



**Future Technology Devices International Ltd.**

**TN\_139 FT230X Errata Technical Note**

**Document Reference No.: FT\_000641**

**Version 1.4**

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The intention of this errata technical note is to give a detailed description of known functional or electrical issues with the FTDI FT230X devices.

The current revision of the FT230X is **revision D, released November 2012.**

**Future Technology Devices International Limited (FTDI)**

Unit1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH United Kingdom

Tel.: +44 (0) 141 429 2777 Fax: + 44 (0) 141 429 2758

E-Mail (Support): [support1@ftdichip.com](mailto:support1@ftdichip.com) Web: <http://www.ftdichip.com>

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## 1 FT230X Revision

FT230X part numbers are listed in **Table 1**. The letter at the end of date code identifies the device revision.

The current revision of the FT230X is **revision D, released November 2012**. At the time of releasing this Technical Note there are no known issues with this silicon revision.

Part Number	Package
FT230XQ	16 pin QFN
FT230XS	16 pin SSOP

**Table 1 FT230X Part Numbers**

This errata technical note covers the revisions of FT230X listed in **Table 2**.

Revision	Notes
A	First device revision. Never sold publicly.
B	Second device revision. Launched 28 February 2012
C	Third device revision, Launched 11 <sup>th</sup> June 2012
D	Forth device version. Released 6 <sup>th</sup> November 2012

**Table 2 FT230X Revisions**

## 2 Errata History Table – Functional Problems

Functional Problem	Short description	Errata occurs in device revision
USB Data Transfer	Transfer of data over USB stops unexpectedly	A, B and C
USB 3.0 Hosts	USB 3.0 Host occasional interoperability	A, B and C

**Table 3 Functional Errata**

### 2.1 Errata History Table – Programming Issues.

Functional Problem	Short description	Errata occurs in device revision
FT230X	Default VCP setting is disabled	A, B

**Table 4 Programming Errata**

### 2.2 Errata History Table – Electrical and Timing Specification Deviations.

Deviations	Short description	Errata occurs in device revision
Fault with internal 3V3 regulator.	Device VCC is designed to operate between 3V3 and 5V however with this errata the supply should not be set below 4.3V for correct operation.	B

**Table 5 Electrical and Timing Errata**

## 3 Functional Problems of FT230X

### 3.1 Revision A

#### 3.1.1 USB Data Transfer

##### Introduction:

An issue has been identified where the transfer of data over USB stops unexpectedly.

##### Problem:

The device is put into suspend mode during a transfer of certain data patterns most notable with binary zeros. This can halt the data transfer in certain circumstances and will require the device to be re-enumerated to recover.

NB. It is the presence of this data pattern on the USB bus regardless of whether the data is intended for the FT230X or other devices (e.g. a broadcast) on the bus that forces the suspend state.

##### Workaround:

This issue can be avoided by utilising the keep awake function of the chip. This will disable the USB suspend function of the chip and is therefore an intermediate workaround until revision D silicon is released with a permanent fix.

NB. With the workaround the chip will never enter lower powered suspend. However the keep awake current will be approximately 3mA.

To enable the keep awake function in the EEPROM, one of the CBUS pins needs to be configured as Keep-Awake#. This pin then needs to be tied to ground on the PCB. The [FT\\_Prog](#) utility can be used to configure the CBUS pin.

##### Package specific:

The effected packages are listed in Table 6.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

Table 6

### 3.1.2 USB 3.0 Hosts

#### Introduction:

An issue has been identified where the FT230X will not enumerate when connected to certain USB 3.0 Hosts. So far FTDI have identified **ONE** such host.

#### Problem:

Certain USB 3.0 Hosts exhibit reduced reset recovery times after a USB reset, which can at times be faster or close to the USB 2.0 specification limit. The USB 2.0 specification states a USB reset recovery time of 10ms and in general almost all hosts allocate a much longer period than this. The FT230X device may not enumerate if the reset recovery time is reduced.

This issue has been seen on one USB 3.0 Host controller and has not been seen on a USB 2.0 Host controller or other USB 3.0 Host controllers.

#### Workaround:

Reconnect the device to a USB 2.0 host. This issue has been seen only on one particular USB 3.0 Host controllers.

#### Package specific:

The effected packages are listed in Table 7.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 7**

## 3.1 Revision B

### 3.1.1 USB Data Transfer

#### Introduction:

An issue has been identified where the transfer of data over USB stops unexpectedly.

#### Problem:

The device is put into suspend mode during a transfer of certain data patterns most notable with binary zeros. This can halt the data transfer in certain circumstances and will require the device to be re-enumerated to recover.

NB. It is the presence of this data pattern on the USB bus regardless of whether the data is intended for the FT230X or other devices (e.g. a broadcast) on the bus that forces the suspend state.

#### Workaround:

This issue can be avoided by utilising the keep awake function of the chip. This will disable the USB suspend function of the chip and is therefore an intermediate workaround until revision D silicon is released with a permanent fix.

NB. With the workaround the chip will never enter lower powered suspend. However the keep awake current will be approximately 3mA.

To enable the keep awake function in the EEPROM, one of the CBUS pins needs to be configured as Keep-Awake#. This pin then needs to be tied to ground on the PCB. The [FT\\_Prog](#) utility can be used to configure the CBUS pin.

#### Package specific:

The effected packages are listed in Table 8.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 8**

### 3.1.2 USB 3.0 Hosts

#### Introduction:

An issue has been identified where the FT230X will not enumerate when connected to certain USB 3.0 Hosts. So far FTDI have identified **ONE** such host.

#### Problem:

Certain USB 3.0 Hosts exhibit reduced reset recovery times after a USB reset, which can at times be faster or close to the USB 2.0 specification limit. The USB 2.0 specification states a USB reset recovery time of 10ms and in general almost all hosts allocate a much longer period than this. The FT230X device may not enumerate if the reset recovery time is reduced.

This issue has been seen on one USB 3.0 Host controller and has not been seen on a USB 2.0 Host controller or other USB 3.0 Host controllers.

#### Workaround:

Reconnect the device to a USB 2.0 host. This issue has been seen only on one particular USB 3.0 Host controllers.

#### Package specific:

The effected packages are listed in Table 9.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

Table 9



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## 3.2 Revision C

### 3.2.1 USB Data Transfer

#### Introduction:

An issue has been identified where the transfer of data over USB stops unexpectedly.

#### Problem:

The device is put into suspend mode during a transfer of certain data patterns most notable with binary zeros. This can halt the data transfer in certain circumstances and will require the device to be re-enumerated to recover.

NB. It is the presence of this data pattern on the USB bus regardless of whether the data is intended for the FT230X or other devices (e.g. a broadcast) on the bus that forces the suspend state.

#### Workaround:

This issue can be avoided by utilising the keep awake function of the chip. This will disable the USB suspend function of the chip and is therefore an intermediate workaround until revision D silicon is released with a permanent fix.

NB. With the workaround the chip will never enter lower powered suspend. However the keep awake current will be approximately 3mA.

To enable the keep awake function in the EEPROM, one of the CBUS pins needs to be configured as Keep-Awake#. This pin then needs to be tied to ground on the PCB. The [FT\\_Prog](#) utility can be used to configure the CBUS pin.

#### Package specific:

The effected packages are listed in Table 10.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 10**

### 3.2.2 USB 3.0 Hosts

#### Introduction:

An issue has been identified where the FT230X will not enumerate when connected to certain USB 3.0 Hosts. So far FTDI have identified **ONE** such host.

#### Problem:

Certain USB 3.0 Hosts exhibit reduced reset recovery times after a USB reset, which can at times be faster or close to the USB 2.0 specification limit. The USB 2.0 specification states a USB reset recovery time of 10ms and in general almost all hosts allocate a much longer period than this. The FT230X device may not enumerate if the reset recovery time is reduced.

This issue has been seen on one USB 3.0 Host controller and has not been seen on a USB 2.0 Host controller or other USB 3.0 Host controllers.

#### Workaround:

Reconnect the device to a USB 2.0 host. This issue has been seen only on one particular USB 3.0 Host controllers.

#### Package specific:

The effected packages are listed in Table 11.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 11**

### 3.3 Revision D

No known issues at revision D.

## 4 Programming Issues of FT230X

### 4.1 Revision A

#### 4.1.1 Default VCP Setting is Disabled

**Introduction:**

The FT230X stores several configuration values in the MTP. The VCP driver is intended to be enabled with the FT230X.

**Problem:**

An incorrect value for the VCP driver was programmed into the MTP on some production runs.

**Workaround:**

Use FT\_Prog or a custom D2XX program to change the MTP setting to enable loading of the VCP driver.

This setting has been corrected in all Rev C devices.

**Package specific:**

The effected packages are listed in Table 12.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 12**

## 4.2 Revision B

### 4.2.1 Default VCP Setting is Disabled

#### Introduction:

The FT230X stores several configuration values in the MTP. The VCP driver is intended to be enabled with the FT230X.

#### Problem:

An incorrect value for the VCP driver was programmed into the MTP on some production runs.

#### Workaround:

Use FT\_Prog or a custom D2XX program to change the MTP setting to enable loading of the VCP driver.

This setting has been corrected in all Rev C devices.

#### Package specific:

The effected packages are listed in Table 13.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

**Table 13**

## 4.3 Revision C

No known programming issues at Revision C.

## 4.4 Revision D

No known issues at revision D.

## 5 Electrical and Timing specification deviations of FT230X

### 5.1 Revision A

No known issues at revision A

### 5.2 Revision B

#### 5.2.1 Internal 3V3 Regulator

##### Introduction:

The FT230X uses an internal regulator to generate 3V3 from a 5V source (VCC). The source should be variable from 3V3 to 5V.

##### Problem:

The VCC supply to the regulator must not drop below 4.3V for the correct 3V3 regulated output to be produced.

##### Workaround:

VCC must not be supplied below 4.3V.

##### Package specific:

The effected packages are listed in Table 14.

Package	Applicable (Yes/No)
FT230XQ	Y
FT230XS	Y

Table 14

### 5.1 Revision C

No known issues at revision C

### 5.2 Revision D

No known issues at revision D.

## 6 FT230X Package Markings

FT230X is available in a RoHS Compliant package, 16 pin QFN and 16 pin SSOP. An example of the markings on the package is shown in Figure 5.1.

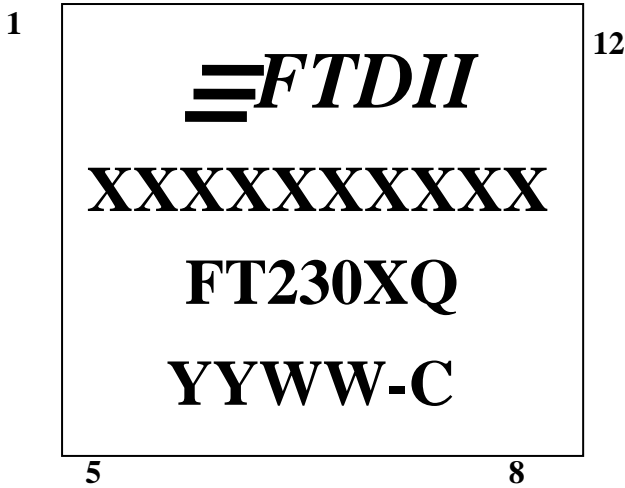


Figure 6-1 Package Markings – FT230XQ

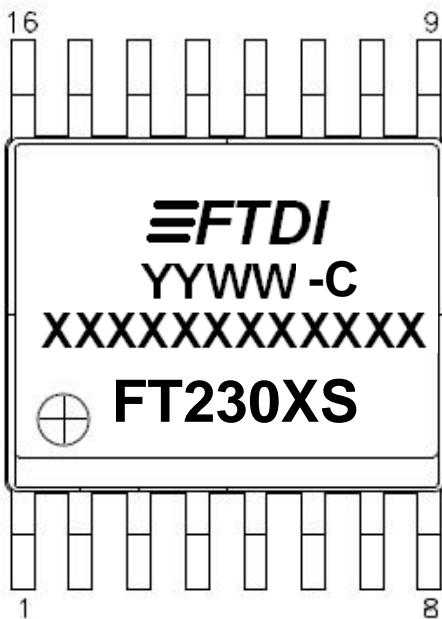


Figure 6-2 Package Markings – FT230XS

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

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

## 7 Contact Information

### Head Office – Glasgow, UK

Unit 1, 2 Seaward Place, Centurion Business Park  
Glasgow G41 1HH  
United Kingdom  
Tel: +44 (0) 141 429 2777  
Fax: +44 (0) 141 429 2758

E-mail (Sales) [sales1@ftdichip.com](mailto:sales1@ftdichip.com)  
E-mail (Support) [support1@ftdichip.com](mailto:support1@ftdichip.com)  
E-mail (General Enquiries) [admin1@ftdichip.com](mailto:admin1@ftdichip.com)

### Branch Office – Taipei, Taiwan

2F, No. 516, Sec. 1, NeiHu Road  
Taipei 114  
Taiwan, R.O.C.  
Tel: +886 (0) 2 8797 1330  
Fax: +886 (0) 2 8751 9737

E-mail (Sales) [tw.sales1@ftdichip.com](mailto:tw.sales1@ftdichip.com)  
E-mail (Support) [tw.support1@ftdichip.com](mailto:tw.support1@ftdichip.com)  
E-mail (General Enquiries) [tw.admin1@ftdichip.com](mailto:tw.admin1@ftdichip.com)

### Branch Office – Oregon, USA

7130 Fir Loop,  
Tigard, OR 97223-8160  
USA  
Tel: +1 (503) 547 0988  
Fax: +1 (503) 547 0987

E-Mail (Sales) [us.sales@ftdichip.com](mailto:us.sales@ftdichip.com)  
E-Mail (Support) [us.support@ftdichip.com](mailto:us.support@ftdichip.com)  
E-Mail (General Enquiries) [us.admin@ftdichip.com](mailto:us.admin@ftdichip.com)

### Branch Office – Shanghai, China

Room 1103, No. 666 West Huaihai Road,  
Shanghai, 200052  
China  
Tel: +86 21 62351596  
Fax: +86 21 62351595

E-mail (Sales) [cn.sales@ftdichip.com](mailto:cn.sales@ftdichip.com)  
E-mail (Support) [cn.support@ftdichip.com](mailto:cn.support@ftdichip.com)  
E-mail (General Enquiries) [cn.admin@ftdichip.com](mailto:cn.admin@ftdichip.com)

### Web Site

<http://ftdichip.com>

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## Appendix C – Revision History

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Document Feedback: [Send Feedback](#)

<b>Version 1.0</b>	First Release	09/03/2012
<b>Version 1.1</b>	Added VCP MTP setting corrections Correct pin number in Table 1 Added Rev C release	11/06/2012
<b>Version 1.2</b>	Added USB data transfer issue and corrected programming issues	12/07/2012
<b>Version 1.3</b>	Added USB 3.0 hosts and note to Problem section of USB data transfer	14/08/2012
<b>Version 1.4</b>	Added revision D – no known issues, updated contact information	10/06/2013