



Product Change Notification / SYST-08ECTT089

Date:

12-Oct-2020

Product Category:

8-bit Microcontrollers

PCN Type:

Silicon Die Revision

Notification Subject:

ERRATA - PIC18F25/45/55Q43 Silicon Errata and Data Sheet Clarifications

Affected CPNs:

[SYST-08ECTT089_Affected_CPN_10122020.pdf](#)

[SYST-08ECTT089_Affected_CPN_10122020.csv](#)

Notification Text:

SYST-08ECTT089

Microchip has released a new Product Documents for the PIC18F25/45/55Q43 Silicon Errata and Data Sheet Clarifications of devices. If you are using one of these devices please read the document located at [PIC18F25/45/55Q43 Silicon Errata and Data Sheet Clarifications](#).

Notification Status: Final

Description of Change:

- 1.) Adding silicon revision B3 and
- 2.) UART Transmit Collision Interrupt data sheet clarification
- 3.) Updating silicon erratum item 1.3.1.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Estimated First Ship Date: 12 Oct 2020

NOTE: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

Markings to Distinguish Revised from Unrevised Devices: Traceability Code

Attachments:

[PIC18F25/45/55Q43 Silicon Errata and Data Sheet Clarifications](#)

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Affected Catalog Part Numbers (CPN)

PIC18F25Q43-E/ML
PIC18F25Q43-E/SO
PIC18F25Q43-E/SP
PIC18F25Q43-E/SS
PIC18F25Q43-E/STX
PIC18F25Q43-I/ML
PIC18F25Q43-I/SO
PIC18F25Q43-I/SP
PIC18F25Q43-I/SS
PIC18F25Q43-I/STX
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PIC18F45Q43-E/ML
PIC18F45Q43-E/MP
PIC18F45Q43-E/P
PIC18F45Q43-E/PT
PIC18F45Q43-I/ML
PIC18F45Q43-I/MP
PIC18F45Q43-I/P
PIC18F45Q43-I/PT
PIC18F45Q43T-I/ML
PIC18F45Q43T-I/MP
PIC18F45Q43T-I/PT
PIC18F55Q43-E/6LX
PIC18F55Q43-E/PT
PIC18F55Q43-I/6LX
PIC18F55Q43-I/PT
PIC18F55Q43T-I/6LX
PIC18F55Q43T-I/PT

PIC18F25/45/55Q43 Silicon Errata and Data Sheet Clarifications

The PIC18F25/45/55Q43 devices you have received conform functionally to the current device data sheet (DS40002170C), 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 PIC18F25/45/55Q43 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	B2	B3
PIC18F25Q43	0x73C0	0xA040	0xA042	0xA043
PIC18F45Q43	0x73E0	0xA040	0xA042	0xA043
PIC18F55Q43	0x7400	0xA040	0xA042	0xA043



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	B2	B3
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	Maximum clock frequency limited to 2 MHz for XT mode	X	X	
I ² C	I ² C	1.3.1	I2CxADR0/1/2/3 registers have incorrect Reset value	X	X	X
SRAM	SRAM Read-Back	1.4.1	SRAM read-back can be incorrect	X		

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

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	B2	B3
X		

1.2 Module: Oscillator

1.2.1 Maximum Clock Frequency Limited to 2 MHz for XT Mode

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	B2	B3
X	X	

1.3 Module: I²C

1.3.1 I2CxADR0/1/2/3 Registers Have Incorrect Reset Value

The I2CxADR0/2 registers reset to 0xFF when the I2CxMD is enabled instead of 0x00. The I2CxADR1/3 registers reset to 0xFE when the I2CxMD is enabled instead of 0x00.

Work around

None.

Affected Silicon Revisions

B0	B2	B3
X	X	X

1.4 Module: SRAM

1.4.1 SRAM Read-Back

Following a device power-up sequence, there is a possibility that some SRAM locations will not return the expected written value but will read back '00' instead.

Work around

None. The device can only recover by power cycling.

This erroneous condition can be detected by running the following code that writes non-zero values to SRAM and then verifies that the returned read values are not '00'. If a returned value is '00', the application code has to be put into a safe state until a POR event occurs. This code has to be executed immediately after power-up. If the test passes, the device operation will be normal.

```
// SRAM test

FSR0 = 0xcff;           // Write data into RAM address for devices up to 2K RAM
INDF0 = 0x55;
PROD = INDF0;          // Read back data
if (PROD == 0){
    SAFE_STATE();      // RAM incorrectly read, suspend operation and go to Safe state
}

//For devices with more than 2K of SRAM, add the following code
FSR0 = 0x14ff;         // Write data into RAM
INDF0 = 0x55;
PROD = INDF0;          // Read back data
if (PROD == 0){
    SAFE_STATE();      // RAM incorrectly read, suspend operation and go to Safe state
}

//For devices with more than 4K of SRAM, add the following code
FSR0 = 0x24ff;         // Write data into RAM
INDF0 = 0x55;
PROD = INDF0;          // Read back data
if (PROD == 0){
    SAFE_STATE();      // RAM incorrectly read, suspend operation and go to Safe state
}
```

Affected Silicon Revisions

B0	B2	B3
X		

2. Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet (DS40002170C):

Note:

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

2.1 UART Transmit Collision Interrupt

The Transmit Collision Interrupt Enable (TXCIE) bit in the UxERRIE register (UxERRIE[0]) and the Transmit Collision Interrupt Flag (TXCIF) bit in the UxERRIR register (UxERRIR[0]) are only available in Full-Featured UART modules.

3. Appendix A: Revision History

Doc Rev.	Date	Comments
G	10/2020	Adding silicon revision B3 and UART Transmit Collision Interrupt data sheet clarification; Updating silicon erratum item 1.3.1.
F	08/2020	Adding silicon revision B2.
E	06/2020	Adding silicon erratum item 1.4.1.
D	06/2020	Adding silicon erratum item 1.3.1.
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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