Product Change Notification - SYST-21OMZR496

Date:

22 Apr 2020

Product Category:

8-bit Microcontrollers

Affected CPNs:

Notification subject:

ERRATA - PIC18F27/47/57Q43 Family Silicon Errata and Data Sheet Clarifications Errata Document Revision

Notification text:

SYST-21OMZR496

Microchip has released a new Product Documents for the PIC18F27/47/57Q43 Family Silicon Errata and Data Sheet Clarifications of devices. If you are using one of these devices please read the document located at PIC18F27/47/57Q43 Family Silicon Errata and Data Sheet Clarifications.

Notification Status: Final

Description of Change: Added XT mode erratum and Temperature Indicator data sheet clarification.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 22 Apr 2020

NOTE: Please be advised that this is a change to the document only the product has not been changed.

Markings to Distinguish Revised from Unrevised Devices: N/A

Attachment(s):

PIC18F27/47/57Q43 Family Silicon Errata and Data Sheet Clarifications

Please contact your local Microchip sales office with questions or concerns regarding this notification.

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Affected Catalog Part Numbers (CPN)

PIC18F27Q43-E/ML
PIC18F27Q43-E/SO
PIC18F27Q43-E/SP
PIC18F27Q43-E/SS
PIC18F27Q43-I/ML
PIC18F27Q43-I/SO
PIC18F27Q43-I/SP
PIC18F27Q43-I/SS
PIC18F27Q43T-I/ML
PIC18F27Q43T-I/SO
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PIC18F47Q43-E/ML
PIC18F47Q43-E/P
PIC18F47Q43-E/PT
PIC18F47Q43-I/ML
PIC18F47Q43-I/P
PIC18F47Q43-I/PT
PIC18F47Q43T-I/ML
PIC18F47Q43T-I/PT
PIC18F57Q43-E/6LX
PIC18F57Q43-E/PT
PIC18F57Q43-I/6LX
PIC18F57Q43-I/PT
PIC18F57Q43T-I/6LX
PIC18F57Q43T-I/PT

PIC18F27/47/57Q43

PIC18F27/47/57Q43 Silicon Errata and Data Sheet Clarifications

The PIC18F27/47/57Q43 devices that you have received conform functionally to the current device data sheet (DS40002147C), 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 the table below.

The errata described in this document will be addressed in future revisions of the PIC18F27/47/57Q43 silicon.

Note: This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current.

Table 1. Silicon Device Identification

Part Number	Device ID	Revision ID
		B0
PIC18F27Q43	0x7480	0xA040
PIC18F47Q43	0x74A0	0xA040
PIC18F57Q43	0x74C0	0xA040

Important: Refer to the **Device/Revision ID** section in the current **"PIC18FXXQ43 Family Programming Specification"** (DS40002079) for more detailed information on Device Identification and Revision IDs for your specific device.

Table 2. Silicon Issue Summary

Module	Feature	Item No.	Issue Summary	Affected Revisions
				B0
ADCC	Capacitive Voltage Divider	1.1.1	CVD is only functional on PORTA[2:0] and PORTB[4:0]	X
Oscillator	XT mode	1.2.1	Max. clock frequency limited to 2 MHz for XT mode	X

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

Table of Contents

1. Silicon Errata Issues

Notice: This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated by the bold font in the following tables apply to the current silicon revision.

1.1 Module: Analog-to-Digital Converter with Computation (ADCC)

1.1.1 Capacitive Voltage Divider (CVD)

The CVD feature is only functional on PORTA[2:0] and PORTB[4:0]. This feature is not recommended for use on any other pins.

Work around

None.

Affected Silicon Revisions

B0
X

1.2 Module: Oscillator

1.2.1 Max. Clock Frequency for XT Mode is 2 MHz

The maximum clock frequency for the intermediate gain setting that supports quartz crystal and ceramic resonator operation, XT mode, is being reduced from 4 MHz to 2 MHz.

Work around

For crystal or resonator frequencies above 2 MHz, use HS mode.

Affected Silicon Revisions

B0
X

2. Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet 40002147C):

Note:

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

2.1 Module: Temperature Indicator

2.1.1 Temperature Calculation

Equation 39-1 used to calculate the temperature using the ADC reading of the internal temperature indicator module is incorrect. The corresponding code example, **Example 39-1** is also incorrect. The correct equation and modified code example are shown below.

Equation 39-1: Sensor Temperature (in °C)

$$T_{MEAS} = \frac{\frac{(ADC_{MEAS} \times Gain)}{256} + Offset}{10}$$

Example 39-1: Temperature Calculation (°C)

```
// offset is int16_t data type
// gain is int16_t data type
// ADC_MEAS is uint16_t data type
// Temp_in_C is int24_t data type

ADC_MEAS = ((ADRESH << 8) + ADRESL);       // Store the ADC Result
Temp_in_C = (int24_t)(ADC_MEAS) * gain;    // Multiply the ADC Result by
                                           // Gain and store the result in a
                                           // signed variable
Temp_in_C = Temp_in_C / 256;               // Divide (ADC Result * Gain) by 256
Temp_in_C = Temp_in_C + offset;            // Add (Offset) to the result
Temp_in_C = Temp_in_C / 10;                // Divide the result by 10 and store
                                           // the calculated temperature
```

3. APPENDIX A: Revision History

Doc Rev.	Date	Comments
C	04/2020	Adding XT mode erratum and Temperature Indicator data sheet clarification.
B	02/2020	Add working pins for CVD.
A	12/2019	Initial document release.

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