ERRATA EMBER® EM35X BREAKOUT BOARD TECHNICAL SPECIFICATION

This document describes issues that pertain to the EM35x Breakout Board. This Errata refers to the following releases of document TS6, *EM35x Breakout Board Technical Specification*:

- TS6 revisions A through H

1 External power supply should be limited to 15 V and not 20 V

There is a bug on the EM35x Breakout Board that prevents operation with an external power supply set to voltages greater than 15 V.

Silicon Labs provides a number of ways to provide power to the EM35x Breakout Board. One of the methods involves connecting an external supply at J1 (positive) and J32 (GND) and setting it to a DC voltage between 4 VDC and 20 VDC. Unfortunately, a protection diode tied to the external power supply net is only rated to 15 VDC and is not guaranteed to operate at voltages greater than 15 VDC.

Affected Conditions

This issue is present on revisions B1 and earlier of the EM35x Breakout Board. This issue has been corrected on revisions B2 and later of the EM35x Breakout Board and all revisions of the EM35x NCP Breakout Board.

Workaround

When using an external power supply to source power to the EM35x Breakout Board and Module, limit the external power supply to between 4 VDC and 15 VDC.

2 VBRD supply unstable when driving high current loads

There is a bug on the EM35x Breakout Board that prevents stable VBRD generation when driving a high current load (>200 mA), like an EM35x module with a high power front end module (FEM).

The EM35x Breakout Board provides power distribution of the VBRD net from a variety of input power sources. When the power source is either an external power supply (connected to J1 and J32) or USB, a low dropout (LDO) voltage regulator steps the input voltage to an output (VBRD) of 3.3 V at 250 mA (max). It has been determined the LDO output has a slight oscillation even when driving an open circuit. The oscillation gets worse as the load impedance decreases (or the drive current increases). At loads greater than 200 mA, the oscillation causes the average voltage potential for VBRD to drop below the POR threshold of the EM35x.

Affected Conditions

This issue is present on revisions B1 and earlier of the EM35x Breakout Board. This issue has been corrected on revisions B2 and later of the EM35x Breakout Board and all revisions of the EM35x NCP Breakout Board.

Workaround

Silicon Labs recommends powering high current loads by connecting an external 3.3 V power supply directly to the VBRD net at jumpers J3.2 (positive) and J32 (GND) or to the module power supply (VMOD) at Jumpers J4.2 (positive) and J32 (GND). In either of these scenarios, the load can exceed 200mA without any voltage oscillations as the LDO is bypassed.

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3 USB LED DS2 on when USB cable not connected

There is a bug on the EM35x Breakout Board that causes the USB power source LED DS2 to be on when there is no USB cable connected and thus no USB power source present.

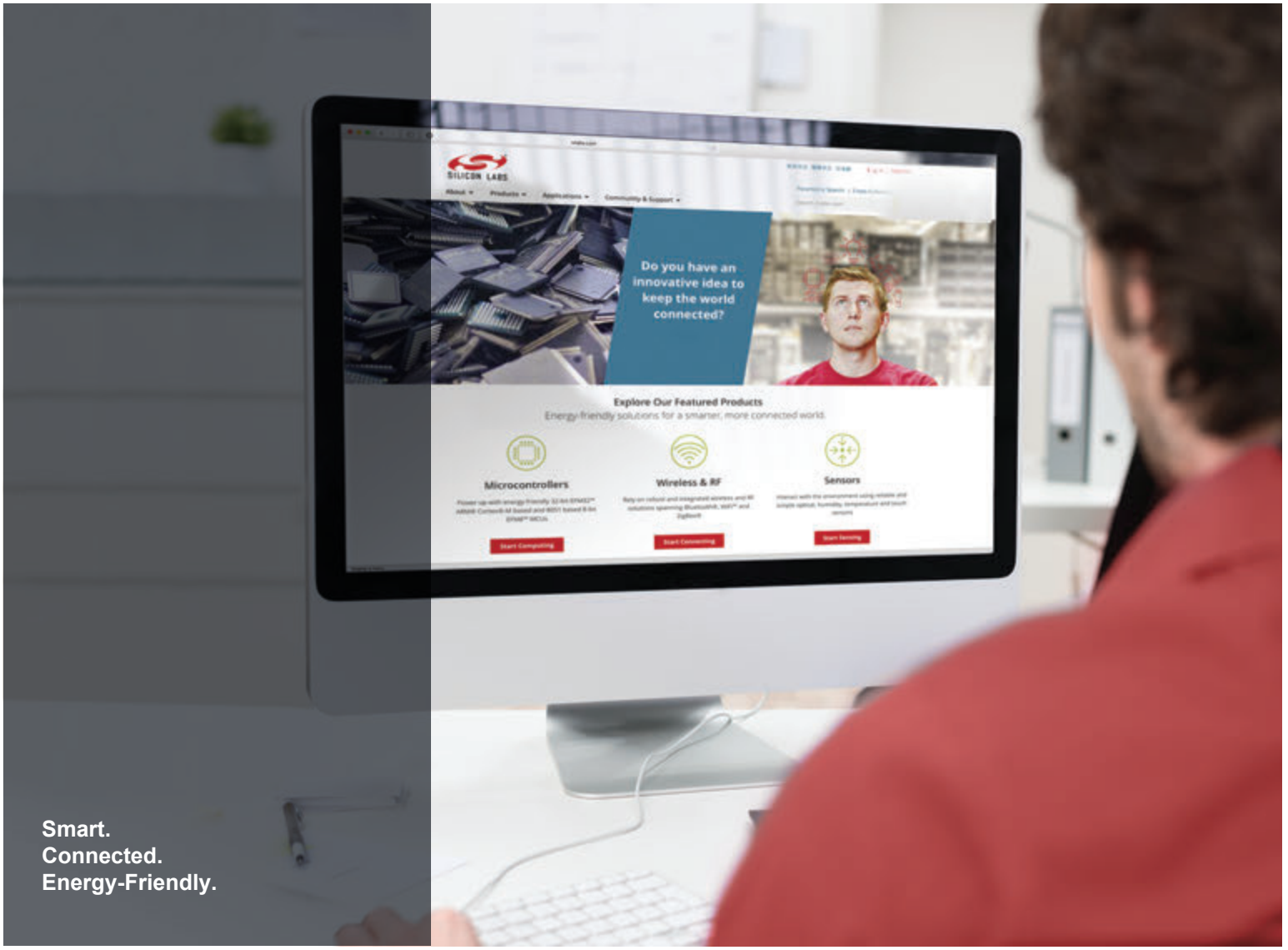
The EM35x Breakout Board provides multiple options for providing power to the board. The board includes LEDs to indicate which voltage source(s) are present. The USB power source LED DS2 should only be on when a USB cable is connected from a PC or USB power supply to the EM35x Breakout Board. DS2 may be on when USB is not present if the serial communication selection jumpers J22, J24, J25, or J26 are connected in the USB configuration (with pins 2 and 3 of these headers connected). The EM35x GPIO PB1, PB2, PB3, and PB4 are routed from the EM35x Module header J21 through these serial communication selection jumpers (J22, J24-26). Since the USB FTDI IC U5 (manufacturer part number FT232RQ) is not powered, any logic high signal levels on EM35x GPIO PB1-4 will supply voltage to the power supply of the FTDI IC U5 through its protection diodes, providing enough voltage on the V_USB net to light the LED DS2.

Affected Conditions

This issue is present on all revisions of the EM35x Breakout Board.

Workaround

When a USB cable is not connected to the EM35x Breakout Board, Silicon Labs recommends the customer remove the jumpers from headers pin 3 of J22 and J24-26. This will ensure that the USB power source LED is not active.



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