

LTC3887 ERRATA

The errata below describes conditions that cause an **LTC®3887** device to operate differently than expected or described in the data sheet.

ERRATA SUMMARY

ERRATA NUMBER	DESCRIPTION	PAGE
1	MFR_ADC_CONTROL Short Round Robin Loop	1
2	When V_{OUT} is Set Between 3.1V and 4.1V, IOUT_OC_WARN May Erroneously be Detected	1

ERRATA #1: SHORT ROUND ROBIN LOOP

When using MFR_ADC_CONTROL command 0xD8 to monitor a specific ADC parameter or group of parameters, the user must select standard round robin mode 0x00 for at least one round robin period, nominally 100ms.

Conditions:

The following conditions may expose this problem:

- 1) MFR_ADC_CONTROL command 0xD8 is set to some value other than standard round robin mode 0x00.
- 2) The user commands short round robin mode directly without first returning to standard round robin mode 0x00 for at least one full ADC period.

or

- 1) MFR_ADC_CONTROL command 0xD8 is set to short round robin mode 0x0D.
- 2) The user commands a different non-zero mode without first returning to standard round robin mode 0x00 for at least one full standard round robin period.

Impact:

Erroneous temperature telemetry or out of date temperature telemetry may be reported. In addition calculations such as current readback and overcurrent limits, which are

based on the temperature telemetry, may be incorrect. If the temperature readback error is above the OT or below the UT fault limits, the part may incorrectly detect a temperature fault and turn off one or both of the output rails.

Root Cause:

The MFR_ADC_COMMAND when used to only monitor a single parameter does not update the other parameters causing stale data. The standard round robin ADC must be run periodically to assure data is up to date.

Workarounds:

Select Round Robin Mode all the time – This is the most common way the part will be used.

When using MFR_ADC_CONTROL always go to standard round robin mode after using short round robin mode for 1 round robin period, nominally 100ms. This is required to avoid excess temperature readings and to keep the temperature data up to date.

ERRATA #2: IOUT_OC_WARN

The device may incorrectly detect an overcurrent warning condition when the current is within limits if V_{OUT} is set between 3.1 and 4.1 volts.

Conditions:

The following conditions, when present simultaneously, may expose this problem:

- 1) V_{OUT} command is set between 3.1 and 4.1 volts
- 2) A large voltage transient occurs on V_{OUT} due to a large load transient or the part is turned on or off or margined high or margined low.

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Product Errata

Impact:

If the output voltage is set between 3.1 and 4.1 volts and the output voltage moves, the ADC may detect a large current when no such current exists. This large current can trigger an overcurrent warning, possibly asserting $\overline{\text{ALERT}}$ low. The ADC error will have no impact on LTC3887 PWM control or over current supervisor operation.

Root Cause:

An internal ADC calculation can cause errors when V_{OUT} is set between 3.1 and 4.1 volts and the output voltage is moving.

Workarounds:

Two workarounds are possible, depending on the system configuration and requirements. Additional workarounds may be possible. Contact Factory Applications for additional assistance if required.

Work Around 1:

Use the MASK_STATUS_IOUT command 0x7b and set bit[5] for IOUT_OC_WARN so the condition does not cause $\overline{\text{ALERT}}$ to pull low if an over current warning is detected. Set command 0x7B to 0x20 (assert bit[5]). The default MASK_STATUS_IOUT command is set to 0x20.

Work Around 2:

Set the IOUT_OC_WARN_LIMIT to 20mV divided by IOUT_CAL_GAIN. The over current warning may exceed the over current limit in this case causing a design rule violation in the GUI. Ignore the design rule check and allow the large over current warn limit. This will have no impact on over current supervisor operation.

REVISION HISTORY

REV	DATE	DESCRIPTION	PAGE NUMBER
A	10/17	Delete Erratas 1 & 2 to reflect current product; Add new Errata 2	All