FIFO interfaces via a simple to implement command set. Vinculum provides a new cost effective solution for providing USB Host capability into products that previously did not have the hardware resources available. The VNC1L-1A is available in Pb-free (RoHS compliant) compact 48-Lead LQFP package.

1.2 Features

- Uses F.T.D.I.'s VNC1L-1A embedded USB host controller I.C. device combined with VLSI VS1003 I.C. for music playback.
- USB 'A' type socket to connect USB Flash disk.
- Stereo 3.5mm headphone jack socket for audio playback
- Audio line-out connector for audio playback
- Jumper selectable UART or SPI interfaces.
- Single 5V supply input.
- Only four signals to connect excluding power and ground.
- Power indicator, and USB traffic indicator LED's.
- Uses extended Vinculum DIFS firmware and command set.
- Program or update Vinculum firmware via USB Flash disk or via UART / SPI interface.
- VNC1L-1A firmware programming control pins PROG# and RESET# brought out onto jumper interface
- VMusic1 is a Pb-free, RoHS complaint development module.
- Schematics, and firmware files available for download from the [Vinculum website](#).

2. Dimensions

2.1 VMusic Board Dimensions

The VMusic1 board dimensions are shown below.

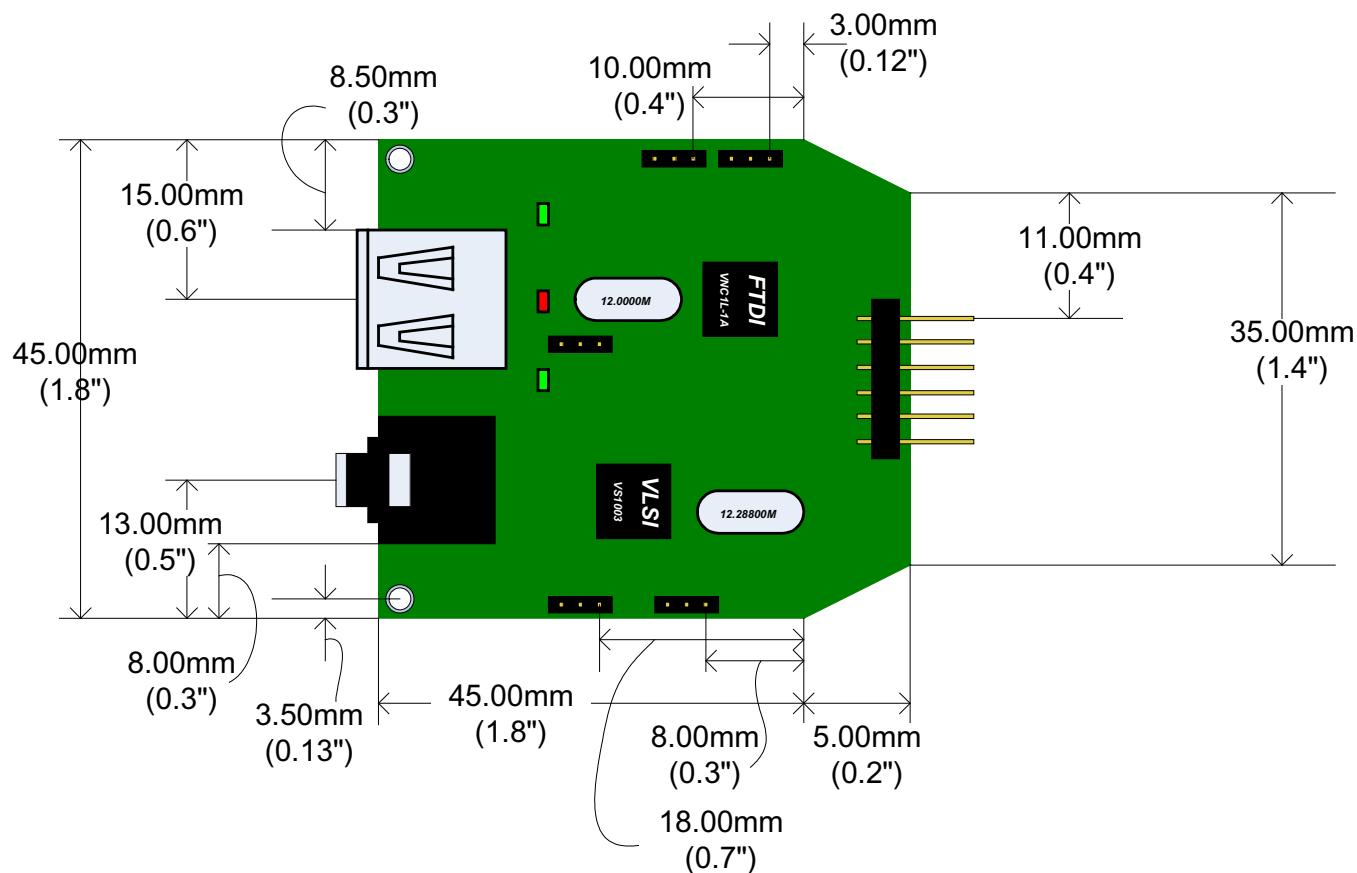


Figure 1 - VMusic1 dimensions, top view.

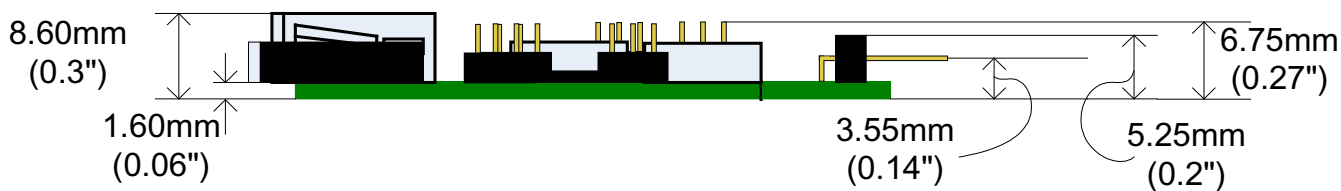


Figure 2 - VMusic1 dimensions , side view.

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Version 0.90 - Initial Datasheet Created August 2006

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