

MC13892, Silicon Errata

Introduction

This errata document applies to the following devices:

Package	Part Number	Functional Description	Device Marking	Mask ID	Silicon Revision	Mask ID	Silicon Revision (Date Code 1040 and greater) ⁽²⁾
12x12	MC13892VL	Standard part	MC13892VL	DB00M29X	2.0A	-	-
	MC13892JVL	Standard part	MC13892JVL	DB00M29X	2.0A	-	-
	MC13892AJVL	Global Reset Function	MC13892AJVL	DB01M29X	3.1	DB03M29X	3.2
	MC13892BJVL	Programmable Global Reset Function	MC13892BJVL	DB01M29X	3.1	DB03M29X	3.2
7x7	MC13892VK	Standard part	MC13892	DB00M29X	2.0A	-	-
	MC13892JVK	Standard part	MC13892J	DB00M29X	2.0A	-	-
	MC13892AJVK	Global Reset Function	M13892AJ	DB01M29X	3.1	DB03M29X	3.2
	MC13892BJVK	Programmable Global Reset Function	M13892BJ	DB01M29X	3.1	DB03M29X	3.2
Note: <ol style="list-style-type: none"> 1. This Errata also applies to any device marked with a PC prefix. 2. Silicon revision 3.2 does not have a part marking difference. The revision is indicated by a date code only. 							

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. "CTKAH1029"). 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 "1029" indicates the 29th week of the year 2010.

Device Part Number Prefixes

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

Erratum	Module	Description	Applies to Part Numbers	Impact	Workaround
High Severity					
8374	RTC	Loss on the crystal oscillator upon power up.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	The switch of the 32 kHz clock system from XTAL to internal clock causes missing pulses in the 32 kHz clock, which lowers the frequency of the switcher PLL. The buck switcher then drops in output voltage.	Place a 10 MOhm resistor in parallel with the crystal. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8568	Power	Switcher overshoot if UVBUS is present before the battery.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	If UVBUS is present before the battery, the switcher acts as soon as the battery is present, instead of waiting until the power up sequence is initialized. This overshoot can tie the switcher output to BP for a short period.	Place a 100 kOhm pull-down resistor on VCORE. Note: This workaround is only needed if the UVBUS supply is present before the battery. It is not needed if UVBUS is not used. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8612	Charger	Reverse mode under hot temperature.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	The reverse supply mode is being shut off if the temperature increases over approximately 90°C.	Do not use reverse supply mode if the device is being used at this temperature. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8690	Switchers	Buck current limit	Applies to ALL part numbers	The buck current limit does not function properly, there is no max current limit, and current limit may engage before the rated load current of the switcher.	Immediately after power up firmware should disable the current limit by setting the SWLIMB SPI bit = 1. Application needs to provide current limit protection circuitry either in the battery or as a pre regulated supply to BP.
8691, 8692	SWLED	Serial LED Boost system interfering with REFCORE voltage	Applies to ALL part numbers	Activating the SWLED boost regulator can cause REFCORE perturbations which cause the part to shutdown.	Do not use SWLEDOUT boost supply to provide power for backlight LED sinks, use external supply to generate boost voltage required for backlight LED's.
8870	Charger	BP overvoltage when hot pugging a high voltage charger	MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK (ONLY)	When hot plugging a high voltage charger the BP node can spike up to 7.5V and greater.	Use an overvoltage protection IC on the charger input

Erratum	Module	Description	Applies to Part Numbers	Impact	Workaround
Medium Severity					
8372	Power	REGSPEN behavior does not match the spec.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	The LDO SCPI does not work as per spec. The interrupt SCPI is generated when a short-circuit is detected, even if the REGSPEN bit is not set (the spec says that in this case the interrupt should not fire).	Recommendation is to have the REGSPEN set. Then there is no issue and this protection feature is advised. However, if it is desired to disable REGSPEN when SCPI fires: - If backlight was enabled - Read both LEDControl0 & 1 registers - If both = 0x0, then SCPI stands for backlight - Else SCPI is for the regulator - Else SCPI triggers due to the regulator short-circuit protection. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8375	Charger	BP to CHRGRWV leakage.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	The BP powered OFF state and the Standby leakage currents on the BPSNS and CHRGISNS pins are around 35 μ A. If UVBUS is connected to CHRGRWV, there will be an additional 35 μ A of leakage current.	No workaround available. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8382	USB	UVBUS turn on event works only if the ramp is fast enough.	MC13892JVL MC13892VL MC13892JVK MC13892VK (ONLY)	The USB attach turn on event only works if the ramp of UVBUS (from 0 to 4.4 V) is fast enough (<50 ms).	(3 options available): - Speed up the UVBUS turn on time. - Work with a common USB and charger path to benefit the CHRGRWV turn on event when a USB is plugged in. - Use any other turn on event to power up. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8719	Charger	Operation from wall charger with no battery via the charge path or if the battery is deeply discharged.	Applies to ALL part numbers	When using the battery charger as the only source of power, as in a battery-less application or if the battery is deeply discharged, the following precautions should be observed: 1. It is still necessary to connect ADIN5 to either VCOREDIG or a midpoint of a divider from GPIO1 to ground since the battery charger will still interpret this voltage as the battery pack thermistor by default. 2. Very careful budgeting of the total current consumption and voltage standoff from CHRGRWV to BPSNS must be made, since the power limiter is operational by default, and a battery less or if the battery is deeply discharged system won't have a source of current if the power dissipation limit is reached. 3. If operating from a USB host the unit load limit (100 mA max.) must still be observed. 4. If operating from a "wall charger", and if there is no battery or if the battery is deeply discharged, there is an period of approximately 85 ms after RESETB is released, that the current limit is set to 80mA before setting the current limit is set to a nominal 560 mA. If the total current demand is greater than this limit, or if the battery is deeply discharged, the voltage may collapse and RESETB may pulse a few times (depending in part in the system load and dependence on RESETB.) Therefore, at the end of this time, RESETB may or may not be active. It may be necessary to use one of the other turn on events (such as PWRONx) to turn the 13892 back on.	Add a 120mS RC delay on RESETB and RESETBMCU. Add a 68K pull-up resistor to the I/O rail at the RESETBMCU output. Add a 100 Ohm resistor from the RESETBMCU output of the PMIC to the processors reset input, on the processor side of the 100 Ohm resistor add a 2.2uF capacitor to ground. Repeat above steps for RESETB. Or Migrate to revised device (Fixed in Silicon Revision 3.2 of the following): MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK

Erratum	Module	Description	Applies to Part Numbers	Impact	Workaround
Low Severity					
8732	Switchers	Buck current limit interaction with DVS Module: Switchers	Applies to ALL part numbers	The buck current limit can be reached if an output voltage increase is requested on a buck switcher while it is at max load or very close of that. The consequence is that the programmed output voltage is not reached, during the DVS ramp up phase, the coil current increases temporarily to permit an output rise, and can reach current limit.	Workaround: If ramping buck switcher voltage from a low set point to a higher set point when load is near max then disable current limit by setting the SWILIMB SPI bit = 1.
8373	Coin Cell	Leakage current on the LICELL.	MC13892JVL MC13892VJL MC13892JVK MC13892VJK (ONLY)	When the coin cell is present and the battery is disconnected, a leakage current around 2.0 to 3.0 uA with BP=high impedance and 2mA if BP is actively pulled to ground can be observed from BP to GND, and also leakage voltage of 0.3 to 0.49 V. This leakage current comes from the coin cell.	Add NMOS switch or load switch between BP and VINAUDIO with source connected to BP and the drain connected to the VINAUDIO. Enable the switch when application is ON and disable when OFF. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
7640	Lighting System	LED currents are higher then spec	MC13892JVL MC13892VJL MC13892JVK MC13892VJK (ONLY)	Signaling LED and backlight LED currents are higher than target value by ~ 10%	If LED's cannot handle increase of 10% current, program the current sinks to one level below the required setting. Or Migrate to revised device: MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK
8718	General	PWRONx pin grounded not able to power on IC with other PWRONx pin	Applies to ALL part numbers	If any of the PWRONx pins is grounded, neither of the other 2 PWRON pins are able to generate a turn on event.	Set the PWRONxDBNC bits (or at least the ones for the offending PWRON pin) to non-zero.
8849	Charger	Charger path reverse current threshold is too high	MC13892AJVL MC13892BJVL MC13892AJVK MC13892BJVK (ONLY)	Charger path reverse current threshold is too high. Threshold is ~ 120 -180mA, where it should be 35mA. This only impacts reverse supply mode from the battery to an external accessory via the charge path.	No workaround available.

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