

Product Change Notification / SYST-13HLZK986

Date:

14-Sep-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Document Change

Notification Subject:

ERRATA - PIC16F18114/15/24/25/44/45 Silicon Errata and Datasheet Clarifications Revision

Affected CPNs:

SYST-13HLZK986_Affected_CPN_09142022.pdf SYST-13HLZK986_Affected_CPN_09142022.csv

Notification Text:

SYST-13HLZK986

Microchip has released a new Errata for the PIC16F18114/15/24/25/44/45 Silicon Errata and Datasheet Clarifications of devices. If you are using one of these devices please read the document located at PIC16F18114/15/24/25/44/45 Silicon Errata and Datasheet Clarifications.

Notification Status: Final

Description of Change: Revision Includes: Added new silicon revision B2 Updated datasheet revision letter to 'B' Adding silicon issue 1.4.1.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 14 Sep 2022

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

Markings to Distingui	ish Revised from Unrevised Devices::N/A
Attachments:	
PIC16F18114/1	5/24/25/44/45 Silicon Errata and Datasheet Clarifications
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Affected Catalog Part Numbers (CPN)

PIC16F18144-I/6N

PIC16F18145-I/6N

PIC16F18124-I/7N

PIC16F18125-I/7N

PIC16F18114-I/SN

PIC16F18115-I/SN

PIC16F18114-I/P

PIC16F18115-I/P

PIC16F18124-I/P

PIC16F18125-I/P

PIC16F18124-I/SL

PIC16F18125-I/SL

PIC16F18124-I/ST

PIC16F18125-I/ST

PIC16F18144-I/SS

PIC16F18145-I/SS

PIC16F18144-I/SO

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PIC16F18145-I/SO

PIC16F18144-I/P

PIC16F18145-I/P

PIC16F18114-I/MD

PIC16F18115-I/MD



PIC16F18114/15/24/25/44/45

PIC16F18114/15/24/25/44/45 Silicon Errata and Datasheet Clarifications

The PIC16F18114/15/24/25/44/45 devices that you have received conform functionally to the current device data sheet (DS40002404B), 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 PIC16F18114/15/24/25/44/45 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			
Part Number	Device iD	В0	B2		
PIC16F18114	0x3107	0xA040	0xA042		
PIC16F18115	0x310C	0xA040	0xA042		
PIC16F18124	0x3108	0xA040	0xA042		
PIC16F18125	0x310D	0xA040	0xA042		
PIC16F18144	0x3109	0xA040	0xA042		
PIC16F18145	0x310E	0xA040	0xA042		



Important: Refer to the **Device/Revision ID** section in the device data sheet for more detailed information on Device Identification and Revision IDs for your specific device.

Silicon Issue Summary

Table 2. Silicon Issue Summary

Module	Feature	Item	Jacus Summany	Affected Revisions				
Module	reature	No. Issue Summary		В0	B2			
Analog-to-Digital Converter with Computation (ADCC)	Double Sample Conversions	1.1.1	An unexpected acquisition time is added between the first and second conversions.	Х				
Comparator (CMP)	Comparator 2	1.2.1	Comparator 2 is not available on 8-pin devices.	X				
Host Synchronous Serial Port (MSSP)	erial Port Stop Interrupt and/or Stop flags to be set when I ² C is		Х					
Configuration Words (CONFIG)	Sleep	1.4.1	Waking from Sleep may cause unexpected behavior.	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 Double Sample Conversions

When enabling a Double Sample Conversion (DSEN = 1), with no Precharge time (ADPRE = 0) and no Acquisition time (ADACQ = 0), the maximum number of cycles of acquisition time is inserted prior to the second conversion. The first conversion will be performed as expected with no Precharge time and no Acquisition time. It is only between the first and second conversions where a maximum number of cycles of Acquisition time is performed unexpectedly.

Work around

- Method 1: Disable Double Sample Conversion (DSEN = 0) and perform two single conversions back to back.
- Method 2: If adding acquisition time is acceptable, then select no Precharge time, along with the desired Acquisition time.

Affected Silicon Revisions

В0	B2			
X				

1.2 Module: Comparator (CMP)

1.2.1 Comparator 2 Is Not Available

Comparator 2 is not available on 8-pin devices.

Work around

None.

Affected Silicon Revisions

В0	B2			
X				

1.3 Module: MSSP

1.3.1 The I²C Start and/or Stop Flags May Be Set When I²C Is Enabled

When I²C is enabled, erroneous Start and/or Stop conditions may be detected. This can generate erroneous I²C interrupts if enabled.

Work around

Use the following procedure to correctly detect the Start and Stop conditions:

Silicon Errata Issues

- 1. Disable the Start and Stop conditions interrupt functions.
- 2. Enable the I²C module.
- 3. Wait 250 ns + six instructions cycles (F_{OSC}/4).
- 4. Clear the Start and Stop conditions interrupt flags.
- 5. Enable the Start and Stop conditions interrupt functions if used.

```
SSPxCON3bits.SCIE = 0;  // Disable Start condition interrupt
SSPxCON3bits.PCIE = 0;  // Disable Stop condition interrupt
SSPxCON1bits.SSPEN = 1;  // Enable I2C

Delay();  // Wait for 250 ns + 6 instruction cycles (Fosc/4)
PIRxbits.SSPxIF = 0;  // Clear the MSSP interrupt flag
SSPxCON3bits.SCIE = 1;  // Enable Start condition interrupt if used
SSPxCON3bits.PCIE = 1;  // Enable Stop condition interrupt if used
```

Affected Silicon Revisions

В0	B2			
X				

1.4 Module: Configuration Words (CONFIG)

1.4.1 Waking from Sleep May Cause Unexpected Behavior

Waking from Sleep may cause unexpected behavior.

Work around

Do not use the SLEEP instruction. If clock switching is available and there is a need for reduced current consumption, switch to the slowest system clock.

Affected Silicon Revisions

В0	B2			
X				

2. Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet (DS40002404 \mathbf{B}):

Note:

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

2.1 None

There are no known data sheet clarifications as of this publication date.

Appendix A: Revision History

3. Appendix A: Revision History

Doc Rev.	Date	Comments
В	9/2022	Added new silicon revision B2; updated datasheet revision letter to 'B'; adding silicon issue 1.4.1.
Α	3/2022	Initial release of this document.

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Tel: 248-848-4000 Houston, TX Tel: 281-894-5983 Tel: 86-27-5980-5300 China - Xian Tel: 281-894-5983 Tel: 86-29-8833-7252 Indianapolis China - Xiamen Noblesville, IN Tel: 34-690340 Tel: 86-592-2388138 Tel: 86-592-2388138 Tel: 86-592-2388138 Tel: 86-756-3210040 Tel: 317-773-8423 Tel: 86-756-3210040 Tel: 317-73-8423 Tel: 86-756-3210040 Tel: 949-462-9523 Tel: 40-21-407-87-50 Spain - Madrid Tel: 34-91-708-08-90 Raleigh, NC Tel: 919-844-7510 New York, NY Tel: 631-435-6000 San Jose, CA Tel: 408-735-9110 Tel: 408-735-9110 Tel: 408-735-9110 Tel: 408-836-4270 Canada - Toronto Tel: 905-695-1980	Detroit	Tel: 86-186-6233-1526	Tel: 886-2-2508-8600	Tel: 39-0331-742611
Houston, TX	Novi, MI	China - Wuhan		Fax: 39-0331-466781
Houston, TX	Tel: 248-848-4000	Tel: 86-27-5980-5300	Tel: 66-2-694-1351	Italy - Padova
Indianapolis	Houston, TX	China - Xian	Vietnam - Ho Chi Minh	Tel: 39-049-7625286
Noblesville, IN Tel: 86-592-2388138 China - Zhuhai Tel: 317-773-8323 Tel: 317-773-5453 Tel: 86-756-3210040 Tel: 47-72884388 Tel: 47-72884388 Poland - Warsaw Tel: 48-22-3325737 Romania - Bucharest Tel: 40-21-407-87-50 Spain - Madrid Tel: 34-91-708-08-90 Raleigh, NC Tel: 919-844-7510 New York, NY Tel: 631-435-6000 San Jose, CA Tel: 408-436-4270 Canada - Toronto Tel: 905-695-1980 Tel: 905-695-1980 Tel: 86-756-3210040 Tel: 86-756-3210040 Tel: 46-31-704-60-40 Tel: 46-8-5090-4654 UK - Wokingham Tel: 44-118-921-5820	Tel: 281-894-5983	Tel: 86-29-8833-7252	Tel: 84-28-5448-2100	Netherlands - Drunen
Tel: 317-773-8323 Fax: 317-773-5453 Tel: 317-536-2380 Los Angeles Mission Viejo, CA Tel: 949-462-9523 Fax: 949-462-9608 Tel: 951-273-7800 Raleigh, NC Tel: 919-844-7510 New York, NY Tel: 631-435-6000 San Jose, CA Tel: 408-436-4270 Canada - Toronto Tel: 408-436-4270 Canada - Toronto Tel: 905-695-1980 China - Zhuhai Tel: 47-72884388 Poland - Warsaw Tel: 47-72884388 Poland - Warsaw Tel: 47-72884388 Poland - Warsaw Tel: 48-22-3325737 Romania - Bucharest Tel: 40-21-407-87-50 Spain - Madrid Tel: 34-91-708-08-90 Fax: 34-91-708-08-91 Sweden - Gothenberg Tel: 46-31-704-60-40 Sweden - Stockholm Tel: 408-436-4270 Fax: 44-118-921-5820	Indianapolis	China - Xiamen		Tel: 31-416-690399
Fax: 317-773-5453 Tel: 317-536-2380 Los Angeles Mission Viejo, CA Tel: 949-462-9523 Fax: 949-462-9608 Tel: 951-273-7800 Raleigh, NC Tel: 919-844-7510 New York, NY Tel: 631-435-6000 San Jose, CA Tel: 40-21-407-87-50 Sweden - Stockholm Tel: 46-8-5090-4654 UK - Wokingham Tel: 40-21-5820 Tel: 40-21-5820 Tel: 905-695-1980	Noblesville, IN	Tel: 86-592-2388138		Fax: 31-416-690340
Fax: 317-773-5453 Tel: 86-756-3210040 Tel: 47-72884388 Tel: 317-536-2380 Poland - Warsaw Los Angeles Tel: 48-22-3325737 Mission Viejo, CA Romania - Bucharest Tel: 949-462-9523 Tel: 40-21-407-87-50 Fax: 949-462-9608 Spain - Madrid Tel: 951-273-7800 Tel: 34-91-708-08-90 Raleigh, NC Fax: 34-91-708-08-91 Tel: 919-844-7510 Sweden - Gothenberg New York, NY Tel: 46-31-704-60-40 Tel: 631-435-6000 Sweden - Stockholm Tel: 408-735-9110 Tel: 408-436-4270 Canada - Toronto Fax: 44-118-921-5800 Tel: 905-695-1980 Fax: 44-118-921-5820		China - Zhuhai		Norway - Trondheim
Los Angeles Tel: 48-22-3325737 Mission Viejo, CA Romania - Bucharest Tel: 949-462-9523 Tel: 40-21-407-87-50 Fax: 949-462-9608 Spain - Madrid Tel: 951-273-7800 Tel: 34-91-708-08-90 Raleigh, NC Fax: 34-91-708-08-91 Tel: 919-844-7510 Sweden - Gothenberg New York, NY Tel: 46-31-704-60-40 Tel: 631-435-6000 Sweden - Stockholm San Jose, CA Tel: 408-735-9110 Tel: 408-436-4270 UK - Wokingham Tel: 408-436-4270 Fax: 44-118-921-5800 Canada - Toronto Fax: 44-118-921-5820	Fax: 317-773-5453	Tel: 86-756-3210040		_
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