

## PIC16(L)F18324/18344 Family Silicon Errata and Data Sheet Clarification

The PIC16(L)F18324/18344 family devices that you have received conform functionally to the current Device Data Sheet (DS40001800C), 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)F18324/18344 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 (A4).

Data Sheet clarifications and corrections start on [page 4](#), 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](http://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)F18324/18344 silicon revisions are shown in [Table 1](#).

**TABLE 1: SILICON DEVREV VALUES**

Part Number	Device ID <sup>(1)</sup>	Revision ID for Silicon Revision <sup>(2)</sup>	
		A3	A4
PIC16F18324	303Ah	2003h	2004h
PIC16LF18324	303Ch	2003h	2004h
PIC16F18344	303Bh	2003h	2004h
PIC16LF18344	303Dh	2003h	2004h

- 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.

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**TABLE 2: SILICON ISSUE SUMMARY**

Module	Feature	Item Number	Issue Summary	Affected Revisions <sup>(1)</sup>	
				A3	A4
Oscillators	Fail-Safe Clock Monitor (FSCM)	1.1	The FSCM may fail to trigger.	X	X
Nonvolatile Memory (NVM) Control	NVMREG Access	2.1	Self-writes on LF devices below 2.2V at -40°C may not work.	X	X
Electrical Specifications	Fixed Voltage Reference (FVR) Accuracy	3.1	Fixed Voltage Reference (FVR) output tolerance may be higher than specified at temperatures below -20°C.	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 (**A4**).

### 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

A3	A4						
X	X						

### 2. Module: Nonvolatile Memory (NVM) Control

#### 2.1 NVMREG Access

When performing self-writes through NVMREG access on PIC16LF18324/18344 devices with V<sub>DD</sub> below 2.2V and at temperature of -40°C, the write operation may not work. This applies to both Program Flash Memory and EEPROM writes.

##### Work around

None.

##### Affected Silicon Revisions

A3	A4						
X	X						

### 3. Module: Electrical Specifications

#### 3.1 Fixed Voltage Reference (FVR) Accuracy

At temperatures below -20°C, the output voltage for the FVR may be greater than the levels specified in the data sheet. This will apply to all three gain amplifier settings, (1X, 2X, 4X). The affected parameter numbers found in the data sheet are: FVR01 (1X gain setting), FVR02 (2X gain setting), and FVR03 (4X gain setting).

##### Work around

At temperatures above -20°C, the stated tolerances in the data sheet remain in effect. Operate the FVR only at temperatures above -20°.

##### Affected Silicon Revisions

A3	A4						
X	X						

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## Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet (DS40001800C):

<p><b>Note:</b> Corrections are shown in <b>bold</b>. Where possible, the original bold text formatting has been removed for clarity.</p>
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None.

## APPENDIX A: DOCUMENT REVISION HISTORY

### **Rev A Document (09/2015)**

Initial release of this document.

### **Rev B Document (01/2017)**

Added Module 2: Nonvolatile Memory Control

Data Sheet Clarifications:

Removed Module 1 through Module 4; Added new  
Module 1: Comparator.

### **Rev C Document (07/2017)**

Added Module 3: Electrical Specifications

Data Sheet Clarifications: Removed Modules 1 and 2.  
Other minor corrections.

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NOTES:

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**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.
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