Product Change Notification / SYST-23RFLB733

Date:

24-Mar-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

ERRATA - ATtiny24A/44A/84A Silicon Errata and Data Sheet Clarification Revision

Affected CPNs:

SYST-23RFLB733_Affected_CPN_03242022.pdf
SYST-23RFLB733_Affected_CPN_03242022.csv

Notification Text:

SYST-23RFLB733

Microchip has released a new Product Documents for the ATtiny24A/44A/84A Silicon Errata and Data Sheet Clarification of devices. If you are using one of these devices please read the document located at ATtiny24A/44A/84A Silicon Errata and Data Sheet Clarification.

Notification Status: Final

Description of Change: Data sheet clarification added.

- 3.1. Appendix B – ATtiny24A/44A/84A Specification at 125°C

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 24 March 2022

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:

ATtiny24A/44A/84A Silicon Errata and Data Sheet Clarification

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

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Affected Catalog Part Numbers (CPN)

ATTINY44A-SSF
ATTINY44A-MF
ATTINY44A-CCU
ATTINY44A-PU
ATTINY44A-SSU
ATTINY44A-MMH
ATTINY44A-MU
ATTINY44A-SSN
ATTINY44A-SSNR
ATTINY44A-CCUR
ATTINY44A-SSUR
ATTINY44A-SSURB09
ATTINY44A-SSURA0
ATTINY44A-MMHR
ATTINY44A-MUR
ATTINY44A-MUR861
ATTINY44A-SSFRP01
ATTINY44A-SSFR
ATTINY44A-MFR
ATTINY44A-MFRA0
ATTINY24A-SSF
ATTINY24A-MM8
ATTINY24A-MF
ATTINY24A-CCU
ATTINY24A-PU
ATTINY24A-SSU
ATTINY24A-MMH
ATTINY24A-MU
ATTINY24A-SSN
ATTINY24A-SSNR
ATTINY24A-CCUR
ATTINY24A-SSUR
ATTINY24A-SSUR880
ATTINY24A-SSURA0
ATTINY24A-MMHR
ATTINY24A-MUR
ATTINY24A-MURA0
ATTINY24A-SSFR
ATTINY24A-MM8R
ATTINY24A-MFR
ATTINY84A-W
ATTINY84A-SSF
ATTINY84A-MF
ATTINY84A-CCU
ATTINY84A-PU
ATTINY84A-SSU

ATTINY84A-MMH
ATTINY84A-MU
ATTINY84A-CCUR
ATTINY84A-SSUR
ATTINY84A-MMHR
ATTINY84A-MMHR651
ATTINY84A-MMHR690
ATTINY84A-MMHR989
ATTINY84A-MMHRB81
ATTINY84A-MUR
ATTINY84A-SSFRP01
ATTINY84A-SSFR
ATTINY84A-SSFRA2
ATTINY84A-SSFRA0
ATTINY84A-MFR

ATtiny24A/44A/84A

Silicon Errata and Data Sheet Clarification

Introduction

The ATtiny24A/44A/84A devices you have received conform functionally to the current device data sheet (www.microchip.com/DS40002269), except for the anomalies described in this document. The errata described in this document will likely be addressed in future revisions of the ATtiny24A/44A/84A devices.

Note:

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

1. Silicon Issue Summary

Legend

- \- Erratum is not applicable.
- **X** Erratum is applicable.

Peripheral	Short Description	Valid for Silicon Revision			
		ATtiny24A	ATtiny44A		ATtiny84A
		Rev. H(1)	Rev. F(1)	Rev. G	Rev. C(1)
Device	No known errata				

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 None

There are no known errata as of this publication date.

3. Data Sheet Clarifications

Note the following typographic corrections and clarifications for the latest version of the device data sheet (www.microchip.com/DS40002269).

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

3.1 Appendix B – ATtiny24A/44A/84A Specification at 125°C

A clarification for the Supply Current Power-Down Mode maximum limits in *Appendix B – ATtiny24A/44A/84A Specification at 125°C* (https://ww1.microchip.com/downloads/en/DeviceDoc/Atmel-8183-AVR-8-bit-Microcontroller-ATtiny24A-ATtiny44A-ATtiny84A-Appendix-B-125C_Datasheet.pdf) has been made.

Table 3-1. Table 2-1. DC Characteristics. T_A = -40°C to +125°C

Symbol	Parameter	Condition	Min.	Typ.(1)	Max.	Units
V_{IL}	Input low voltage	V_{CC} = 1.8-2.4V	-0.5		$0.2V_{CC}$(3)	V
		V_{CC} = 2.4-5.5V	-0.5		$0.3V_{CC}$(3)	V
	Input high voltage $\overline{\text{RESET}}$ pin as Reset(4)	V_{CC} = 1.8-5.5	-0.5		$0.2V_{CC}$(3)	
V_{IH}	Input high voltage $\overline{\text{RESET}}$ pin as Reset	V_{CC} = 1.8-2.4V	0.7 V_{CC}(2)		V_{CC} +0.5	V
		V_{CC} = 2.4-5.5V	0.6 V_{CC}(2)		V_{CC} +0.5	V
	Input high voltage $\overline{\text{RESET}}$ pin as Reset(4)	V_{CC} = 1.8-5.5V	0.9 V_{CC}(2)		V_{CC} +0.5	V
V_{OL}	Output low voltage (5) except $\overline{\text{RESET}}$ pin(7)	I_{OL} = 10 mA, V_{CC} = 5V			0.6	V
		I_{OL} = 5 mA, V_{CC} = 3V			0.5	V
V_{OH}	Output high voltage (6) except $\overline{\text{RESET}}$ pin(7)	I_{OH} = -10 mA, V_{CC} = 5V	4.3			V
		I_{OH} = -5 mA, V_{CC} = 3V	2.5			V
I_{LIL}	Input leakage current I/O pin	V_{CC} = 5.5V, pin low (absolute value)		< 0.05	1(8)	µA
I_{LIH}	Input leakage current I/O pin	V_{CC} = 5.5V, pin high (absolute value)		< 0.05	1(8)	µA
R_{PU}	Pull-up resistor, I/O pin	V_{CC} = 5.5V, input low	20		50	kΩ
	Pull-up resistor, Reset pin	V_{CC} = 5.5V, input low	30		60	kΩ

.....continued

Symbol	Parameter	Condition	Min.	Typ.(1)	Max.	Units
I_{CC}	Supply current, Active mode(9)	f = 1 MHz, V_{CC} = 2V		0.25	0.5	mA
		f = 4 MHz, V_{CC} = 3V		1.2	2	mA
		f = 8 MHz, V_{CC} = 5V		4.4	7	mA
	Supply current, Idle mode(9)	f = 1 MHz, V_{CC} = 2V		0.04	0.2	mA
		f = 4 MHz, V_{CC} = 3V		0.25	0.6	mA
		f = 8 MHz, V_{CC} = 5V		1.3	2	mA
	Supply current, Power-Down mode(10)	WDT enabled, V_{CC} = 3V		4	**30**	µA
		WDT disabled, V_{CC} = 3V		0.2	**20**	µA

Notes:

1. Typical values at 25ºC.
2. “Min” means the lowest value where the pin is guaranteed to be read as high.
3. “Max” means the highest value where the pin is guaranteed to be read as low.
4. Not tested in production.
5. Although each I/O port can sink more than the test conditions (10 mA at V_{CC} = 5V, 5 mA at VCC = 3V) under steady-state conditions (non-transient), the sum of all I_{OL} (for all ports) should not exceed 60 mA. If I_{OL} exceeds the test conditions, V_{OL} may exceed the related specification. Pins are not guaranteed to sink current higher than the listed test condition.
6. Although each I/O port can source more than the test conditions (10 mA at V_{CC} = 5V, 5 mA at V_{CC} = 3V) under steady-state conditions (non-transient), the sum of all I_{OH} (for all ports) should not exceed 60 mA. If I_{OH} exceeds the test condition, V_{OH} may exceed the related specification. Pins are not guaranteed to source current higher than the listed test condition.
7. The $\overline{\text{RESET}}$ pin must tolerate high voltages when entering and operating in programming modes and, as a consequence, has a weak drive strength as compared to regular I/O pins. See the figures for ATtiny24A: From Figure 3-22 on page 21 to Figure 3-25 on page 23. The figures for ATtiny44A: From Figure 3-67 on page 44 to Figure 3-70 on page 45.
8. These are test limits, accounting for leakage currents of the test environment. Actual device leakage currents are lower.
9. Values are with an external clock using methods described in “Minimizing Power Consumption”. Power reduction is enabled (PRR = 0xFF), and there is no I/O drive.
10. BOD disabled.

4. Document Revision History

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

4.1 Revision History

Doc Rev.	Date	Comments
B	03/2022	Data sheet clarification added. • 3.1. Appendix B – ATtiny24A/44A/84A Specification at 125°C
A	10/2020	Initial release of this document. • Content moved from the data sheet and restructured to the new document template • Updated the die revision list to reflect die revisions in production

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