ON Semiconductor®

Product Bulletin

Document # : PB21841X
Issue Date: 22 August 2017

Title of Change:	AR1337 Image Sensor Core Characteristic Document Corrections.
Effective date:	22 August 2017
Contact information:	Contact your local ON Semiconductor Sales Office or <Sonya.Yip@onsemi.com>
Type of notification:	ON Semiconductor will consider this change accepted.
Change category:	☐ Wafer Fab Change ☐ Assembly Change ☐ Test Change ☒ Other _____

Change Sub-Category(s):

☐ Manufacturing Site Change/Addition
☐ Manufacturing Process Change
☐ Material Change
☐ Product specific change
☒ Datasheet/Product Doc change
☐ Shipping/Packaging/Marking
☐ Other: _____

Sites Affected:

☒ All site(s) ☐ not applicable ☐ ON Semiconductor site(s) : ☐ External Foundry/Subcon site(s)

Description and Purpose:

Sensor Core Characteristics (SCC) doc updated to make corrections to formulas and text. These changes are the result of a doc umentation error only; there is no change to the product form, fit, or function.

AR01337 SCC Changes

1. Updated equations 2 and 3. Added a note below.

Old eq.1 and eq.2

$$S_G = (S_{Gr} + S_{Gb})/2 \quad \text{(eq. 1)}$$

$$R_R = S_R + S_G \quad \text{(eq. 2)}$$

$$R_B = S_B + S_G \quad \text{(eq. 3)}$$

New eq. 1 and eq. 2 with note:

$$S_G = (S_{Gr} + S_{Gb})/2 \quad \text{(eq. 1)}$$

$$R_R = S_R/S_G \quad \text{(eq. 2)}$$

$$R_B = S_B/S_G \quad \text{(eq. 3)}$$

NOTE: RR and RB are ratios.

2. Updated equation 11

Old eq. 11:

$$\sigma_t = \sqrt{\sigma^2_{tot} - \sigma^2_{row}\sigma^2_{col}} \qquad \text{(eq. 11)}$$

New eq. 11:

$$\sigma_t = \sqrt{\sigma_{tot}^{\ 2} - \sigma_{row}^{\ 2} - \sigma_{col}^{\ 2}} \qquad \text{(eq. 11)}$$

3. In Test Setup 4 section, changed **"A mean signal response of the green channel is targeted around 500 e− by fine adjustment of the integration time, as specified in Table 1.**"

Old sentence:

- A mean signal response of the green channel is targeted around 500 e− by fine adjustment of the integration time, as specified in Table 1.

New sentence:

- A mean signal response of the green channel is targeted around 500 LSB by fine adjustment of the integration time, as specified in Table 1.

4. In calculated parameters section, changed sentence "**The ratio of max signal to noise floor is multiplied by the ratio of min and max gain conversion factors [e−/LSB units] in order provide the sensor's overall DR (best sat signal in electrons at low gain and best noise floor in electrons at high gain).**" to "**The ratio of max signal to noise floor is multiplied by the ratio of max and min gain conversion factors [e−/LSB units] in order provide the sensor's overall DR (best sat signal in electrons at low gain and best noise floor in electrons at high gain).**"

Old Sentence:

is σ_{t_2a}. All values are provided in LSB units. The ratio of max signal to noise floor is multiplied by the ratio of min and max gain conversion factors [e⁻/LSB units] in order provide the sensor's overall DR (best sat signal in electrons at low gain and best noise floor in electrons at high gain). This DR

New Sentence:

is σ_{t_2a}. All values are provided in LSB units. The ratio of max signal to noise floor is multiplied by the ratio of max and min gain conversion factors [e⁻/LSB units] in order provide the sensor's overall DR (best sat signal in electrons at low gain and best noise floor in electrons at high gain). This DR

5. Updated equations 16 and 17.

Old eq. 16 and eq. 17:

(eq. 16)

$$DR_{Gr} = 20\log_{10}\left(\left(\left(S_{sat} - \mu_{2b}\right)/\sigma_{t\_Gr\_2a}\right) \times CF_{Gmin}/CF_{Gmax}\right)$$

(eq. 17)

$$DR_{Gb} = 20\log_{10}\left(\left(\left(S_{sat} - \mu_{2b}\right)/\sigma_{t\_Gb\_2a}\right) \times CF_{Gmin}/CF_{Gmax}\right)$$

New eq. 16 and eq. 17:

(eq. 16)

$$DR_{Gr} = 20\log_{10}\left(\left(\left(S_{sat} - \sigma_{2b}\right)/\sigma_{t\_Gr\_2a}\right) \times CF_{Gmin}/CF_{Gmax}\right)$$

(eq. 17)

$$DR_{Gb} = 20\log_{10}\left(\left(\left(S_{sat} - \sigma_{2b}\right)/\sigma_{t\_Gb\_2a}\right) \times CF_{Gmin}/CF_{Gmax}\right)$$

List of Affected Standard Parts:

AR1337CSSC32SMD10
AR1337CSSC32SMFAH3-GEVB