



## **Future Technology Devices International Ltd.**

### **TN\_145 FT311D Errata Technical Note**

**Document Reference No.: FT\_000756**

**Version 1.2**

**Issue Date: 2016-04-07**

The intention of this errata technical note is to give a detailed description of known functional or electrical issues with the FTDI FT311D devices.  
The current revision of the FT311D is **revision 1C, released October 2012.**

Use of FTDI devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold FTDI harmless from any and all damages, claims, suits or expense resulting from such use.

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## **Table of Contents**

<b>1 FT311D Revision .....</b>	<b>2</b>
<b>2 Errata History Table – Functional Problems.....</b>	<b>3</b>
<b>3 Functional Problems of FT311D .....</b>	<b>4</b>
<b>3.1 Revision 1B.....</b>	<b>4</b>
3.1.1 Device enumeration fails when connection & disconnection is repeated rapidly ...	4
3.1.2 Android OS 4.1 .....	5
<b>3.2 Revision 1C.....</b>	<b>6</b>
3.2.1 FT311D Enumeration Problem in UART Mode .....	6
3.2.2 FT311D Enumeration Problem in SPI Slave Mode .....	7
<b>4 FT311D Package Markings.....</b>	<b>9</b>
<b>5 Contact Information.....</b>	<b>10</b>
<b>Appendix A - References.....</b>	<b>11</b>
<b>Acronyms and Abbreviations .....</b>	<b>11</b>
<b>Appendix B – List of Tables &amp; Figures.....</b>	<b>12</b>
<b>List of Figures .....</b>	<b>12</b>
<b>List of Tables .....</b>	<b>12</b>
<b>Appendix C – Revision History.....</b>	<b>13</b>

## 1 FT311D Revision

FT311D part numbers are listed in **Table 1**. The letter at the start of date code identifies the device revision.

The current revision of the FT311D is **revision 1C, released October 2012**. At the time of releasing this Technical Note there are no known issues with this silicon revision.

Part Number	Package
FT311D-32Q1C-x	32 Pin QFN
FT311D-32L1C-x	32 Pin LQFP

**Table 1 FT311D Part Numbers**

This errata technical note covers the revisions of FT311D listed in **Table 2**.

Revision	Notes
1A	First device revision. Launched date July 2012
1B	Performance boost. Launched date August 2012
1C	Fixes Android revision issue and rapid connect/disconnect

**Table 2 FT311D Revisions**

## 2 Errata History Table – Functional Problems

Functional Problem	Short description	Errata occurs in device revision
USB Connect Disconnect	Device enumeration fails with rapid connection and disconnection is repeated	1A, 1B
Android 4.1 OS	Android 4.1 OS interoperability	1A, 1B
USB Enumeration fails	UART device outputs data before FT311D connects to Android device causing enumeration to fail	1A, 1B, 1C

**Table 3 Functional Errata**

## 3 Functional Problems of FT311D

### 3.1 Revision 1B

#### 3.1.1 Device enumeration fails when connection & disconnection is repeated rapidly

**Introduction:**

An issue has been identified where the enumeration of the Android device fails during connection.

**Problem:**

The Android device is connected to the FT311D device and disconnected. The connection and disconnection is repeated at a faster rate. This will result in the FT311D device not enumerating the Android device. When this problem occurs the Android application will not launch on the android device.

**Workaround:**

This issue can be recovered by powering off the FT311D device and powering on. This will enable the FT311D to re-enumerate the Android device and is therefore an intermediate workaround until next revision silicon is released with a permanent fix.

**Package specific:**

The effected packages are listed in Table 4.

Package	Applicable (Yes/No)
FT311D-32Q1C-x	Y
FT311D-32L1C-x	Y

**Table 4**

### 3.1.2 Android OS 4.1

#### Introduction:

An issue has been identified where the FT311D will not handle FT311D API commands sent from the Android application.

#### Problem:

When FT311D is connected to Android device with Android OS version 4.1 and above, the FT311D enumerates the Android device and the Android application is launched but the FT311D device will not handle any FT311D API commands sent from the Android application. FT311D signals an error condition in the USB\_ERROR pins with device not responding.

Android device with OS version 4.1 and above use Android Open Accessory version 2.0. The get protocol version command from the FT311D receives 0200 whereas the FT311D device supports Android Open Accessory version 1.0.

#### Workaround:

There is no direct work around for this issue. The possible workaround is to use Android OS version 3.1 to Android OS version 4.0 which has Android Open Accessory version 1.0.

Note, revision C corrects this item.

#### Package specific:

The effected packages are listed in Table 5.

Package	Applicable (Yes/No)
FT311D-32Q1C-x	Y
FT311D-32L1C-x	Y

**Table 5**

## 3.2 Revision 1C

### 3.2.1 FT311D Enumeration Problem in UART Mode

#### Introduction:

An issue has been identified where the enumeration of the Android device fails during connection.

#### Problem:

When the FT311D is configured for UART mode and the UART device sends data to the FT311D continuously (such as a GPS module) before the completion of enumeration the device may fail to complete enumeration correctly..

#### Workaround:

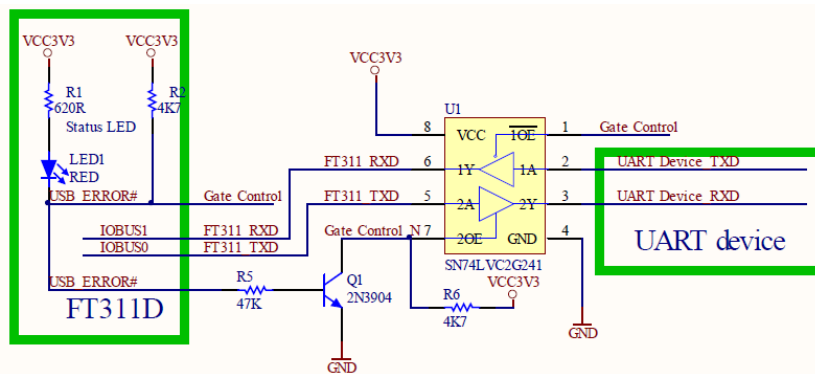
This issue can be averted by disconnecting the TXD signal of UART device from the FT311D RXD signal pin until after the FT311D has established the USB link with Android device.

The connection sequence should be:

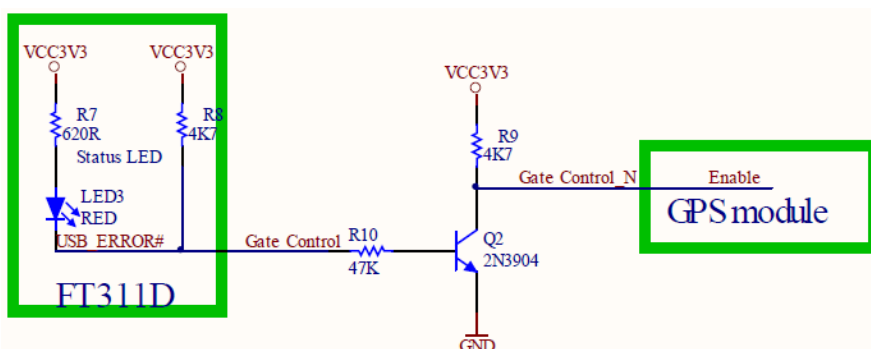
1. Connected FT311D to Android and complete enumeration.
2. Connect the TXD of UART device to FT311D's RXD then start to receive data.

There are two methods to implement this function:

1. When FT311D connects to the Android device and enumeration is completed, the USB\_ERROR# will become Logic 0 (default Logic 1). This signal can be used to control the TTL gate (74LVC2G241, 74LVC1G125 or others) ON/OFF such that the TXD/RXD lines are connected/disconnected.



2. If the UART device has an enable pins such as on the GPS module, the USB\_ERROR# can also be used. The USB\_ERROR# pin may be inverted with an NPN BJT then connected to the enable pin of the GPS module.



### Package specific:

The effected packages are listed in Table 6.

Package	Applicable (Yes/No)
FT311D-32Q1C-x	Y
FT311D-32L1C-x	Y

**Table 6**

### 3.2.2 FT311D Enumeration Problem in SPI Slave Mode

#### Introduction:

An issue has been identified where the enumeration of the Android device fails during connection.

#### Problem:

When the FT311D is configured for SPI slave mode and the SPI host device sends data to the FT311D continuously before the completion of enumeration the device may fail to complete enumeration correctly.

#### Workaround:

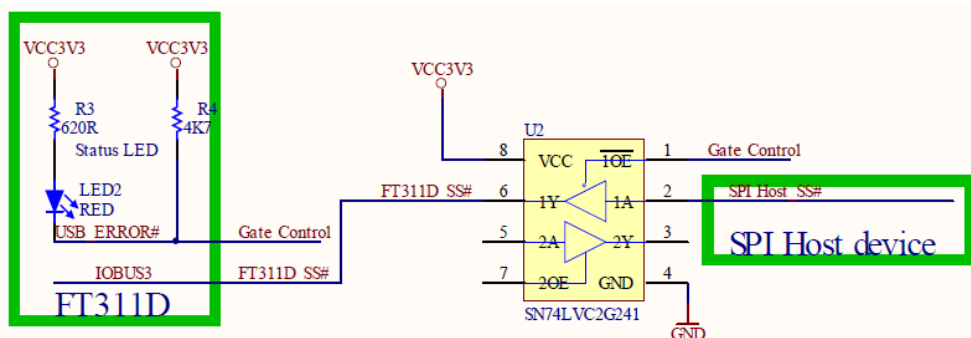
This issue can be worked around by disconnecting the SS# signal of SPI Host device until after the FT311D has established the USB link with Android device.

The connection sequence should be:

1. Connected FT311D to Android and complete enumeration.
2. Connect the SS# of SPI host to FT311D's SS# then start to communication.

There is a method to implement this function:

1. When FT311D connects to the Android device and enumeration is completed, the USB\_ERROR# will become Logic 0 (default Logic 1). This signal can be used to control the TTL gate (74LVC2G241, 74LVC1G125 or others) ON/OFF such that the Both SS# lines are connected/disconnected.





**Package specific:**

The effected packages are listed in Table 6.

<b>Package</b>	<b>Applicable (Yes/No)</b>
FT311D-32Q1C-x	Y
FT311D-32L1C-x	Y

**Table 7**

## 4 FT311D Package Markings

FT311D is available in a RoHS Compliant RoHS Compliant package, 32 pin QFN and 32 pin LQFP. An example of the markings on the package is shown in Figure 5.1.

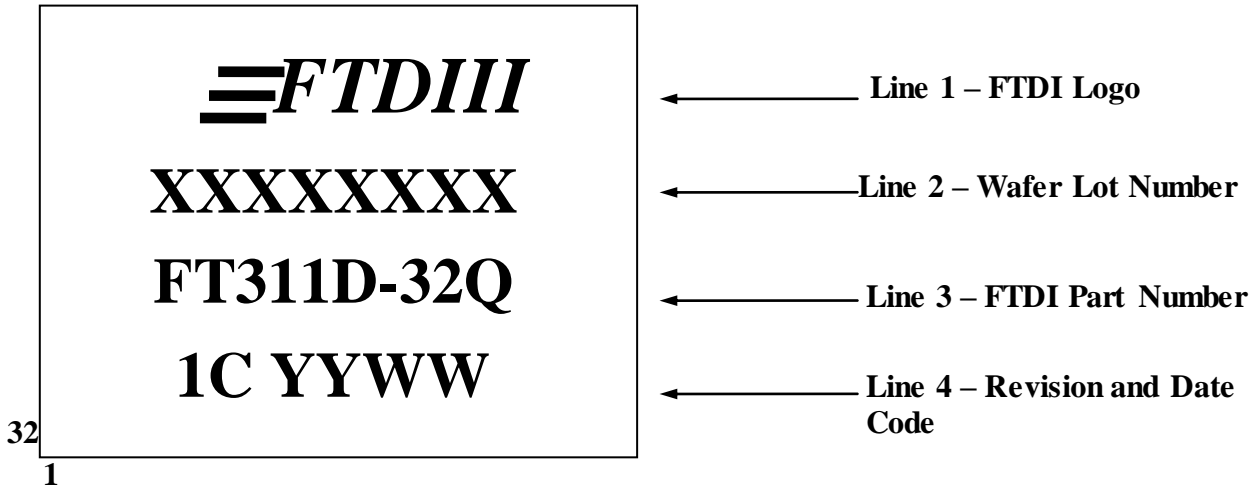


Figure 4-1 Package Markings – FT311D-Q

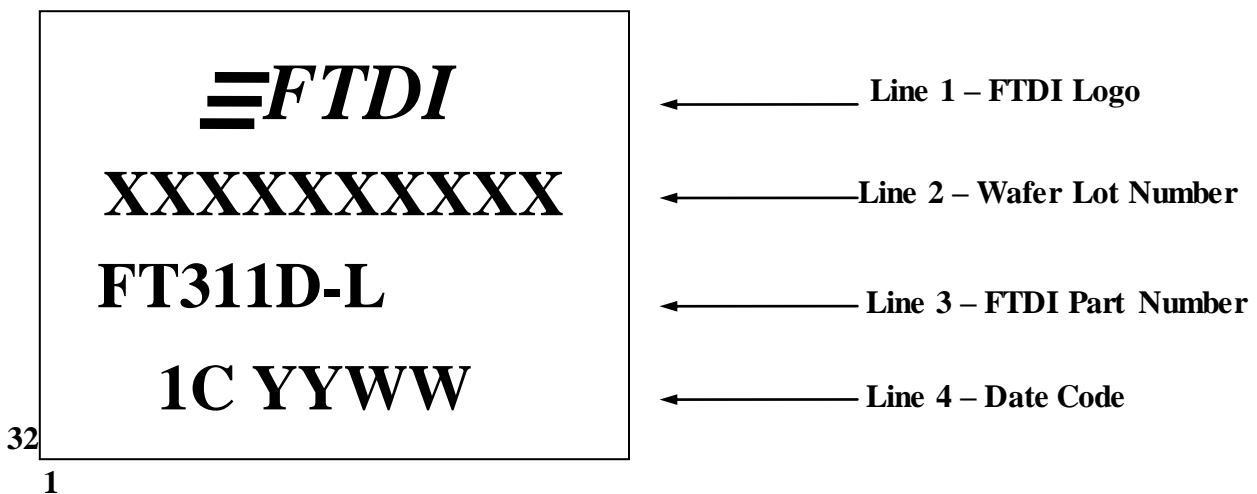


Figure 4-2 Package Markings – FT311D-L

The date code format is **YYWW** where WW = 2 digit week number, YY = 2 digit year number. This is preceded by the revision number.

The code **XXXXXXXXXXXX** is the manufacturing LOT code

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## Appendix A - References

### Acronyms and Abbreviations

Terms	Description
API	Application Programming Interface
LQFP	Low -profile Quad Flat Package
OS	Operating System
RoHS	Restriction of Hazardous Substances
SPI	Serial Peripheral Interface
UART	Universal Asynchronous Receiver/Transmitter
USB	Universal Serial Bus

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## Appendix B – List of Tables & Figures

### List of Figures

Figure 4-1 Package Markings – FT311D-Q.....	9
Figure 4-2 Package Markings – FT311D-L.....	9

### List of Tables

Table 1 FT311D Part Numbers.....	2
Table 2 FT311D Revisions.....	2
Table 3 Functional Errata.....	3

## Appendix C – Revision History

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Product Page: <http://www.ftdichip.com/FTProducts.htm>  
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Revision	Changes	Date
1.0	Initial Release	2012-10-05
1.1	Update to clarify Rev C has no known issues	2012-11-21
1.2	Updated the enumerate problem and provided two hardware workaround solutions	2016-04-07