

MC13783

Power and Audio Management IC

This chip errata document applies to the MC13783 power management IC. [Table 1](#) defines severity values for errata. [Table 2](#) provides the known chip errata affecting the MC13783. [Table 3, on page 3](#) summarizes the silicon waiver information.

Table 1. Definitions of Errata Severity

Severity	Errata Type	Meaning	Workaround
1	Critical	Failure mode that severely inhibits the use of the device for all or a majority of intended applications	Unavailable
2	High	Failure mode that might restrict or limit the use of the device for all or a majority of intended applications	Generally available
3	Moderate	Unexpected behavior that does not cause significant problems for the intended applications of the device	Generally available

Table 2. Chip Errata for MC13783

Severity	Erratum ID	Summary	Details
3	TLSbo92223	<p>Module Affected: ADC</p> <p>Title: MC13783 ADC dual-SPI reading errors. ADA selection issue in dual SPI.</p>	<p>Description: Internal ADA selector is controlled by the SPI owner of last conversion. The address ports are controlled by the most recent SPI to begin a conversion. So if one SPI begins a conversion before the other SPI has read out, then the previous conversion results from the first set of results will be corrupted. Root cause identified.</p> <p>Workaround: A handshaking method using semaphore is one potential solution for workaround.</p>
2	TLSbo92778	<p>Module Affected: Control/SPI</p> <p>Title: MC13783 locked in power cut mode conditions.</p>	<p>Description: When the BP is between UVDET and BPON, Li cell is present and not empty. Power cut issue produces strange effects for turn on events:</p> <ol style="list-style-type: none"> 1) Sometimes it delays the turn on of the charger insertion. 2) Sometimes it delays the M3 turn on upon battery insertion (B+ does not get voltage immediately). 3) Sometimes it prevents the MC13783 turn on by enabling a power supply when connected to the battery terminals. <p>Root cause identified:</p> <ul style="list-style-type: none"> • In power cut, user off and memory hold modes, the AC references are off \geq BP regulator cannot turn on correctly. • During extended power cut, the MEMTMR and PCT stop counts when the BP is between UVDET and BPON. <p>Workaround: Disable power cut mode (by setting PCEN = 0) when BP is below BPON.</p>
2	TLSbo94499	<p>Module Affected: Connectivity/USB Interface</p> <p>Title: USB crossover voltage could be degraded when USBVCC is connected to 1.8 V.</p>	<p>Description: The USB crossover voltage could be degraded when the USBVCC is connected to 1.8 V. Conditions: USBVCC set to 1.8 V.</p> <p>Fix Plan/Status:</p> <ul style="list-style-type: none"> • Supply to the USBVCC with 2.775 V.

Table 3. Silicon Waivers to the MC13783

Severity	Erratum ID	Summary	Details
3	–	Title: Vvib load regulation exceeds the $\pm 3\%$ accuracy.	Description: When the regulator is loaded with full load, the output voltage is not in the $\pm 3\%$ range. The regulator drop is below the -3% . Output voltage accuracy relaxes from $\pm 3\%$ to: <ul style="list-style-type: none"> • For 1.3 V set point 1.23 V min. - 1.34 V max. • For 1.8 V set point 1.72 V min. - 1.85 V max. • For 2.0 V set point 1.91 V min. - 2.06 V max. • For 3.0 V set point 2.88 V min. - 3.09 V max.
3	–	Module Affected: Audio Title: Audio SPI Issue	Description: Depending on SPI clock speed and main audio clock (CLI) speed, sometimes the Audio Codec or the Stereo DAC does not start when it is programmed to do so. This is due to an internal clock timing issue related to the loading of audio converter SPI bits into the audio block. Workaround: <ul style="list-style-type: none"> • When using Audio Codec: do a second SPI write access to register 40 (Audio Codec) directly after the original write to register 40 with the exact same content. • When using Stereo DAC: do a second SPI write access to register 41 (STDAC) directly after the original write to register 41 with the exact same content.
3	–	Module Affected: Charger Title: Charger Separate Input, Dual Path configuration should not be used	Description: The Separate Input, Dual Path charger configuration should not be used as you may experience an oscillation issue when battery voltages are slightly above the CHGDETSEP threshold of 3.8V maximum and the charger is disconnected. Also, the CHRGRW voltage must be greater than $\sim 4.6V$ before the charger current can be programmed in this configuration. Workaround: Use Common Input, Dual Path Charger configuration instead.
3	–	Module Affected: Charger Title: Charger detection threshold in separate input dual path mode	Description: When in separate input charging configuration, detection of charger removal is based on CHGDETSEP and CHGCURR thresholds. <ul style="list-style-type: none"> • Rising detection threshold for CHGDETSEP is 3.8V max whereas it is specified at 4.65V max in the MC13783 User Guide. • Falling detection threshold for CHGDETSEP is 3.6V max whereas it is specified at 4.4V max in the MC13783 User Guide.
3	–	Module Affected: Charger Title: Standalone Trickle unavailable for Single path mode and SE1 = High	Description: When in single path charger configuration (CHRGMOD0 = OPEN), and SE1 signal is HIGH, standalone trickle mode is not available. Feature has been removed from IC. Workaround: SE1 signal should be set low in single path charger mode for standalone trickle charging to be operational.

Revision History

Table 4 summarizes revisions to this document since the release of the previous version (Rev. 3.3).

Table 4. Revision History

Location	Revision
Table 3, third row from bottom	Added Silicon Waiver item titled: Charger Separate Input, Dual Path configuration should not be used.
Table 3, second row from bottom	Changed Silicon Waiver item titled: Charger detection threshold in separate input dual path mode. Changed CHRGETSEP to CHGETSEP.

How to Reach Us:

Home Page:

www.freescale.com

Web Support:

<http://www.freescale.com/support>

USA/Europe or Locations Not Listed:

Freescale Semiconductor, Inc.
Technical Information Center, EL516
2100 East Elliot Road
Tempe, Arizona 85284
1-800-521-6274 or +1-480-768-2130
www.freescale.com/support

Europe, Middle East, and Africa:

Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
www.freescale.com/support

Japan:

Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064
Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:

Freescale Semiconductor China Ltd.
Exchange Building 23F
No. 118 Jianguo Road
Chaoyang District
Beijing 100022
China
+86 10 5879 8000
support.asia@freescale.com

For Literature Requests Only:

Freescale Semiconductor Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-441-2447 or +1-303-675-2140
Fax: +1-303-675-2150
LDCForFreescaleSemiconductor@hibbertgroup.com

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

RoHS-compliant and/or Pb-free versions of Freescale products have the functionality and electrical characteristics as their non-RoHS-compliant and/or non-Pb-free counterparts. For further information, see <http://www.freescale.com> or contact your Freescale sales representative.

For information on Freescale's Environmental Products program, go to <http://www.freescale.com/epp>.

Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners.

© Freescale Semiconductor, Inc. 2005–2011. All rights reserved.