

Mask Set Errata for Mask 1M60K

Introduction

This report applies to mask 1M60K for these products:

- MC9S08LL16
- MC9S08LL8

SE156-ADC-COCO: COCO bit may not get cleared when ADCSC1 is written to

Errata type: Silicon

Affected component: ADC

Description: If an ADC conversion is near completion when the ADC Status and Control 1 Register (ADCSC1) is written to (i.e., to change channels), it is possible for the conversion to complete, setting the COCO bit, before the write instruction is fully executed. In this scenario, the write may not clear the COCO bit, and the data in the ADC Result register (ADCR) will be that of the recently completed conversion.

If interrupts are enabled, then the interrupt vector will be taken immediately following the write to the ADCSC1 register.

Workaround: It is recommended when writing to the ADCSC1 to change channels or stop continuous conversion, that you write to the register twice. The first time should be to turn the ADC off and disable interrupts, and the second should be to select the mode/channel and re-enable the interrupts.

SE184-FLVD-STOP3: False low voltage detect when exiting stop3

Errata type: Silicon

Affected component: SoC level behavior

Description: If the low voltage detect (LVD) is enabled (LVDE = 1) but not in stop mode (LVDSE = 0), on some devices the low voltage detect flag (LVDF) will occasionally be set when exiting stop3 mode. If the LVD interrupt is enabled

(LVDIE = 1) the interrupt vector will be fetched. If the LVD reset is enabled, the part will reset, and the LVD bit in the System Reset Status (SRS) register will be set. The correct operation of the device is to wake and execute the code immediately after the STOP instruction.

If the LVD is not enabled (LVDE = 0) or if LVD is also enabled during stop mode (LVDSE = 1) then this issue will not occur. If the LVD is enabled during stop mode the stop3 current will increase.

Workaround:

A software level change to reliably eliminate the issue is to use only the LVD interrupt (LVDE = 1, LVDIE = 1, and LVDRE = 0). Inside the LVD interrupt service routine, a short state of health check can be made to verify the supply level before proceeding. In this routine, the LVDF should be cleared and then read to determine whether a true low voltage event is present. If the LVDF is set when it is read, then a true LVD condition exists and the MCU can be reset by forcing the execution of an illegal op-code.

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