Errata

DA14531 Errata

CE0001

Abstract

The document contains the known errata for the DA14531 along with recommended workarounds.

Product	DA14531
Silicon Revision	0xAE / 0xAF (Register CHIP_REVISION_REG, CHIP_TEST1_REG and CHIP_TEST2_REG)
Datasheet Reference	DA14531_datasheet_2v1.pdf
Package(s)	WLCSP 17 balls, 1.7x2.05, 0.5 mm pitch FCGQFN 24 pins, 2.2x3, 0.4 mm pitch
Issue Date	22-Feb-2022

Contents

1 Terms and Definitions

GPADC	General Purpose Analog to Digital Converter
RFIO	Radio Frequency Input Output
LO	Local Oscillator
TX	Transmitter

2 Identifying the Silicon Revision

A readback of registers CHIP_REVISION_REG, CHIP_TEST1_REG and CHIP_TEST2_REG will give the device revision information.

3 Workarounds

For the cases where complex software workarounds are recommended in form of concept description, please refer to the special section of the SDK release notes that explains which items are addressed and how.

4 Errata Summary

Table 1: Errata Summary

	Bug/Enhancement
312	LO spurs and TX harmonics at RFIO pin
314	System in boost is stuck at boot if Vbat_high load > 50 uA load
306	Small input leakage current when xtal32k_m (P0_4) is high

5 Errata Details

5.1 LO spurs and TX harmonics at RFIO pin

5.1.1 Effect

RX spurs and TX harmonics at the RFIO pin. FCC/ETSI/Asian regulations are violated.

5.1.2 Conditions

Always.

5.1.3 Technical Description

- RX mode: LO spur (@ 4.8GHz)
- TX mode: harmonics might need filtering depending on application and antenna
- Root cause: Parasitic coupling path on the chip towards the output

5.1.4 Workaround

An external CLC (C=1.8pF, L=3.3nH) filter network to be used at RFIOp pin. For details please refer to the Application Note AN-B-073.

5.2 System in boost is stuck at boot if Vbat_high load > 50 uA load

5.2.1 Effect

DA14531 is not booting in the boost configuration when there is a load >50uA present on the V_{BAT_HIGH} rail. The system is then kept in the HW power up state machine.

5.2.2 Conditions

For a load >50uA present on the V_{BAT_HIGH} rail during the initial booting.

5.2.3 Technical Description

In boost mode V_{BAT_HIGH} is charged from V_{BAT_LOW} via a resistive switch until a comparator triggers (V_{BAT_HIGH} > V_{BAT_LOW} - 50mV). Upon this threshold reached, the HW power up state machine will be allowed to continue. When there is a too large resistive load (>50uA DC) on V_{BAT_HIGH} this comparator will never trigger and the system remains stuck in the HW power up state machine.

5.2.4 Workaround

- Avoid a load more than 50uA during booting/powerup phase.
- If an external (SPI flash or I2C EEPROM) should be supplied by the boost DCDC then use a GPIO as a supply source to allow for zero lead at V_{BAT_HIGH} during boot.

5.3 Small input leakage current when xtal32k_m (P0_4 pin) is high

5.3.1 Effect

Pulling pin xtal32k_m high when the oscillator is disabled, results in a small leakage current into this pin (5 to 10nA at 25°C) affecting hibernation current of the application.

5.3.2 Conditions

When the pin is pulled up (high).

5.3.3 Technical Description

Pads can be pulled up during hibernation. This means that the inputs of the xtal32k oscillator will be high while the oscillator is disabled. Backdrive protection is implemented to avoid leakage, however the backdrive transistors are Native NMOS devices with higher channel leakage.

This means that channel leakage of the NMOST will flow into this bulk causing a slight input current on P0_4 (~5 to 10nA at 25C).

The other xtal32k pin (P0_3) does not suffer from this problem since the clamp has been implemented with long channel NMOSTs.

5.3.4 Workaround

None.

Revision History

Revision	Date	Description
1.1	22-Feb-2022	Updated logo, disclaimer, copyright.
1.0	01-Nov-2019	Code C version
• Updated issues table with numbers • Various corrections		
0.1	11-Jul-2019	Clarifications, description improvements
• Errata in ES2 version		

Errata

Status Definitions

Status	Definition
DRAFT	The content of this document is under review and subject to formal approval, which may result in modifications or additions.
APPROVED or unmarked	The content of this document has been approved for publication.