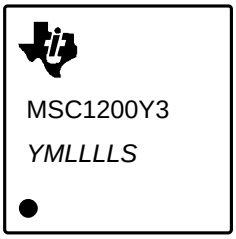
Errata to MSC1200, Datasheet Literature Number SBAS317

Revision Identification

The device revision can be determined by the lot trace code marked on the top of the package or by the hardware version register internal to the device. The hardware version register is located at SFR EBh. Figure 1 shows an example of the package symbolization of the MSC1200.

Figure 1. Package Symbolization Definition



Where:
Y is the year of assembly.
M is the month of assembly.
LLLL is the lot trace.
S is the assembly site.

The MSC1200 device conforms functionally to the product data sheet (SBAS317), except for the anomalies described below.

NOTE: The software files discussed in these errata are available for download from the MSC1200 web page at www.ti.com as SBAC026.zip.

Errata Index

1. SPI operation.
2. I^2C operation.
3. Internal Oscillator Low Frequency Mode output.
4. Stop mode digital and analog current.
5. PLL lock status bit in SFR PLLH.
6. IDAC operation with AVDD < 3.0V.
7. Only 128 bytes of RAM available.
8. Brownout voltage.

Erratum #1

Brief Description of Issue

SPI Operation:

1) SPI Clock Phase Control for SPICON.CPHA = 0 is operational, but SPICON.CPHA = 1 is not operational. SPICON.CPHA must be cleared to '0' for SPI operation.
2) SPI Slave Select for SPICON.ESS = 0 is operational, but SPICON.ESS = 1 is not operational. SPICON.ESS must be cleared to '0' for SPI operation.
3) PDCON.PDSPI must be cleared to '0' for SPI operation.

Detailed Description of Issue

SPI communication is only supported for clock phase '0' (SPICON.CPHA = 0) and no hardware slave select (SPICON.ESS = 0).

When the MSC1200 is used as a slave, the device drives the DOUT pin (P1.2) irrespective of the $\overline{SS}$ input pin (P1.4) and SPICON.ESS settings.

Impact to Customer

1) The SPICON.CPHA bit does not enable SPI clock phase '1' operation.
2) The SPICON.ESS bit does not enable hardware slave select for the DOUT pin (P1.2).

SW or HW Workaround

$\overline{SS}$ can be implemented using software. The customer can use one of the external interrupts and a timer to achieve this operation. This may affect SPI data transfer rates.

Download SBAC026.zip located on the MSC1200 web page at www.ti.com for the C-code for software $\overline{SS}$ implementation.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #2

Brief Description of Issue

I^2C Operation:

1) I^2C Clock Stretch Disable for I2CCON.DCS must be set to '1' for I^2C operation; however, this will not disable I^2C clock stretching.
2) PDCON.PDI2C is not operational (the state of PDCON.PDI2C is a *don't care*). However, the PDCON.PDSPI bit must be cleared to '0' and the I2CCON.DCS bit must be set to '1' to enable I^2C operation.

Detailed Description of Issue

To enable I^2C operation, PDCON.PDSPI must be cleared to '0', PDCON.PDI2C is a *don't care*, and I2CCON.DCS must be set to '1'. During I^2C slave operation, when the remote I^2C master transfers data, the MSC1200 slave will stretch SCL.

Impact to Customer

In a multiple slave system, the MSC1200 must release SCL stretching for each data transfer. This may decrease the throughput of the bus.

SW or HW Workaround

Software can be used to release SCL stretching.

Download SBAC026.zip located on the MSC1200 web page at www.ti.com for the i2c_slave.c C-code for SCL stretching implementation.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #3

Brief Description of Issue

The frequency output in Internal Oscillator Low Frequency mode [setting HCR2:CLKSEL = 111 (default)] at 5V is 13.4MHz ±300kHz.

Detailed Description of Issue

The frequency output in Internal Oscillator Low Frequency mode at 5V should be 12.8MHz (nominal).

Impact to Customer

Adjustments for internal timing differences must be made to take the frequency difference into account.

SW or HW Workaround

SFR settings for timing should be made to take the frequency difference into account.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #4

Brief Description of Issue

Stop mode digital and analog currents are excessive.

Detailed Description of Issue

All analog and digital circuits do not power down in Stop mode; therefore, the Stop mode digital and analog currents are excessive.

Impact to Customer

Stop mode digital and analog currents are excessive.

SW or HW Workaround

None.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #5

Brief Description of Issue

The PLL lock status bit (PLLH:PLLLOCK) is not operational.

Detailed Description of Issue

The PLL lock status bit (PLL:PLLLOCK) is always cleared to ‘0’.

Impact to Customer

There is no indication that the PLL has locked.

SW or HW Workaround

None.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #6

Brief Description of Issue

IDAC may not function when AVDD < 3.0V.

Detailed Description of Issue

IDAC may not function when AVDD < 3.0V.

Impact to Customer

IDAC may not function when AVDD < 3.0V.

SW or HW Workaround

Operate IDAC AVDD > 3.0V.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #7

Brief Description of Issue

Only 128 bytes of RAM are available, but the data sheet describes 256 bytes of available RAM.

Detailed Description of Issue

The MSC1200 was originally released with 128 bytes of RAM. The design was updated and newer versions of the device now have 256 bytes of available RAM.

Impact to Customer

Only 128 bytes can be used.

SW or HW Workaround

None.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

Erratum #8

Brief Description of Issue

The description for HCR1 indicates several selectable voltage levels for Digital Brownout Reset. However, only one voltage (2.7V) is selected when Digital Brownout is enabled.

Detailed Description of Issue

The brownout voltage selection bits have no effect on the actual brownout voltage. This voltage is always 2.7V.

Impact to Customer

The brownout voltage is always 2.7V.

SW or HW Workaround

None.

Affected Devices

MSC1200Y2 with lot trace codes of 51ZL45W and earlier, and hardware versions 06h and earlier.
MSC1200Y3 with lot trace codes of 51ZF8YW and earlier, and hardware versions 06h and earlier.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		**Applications**	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DSP	dsp.ti.com	Broadband	www.ti.com/broadband
Interface	interface.ti.com	Digital Control	www.ti.com/digitalcontrol
Logic	logic.ti.com	Military	www.ti.com/military
Power Mgmt	power.ti.com	Optical Networking	www.ti.com/opticalnetwork
Microcontrollers	microcontroller.ti.com	Security	www.ti.com/security
		Telephony	www.ti.com/telephony
		Video & Imaging	www.ti.com/video
		Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments
Post Office Box 655303 Dallas, Texas 75265