

QM33100 errata

Revision A

Table of Contents

1 Introduction.....	2
1.1 Package marking definitions	2
2 Referenced Documents.....	2
3 Functional problems detail.....	3
3.1 TEMP-ADC-1	3
3.1.1 Introduction.....	3
3.1.2 Problem	3
3.1.3 Workaround.....	3
3.2 FF-1	3
3.2.1 Introduction.....	3
3.2.2 Problem	3
3.2.3 Workaround.....	4
Revision History	4
Additional Information.....	4
Contact Information	5
Important Notice	5

List of tables

Table 1: Document History	4
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List of figures

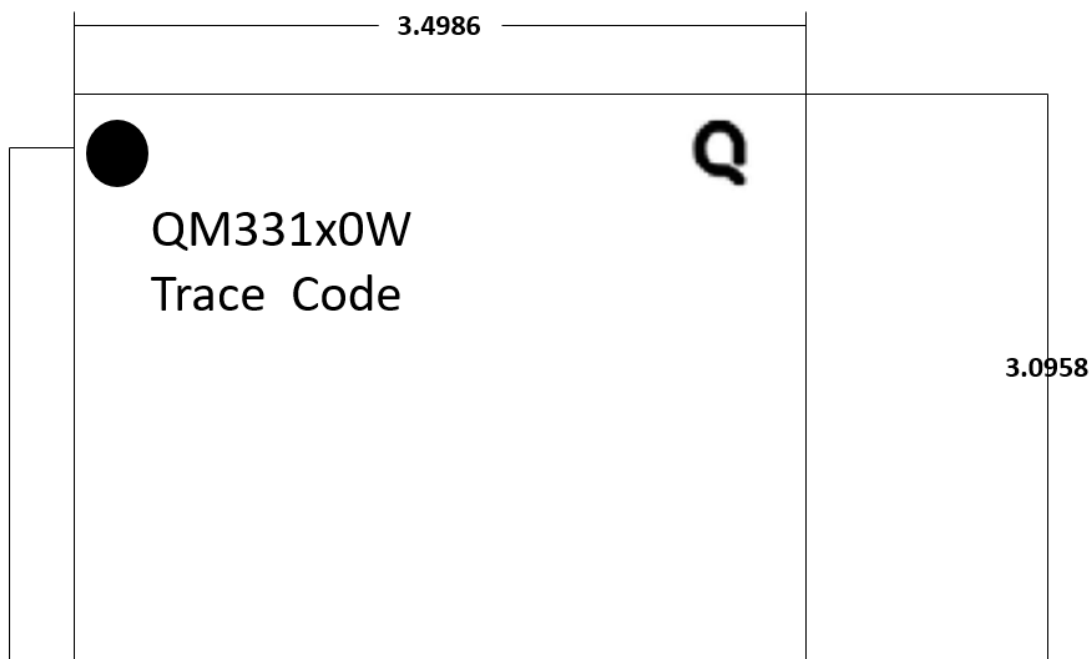
Figure 1: Device Package Marking.....	2
Figure 2: IEEE standard specification	4

1 Introduction

This errata document details known issues with the QM33100 series of products. Where available workarounds are presented.

1.1 Package marking definitions

The diagram below shows the package markings for QM33110W and QM33120W.



Pin 1 Indicator

Trace Code to be assigned by Subcon

Figure 1: Device Package Marking

2 Referenced Documents

QM33100 User Manual – Version 1.0

3 Functional problems detail

3.1 TEMP-ADC-1

3.1.1 Introduction

The QM33100 is equipped with a low speed 8-bit SAR A/D convertor (ADC) which can be configured to sample values from an internal IC temperature sensor and from a battery voltage monitor on the VDD1 power supply input. Both the temperature and battery voltage are calibrated during the chip production test and the calibrated values are stored in OTP memory.

3.1.2 Problem

Due to complexities associated with silicon thermal profiles across product variants, package types and operating modes, the temperature and battery voltage readback functions of the QM33100 IC are not supported.

3.1.3 Workaround

If temperature and/or voltage readings are required, it is suggested to implement this external to the QM33100 IC, e.g. with the host microcontroller or external ADC.

3.2 FF-1

3.2.1 Introduction

Frame filtering is a feature of the DW3xxx UWB transceiver family that can parse the received data of frame types defined in the IEEE802.15.4 standard, identifying the frame type and its destination address fields, match these against the IC's own address information, and only accept frames that pass the filtering rules.

Frame Type Field (Frame Control bits 2 to 0)	Frame
0, 0, 0	Beacon
0, 0, 1	Data
0, 1, 0	Acknowledgement
0, 1, 1	MAC command
1, 0, 0	Reserved
1, 0, 1	Multipurpose
1, 1, 0	Fragment or Frak

3.2.2 Problem

When DW3xxx E0 chip is configured for frame filtering and to behave as a coordinator (**FFBC bit = 1**) it should accept frames with only source address when the PANID matches the configured frame filter PANID. However, it does not, it incorrectly rejects these frames.

Errata: QM33100 errata

See description from the IEEE 802.15.4 standard (6.7.2 Reception and rejection) below:

IEEE Std 802.15.4-2020
IEEE Standard for Low-Rate Wireless Networks

If the MAC sublayer is not currently performing a scan, it shall accept only frames that satisfy all of the following fourth-level filtering requirements:

- a) The Frame Type field shall not contain a reserved frame type.
- b) The Frame Version field shall not contain a reserved value.
- c) If a destination PAN ID is included in the frame, it shall match *macPanId* or shall be the broadcast PAN ID.
- d) The Destination Address field shall satisfy one of the following conditions:
 - 1) A short destination address is included in the frame, and it matches either *macShortAddress* or the broadcast address.
 - 2) An extended destination address is included in the frame and matches either *macExtendedAddress* or, if *macGroupRxMode* is set to TRUE, an 64-bit extended unique identifier (EUI-64) group address, as defined in IEEE Std 802.
 - 3) The Destination Address field and the Destination PAN ID field are not included in the frame, and *macImplicitBroadcast* is TRUE.
 - 4) The device is the PAN coordinator, only source addressing fields are included in a Data frame or MAC command, and the source PAN ID matches *macPanId*.
 - 5) The device is the PAN coordinator, only source addressing field is included in a Multipurpose frame, and the destination PAN ID matches *macPanId*.
- e) If the frame type indicates that the frame is a Beacon frame, the source PAN ID shall match *macPanId* unless *macPanId* is equal to the broadcast PAN ID, in which case the Beacon frame shall be accepted regardless of the source PAN ID.

If all of the fourth-level filtering requirements are satisfied, the frame shall be considered valid and processed further.

Figure 2: IEEE standard specification

The operation of interest is that described in (d/4): **The device is the PAN coordinator, only source addressing fields are included in a Data frame or MAC command, and the source PAN ID matches macPanId.**

3.2.3 Workaround

There is a workaround that consists in setting the **FFIB** configuration to accept implicit broadcast and then analysing the RX frame in software to discard any that don't match the required PAN ID.

Revision History

Table 1: Document History

Revision	Date	Description
A	July 2022	Initial release. Added 3.1 TEMP-ADC-1 and FF-1 erratum.

Additional Information

For information on ESD, Soldering Profiles, Packaging Standards, Handling and Assembly, please contact Qorvo for general guidelines.

Errata: QM33100 errata

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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