PIC16(L)F18326/18346

PIC16(L)F18326/18346 Family
Silicon Errata and Data Sheet Clarification

The PIC16(L)F18326/18346 family devices that you have received conform functionally to the current Device Data Sheet (DS40001839**E**), except for the anomalies described in this document.

The silicon issues discussed in the following pages are for silicon revisions with the Device and Revision IDs listed in Table 1. The silicon issues are summarized in Table 2.

The errata described in this document will be addressed in future revisions of the PIC16(L)F18326/18346 silicon.

> **Note:** This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated in the last column of Table 2 apply to the current silicon revision (**A3**).

Data Sheet clarifications and corrections start on page 5, following the discussion of silicon issues.

The silicon revision level can be identified using the current version of MPLAB® IDE and Microchip's programmers, debuggers, and emulation tools, which are available at the Microchip corporate website (www.microchip.com).

For example, to identify the silicon revision level using MPLAB IDE in conjunction with a hardware debugger:

1. Using the appropriate interface, connect the device to the hardware debugger.
2. Open an MPLAB IDE project.
3. Configure the MPLAB IDE project for the appropriate device and hardware debugger.
4. Based on the version of MPLAB IDE you are using, do one of the following:
   a) For MPLAB IDE 8, select *Programmer > Reconnect*.
   b) For MPLAB X IDE, select *Window > Dashboard* and click the **Refresh Debug Tool Status** icon ( ).
5. Depending on the development tool used, the part number *and* Device Revision ID value appear in the **Output** window.

> **Note:** If you are unable to extract the silicon revision level, please contact your local Microchip sales office for assistance.

The DEVREV values for the various PIC16(L)F18326/18346 silicon revisions are shown in Table 1.

TABLE 1: SILICON DEVREV VALUES

Part Number	Device ID[1]	Revision ID for Silicon Revision[2]		
		A1	A2	A3
PIC16F18326	30A4h	2001h	2002h	2003h
PIC16LF18326	30A6h	2001h	2002h	2003h
PIC16F18346	30A5h	2001h	2002h	2003h
PIC16LF18346	30A7h	2001h	2002h	2003h

Note 1: The Device IDs (DEVID and DEVREV) are located at addresses 8006h and 8005h, respectively. They are shown in hexadecimal in the format "DEVID DEVREV".

2: Refer to the *"PIC16(L)F183XX Memory Programming Specification"* (DS40001738) for detailed information on Device and Revision IDs for your specific device.

TABLE 2:   SILICON ISSUE SUMMARY

Module	Feature	Item Number	Issue Summary	Affected Revisions[1]		
				A1	A2	A3
Oscillators	Fail-Safe Clock Monitor (FSCM)	1.1	The FSCM may fail to trigger with 4xPLL enabled.	X		
Master Synchronous Serial Port Module (MSSP2)	I^{2}C Communication	2.1	Acknowledge failure on LF devices only.	X		
Electrical Specifications	V_{DD} Parameter	3.1	Added new conditions to the V_{DD} parameter, for LF devices only.	X	X	X

Note 1:   Only those issues indicated in the last column apply to the current silicon revision.

Silicon Errata Issues

> **Note:** This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated by the shaded column in the following tables apply to the current silicon revision (**A2**).

1. Module: Oscillators

1.1 Fail-Safe Clock Monitor (FSCM)

The Fail-Safe Clock Monitor may fail to trigger with the loss of the external clock signal when the 4x PLL is enabled. This includes all external clock modes, LP, XT, HS, ECL, ECM and ECH.

Work around

None.

Affected Silicon Revisions

A1	A2	A3					
X							

2. Module: Master Synchronous Serial Port Module (MSSP2)

2.1 I^2C Communication

When using the MSSP2 to perform I^2C communication and the voltage for V_{DD} is above 3.0 volts, the Acknowledge signal (ACK) does not always occur after the second address byte is received, as expected. This issue exhibits itself when the MSSP2 is configured either for 7-bit or 10-bit addressing and in either Master or Slave mode.

The issue occurs more frequently when using 10-bit addressing in Slave mode and the lower address bits (A7-A0) are transmitted by the Master on the SDA line.

Work around

Do not exceed 3.0 volts on V_{DD} when using LF device.

Affected Silicon Revisions

A1	A2	A3					
X							

3. Module: Electrical Specifications

3.1 V$_{DD}$ Parameter

New conditions have been added to the V$_{DD}$ parameter, for the LF devices only. See the table below.

Work around

None

Affected Silicon Revisions

A1	A2	A3					
X	X	X					

TABLE 34-1: SUPPLY VOLTAGE

PIC16LF18326/18346							Standard Operating Conditions (unless otherwise Stated)
Param. No.	Sym.	Characteristic	Min.	Typ.†	Max.	Units	Conditions
D002	V$_{DD}$		1.8	—	3.6	V	F$_{OSC}$ <= 16 MHz, +25°C <T$_A$ <= +125°C
D002	V$_{DD}$		2.3	—	3.6	V	F$_{OSC}$ ≤ 16 MHz, -40°C <=T$_A$ <= +25°C
			2.5	—	3.6	V	F$_{OSC}$ >16 MHz

Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet (DS40001839**E**):

> **Note:** Corrections are shown in **bold**. Where possible, the original bold text formatting has been removed for clarity.

None.

APPENDIX A: DOCUMENT REVISION HISTORY

Rev D Document (01/2020)

Add Silicon rev. A3.

Data Sheet Clarifications:

Removed Modules 1 and 2 (Data Sheet updated).

Rev C Document (01/2017)

Silicon Errata Issues:

Added Silicon rev. A2.

Data Sheet Clarifications:

Changed Module 1 Memory to Analog-to-Digital.

Rev B Document (01/2017)

Data Sheet Clarifications:

Added Module 2: Comparator.

Rev A Document (08/2016)

Initial release of this document.

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.

- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.

- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.

- Microchip is willing to work with the customer who is concerned about the integrity of their code.

- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as "unbreakable."

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip's code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

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