ON Semiconductor®

# Update Notification

Document # : PB21573X1
Issue Date: 23 March 2017

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| **Title of Change:** | Update to PB21573X - Datasheet update of PYTHON 300/500/1300. |
| **Proposed first ship date:** | 23 March 2017 |
| **Contact information:** | Contact your local ON Semiconductor Sales Office. |
| **Samples:** | Contact your local ON Semiconductor Sales Office. |
| **Type of notification:** | ON Semiconductor will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact <PCN.Support@onsemi.com>. |
| **Change category:** | ☐ Wafer Fab Change ☐ Assembly Change ☐ Test Change ☒ Other Datasheet update |

**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:**

This Product Bulletin is an update to the earlier PB21573X issued on December 16, 2016, offering more details about the reported metal changes to reduce PRNU and improve image quality of the PYTHON 1300/500/300 silicon.

The datasheet and the metal photomasks for the products referred to in this Product Bulletin (PYTHON 300/500/1300) have been updated for a number of items as shown below, while the Product Acceptance Criteria has not been modified. These changes will not affect the form or fit of the products, however the image quality is expected to be slightly improved based upon the change in the metal layers.

In addition we would like to inform our customers that the latest revision of the datasheet (at the moment this Product Bulletin is released) of the below mentioned products is Rev3 (December 2016), following Rev0 (November 2015). Rev1 and Rev2 have never been publically released.

**PRODUCT BULLETIN NOTIFICATIONS:**

**Modifications:**

- Internal metal layer changes to reduce PRNU and improve image quality.
- SPI Revision of Chip id bit field [3:0] from 0 to 1.
- Physical device id (non-active circuitry) revised from NOI_P1_1300_**00** to NOI_P1_1300_**01**.
- Layer revision (non-active circuitry) from A to B.
- Minor layout modifications to column amplifier block.

**Purpose of the change:**

- Improve the electrical shielding and increase physical spacing between two parallel tracks in the column amplifiers, to reduce capacitive cross coupling between adjacent traces with the positive effect of improved PRNU and image quality. The pixel design, functionality, interfacing etc. has not been altered or modified in any way. Form and fit remain unchanged; however the function is expected to exhibit a slightly improved PRNU and image quality. The SPI chip configuration remains unchanged; however the revision number has been updated to 01 to reflect the new silicon version.
- Prior to release, these changes have been validated by a detailed characterization. The revised metal layout is now identical to the layout implemented on the PYTHON5000 and PYTHON25MP family, all of which are now in production. The PYTHON 1300 revised silicon has been evaluated following the ON Semiconductor quality standards and exceeds the following standards: JS-001 (HBM), JESD22-C101 (CDM) and JESD78 (LU).

**Rev 3 December 2016** **Formatting change throughout the datasheet document on P1, P3 replaced with P1-SN/SE/FN and P3-SN/SE**

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| Page 1: | Formatted Feature section |
| Page 2: | Further clarification on Production Marking |
| Page 3: | Added PRNU as a percentage in Table 2 |
| Page 5, 6: | Remove fin=72Mhz from Table description |
| Page 6: | Reformatted fps table for CMOS version |
| Page 9, 10: | Formatting change to Figure 5 & 7 titles |
| Page 15: | Edited paragraph Normal and Zero Row Overhead Times Modes. |
| Page 17: | Added Hyperlink linked to Image Sensor Portal |
| Page 21: | Removed register uploads for P1: 461-478 and for P2: 444-461 from Table 8. |
| Page 25: | Reformatted Sections on Dynamic Configuration Potentially causing Image Artefacts to Window Configurations |
| Page 34: | Replace y_stop with y_end. Renamed Title “Channel Multiplexing” to LVDS Output Multiplexing” and updated content and Table 21. Deleted duplicated Table 22: Bias Upload for P1 and P3 |
| Page 36: | Added Note for Signal path Gain Stages Table 23 |
| Page 53: | Replace “62 Msps” with “the applied clk_pll frequency”. |
| Page 56: | Added missing reserved registers to the Register map. Updated the Chip ID to reflect new silicon revision to improve image quality |
| Page 77: | Updated Table 40: Mechanical Specifications optical centre information to the 100th precision to sync with Table 41: Optical Table on Page 76. Add CTE value for the LCC package |
| Page 79: | Replaced Optical centre information with Table 41, reflecting actual coordinates for PYTHON 300/500/1300 |
| Page 79, 80: | Updated information on the location of the optical center of the pixel array relating to the package outline. |
| Page 81, 82: | Updated Figure 56, 57: Packing and Tray Configuration |
| Page 83: | Replaced Figure 59: Dimensions of the Protective Foil |
| Page 84: | Updated URL with hyperlink to Image Sensor Portal |

**List of Affected Standard Parts:**

| Part Number (OPN) | Description |
|---|---|
| NOIP1SN1300A-QDI | PYTHON 1300 LVDS Monochrome no protective foil |
| NOIP2SN1300A-QDI | PYTHON 1300 CMOS Monochrome no protective foil |
| NOIP1FN1300A-QDI | PYTHON 1300 LVDS NIR no protective foil |
| NOIP1SE1300A-QDI | PYTHON 1300 LVDS Color no protective foil |
| NOIP2SE1300A-QDI | PYTHON 1300 CMOS Color no protective foil |
| NOIP1SN1300A-QTI | PYTHON 1300 LVDS Monochrome with protective foil |
| NOIP1SE1300A-QTI | PYTHON 1300 LVDS Color with protective foil |
| NOIP1FN1300A-QTI | PYTHON 1300 LVDS NIR with protective foil |
| NOIP1SN0500A-QDI | PYTHON 500 LVDS Monochrome no protective foil |
| NOIP1FN0500A-QDI | PYTHON 500 LVDS NIR no protective foil |
| NOIP1SE0500A-QDI | PYTHON 500 LVDS Color no protective foil |
| NOIP1SN0500A-QTI | PYTHON 500 LVDS Monochrome with protective foil |
| NOIP1SE0500A-QTI | PYTHON 500 LVDS Color with protective foil |
| NOIP1FN0500A-QTI | PYTHON 500 LVDS NIR with protective foil |

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|---|---|
| NOIP1SN0300A-QDI | PYTHON 300 LVDS Monochrome no protective foil |
| NOIP1FN0300A-QDI | PYTHON 300 LVDS NIR no protective foil |
| NOIP1SE0300A-QDI | PYTHON 300 LVDS Color no protective foil |
| NOIP1SN0300A-QTI | PYTHON 300 LVDS Monochrome with protective foil |
| NOIP1SE0300A-QTI | PYTHON 300 LVDS Color with protective foil |
| NOIP1FN0300A-QTI | PYTHON 300 LVDS NIR with protective foil |
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| **Low Speed Grades** | |
| NOIP3FN1300A-QDI | PYTHON 1300 2 port LVDS NIR no protective foil |
| NOIP3FN1300A-QTI | PYTHON 1300 2 port LVDS NIR with protective foil |
| NOIP3SE1300A-QDI | PYTHON 1300 2 port LVDS color no protective foil |
| NOIP3SE1300A-QTI | PYTHON 1300 2 port LVDS color with protective foil |
| NOIP3SN1300A-QDI | PYTHON 1300 2 port LVDS Monochrome no protective foil |
| NOIP3SN1300A-QTI | PYTHON 1300 2 port LVDS Monochrome with protective foil |