ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20544

Generic Copy

Issue Date: 16-Jul-2014

TITLE: New version of the Ezairo 7100 IC.

PROPOSED FIRST SHIP DATE: 16-Oct-2014

AFFECTED CHANGE CATEGORY(S): No impact on device specifications

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact your local ON Semiconductor Sales Office or <Christophe.WAELCHLI@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or <Christophe.WAELCHLI@onsemi.com>

NOTIFICATION TYPE:

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact <quality@onsemi.com>.

DESCRIPTION AND PURPOSE:

The Ezairo 7100 IC (OPN E7100-101WC66-AG) is being re-spun; the current IC will be replaced by a new version. The following two improvements are made to the Ezairo 7100 IC:

Increased immunity to ultrasonic sounds.

The new MEMS microphones used in the hearing aid industry are showing an extended input frequency response (flat up to 25 KHz) compared to traditional microphones. As such, ultrasonic sounds can be captured by these microphones. In the Ezairo 7100's ADC structure, these sounds are not completely filtered today and can be rippled into the audio band, which makes them noticeable.

The proposed improvement strengthens the ADC structure and makes it immune to incoming ultrasonic sounds.

ADC noise humps.

Noise humps are generated by the ADC and can be noticeable with certain preamp gain conditions. These noise humps cannot be completely attenuated by a proper ADC offset calibration.

The cause of the noise hump is the presence of unbalanced parasitic capacitors in Ezairo 7100's ADC circuitry. The presence of unbalanced parasitic capacitors is due to the inaccuracy of the silicon

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foundry's process specific simulation and extraction tools. The foundry has since upgraded its tools, which has allowed to correct parasitic capacitors and to balance the ADC structure on Ezairo 7100.

The proposed improvement strengthens the quality of the ADC structure, and removes undesired ADC noise humps.

Useful notes:

- These 2 improvements don't affect any specifications of the IC as per its datasheet.
- The developed firmware remains 100% code compatible.
- The IC is mechanically (die size and pad locations) 100% identical.
- The Chip ID is changing from 101 to 102.

A new part number for the Ezairo 7100 IC is defined: E7100-102WC66-AG.

RELIABILITY DATA SUMMARY:

Reliability Test Results:

Test	Conditions	Results
No change in test	No changes on conditions	No impact on specifications

ELECTRICAL CHARACTERISTIC SUMMARY:

No changes in electrical characteristics.

CHANGED PART IDENTIFICATION:

Part number has changes:

Old OPN: E7100-101WC66-AG
New OPN: E7100-102WC66-AG

Old Chip ID: 101
New Chip ID: 102

List of affected General Parts:

E7100-101WC66-AG

The Ezairo 7100 evaluation board (OPN: 0W685001GEVB) contains the E7100-101WC66-AG in a TQFP100 package.

Customer who acquired the Ezairo 7100 evaluation board will receive a new TQFP100 packaged part that contains the E7100-102WC66-AG