Product Change Notification / SYST-11MXDX470

Date:

14-May-2021

Product Category:

8-bit Microcontrollers

PCN Type:

Document Change

Notification Subject:

ERRATA - ATtiny4/5/9/10 Silicon Errata and Data Sheet Clarifications

Affected CPNs:

SYST-11MXDX470_Affected_CPN_05142021.pdf
SYST-11MXDX470_Affected_CPN_05142021.csv

Notification Text:

SYST-11MXDX470

Microchip has released a new Product Documents for the ATtiny4/5/9/10 Silicon Errata and Data Sheet Clarifications of devices. If you are using one of these devices please read the document located at ATtiny4/5/9/10 Silicon Errata and Data Sheet Clarifications.

Notification Status: Final

Description of Change:
This revision includes the following updates to Data Sheet Clarifications:
1) 1 Initial release of this document: Errata content moved from the data sheet and restructured to the new document template
2)Data Sheet Clarifications added:
– Errata Section in Data Sheet is no Longer Valid
– Serial Programming Characteristics

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 04 May 2021

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

Attachments:

ATtiny4/ 5/ 9/ 10 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)

ATTINY10-MAHR
ATTINY10-TS8R
ATTINY10-TS8R526
ATTINY10-TS8RB67
ATTINY10-TS8RB68
ATTINY10-TSHR
ATTINY10-TSHR449
ATTINY10-TSHR450
ATTINY10-TSHR867
ATTINY4-MAHR
ATTINY4-TS8R
ATTINY4-TSHR
ATTINY4-TSHR485
ATTINY4-TSHR685
ATTINY4-TSHRA92
ATTINY4-TSHRB55
ATTINY5-MAHR
ATTINY5-MAHRA0
ATTINY5-MAHRB50
ATTINY5-TS8R
ATTINY5-TSHR
ATTINY5-TSHR844
ATTINY5-TSHR992
ATTINY9-MAHR
ATTINY9-TS8R
ATTINY9-TSHR

SYST-11MXDX470 - ERRATA - ATtiny4/5/9/10 Silicon Errata and Data Sheet Clarifications

Affected Catalog Part Numbers(CPN)

ATTINY10-MAHR
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ATTINY4-TSHR485
ATTINY4-TSHR685
ATTINY4-TSHRA92
ATTINY4-TSHRB55
ATTINY5-MAHR
ATTINY5-MAHRA0
ATTINY5-MAHRB50
ATTINY5-TS8R
ATTINY5-TSHR
ATTINY5-TSHR844
ATTINY5-TSHR992
ATTINY9-MAHR
ATTINY9-TS8R
ATTINY9-TSHR

ATtiny4/5/9/10

Silicon Errata and Data Sheet Clarifications

Introduction

The ATtiny4/5/9/10 devices you have received conform functionally to the current device data sheet (www.microchip.com/DS40002060), except for the anomalies described in this document. The errata described in this document will likely be addressed in future revisions of the ATtiny4/5/9/10 devices.

Note:

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

1. Silicon Issue Summary

Legend

- Erratum is not applicable.

X Erratum is applicable.

Peripheral	Short Description	Valid for Silicon Revision		
		Rev. C(1)	Rev. D	Rev. E
Device	2.2.1 ESD HBM (ESD STM 5.1) Level ±1000V	X	X	-
NVM	2.3.1 Programming Lock Bits	X	X	X

Note:

1. This revision is the initial release of the silicon.

2. Silicon Errata Issues

2.1 Errata Details

-	Erratum is not applicable.
X	Erratum is applicable.

2.2 Device

2.2.1 ESD HBM (ESD STM 5.1) Level ±1000V

The device meets ESD HBM (ESD STM 5.1) level ±1000V.

Work Around

Always use proper ESD protection measures (Class 1C) when handling integrated circuits before and during assembly.

Affected Silicon Revisions

Rev. C	Rev. D	Rev. E
X	X	-

2.3 NVM - Memory Programming

2.3.1 Programming Lock Bits

Programming Lock Bits to a lock mode equal or lower than the current causes one word of Flash to be corrupted. The location of the corruption is random.

Work Around

When programming Lock Bits, make sure lock mode is not set to present, or lower levels.

Affected Silicon Revisions

Rev. C	Rev. D	Rev. E
X	X	X

3. Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the device data sheet (www.microchip.com/DS40002060).

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

3.1 Errata

3.1.1 Errata Section in Data Sheet is no Longer Valid

A clarification for the Errata section in the device data sheet has been made.

The errata content has been moved to a separate document, *ATtiny4/5/9/10 Silicon Errata and Data Sheet Clarifications* (this document).

For the latest errata, see the *Silicon Errata Issues* section of this document.

3.2 Electrical Characteristics

3.2.1 Serial Programming Characteristics

A clarification for the maximum temperature for serial programming, in *Appendix A - ATtiny4/5/9/10 Specification at 125°C* (ww1.microchip.com/downloads/en/DeviceDoc/8127_125.pdf), has been made.

The maximum temperature for serial programming is lowered.

Figure 1-3. Serial Programming Timing

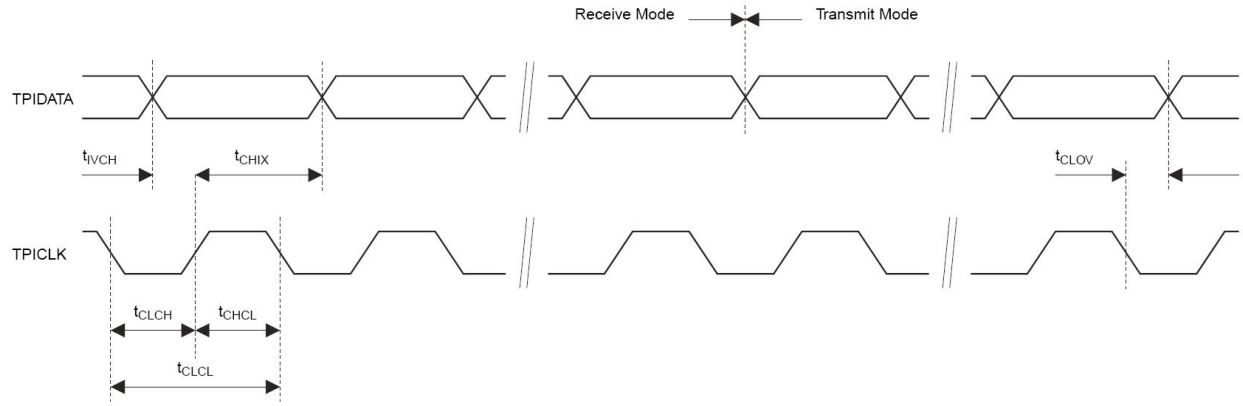

Table 1-9. Serial Programming Characteristics, **T_A = -40°C to 85°C**, V_{CC} = 5V ±5% (Unless Otherwise Noted)

Symbol	Parameter	Min.	Typ.	Max.	Units
$1/t_{CLCL}$	Clock frequency			2	MHz
t_{CLCL}	Clock period	500			ns
t_{CLCH}	Clock low pulse width	200			ns
t_{CHCH}	Clock high pulse width	200			ns
t_{IVCH}	Data input to clock high setup time	50			ns

.....continued					
Symbol	**Parameter**	**Min.**	**Typ.**	**Max.**	**Units**
t_{CHIX}	Data input hold time after clock high	100			ns
t_{CLOV}	Data output valid after clock low time			200	ns

4. Document Revision History

Note: The document revision is independent of the silicon revision.

4.1 Revision History

Doc. Rev.	Date	Comments
A	05/2021	Initial release of this document. • Errata content moved from the data sheet and restructured to the new document template • Data Sheet Clarifications added: – Errata Section in Data Sheet is no Longer Valid – Serial Programming Characteristics

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ISBN: 978-1-5224-8164-5

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