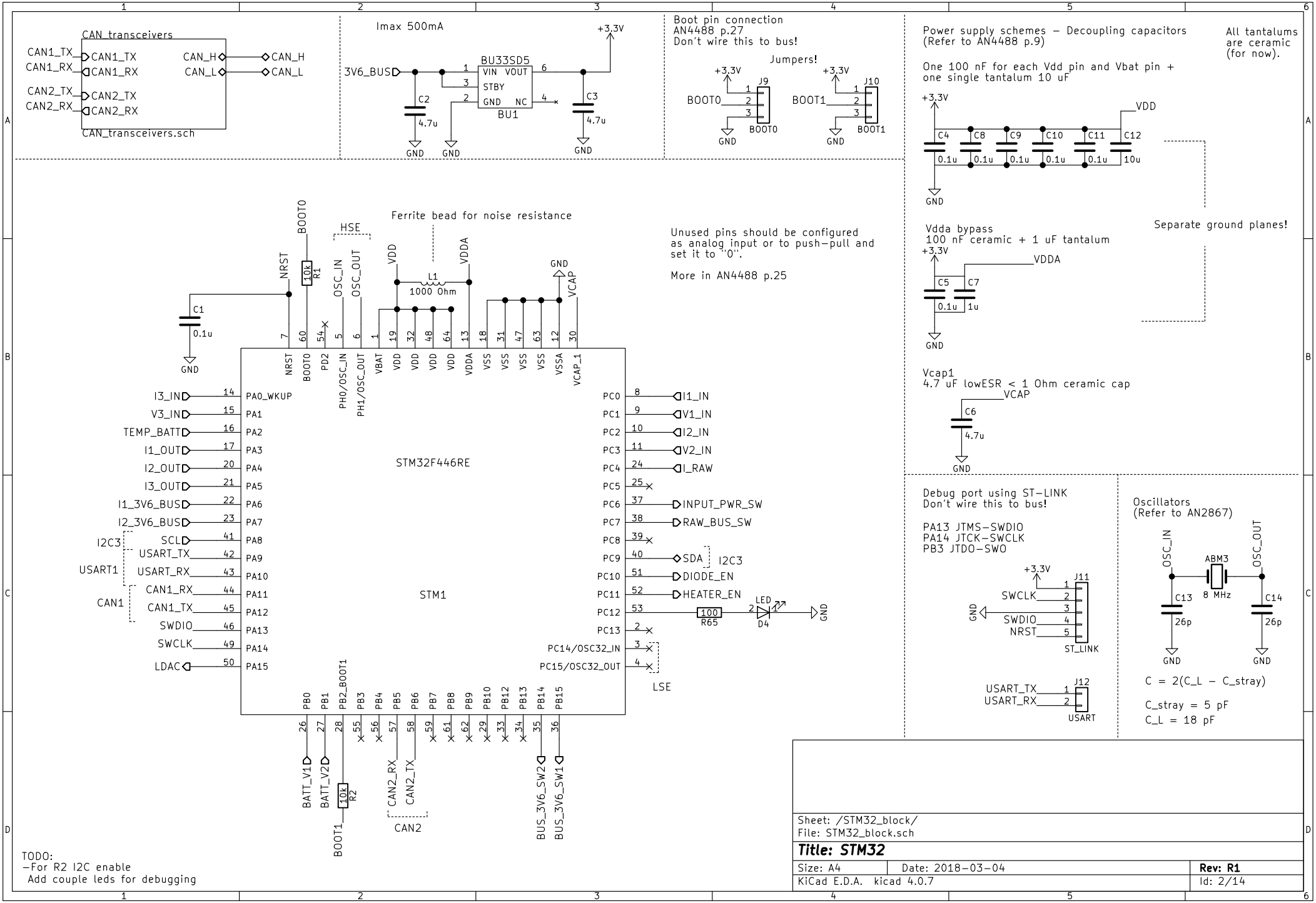
CAN_transceivers
CAN1_TX
CAN1_RX
CAN2_TX
CAN2_RX
CAN_H
CAN_L
CAN_transceivers.sch
Imax 500mA
3V6_BUS
BU33SD5
VIN VOUT
STBY
GND NC
BU1
C2
4.7u
C3
4.7u
+3.3V
GND
Boot pin connection
AN4488 p.27
Don't wire this to bus!
Jumpers!
BOOT0
BOOT1
J9
J10
Power supply schemes – Decoupling capacitors
(Refer to AN4488 p.9)
All tantalums are ceramic (for now).
One 100 nF for each Vdd pin and Vbat pin + one single tantalum 10 uF
VDD
C4 C8 C9 C10 C11 C12
0.1u 0.1u 0.1u 0.1u 0.1u 10u
Separate ground planes!
Vdda bypass
100 nF ceramic + 1 uF tantalum
VDDA
C5 C7
0.1u 1u
Vcap1
4.7 uF lowESR < 1 Ohm ceramic cap
VCAP
C6
4.7u
Ferrite bead for noise resistance
HSE
L1
1000 Ohm
NRST
R1
10k
C1
0.1u
OSC_IN
OSC_OUT
VCAP
Unused pins should be configured as analog input or to push-pull and set it to "0".
More in AN4488 p.25
STM32F446RE
STM1
I3_IN
V3_IN
TEMP_BATT
I1_OUT
I2_OUT
I3_OUT
I1_3V6_BUS
I2_3V6_BUS
SCL
USART_TX
USART_RX
CAN1_RX
CAN1_TX
SWDIO
SWCLK
LDAC
I2C3
USART1
CAN1
I1_IN
V1_IN
I2_IN
V2_IN
I_RAW
INPUT_PWR_SW
RAW_BUS_SW
SDA
DIODE_EN
HEATER_EN
LED
D4
R65
100
PC14/OSC32_IN
PC15/OSC32_OUT
LSE
BATT_V1
BATT_V2
R2
10k
BOOT1
CAN2_RX
CAN2_TX
CAN2
BUS_3V6_SW2
BUS_3V6_SW1
Debug port using ST-LINK
Don't wire this to bus!
PA13 JTMS-SWDIO
PA14 JTCK-SWCLK
PB3 JTDO-SWO
J11
ST_LINK
J12
USART
Oscillators
(Refer to AN2867)
ABM3
8 MHz
C13
26p
C14
26p
C = 2(C_L – C_stray)
C_stray = 5 pF
C_L = 18 pF
TODO:
–For R2 I2C enable
Add couple leds for debugging
Sheet: /STM32_block/
File: STM32_block.sch
Title: STM32
Size: A4
Date: 2018-03-04
Rev: R1
KiCad E.D.A. kicad 4.0.7
Id: 2/14