

16-BIT MICROCONTROLLER STARTERKIT **SK-16FX-144PMC-USB**

FUNCTIONAL LIMITATION
USB FUNCTION INTERFACE

CUSTOMER INFORMATION



Revision History

Date	Issue
2009-01-02	V1.0, HWE, Initial Version

This document contains 7 pages.

Abbreviations:

FME	Fujitsu Microelectronics Europe GmbH
MCU	Microcontroller

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Fujitsu does not bear any warranty in the case this handling note is not fully observed.

1 Problem Description

The USB Function interface does not work properly on SK-16FX-144PMC-USB V1.0

- Reverse powering may occur
- Back voltage on D+ may occur

2 Problem Conditions

- In case that the SK-16FX-144PMC-USB is not self powered but connected to an USB Host, an increased current may be driven via VBUS of the USB Function interface X3 connected to the microcontroller's interrupt input.
- Even when Vbus is not yet detected the D+ pull up resistor is enabled.

3 Affected Tools

All SK-16FX-144PMC-USB of revision V1.0

4 Root Cause

The problem is caused by PCB design error.

5 Workaround

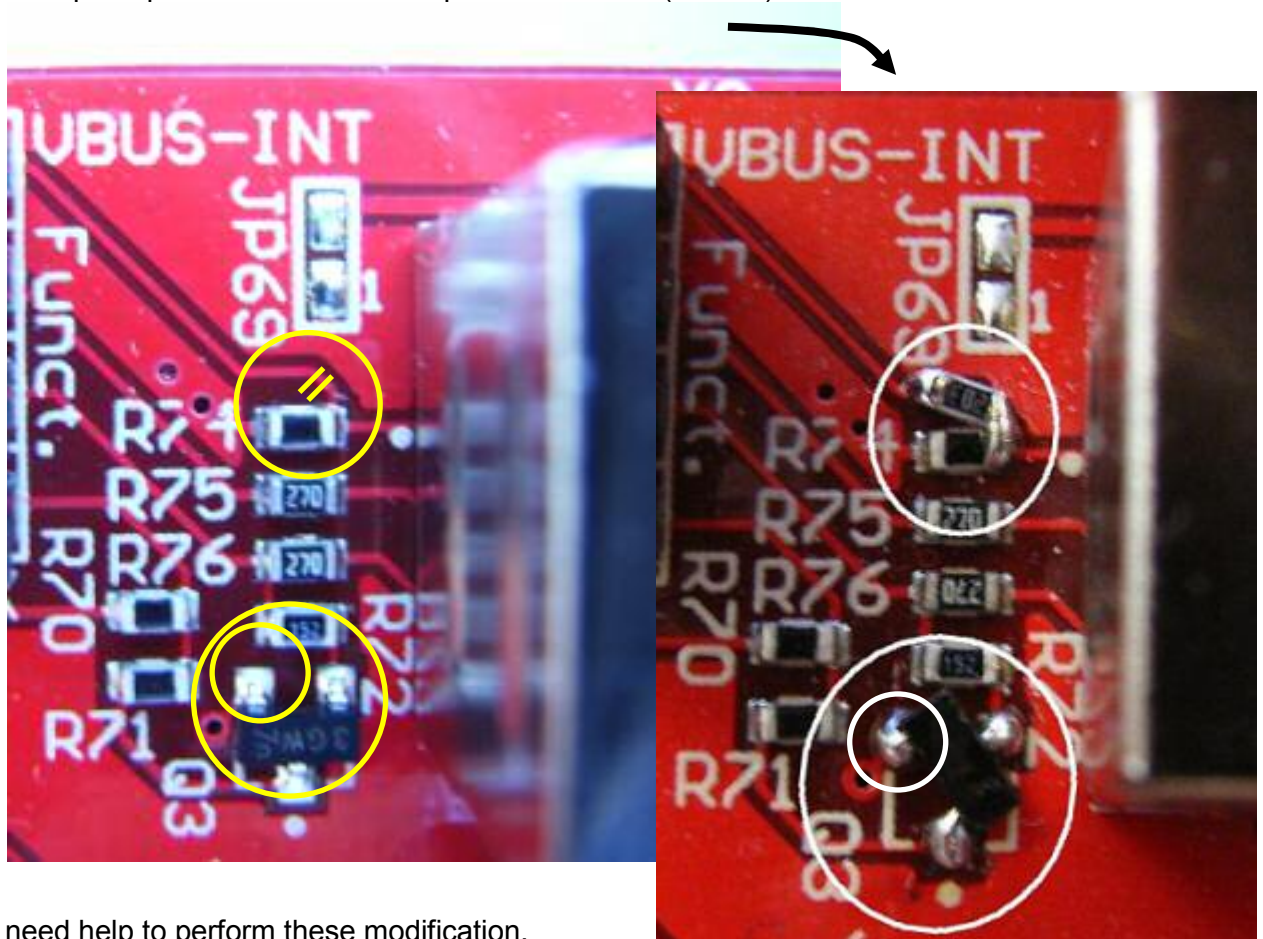
5.1 Do not use the USB function interface

If the SK-16FX-144PMC-USB V1.0 is not connected by the USB Function interface X3 to an USB Host, then no problem will occur.

5.2 Design modification V1.1

The problem can be fixed manually as follows:

1. Cut the trace from X3-1 to JP64-1 (VBUS) as shown close to R74
2. Solder an additional resistor R99=20kOhm between X3-1 and JP64-1 (VBUS)
3. Remove (desolder) Q3 carefully
4. Put Q3 backward on top and solder Q3 again as shown
Keep the position of the marked pin close to R71 (Emitter)



If you need help to perform these modification, then please contact micro_info@fme.fujitsu.com.

5.3 Use SK-16FX-144PMC-USB V1.1 or newer

The SK-16FX-144PMC-USB revision V1.1 or newer have the bug fix already included.

6 Corrective action by Fujitsu

Fujitsu will produce SK-16FX-144PMC-USB V1.1 or newer in the future.