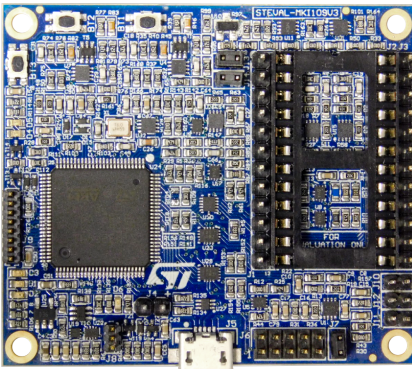


Professional MEMS tool: ST MEMS adapters motherboard based on the STM32F401VE and compatible with all ST MEMS adapters



Features

- Compatible with all available ST MEMS adapter boards
- Controlled by the [STM32F401VE](#) high-performance ARM Cortex™ - M4 microcontroller
- Software-adjustable power circuitry to set sensor supply voltage from 0 to 3.6 V
- Includes a DIL24 socket for easy MEMS adapter connection
- Adjustable MEMS DIL24 power supply
- DFU-compatible for USB microprocessor firmware update
- USB 2.0 full-speed compliant
- Embedded power monitoring circuitry on sensor supply voltage and current
- Debugging connector for SWD/JTAG
- Can be used with PC software like Unico GUI to manage and analyze MEMS sensor data
- RoHS compliant

Description

ST's ready-to-use MEMS motherboard ([STEVAL-MKI109V3](#)) development platform lets engineers monitor the behavior of ST MEMS sensors, which can help accelerate time to market and maximize the performance of new product designs. This board is compatible with ST MEMS adapter boards and supports I2C and SPI data modes for very high output data rates.

This professional MEMS tool features a high-performance [STM32F401VE](#) microcontroller and flexible power management with software-adjustable power circuitry that allows you to set the sensor supply voltage from 0 to 3.6 V and replicate the operating conditions in the intended application. The board includes accurate power monitoring on sensor supply voltage and current, so external instruments are not required.

You can run a graphical user interface (GUI) like Unico GUI ([STSW-MKI109L](#) for Linux, [STSW-MKI109M](#) for Mac OSX and [STSW-MKI109W](#) for Windows), on a host PC to manage data flow from MEMS sensors and analyze MEMS sensor waveforms, which can help you explore the operating modes and power settings to optimize sensor performance and accuracy in your application.

The [STM32F401VE](#) ARM Cortex-M4 microcontroller with DSP and FPU can process much more than sensor readings such as barometric pressure and accelerometer or gyroscope data; it can handle complex datasets like optical or electronic image stabilization (OIS and EIS, respectively) from ST's advanced 6-axis inertial modules, and can be used to evaluate the latest generation of high-resolution MEMS sensors for industrial applications.

Product summary	
ST MEMS adapter motherboard based on STM32F401VE compatible ST MEMS adapters	STEVAL-MKI109V3
High-performance access line, ARM Cortex-M4 core with DSP and FPU, 512 Kbytes Flash, 84 MHz CPU, ART Accelerator	STM32F401VE
MEMS evaluation kit software package for Linux	STSW-MKI109L
MEMS evaluation kit software package for Mac OS X	STSW-MKI109M
MEMS evaluation kit software package for Windows	STSW-MKI109W

1 Schematic diagrams

Figure 1. STEVAL-MKI109V3 circuit schematic (1 of 8)

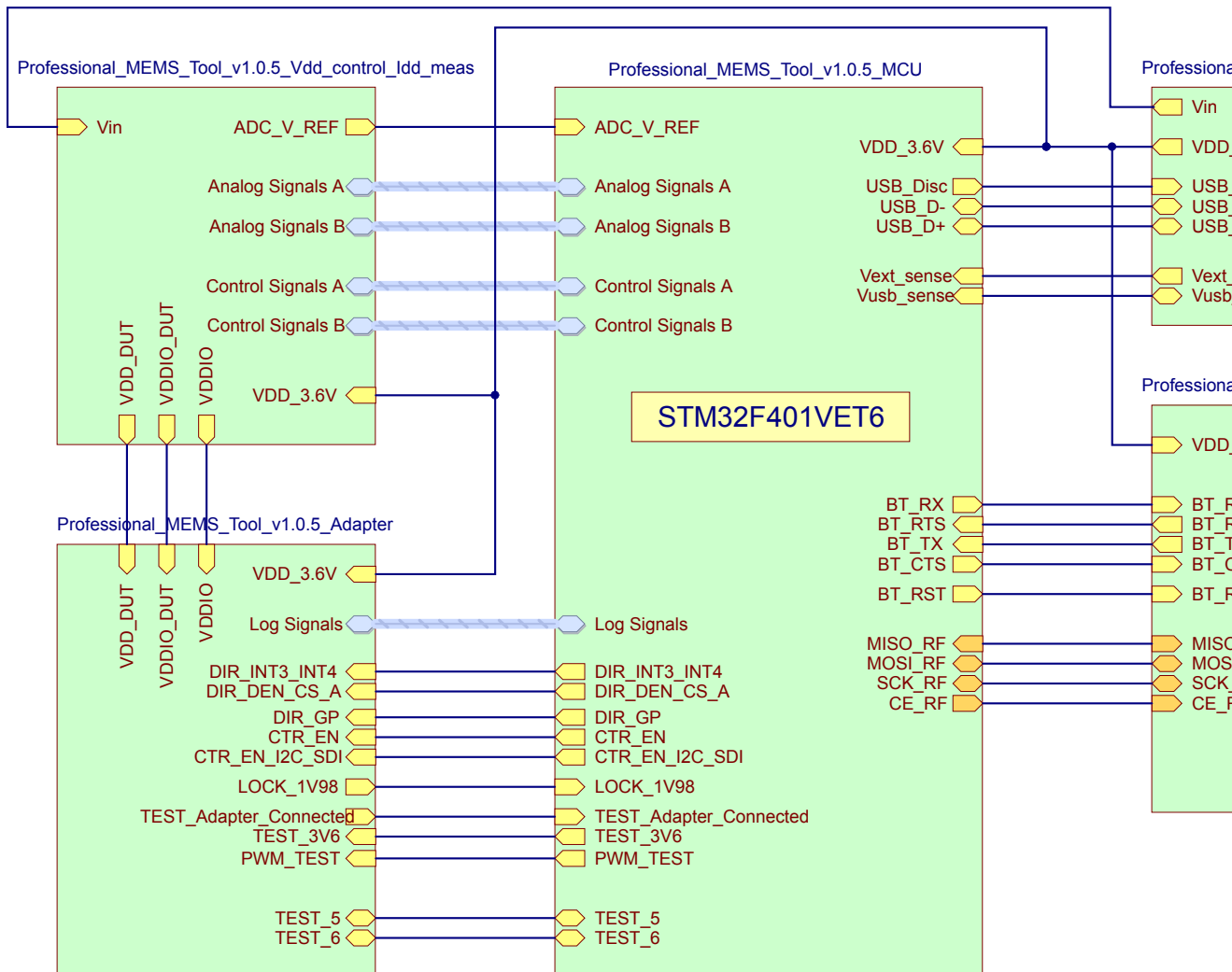


Figure 2. STEVAL-MKI109V3 circuit schematic (2 of 8)

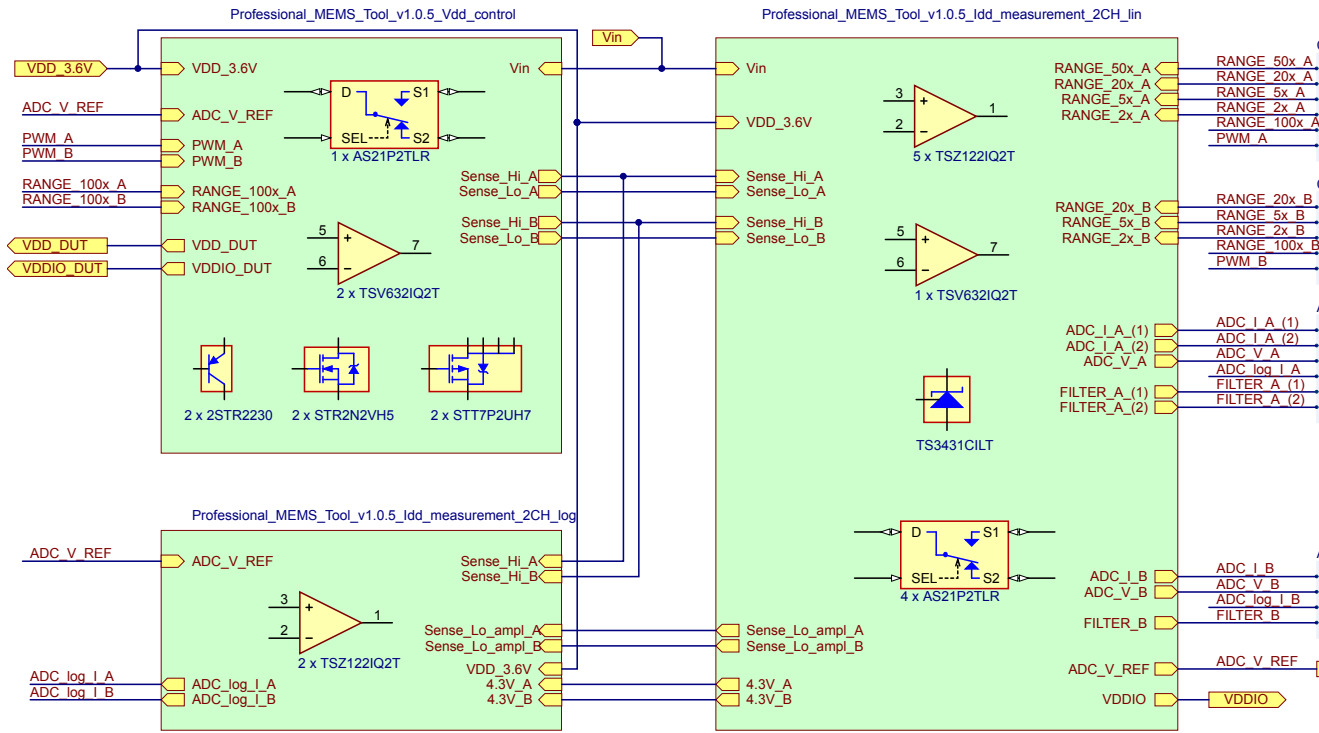


Figure 3. STEVAL-MKI109V3 circuit schematic (3 of 8)
Dual channel Vdd control

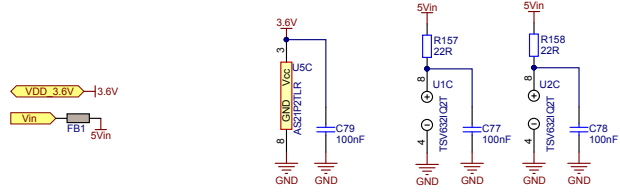
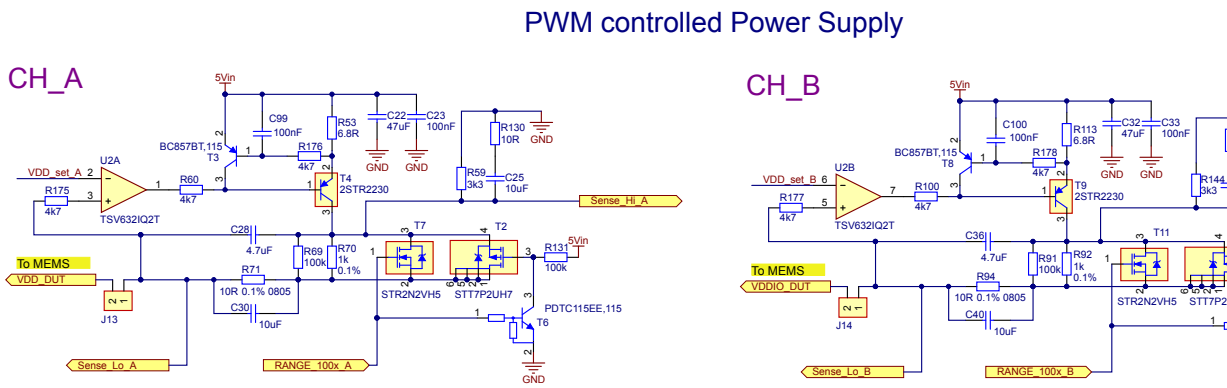
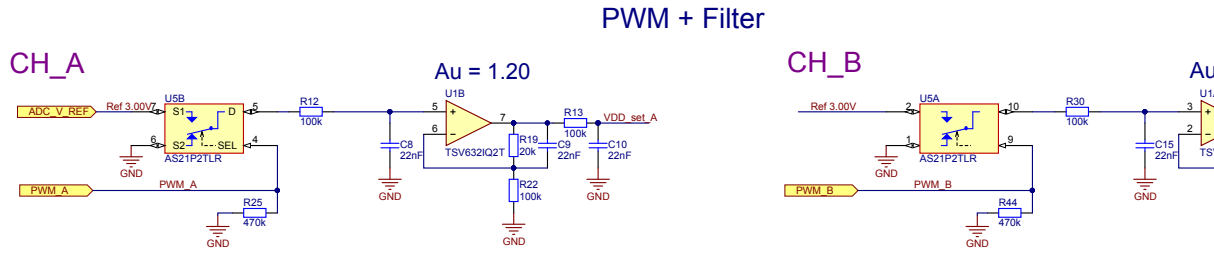


Figure 4. STEVAL-MK1109V3 circuit schematic (4 of 8)
 V1 - Dual Channel I_{dd} measurement - lin

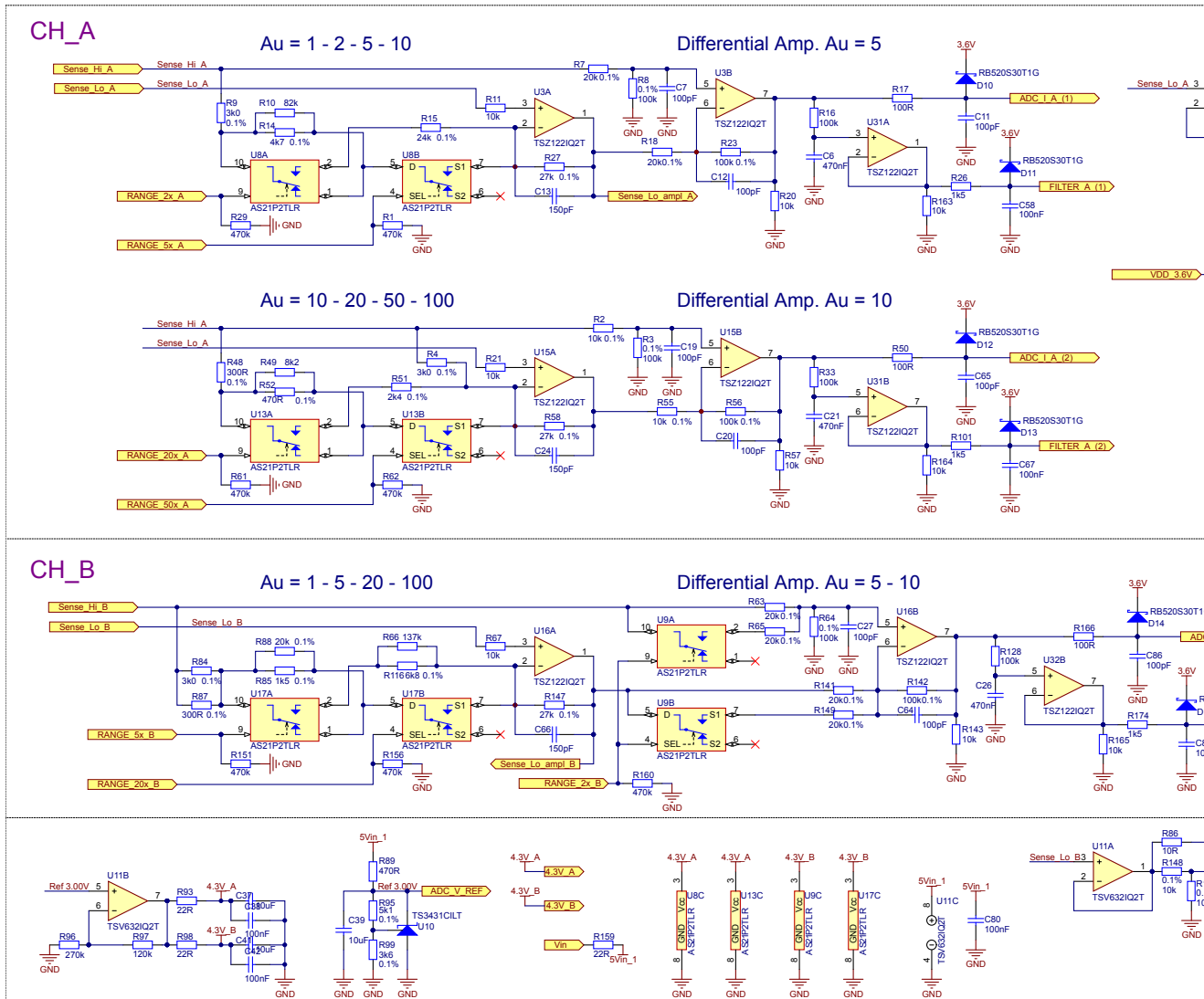
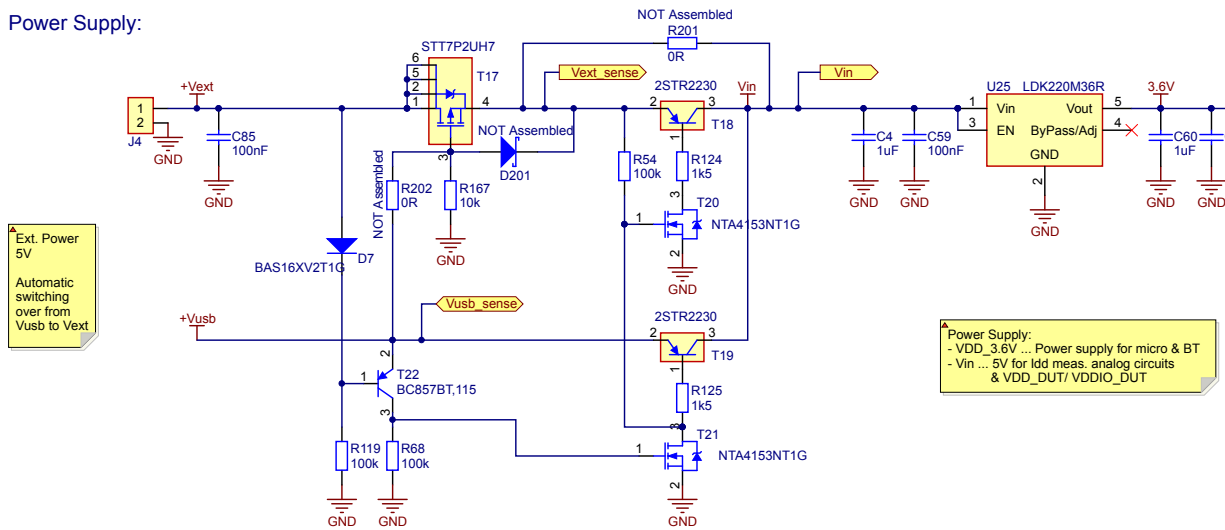


Figure 5. STEVAL-MK1109V3 circuit schematic (5 of 8)

Power Supply:



USB Connection:

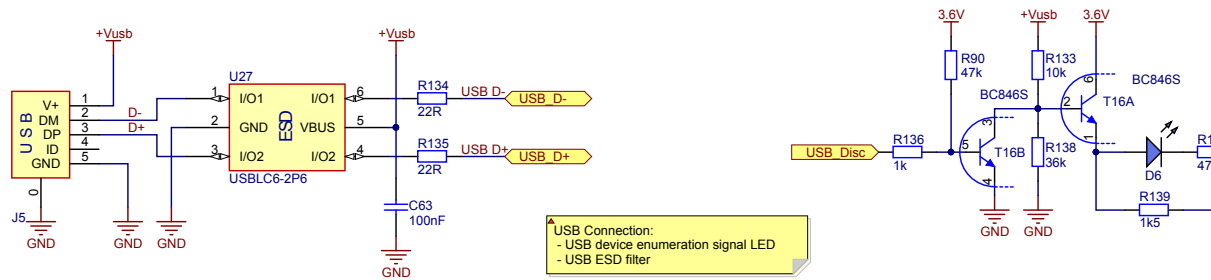
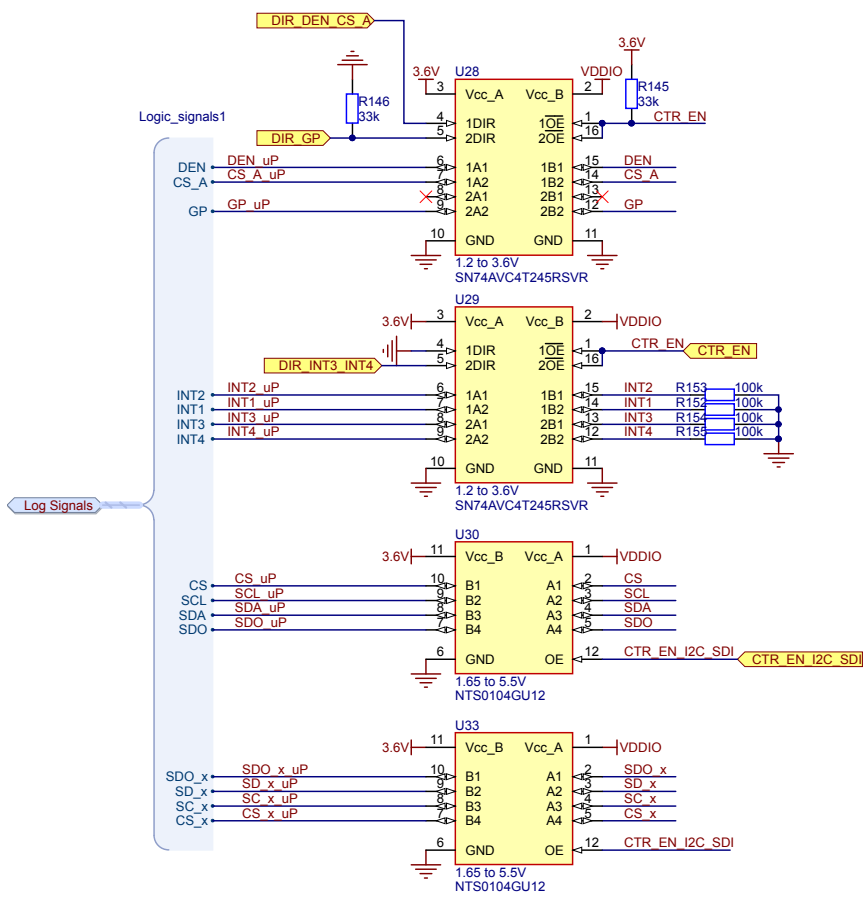


Figure 6. STEVAL-MKI109V3 circuit schematic (6 of 8)

Level Translation:



DIL24 Device Adapter:

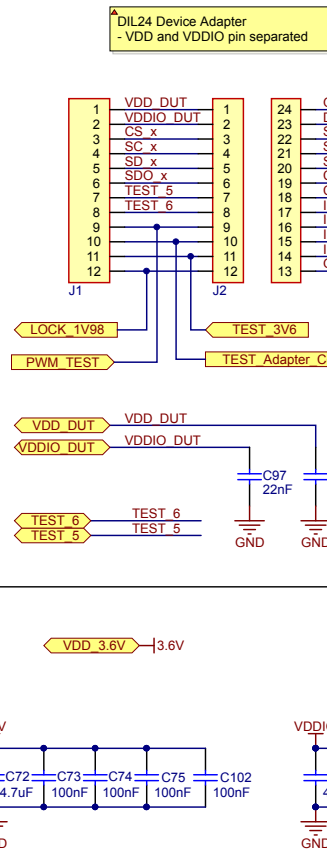


Figure 7. STEVAL-MKI109V3 circuit schematic (7 of 8)

Bluetooth Module Connection:

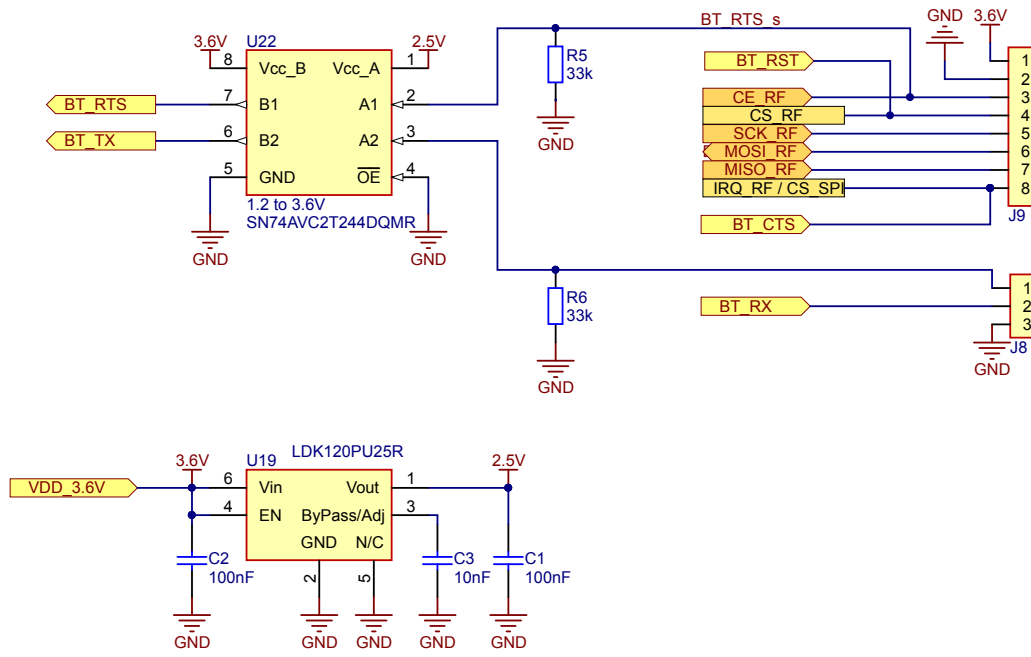
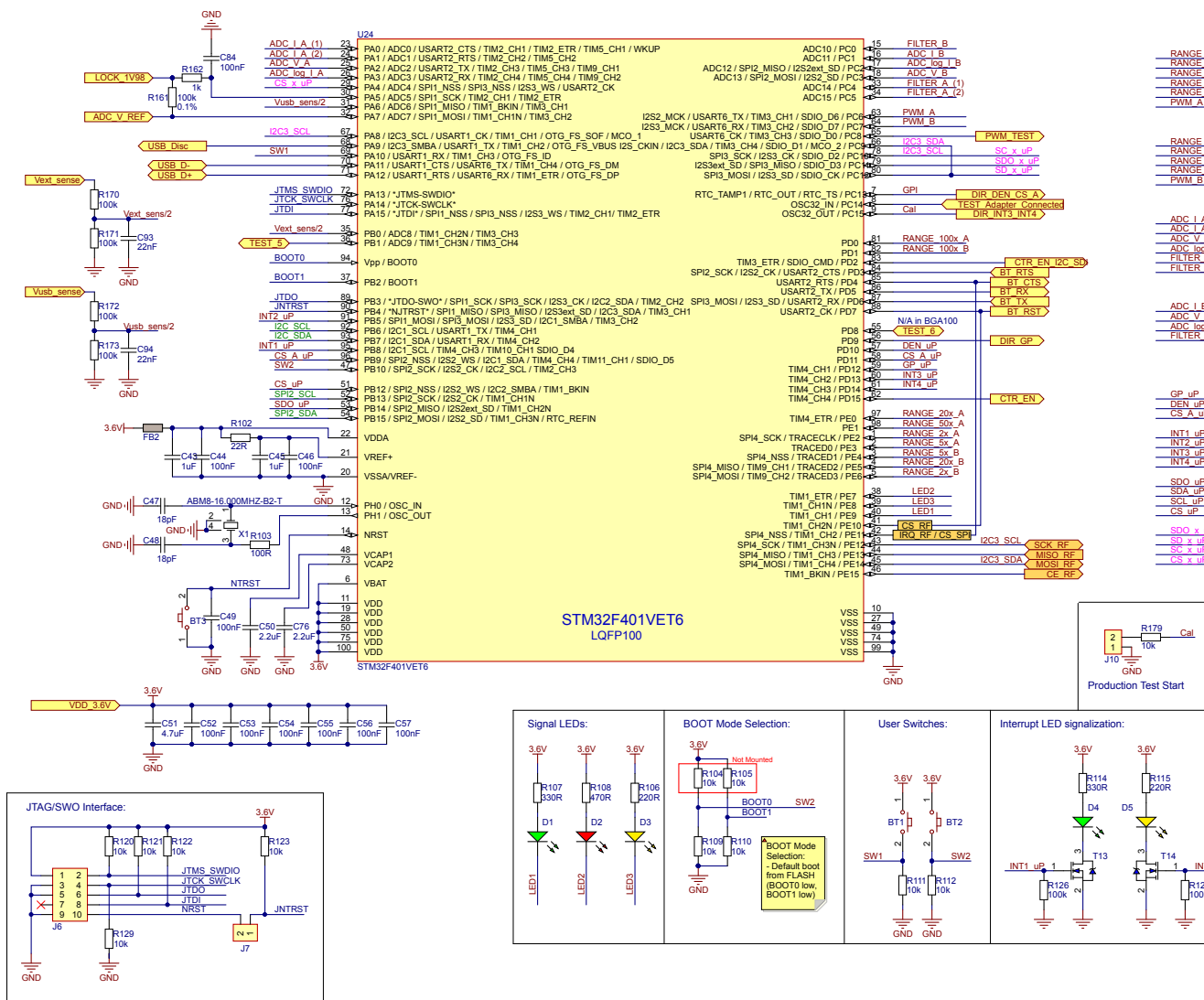


Figure 8. STEVAL-MK1109V3 circuit schematic (8 of 8)



Revision history

Table 1. Document revision history

Date	Version	Changes
04-Jul-2016	1	Initial release.
12-Apr-2019	2	Updated cover page Section Features and Section Description Added Section Product summary table

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Development Boards & Kits - ARM category](#):

Click to view products by [STMicroelectronics manufacturer](#):

Other Similar products are found below :

[SAFETI-HSK-RM48](#) [PICOHOBBITFL](#) [CC-ACC-MMK-2443](#) [TWR-MC-FRDMKE02Z](#) [EVALSPEAR320CPU](#) [EVB-SCMIMX6SX](#)
[MAX32600-KIT#](#) [TMDX570LS04HDK](#) [TXSD-SV70](#) [OM13080UL](#) [EVAL-ADUC7120QSPZ](#) [OM13082UL](#) [TXSD-SV71](#)
[YGRPEACHNORMAL](#) [OM13076UL](#) [PICODWARFFL](#) [YR8A77450HA02BG](#) [3580](#) [32F3348DISCOVERY](#) [ATTINY1607](#) [CURIOSITY](#)
[NANO](#) [PIC16F15376](#) [CURIOSITY NANO BOARD](#) [PIC18F47Q10](#) [CURIOSITY NANO](#) [VISIONSTK-6ULL V.2.0](#) [80-001428](#) [DEV-17717](#)
[EAK00360](#) [YR0K77210B000BE](#) [RTK7EKA2L1S00001BE](#) [MAX32651-EVKIT#](#) [SLN-VIZN-IOT](#) [LV18F V6 DEVELOPMENT SYSTEM](#)
[READY FOR AVR BOARD](#) [READY FOR PIC BOARD](#) [READY FOR PIC \(DIP28\)](#) [EVB-VF522R3](#) [AVRPLC16 V6 PLC SYSTEM](#)
[MIKROLAB FOR AVR XL](#) [MIKROLAB FOR PIC L](#) [MINI-AT BOARD - 5V](#) [MINI-M4 FOR STELLARIS](#) [MOD-09.Z](#) [BUGGY +](#)
[CLICKER 2 FOR PIC32MX + BLUETOOT](#) [1410](#) [LETS MAKE PROJECT PROGRAM. RELAY PIC](#) [LETS MAKE - VOICE](#)
[CONTROLLED LIGHTS](#) [LPC-H2294](#) [DSPIC-READY2 BOARD](#) [DSPIC-READY3 BOARD](#) [MIKROBOARD FOR ARM 64-PIN](#)
[MIKROLAB FOR AVR](#)