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MM908E624, Silicon Revision A Errata

INTRODUCTION

This errata sheet applies to the following device:

- MM908E624ACDWB

Device Revision Identification

The device revision is indicated by a 1-character code after the device code. For instance the "A" in the "MM908E624ACDWB" indicates revision A. All standard devices are marked with a device identification and build information code.

Device Build Information / Date Code

Device markings indicate build information containing the week and year of manufacture. The date is coded with the last four characters of the nine character build information code (e.g. "CTKAH0429"). The date is coded as four numerical digits where the first two digits indicate the year and the last two digits indicate the week. For instance, the date code "0429" indicates the 29th week of the year 2004.

Device Part Number Prefixes

Some device samples are marked with a PM prefix. A PM prefix indicates a prototype device which has undergone basic testing only. After full characterization and qualification, devices will be marked with the MM prefix.

908EY16 MICROPROCESSOR, 2L31N/3L31N MASK ERRATA

Description

The MM908E624ACDWB device contains both Analog and the 908EY16 mask 3L31N is equivalent to 2L31N.

Please refer to the *68HC908EY16 Product Summary Page* for the latest Erratas available.

- **LIN Break Delimiter recognition** - SE91-LIN_Break
- **Internal Clock Generator Stability Bit Not Set** - SE92-ICG

ANALOG, L22S2 MASK ERRATA - LOW VOLTAGE RESET

Description

The Low Voltage Reset (LVR) shall stop the MCU from executing program code outside the normal operating voltage typically at power up and power down. For this purpose the voltage V_{DD} on the voltage regulator output is monitored and if the voltage is below the low voltage reset threshold the reset terminal $\overline{RST\_A}$ is pulled low to disable program execution on the MCU.

However under certain dynamic conditions the LVR circuitry is not pulling down the reset line sufficient and the reset line might go high due to the reset pull-up resistor in the MCU die. This behavior is depending on the voltage slew rates on the VSUP1 and V_{DD} relative to each other and therefore depends on the external circuitry, e.g. capacitance on VSUP1 and on V_{DD}.

Work-Around

Enable the Low Voltage Inhibit (LVI) Reset on the MCU die. The LVI circuitry in principal has the same purpose than the LVR circuitry but with slightly different threshold. In the configuration register CONFIG1 clear/set the following bits:

- Clear the LVIPWRD bit to enable the LVI module power
- Set the LVI5OR3 bit to enable the LVI 5V thresholds
- Clear the LVIRSTD bit to enable the LVI reset
- It is not necessary to enable the LVI module in STOP mode

For further details please see the MC68HC908EY16 data sheet.

Note: The configuration registers are used in the initialization of various options and can be written once after each reset. All of the configuration register bits are cleared during reset. Since the various options affect the operation of the microcontroller unit (MCU), it is recommended that these registers be written immediately after reset.

ANALOG, L22S2 MASK ERRATA - LIN DOMINANT ISSUE

Description

The LIN Physical Layer Specification which is part of the LIN Specification Package 2.0 defines the VSUP supply voltage range between 7V and 18V (VBAT range 8V to 18V). On this device, the LIN bus output can get stuck in dominant state if both conditions are present:

1. The supply voltage VSUP is below 5.5V and above 4.0V (5.5V > VSUP > 4.0V).
2. The device is in Normal Mode and the transceiver is forcing the LIN to dominant state (TXD=0V).

If VSUP drops further below 4.0V (Low-Voltage Reset Threshold typical value), the device will reset and the LIN bus goes in recessive state or if the VSUP is increasing above 5.5V the LIN bus goes also in recessive state (Normal Operation).

Work-Around

Avoid Stuck Condition

To avoid the transceiver to transmit data in the critical VSUP area (5.5V to 4.0V), the Low-Voltage Interrupt can be used to detect the critical VSUP area and to disable (by software) the transmission. To reenable the transmission, the Low-Voltage Flag can be used to detect that the supply voltage is back high enough.

Remove Stuck Condition

To avoid having the stuck condition present for a longer period of time, it's possible to detect the dominant state by monitoring the RXD signal. The stuck in dominant state can be removed by disabling the LIN physical layer (LIN P/L). The LIN P/L is disabled by entering the low power modes STOP or SLEEP. In some applications this method might be part of a fail-safe strategy of a LIN short to ground error. A second possiblity is to enter the STOP mode only on the analog die and then to immediatly wake-up the analog die by toggling the SPI slave select pin $\overline{SS}$ (wake-up on rising edge of the $\overline{SS}$).

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