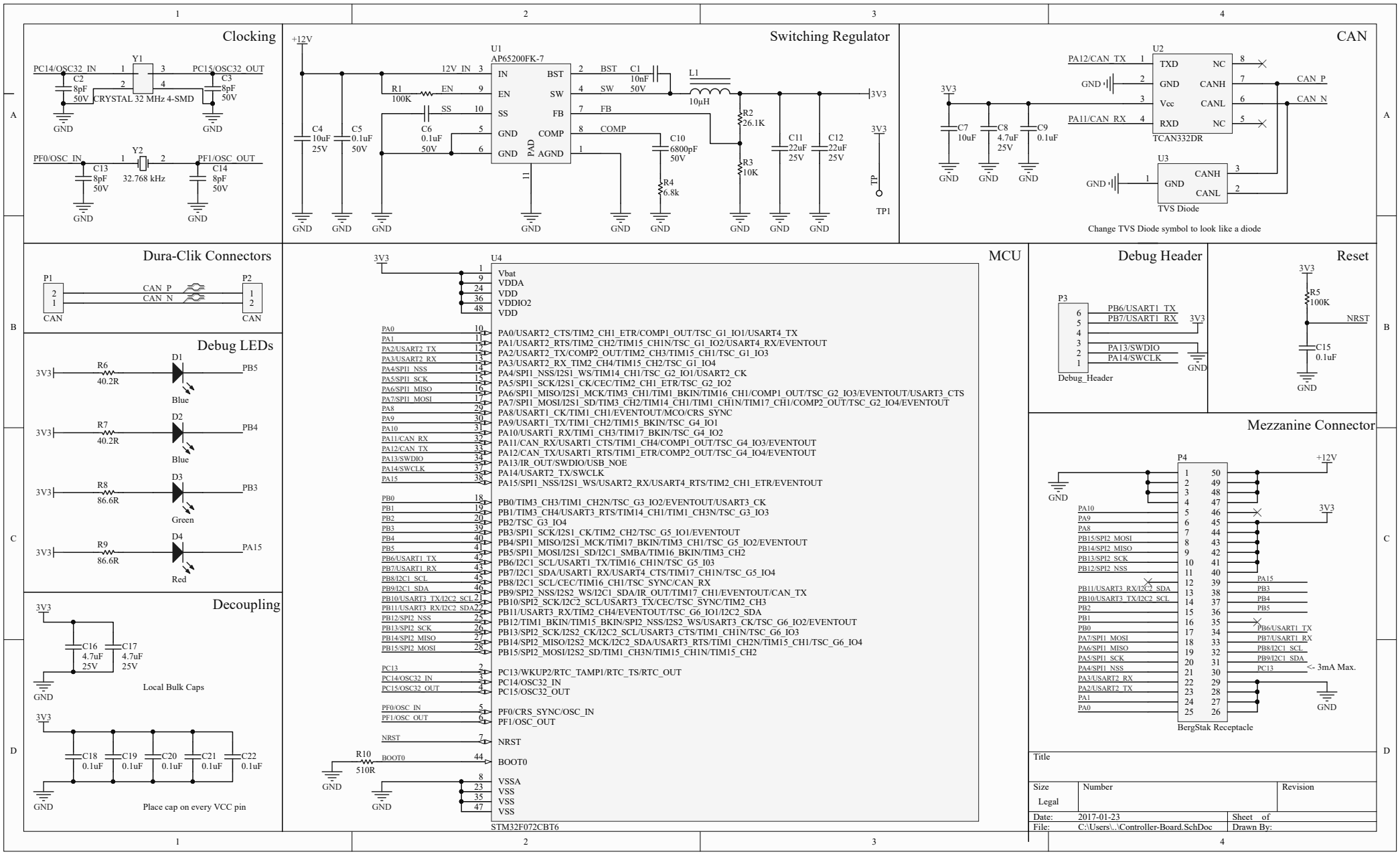
Clocking
PC14/OSC32_IN
PC15/OSC32_OUT
Y1
C2 8pF 50V
C3 8pF 50V
CRYSTAL 32 MHz 4-SMD
GND
PF0/OSC_IN
PF1/OSC_OUT
Y2
C13 8pF 50V
C14 8pF 50V
32.768 kHz
Switching Regulator
+12V
U1
AP65200FK-7
IN
EN
SS
GND
BST
SW
FB
COMP
AGND
PAD
12V_IN
R1 100K
C4 10uF 25V
C5 0.1uF 50V
C6 0.1uF 50V
C1 10nF 50V
L1 10µH
R2 26.1K
R3 10K
R4 6.8k
C10 6800pF 50V
C11 22uF 25V
C12 22uF 25V
3V3
TP
TP1
CAN
U2
TXD
GND
Vcc
RXD
NC
CANH
CANL
PA12/CAN_TX
PA11/CAN_RX
CAN_P
CAN_N
TCAN332DR
C7 10uF
C8 4.7uF 25V
C9 0.1uF
U3
TVS Diode
Change TVS Diode symbol to look like a diode
Dura-Clik Connectors
P1
P2
CAN_P
CAN_N
CAN
Debug LEDs
R6 40.2R
R7 40.2R
R8 86.6R
R9 86.6R
D1
D2
D3
D4
Blue
Blue
Green
Red
PB5
PB4
PB3
PA15
Decoupling
C16 4.7uF 25V
C17 4.7uF 25V
Local Bulk Caps
C18 0.1uF
C19 0.1uF
C20 0.1uF
C21 0.1uF
C22 0.1uF
Place cap on every VCC pin
MCU
U4
Vbat
VDDA
VDD
VDDIO2
VDD
PA0/USART2_CTS/TIM2_CH1_ETR/COMP1_OUT/TSC_G1_IO1/USART4_TX
PA1/USART2_RTS/TIM2_CH2/TIM15_CH1N/TSC_G1_IO2/USART4_RX/EVENTOUT
PA2/USART2_TX/COMP2_OUT/TIM2_CH3/TIM15_CH1/TSC_G1_IO3
PA3/USART2_RX_TIM2_CH4/TIM15_CH2/TSC_G1_IO4
PA4/SPI1_NSS/I2S1_WS/TIM14_CH1/TSC_G2_IO1/USART2_CK
PA5/SPI1_SCK/I2S1_CK/CEC/TIM2_CH1_ETR/TSC_G2_IO2
PA6/SPI1_MISO/I2S1_MCK/TIM3_CH1/TIM1_BKIN/TIM16_CH1/COMP1_OUT/TSC_G2_IO3/EVENTOUT/USART3_CTS
PA7/SPI1_MOSI/I2S1_SD/TIM3_CH2/TIM14_CH1/TIM1_CH1N/TIM17_CH1/COMP2_OUT/TSC_G2_IO4/EVENTOUT
PA8/USART1_CK/TIM1_CH1/EVENTOUT/MCO/CRS_SYNC
PA9/USART1_TX/TIM1_CH2/TIM15_BKIN/TSC_G4_IO1
PA10/USART1_RX/TIM1_CH3/TIM17_BKIN/TSC_G4_IO2
PA11/CAN_RX/USART1_CTS/TIM1_CH4/COMP1_OUT/TSC_G4_IO3/EVENTOUT
PA12/CAN_TX/USART1_RTS/TIM1_ETR/COMP2_OUT/TSC_G4_IO4/EVENTOUT
PA13/IR_OUT/SWDIO/USB_NOE
PA14/USART2_TX/SWCLK
PA15/SPI1_NSS/I2S1_WS/USART2_RX/USART4_RTS/TIM2_CH1_ETR/EVENTOUT
PB0/TIM3_CH3/TIM1_CH2N/TSC_G3_IO2/EVENTOUT/USART3_CK
PB1/TIM3_CH4/USART3_RTS/TIM14_CH1/TIM1_CH3N/TSC_G3_IO3
PB2/TSC_G3_IO4
PB3/SPI1_SCK/I2S1_CK/TIM2_CH2/TSC_G5_IO1/EVENTOUT
PB4/SPI1_MISO/I2S1_MCK/TIM17_BKIN/TIM3_CH1/TSC_G5_IO2/EVENTOUT
PB5/SPI1_MOSI/I2S1_SD/I2C1_SMBA/TIM16_BKIN/TIM3_CH2
PB6/I2C1_SCL/USART1_TX/TIM16_CH1N/TSC_G5_I03
PB7/I2C1_SDA/USART1_RX/USART4_CTS/TIM17_CH1N/TSC_G5_IO4
PB8/I2C1_SCL/CEC/TIM16_CH1/TSC_SYNC/CAN_RX
PB9/SPI2_NSS/I2S2_WS/I2C1_SDA/IR_OUT/TIM17_CH1/EVENTOUT/CAN_TX
PB10/SPI2_SCK/I2C2_SCL/USART3_TX/CEC/TSC_SYNC/TIM2_CH3
PB11/USART3_RX/TIM2_CH4/EVENTOUT/TSC_G6_IO1/I2C2_SDA
PB12/TIM1_BKIN/TIM15_BKIN/SPI2_NSS/I2S2_WS/USART3_CK/TSC_G6_IO2/EVENTOUT
PB13/SPI2_SCK/I2S2_CK/I2C2_SCL/USART3_CTS/TIM1_CH1N/TSC_G6_IO3
PB14/SPI2_MISO/I2S2_MCK/I2C2_SDA/USART3_RTS/TIM1_CH2N/TIM15_CH1/TSC_G6_IO4
PB15/SPI2_MOSI/I2S2_SD/TIM1_CH3N/TIM15_CH1N/TIM15_CH2
PC13/WKUP2/RTC_TAMP1/RTC_TS/RTC_OUT
PC14/OSC32_IN
PC15/OSC32_OUT
PF0/CRS_SYNC/OSC_IN
PF1/OSC_OUT
NRST
BOOT0
VSSA
VSS
VSS
VSS
R10 510R
STM32F072CBT6
Debug Header
P3
PB6/USART1_TX
PB7/USART1_RX
PA13/SWDIO
PA14/SWCLK
Debug_Header
Reset
R5 100K
C15 0.1uF
NRST
Mezzanine Connector
P4
+12V
3V3
PA10
PA9
PA8
PB15/SPI2_MOSI
PB14/SPI2_MISO
PB13/SPI2_SCK
PB12/SPI2_NSS
PB11/USART3_RX/I2C2_SDA
PB10/USART3_TX/I2C2_SCL
PB2
PB1
PB0
PA7/SPI1_MOSI
PA6/SPI1_MISO
PA5/SPI1_SCK
PA4/SPI1_NSS
PA3/USART2_RX
PA2/USART2_TX
PA1
PA0
PA15
PB3
PB4
PB5
PB6/USART1_TX
PB7/USART1_RX
PB8/I2C1_SCL
PB9/I2C1_SDA
PC13
<- 3mA Max.
BergStak Receptacle
Title
Size
Legal
Number
Revision
Date: 2017-01-23
Sheet of
File: C:\Users\..\Controller-Board.SchDoc
Drawn By: