



# 1/3-Inch SOC Megapixel CMOS Active-Pixel Digital Image Sensor

## MT9M111

### Silicon Revision 2 Errata

#### Introduction

This errata contains deviations from the latest MT9M111 data sheet. Deviations are either temporary or permanent, as denoted in the tables below. This information is provided for customer information at this time, and customers are not required to respond to this document. Any permanent changes will be incorporated into the next revision of the data sheet.

**Table 1: Silicon-Related Issues**

Issue #	Issue	Notes
1	Sunspot	The dark spot issue has been improved and verified in Rev2.
2	Bright column	The bright column issue caused by bright light has been improved and verified in Rev2.
3	Horizontal banding	Horizontal banding has been addressed and improved in Rev2. Use quality IR filter for optimal performance.
4	Micro lens shift	The micro lens shift on Rev1 has been modified to significantly improve the sensor performance. This new shift has been implemented and characterized on Rev2.
5	Color filter array in periphery	Green color filter array was used in the sensor periphery in Rev1 and it has been modified to Blue filter array in the sensor periphery to avoid any unwanted reflections.

#### Rev2 Recommended Settings

All recommended settings are based on bare die characterization only. Evaluation of camera modules with these new settings has not been completed. Aptina recommends that customers use the register settings below and evaluate their camera module performance.

**Table 2: Default Register Changes from Previous Revision**

Note: All settings below were mandatory on the MT9M111 Rev1 silicon.

Register Number	Rev1 Default	Rev2 Default	Reason for Change
R34:0	0x010F	0x0129	Read out 2 dark rows (rather than 8 dark rows) at start of frame.
R52:0	0xC039	0xC019	To improve low-light sensitivity.
R89:0	0x003C	0x000C	To improve low-light sensitivity and help achieve required frame rate.
R113:0	0xFF00	0x7B0A	To improve low-light sensitivity.
R128:0	0x5904	0x007F	To improve low-light sensitivity.
R129:0	0x5904	0x007F	To improve low-light sensitivity.

**Table 3: Recommended Register Settings**

The register format in this document is R (register number in decimal): address page number.

Register Number	Default Settings	Recommended Setting	Reason for Change
R5:1[3]	0x0	0x1	Enable auto sharpening (reduction in sharpness at low light to reduce noise).
R34:2	0xD960	0x8878	Constrain Red AWB gain range. Helps avoid color artifacts at high contrast edges and prevents excessive color correction under incandescent and day lights.
R35:2	0xD960	0x8878	Constrain Blue AWB gain range; same as R34:2.
R36:2	0x7F00	–	Aptina now recommends setting this register to its default value (0x7F00) and not 0x6F00.
R40:2	0xEF04	–	Aptina now recommends setting this register to its default value (0xEF04) and not 0xEF11.
R52:0	0xC019	0xC039	To eliminate the Sunspot issue as described in the table below in Issue number 1.
R76:1	0x0000	0x0001	Turn on context A (typically preview) 2D defect correction.
R77:1	0x0000	0x0001	Turn on context B (typically snapshot) 2D defect correction.
R175:1	0x0010	0x0018	Enable "classic" (sharper) interpolation at full resolution.



## Revision History

Rev. D .....	6/28/10
• Updated to Aptina template	
Rev. C .....	11/5/04
• Simplified Table 2	
Rev. B .....	10/20/04
• Add Rev2 recommended settings	
Rev. A .....	8/4/04
• Initial release	

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This data sheet contains minimum and maximum limits specified over the power supply and temperature range set forth herein. Although considered final, these specifications are subject to change, as further product development and data characterization sometimes occur.