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## Mask Set Errata for Mask 2M80V

### Introduction

This report applies to mask 2M80V for these products:

- MC9S08MM128
- MC9S08MM64
- MC9S08MM32

The mask set is identified by a 5-character code consisting of a version number, a letter, two numerical digits, and a letter, for example 0J27F. All standard devices are marked with a mask set number and a date code.

Device markings indicate the week of manufacture and the mask set used. The date is coded as four numerical digits where the first two digits indicate the year and the last two digits indicate the work week. For instance, the date code "0301" indicates the first week of the year 2003.

Some MCU samples and devices are marked with an SC, PC, or XC prefix. An SC prefix denotes special/custom device. A PC prefix indicates a prototype device which has undergone basic testing only. An XC prefix denotes that the device is tested but is not fully characterized or qualified over the full range of normal manufacturing process variations. After full characterization and qualification, devices will be marked with the MC or SC prefix.

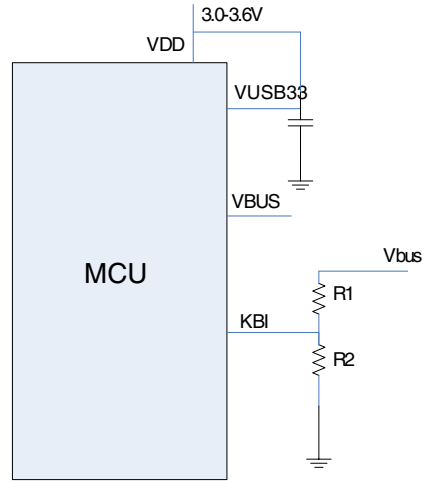
### SECF192: USBVBUS: $V_{BUS}$ pin output ~2V when floating and not connected to USB bus

**Errata type:** Silicon

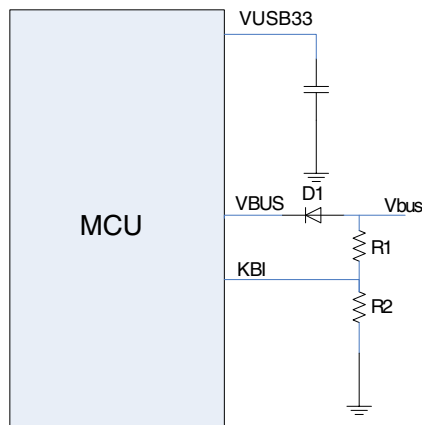
**Affects:** USB

**Description:**  $V_{BUS}$  pin is connected with a back-biased diode to internal power of the microcontroller. This results in approximately 2 V output voltage when the  $V_{BUS}$  pin is floating. It violates USB specification that there should be no  $V_{BUS}$  driving when operating as a USB device. This behavior impacts only self-powered use cases, where power for the application is derived from an alternate source. For bus powered use cases, it does not need to sense  $V_{BUS}$  voltage and  $V_{BUS}$  is supplied by external circuit with 5 V, the internal diode is not active, so there is no impact on the  $V_{BUS}$  state.

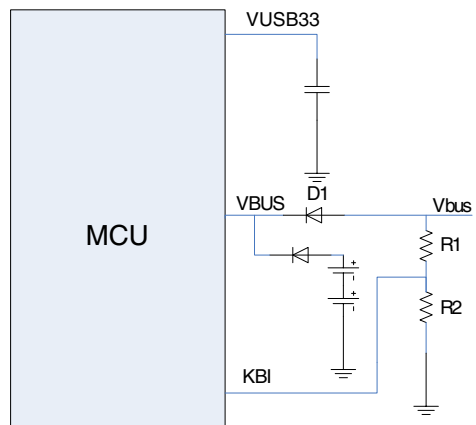
**Workaround:** For self-powered USB device use case, customer needs to configure resistor value of the level shifter to KBI for  $V_{BUS}$  sense circuit. Then add a diode between  $V_{BUS}$  pin and  $V_{BUS}$  signal on USB connector to prevent the unwanted 2 V. The voltage drop introduced must be very low so that the voltage at the MCU  $V_{BUS}$  pin is not lower than 4.4 V. The following figures show allowable use cases.



A



B



C

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 Japan  
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Freescale Semiconductor China Ltd.  
 Exchange Building 23F  
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