

Errata for FXOS8700

This errata sheet describes the functional problems known at the release date of this document.

Revision History

Rev	Date	Description
0	2014-03-06	Added E1: SPI Mode Soft-reset using CTRL_REG2 (0x2B), bit 6
1	2015-1-5	Added E2: Noise from I ² C/AFE Coupling

Contents

1	Part Identification	1
2	Errata	2
2.1	E1: SPI Mode Soft-reset using CTRL_REG2 (0x2B), bit 6.....	2
2.2	E2: Noise from I ² C/AFE Coupling.....	2

1 Part Identification

The following errata affect the behavior of all production FXOS8700.

2 Errata

2.1 E1: SPI Mode Soft-reset using CTRL_REG2 (0x2B), bit 6

Problem

Following a soft-reset command, issued by setting **CTRL_REG2[rst] = 1**, certain device-specific parameters do not get updated correctly from NVM, causing inaccurate data output and incorrect WHOAMI (0x0D) register content. This behavior happens only in SPI mode. In I²C mode the device works as advertised.

Workaround

One workaround is associated with this erratum.

Avoid using soft-reset in SPI mode by alternately utilizing the hardware RESET pin.

2.2 E2: Noise from I²C/AFE Coupling

Problem

A timing conflict exists where signals from the I²C bus are being coupled into the magnetometer's analog front end (AFE), creating noise that exceeds the noise specification of the device.

The issue only occurs when the AFE and I²C signal are active at the same time (during polling method).

The resulting noise is transient noise of repeatable magnitude (in static environments) occurring at 20–70 μ Tesla from the nominal output samples. The effect is observed mainly on the x-axis and y-axis and negligibly on the z-axis.

Impact

The accuracy of the sampled data during a timing conflict is not guaranteed. The transient output during such an event is unpredictable and cannot be simply eliminated by oversampling, since the noise is random in magnitude and frequency. Such data can adversely affect use of the magnetometer output.

Workaround

One workaround is associated with this erratum.

Ensure there is no potential for a timing conflict between the I²C signal and the magnetometer's AFE.

- When communicating with FXOS8700 over I²C, always use the Data Ready Interrupt feature. Using data ready interrupts initiates an I²C transaction only after a sample is taken.
- Program the microcontroller unit (MCU) to service and execute the interrupt *quickly*, avoiding any situation where an I²C transaction will still be active when the magnetometer's AFE is active during the following sample period.

How to Reach Us:

Home Page:
freescale.com

Web Support:
freescale.com/support

Information in this document is provided solely to enable system and software implementers to use Freescale products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document. Freescale reserves the right to make changes without further notice to any products herein.

Freescale makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals," must be validated for each customer application by customer's technical experts. Freescale does not convey any license under its patent rights nor the rights of others. Freescale sells products pursuant to standard terms and conditions of sale, which can be found at the following address: freescale.com/SalesTermsandConditions.

Freescale and the Freescale logo are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. All other product or service names are the property of their respective owners.

© 2015 Freescale Semiconductor, Inc.

Document Number: FXOS8700CQER
Revision 1, 1/2015