NOW LEAD-FREE!

1.0 Introduction

The DLP-TXRX-G USB-to-serial adapter is designed to easily connect a microcontroller/DSP/FPGA/etc to a host PC; or upgrade a legacy RS232 device to USB via a 2-wire serial interface with minimal design effort. Virtual COM Port (VCP) drivers are provided royalty-free that make the DLP-TXRX-G look like a standard Windows/Linux/Mac RS232 port to the user's host program.

1.1 Features Summary

• Royalty-free Virtual COM Port drivers

> VIRTUAL COM PORT (VCP) DRIVER SUPPORT FOR:
> • Windows 98 / 98 SE / 2000 / ME / XP
> • Windows CE
> • MAC OS-8 and OS-9
> • MAC OS-X
> • Linux 2.40 and greater

• As few as 2 wire serial interface (RX, TX and ground)
• Standard baud rates from 300 to 921,600 baud
• Support for non-standard baud rates
• One open-collector output (pin 4): can be used for resetting microcontroller under software control (DTR)
• Input provided (pin 5) for user-selectable interface voltage
• Red and green LEDs to indicate transmit and receive activity
• USB 2.0 interface compatible
• USB Description strings, VID and PID configurable in on-chip EEPROM
• EEPROM Configurable in-circuit via USB
• Support for the RS232 BREAK setting and detection conditions

1.2 General Description

All operational power for the DLP-TXRX-G is taken from the host PC USB port or upstream hub. All power required by user electronics must be provided by external power supply.

FTDI provides a royalty free Virtual COM Port (VCP) driver that makes this USB device appear as a standard COM port to the PC. Most existing software applications should be able interface with the Virtual COM Port simply by reconfiguring them to use the new COM ports created by the driver. Using the VCP drivers, an application program would communicate with the DLP-TXRX-G in exactly the same way as it would a regular RS232 COM port - using the Windows VCOMM API calls or a COM port library.

Also available is a DLL version of the drivers that allows application programmers to interface software directly to the device using a Windows DLL. Both the VCP and DLL version of the drivers are available for download from both the dlpdesign.com and ftdichip.com web sites.

The on-chip EEPROM can be used to customize the USB VID, PID, Serial Number, Product Description Strings and Power Descriptor value of the DLP-RXTX-G for OEM applications. The EEPROM is programmable in-circuit via USB using a utility program (MPROG) available from both www.ftdichip.com and www.dlpdesign.com.

1.3 DTR Open Collector Output

Pin 4 of the DLP-TXRX-G is an open-collector output that is controlled by the DTR# output of the FT232RL. Upon power up of the DLP-TXRX-G (i.e. when connected to the host PC), pin 4 is initially driven low via an open-collector transistor until the host application opens the COM port that the DLP-TXRX-G is assigned to. Once the port is opened, pin 4 becomes high-impedance. From this point forward, the state of pin 4 can be changed under software control via the user's application program by setting and clearing DTR#.

NOTE: if pin 4 is used to reset an external microcontroller, then upon power up the processor will not run until the COM port is opened by the host application.
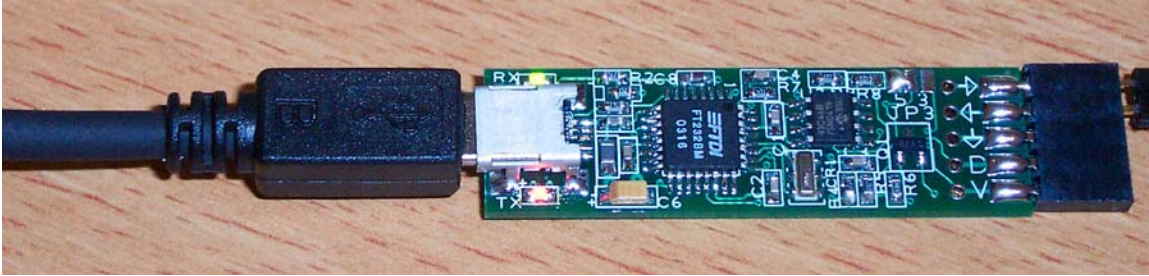

1.4 VCCIO Input

Pin 5 is used to provide power to the I/O pins of the FT232RL in instances where the external microcontroller/DSP/FPGA/etc is operating at a voltage other than 5 volts. The acceptable input voltage range on Pin 5 is 1.8 to 5.25 volts. If the external processor is running at 5.0 volts then Pin 5 can be left disconnected.

If the external processor is running at a voltage other than 5 volts then the solder bridge at location '5' on the DLP-TXRX-G pcb must be removed and a solder bridge at location '3' must be applied in order for the voltage applied to pin 5 to be used.
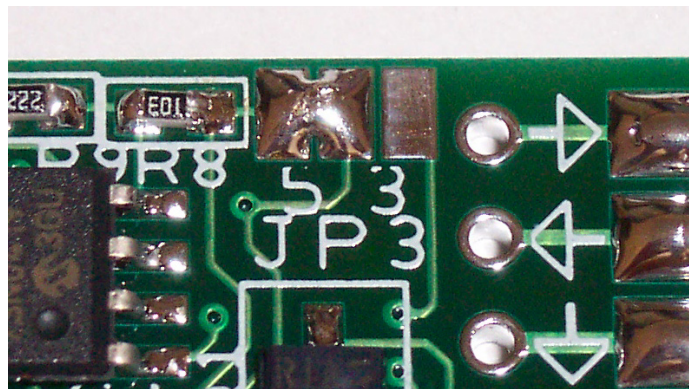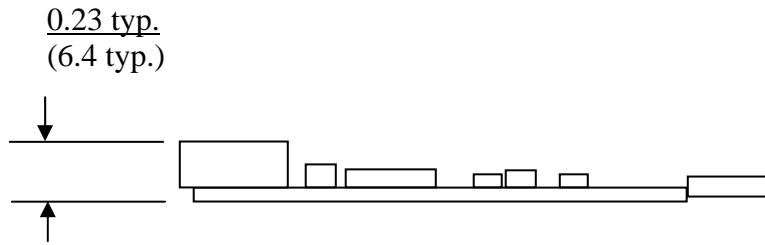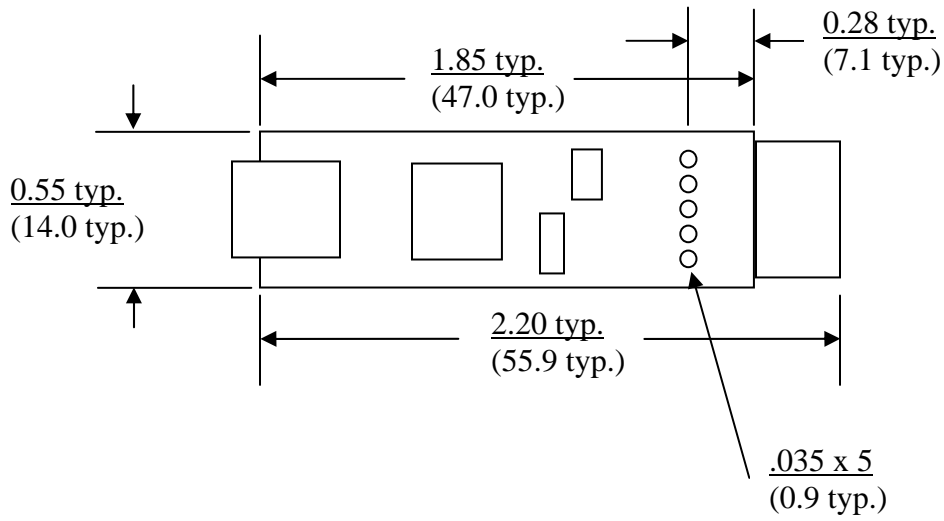
1.5 Activity LEDs

Transmit and receive LEDs are provided to indicate activity. When data is being transmitted or received, the respective LEDs illuminate in order to provide indication of data transfer. Circuitry in the FT232RL ensures that even a small percentage of data transfer is visible to the end user.

2.0 Mechanical Dimensions   >>> Preliminary <<<
Inches (mm)

1.85 typ.
(47.0 typ.)

0.28 typ.
(7.1 typ.)

0.55 typ.
(14.0 typ.)

2.20 typ.
(55.9 typ.)

.035 x 5
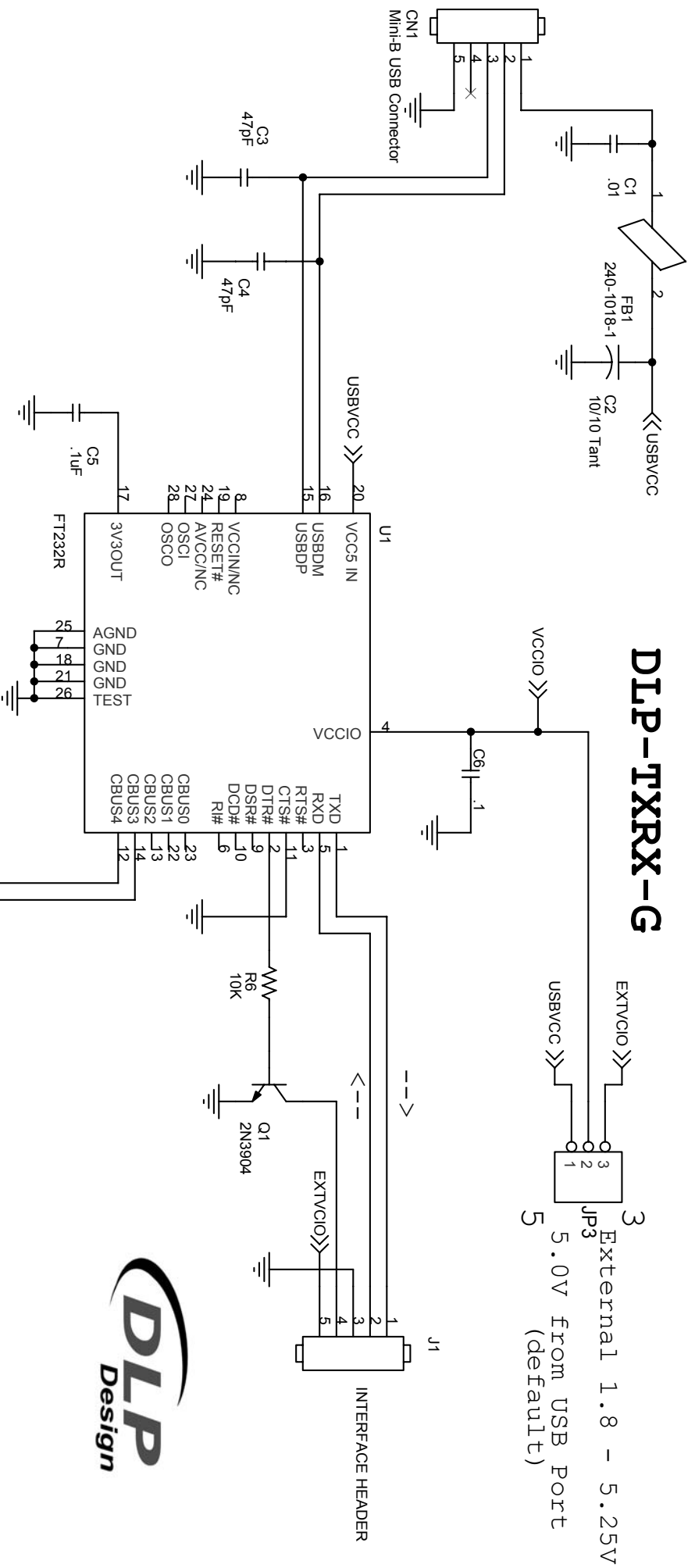(0.9 typ.)

0.23 typ.
(6.4 typ.)

3.0 Disclaimer

4.0 Contact Information

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DLP-TXRX-G

CN1
Mini-B USB Connector

C3
47pF

C1
.01

FB1
240-1018-1

C4
47pF

C2
10/10 Tant

USBVCC

C5
.1uF

U1
FT232R

Pin	Signal
17	3V3OUT
8	VCCIN/NC
19	RESET#
24	AVCC/NC
27	OSCI
28	OSCO
16	USBDM
15	USBDP
20	VCC5 IN
25	AGND
7	GND
18	GND
21	GND
26	TEST

VCCIO 4

C6
.1

VCCIO

EXTVCIO

USBVCC

JP3

3
2
1

3
5
External 1.8 - 5.25V
5.0V from USB Port
(default)

TXD
RXD
RTS#
CTS#
DTR#
DSR#
DCD#
RI#

CBUS0 23
CBUS1 22
CBUS2 13
CBUS3 14
CBUS4 12

R6
10K

Q1
2N3904

EXTVCIO

J1
INTERFACE HEADER

R5
100

R4
100

RX
GREEN LED

TX
RED LED

VCC_IO

VCC_IO

DLP
Design