Product Change Notification / SYST-01HLFQ106

Date:

06-Jul-2022

Product Category:

Real-Time Clock/Calendar

PCN Type:

Document Change

Notification Subject:

ERRATA - MCP795XX Family Silicon Errata Revison

Affected CPNs:

SYST-01HLFQ106_Affected_CPN_07062022.pdf
SYST-01HLFQ106_Affected_CPN_07062022.csv

Notification Text:

SYST-01HLFQ106

Microchip has released a new Errata for the MCP795XX Family Silicon Errata of devices. If you are using one of these devices please read the document located at MCP795XX Family Silicon Errata.

Notification Status: Final

Description of Change: Edited Issue 2.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 06 Jul 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:

MCP795XX Family Silicon Errata

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

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Affected Catalog Part Numbers (CPN)

MCP79520-I/MS
MCP79521-I/MS
MCP79522-I/MS
MCP79520-I/MSVAO
MCP79520T-I/MS
MCP79521T-I/MS
MCP79522T-I/MS
MCP79520T-I/MSVAO
MCP79520T-I/MN
MCP79521T-I/MN
MCP79522T-I/MN
MCP79510-I/MS
MCP79511-I/MS
MCP79512-I/MS
MCP79510-I/MSVAO
MCP79510T-I/MS
MCP79511T-I/MS
MCP79512T-I/MS
MCP79510T-I/MN
MCP79511T-I/MN
MCP79512T-I/MN

MCP795XX

MCP795XX Family Silicon Errata

The MCP795XX family devices that you have received conform functionally to the current Device Data Sheet (DS20002300**C**), 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 Table 1. The silicon issues are summarized in Table 2.

The errata described in this document will be addressed in future revisions of the MCP795XX silicon.

Note: This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated in the last column of Table 2 apply to the current silicon revision.

Note: For more information on identifying the product date code, refer to Packaging Information section of the product Data Sheet or contact your local Microchip sales office.

TABLE 1: AFFECTED PART NUMBERS

Part Number
MCP79510
MCP79511
MCP79512
MCP79520
MCP79521
MCP79522

TABLE 2: SILICON ISSUE SUMMARY

Issue Number	Issue Summary	Affected Date Codes(1, 2)
		All
1	Date incrementing at noon.	X
2	Month or year write changing date value.	X
3	Day of week write resetting to 1.	X
4	Hundredth-second out of sync with second.	X
5	Hundredth of Second value not changing.	X
6	Square Wave Clock Output affecting timekeeping.	X

Note 1: Only those issues indicated in the last column apply to the current silicon revision.

2: The date codes are presented in YYWW format.

Silicon Errata Issues

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

1. Issue: Date Increment

When operating in 12-hour mode (RTCHOUR<6> is set), if the application loads an hour value before 12:00 PM while the oscillator is running then the date and day of week may increment at 12:00 PM. When this occurs, the month and year will also increment according to the normal rollover rules. The date will increment again at 12:00 AM.

Work around

Disable the oscillator by ensuring both the ST and EXTOSC bits are cleared and wait for the OSCON bit to clear before loading the new hour value.

Affected Silicon Revisions

All
X

2. Issue: Date Reset after Month or Year Write

When writing a new value in the Year, Month or Date registers, the Date register value may change unexpectedly.

Work around

If any of the Date, Month or Year values is to be changed, then write new Date, Month and Year value, in that order (this write can be continuous or discontinuous operation). Then, write Date value again. The ST bit can remain set during this operation, or it can be cleared and set again afterward.

Affected Silicon Revisions

All
X

3. Issue: Day of Week Reset after Day of Week Write

If the day of week (RTCWKDAY<2:0>) is equal to the value of 7 and the application writes a new day of week value to the timekeeping registers while the oscillator is not running, then when the oscillator is enabled, the day of week may reset the value to 1.

Work around

Update the day of week while the oscillator is enabled. Or, change the day of week value to another value besides 7 before disabling the oscillator, then set to the correct day while the oscillator is disabled, before re-enabling the oscillator.

Affected Silicon Revisions

All
X

4. Issue: HSEC Value Not Synchronized with Second Value

When reading the HSEC register and Second register shortly after the time values are set, the two registers may not roll over at the same moment.

Work around

The HSEC register does not cause the Second value to change, but instead the values are clocked off an internal clock divisor independently. The HSEC value is automatically synchronized with the Second value at the beginning of the minute, when the second rolls over from 59 to 00. Following that first minute change, the HSEC and Second registers will be in sync.

Affected Silicon Revisions

All
X

5. Issue: HSEC Value Not Changing

The HSEC register may appear stuck at the same value for two or more successive reads, even though more than 10 ms have passed. If the oscillator is running, then the internal value is still counting, but the value may not be updated every time it is read.

Work around

Read the HSEC value, then read it again 120 µs later to ensure an unstuck value. Alternatively, read the HSEC register and compare the present value with the previous value, and if the same, re-read the HSEC register until it is different.

Affected Silicon Revisions

All
X

6. Issue: Square Wave Clock Output Selection Affecting Timekeeping

Selecting the MFP pin to output 8 kHz or 32 kHz Square Wave can affect timekeeping accuracy when a crystal is used for the time base. External oscillator selection is not affected.

Work around

Avoid using MFP pin for 8 kHz or 32 kHz Square Wave output selections when using a crystal.

Affected Silicon Revisions

All
X

APPENDIX A: DOCUMENT REVISION HISTORY

Rev E Document (06/2022)

Edited Issue 2.

Rev D Document (10/2018)

Added Issue 6: Square Wave Clock Output affecting timekeeping.

Rev C Document (06/2017)

Edited Issue 2; Added Issues 4 and 5.

Rev B Document (12/2016)

Added Issue 3: Day of Week Reset after Day of Week Write.

Rev A Document (12/2015)

Initial release of this document.

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