



Dual motor drive control stage based on the STM32F415ZG microcontroller

Data brief

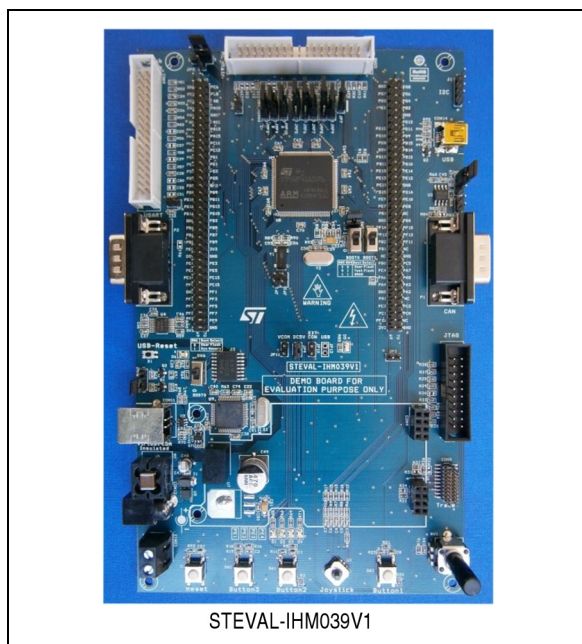
Features

- Two fully featured MC connectors for interfacing with any of the possible STMicroelectronics's evaluation power boards
- JTAG, SWD and trace debug support
- Mini-USB connector for isolated virtual COM port
- USB 2.0 full speed connection
- 240 x 320 TFT color LCD
- Joystick with 4 LEDs and 4-direction control and selector
- Reset plus three user buttons
- Five 5 V power supply sources: 2-way screw connector, power jack,
- 2 USB connectors (one isolated)
- Boot from user Flash or system memory
- CAN 2.0 A/B compliant connection
- I²C connection
- RS-232 channel with RTS/CTS handshake support
- Extension connectors for daughterboard or wrapping area board
- RoHS compliant

Description

The STEVAL-IHM039V1 demonstration board is a control stage based on STMicroelectronics's ARM™ Cortex™-M4 core-based STM32F415ZGT6 microcontroller featuring single and dual motor control.

It can be used together with the STM32 PMSM single/dual FOC SDK v3.2 and two of the possible STMicroelectronics's evaluation power boards provided with MC connectors for a complete dual

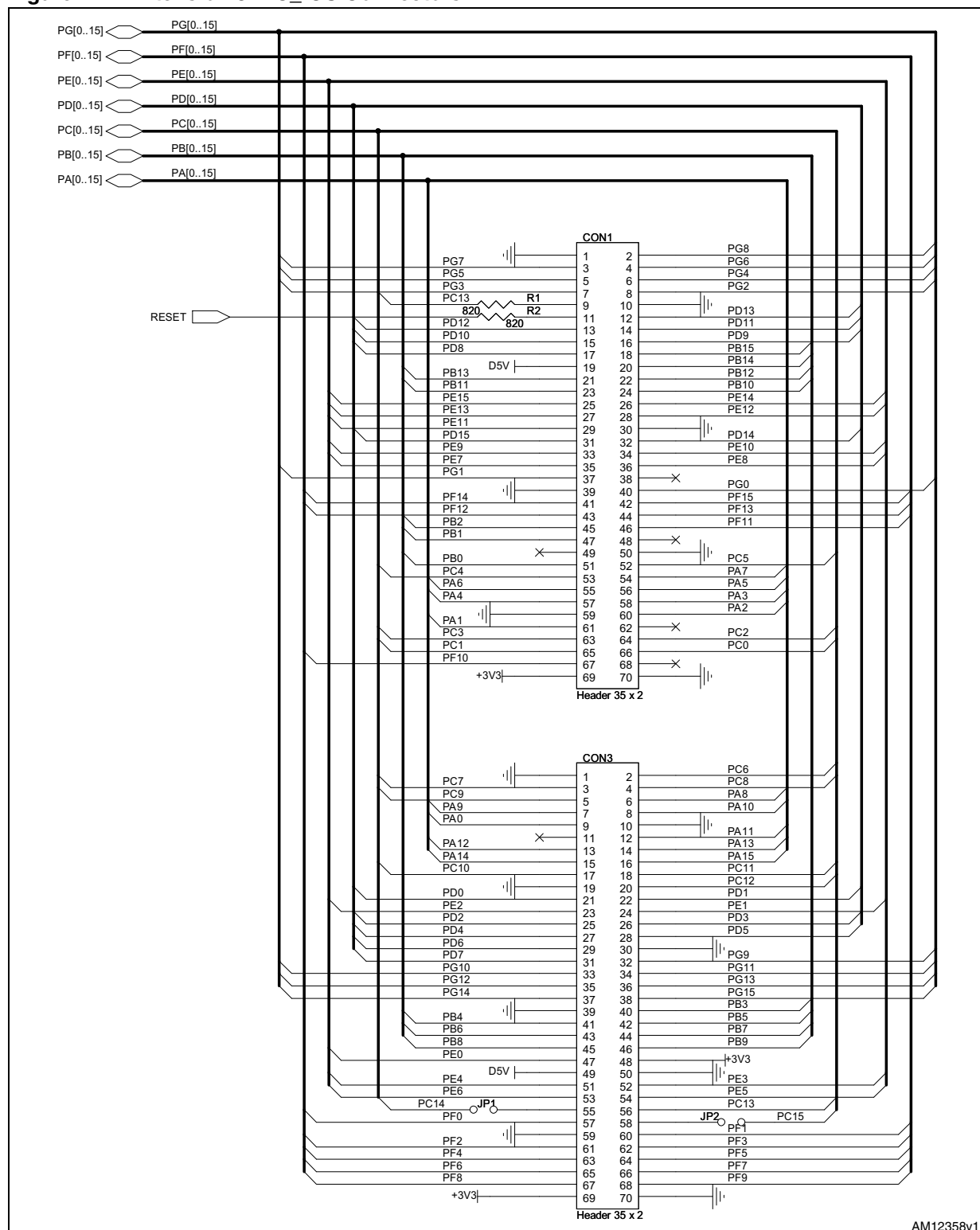


motor control evaluation and development platform.

With dedicated hardware features, the STEVAL-IHM039V1 demonstration board is designed to help developers to evaluate ST devices and to develop their own applications.

1 Schematic diagram

Figure 1. Extension & I2C_IOS Connectors



AM12358v1

Figure 2. Joystick button and LCD

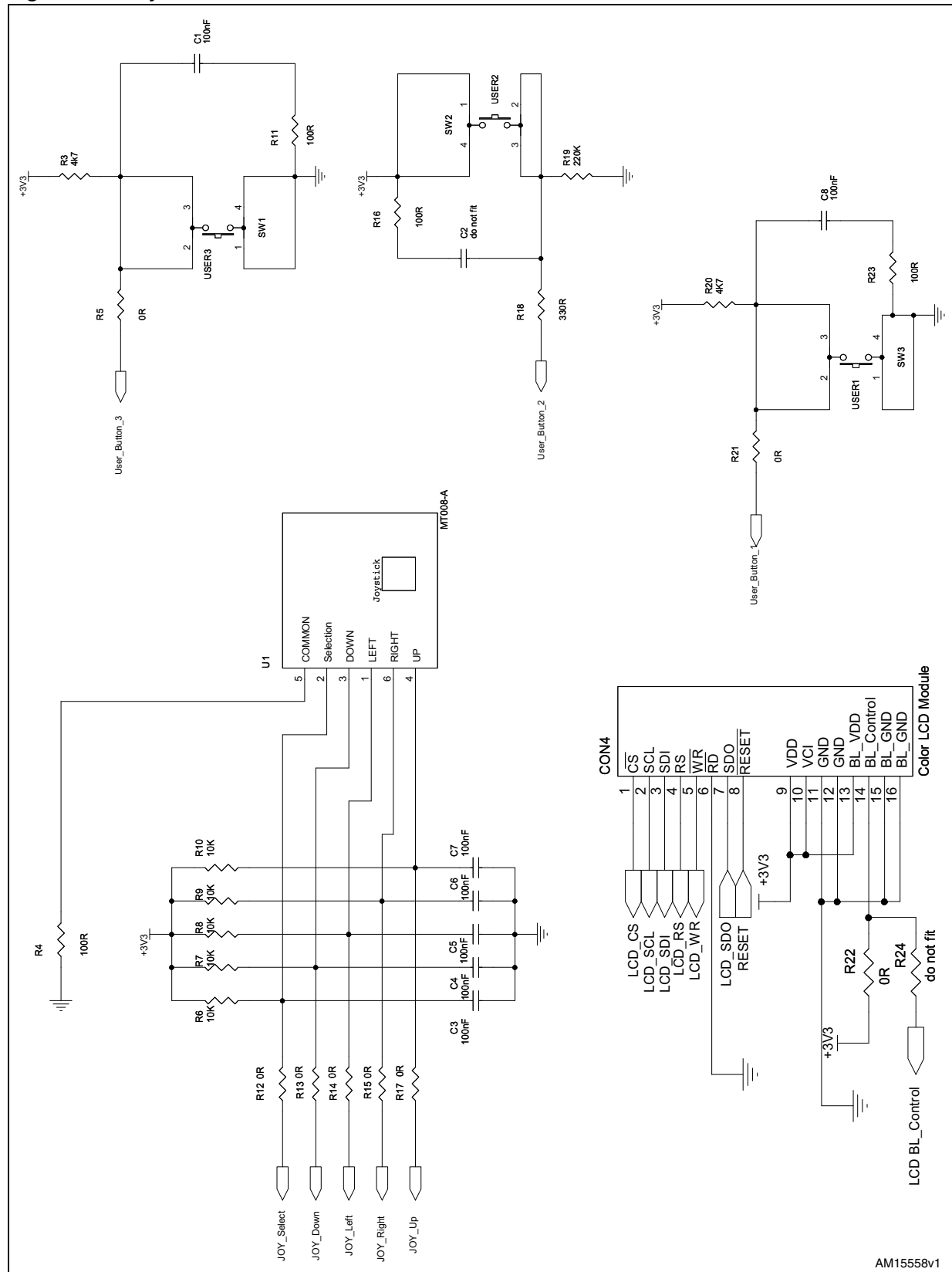


Figure 3. JTAG SWD and trace

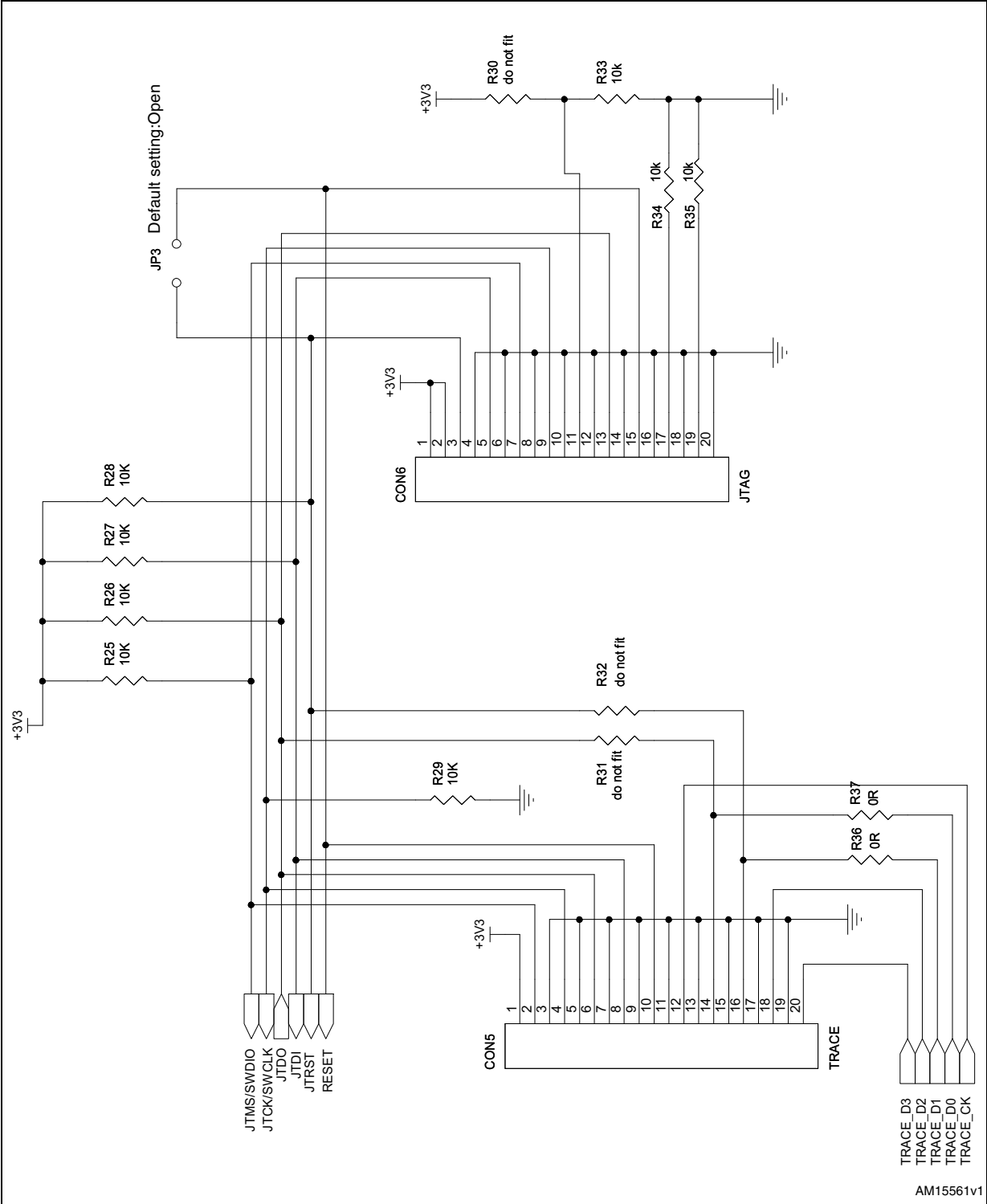
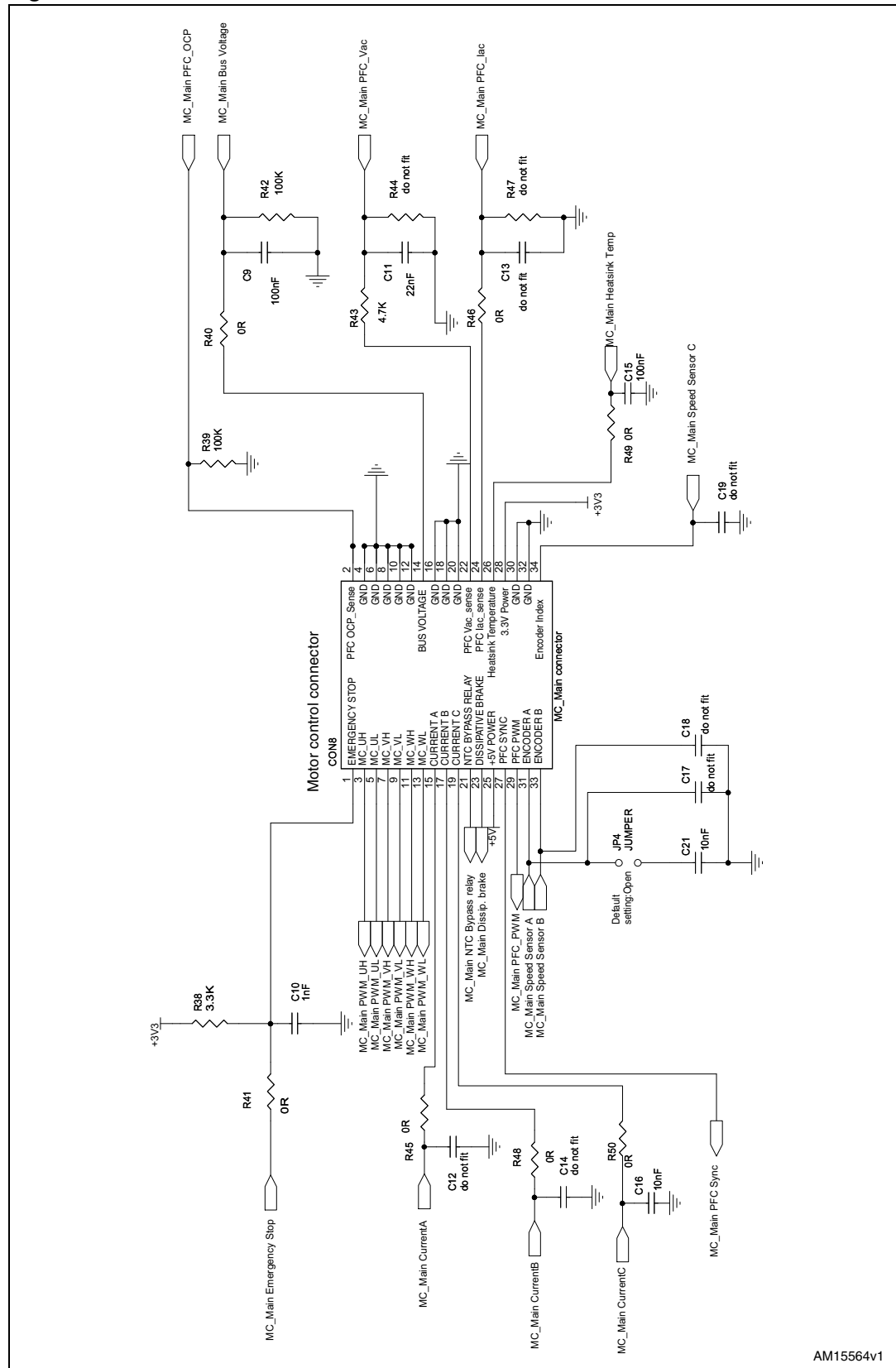


Figure 4. MC connector MAI



The diagram illustrates the wiring for the MC Sub1 connector, showing the connection of various sensors and components to the connector pins. The connector is labeled with pins 1 through 34 and their corresponding functions. The wiring includes resistors (R51, R52, R53, R54, R55, R56, R57, R58), capacitors (C24, C25, C26, C27, C28, C29, C30, C31, C32, C33), and jumpers (JMP10, JMP4, JMP3, JMP6). The MC Sub1 connector is labeled with pins 1 through 34 and their corresponding functions.

MC Sub1 Connector Pinout:

Pin	Function
1	EMERGENCY STOP
2	GND
3	MC_Sub1 PWM_UH
4	MC_Sub1 PWM_UL
5	MC_UL
6	MC_VH
7	MC_VL
8	MC_VH
9	MC_VL
10	MC_VH
11	MC_VL
12	MC_VH
13	MC_VL
14	MC_VH
15	MC_VL
16	BUS VOLTAGE
17	CURRENT A
18	CURRENT B
19	CURRENT C
20	NTC BY PASS RELAY
21	MC_Sub1 NTC Bypass relay
22	MC_Sub1 Disp. brake
23	DISP. BRAKE
24	Heatsink Temperature
25	Heatsink Temperature
26	Heatsink Temperature
27	Heatsink Temperature
28	Heatsink Temperature
29	Heatsink Temperature
30	Heatsink Temperature
31	Heatsink Temperature
32	Heatsink Temperature
33	Heatsink Temperature
34	Heatsink Temperature

Figure 6. Peripheral (1 of 2)

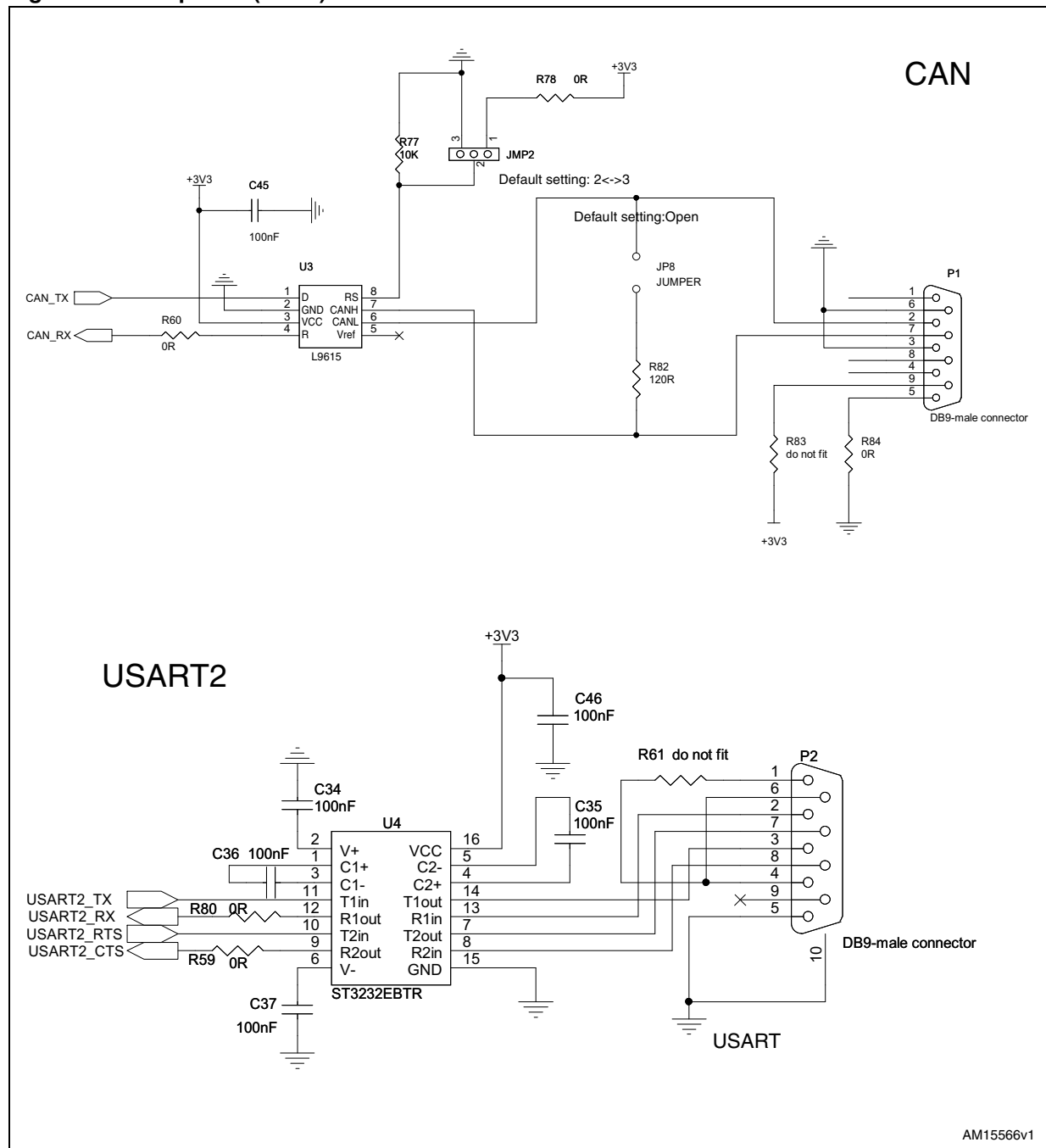


Figure 7. Peripheral (2 of 2)

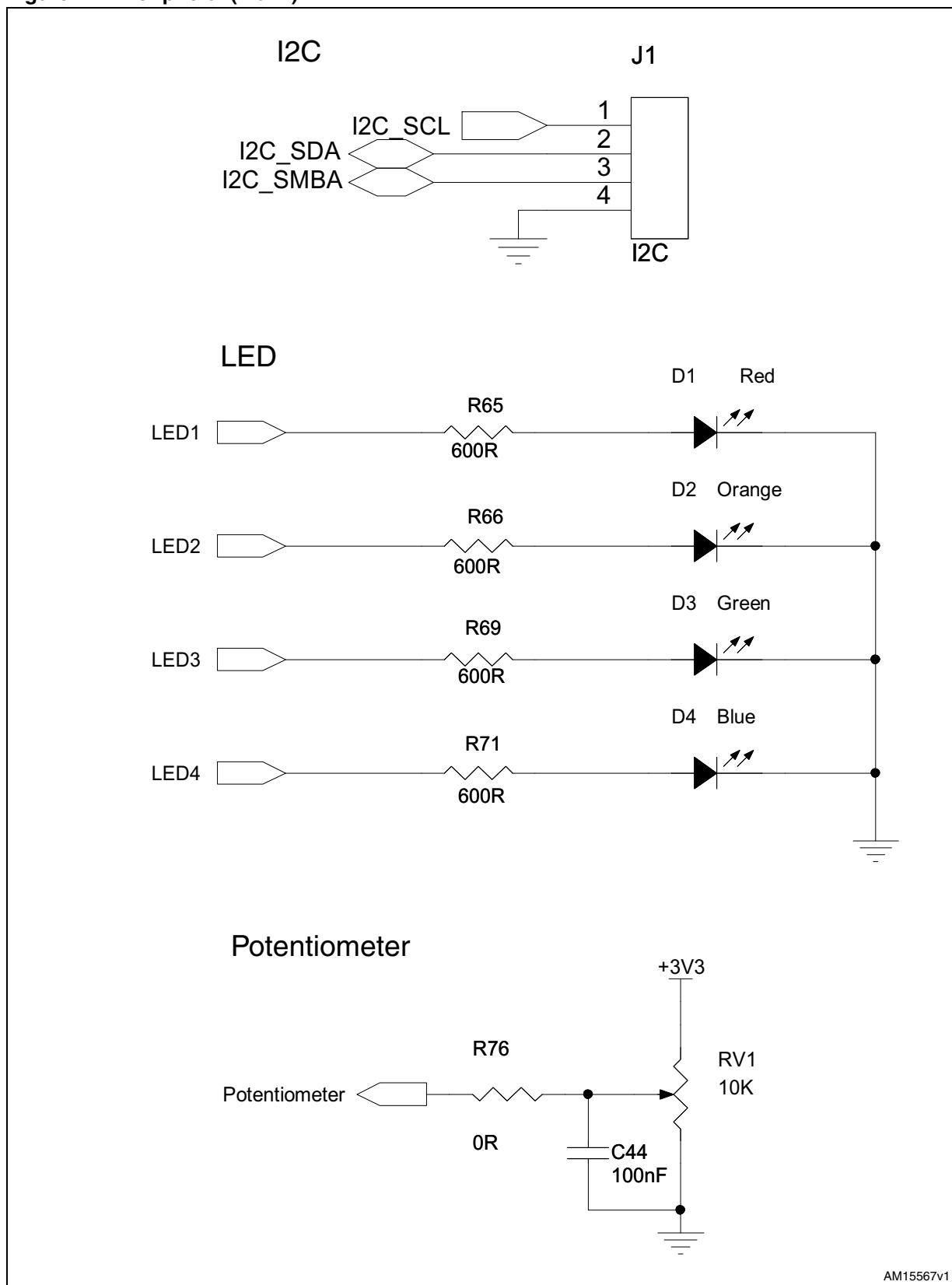


Figure 8. Power (1 of 2)

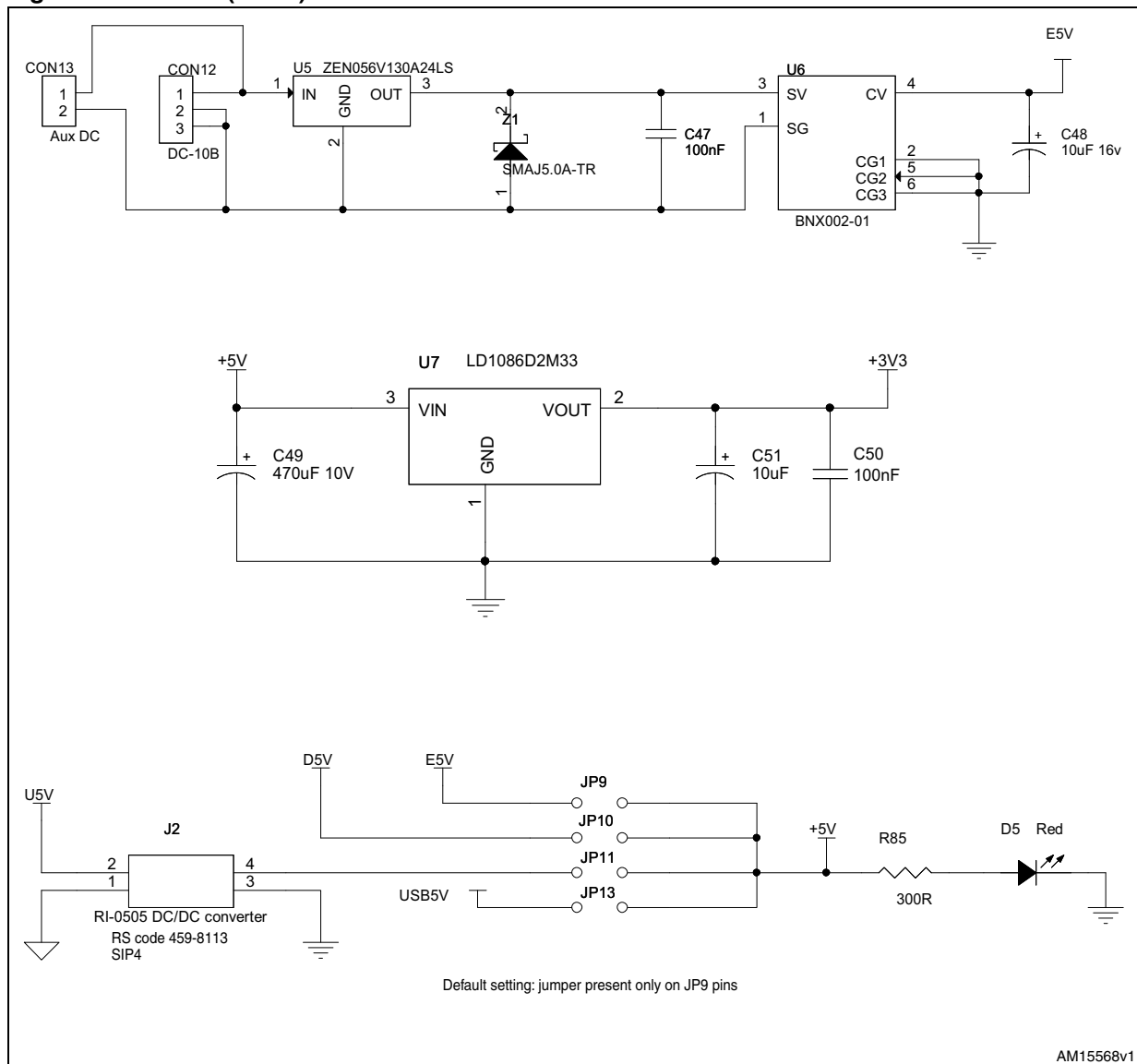
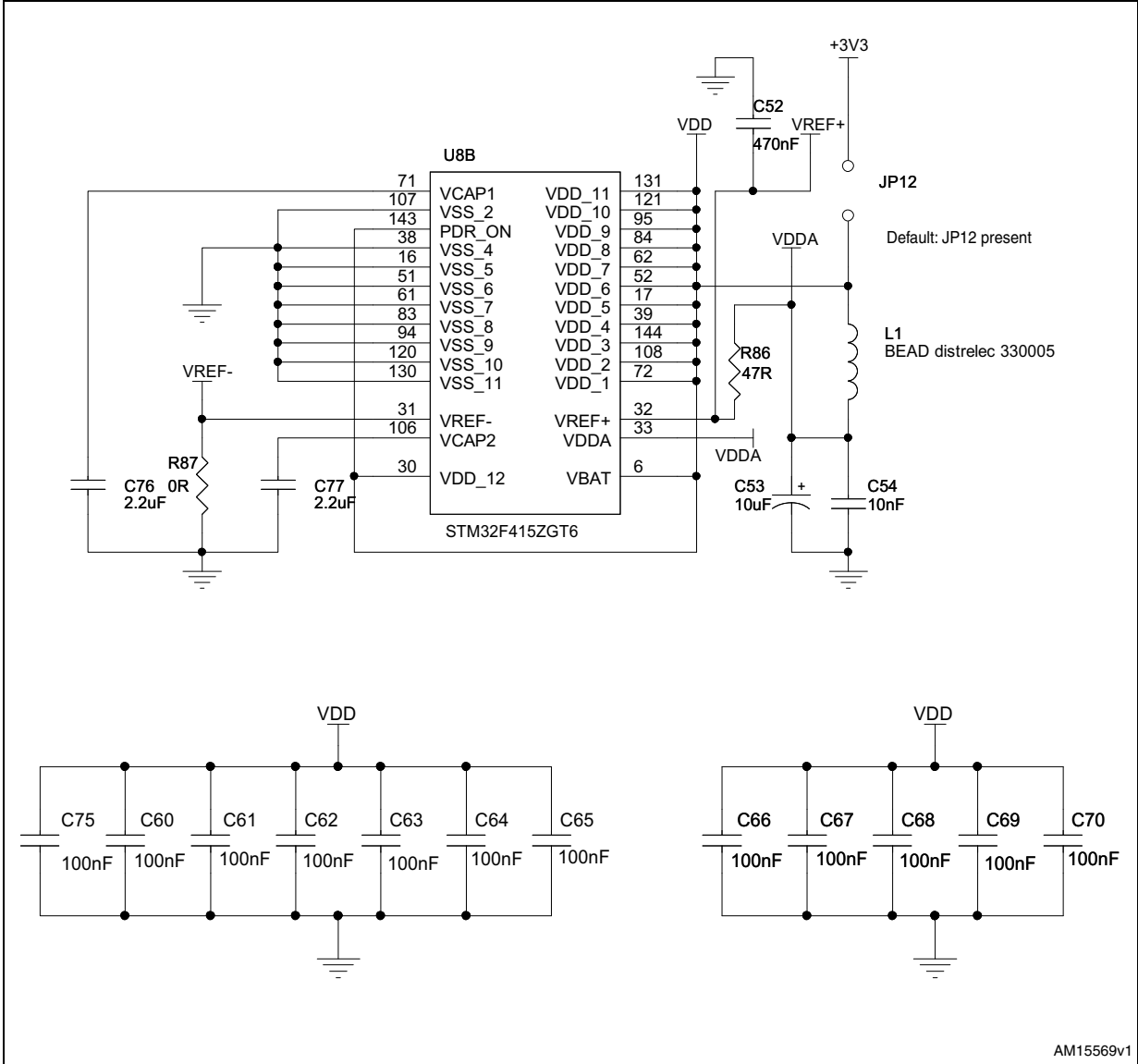


Figure 9. Power (2 of 2)



AM15570v1

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jan-2013	1	Initial release.

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