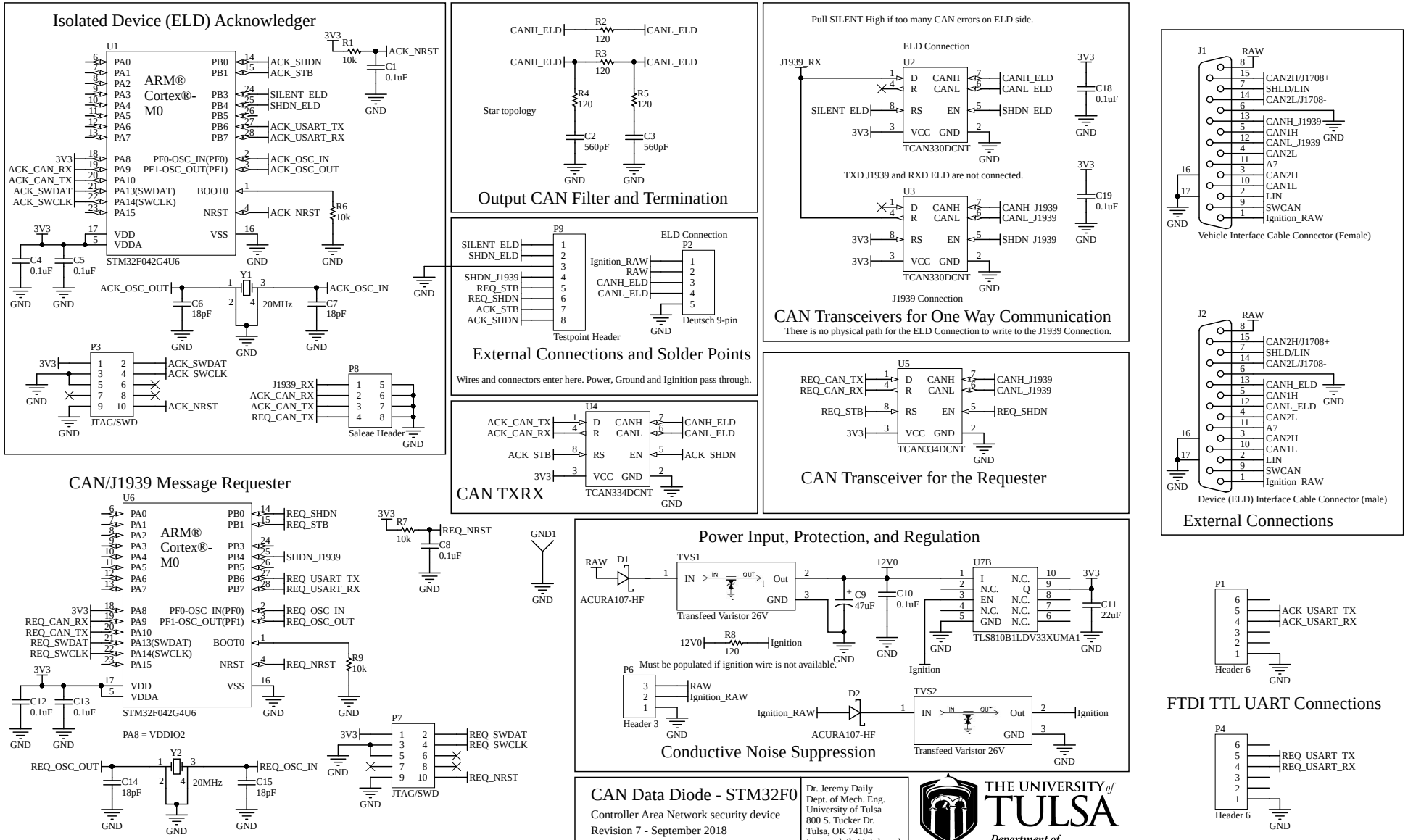
Isolated Device (ELD) Acknowledger
U1
ARM® Cortex®-M0
STM32F042G4U6
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7 PA8 PA9 PA10 PA13(SWDAT) PA14(SWCLK) PA15
PB0 PB1 PB3 PB4 PB5 PB6 PB7 BOOT0 NRST VDD VDDA VSS
PF0-OSC_IN(PF0) PF1-OSC_OUT(PF1)
ACK_SHDN ACK_STB SILENT_ELD SHDN_ELD ACK_USART_TX ACK_USART_RX ACK_OSC_IN ACK_OSC_OUT ACK_NRST
ACK_CAN_RX ACK_CAN_TX ACK_SWDAT ACK_SWCLK
3V3 R1 10k C1 0.1uF GND
R6 10k
C4 0.1uF C5 0.1uF
Y1 20MHz
ACK_OSC_OUT ACK_OSC_IN
C6 18pF C7 18pF
P3 JTAG/SWD
ACK_SWDAT ACK_SWCLK ACK_NRST
P8 Saleae Header
J1939_RX ACK_CAN_RX ACK_CAN_TX REQ_CAN_TX
Output CAN Filter and Termination
CANH_ELD CANL_ELD
R2 120 R3 120 R4 120 R5 120
Star topology
C2 560pF C3 560pF
External Connections and Solder Points
P9 Testpoint Header
SILENT_ELD SHDN_ELD SHDN_J1939 REQ_STB REQ_SHDN ACK_STB ACK_SHDN
ELD Connection
P2 Deutsch 9-pin
Ignition_RAW RAW CANH_ELD CANL_ELD
Wires and connectors enter here. Power, Ground and Ignition pass through.
CAN TXRX
U4 TCAN334DCNT
ACK_CAN_TX ACK_CAN_RX ACK_STB 3V3
CANH_ELD CANL_ELD ACK_SHDN
Pull SILENT High if too many CAN errors on ELD side.
ELD Connection
U2 TCAN330DCNT
J1939_RX SILENT_ELD 3V3
CANH_ELD CANL_ELD SHDN_ELD
C18 0.1uF
TXD J1939 and RXD ELD are not connected.
U3 TCAN330DCNT
CANH_J1939 CANL_J1939 SHDN_J1939
C19 0.1uF
J1939 Connection
CAN Transceivers for One Way Communication
There is no physical path for the ELD Connection to write to the J1939 Connection.
U5 TCAN334DCNT
REQ_CAN_TX REQ_CAN_RX REQ_STB 3V3
CANH_J1939 CANL_J1939 REQ_SHDN
CAN Transceiver for the Requester
J1 Vehicle Interface Cable Connector (Female)
RAW CAN2H/J1708+ SHLD/LIN CAN2L/J1708- CANH_J1939 CAN1H CANL_J1939 CAN2L A7 CAN2H CAN1L LIN SWCAN Ignition_RAW
J2 Device (ELD) Interface Cable Connector (male)
RAW CAN2H/J1708+ SHLD/LIN CAN2L/J1708- CANH_ELD CAN1H CANL_ELD CAN2L A7 CAN2H CAN1L LIN SWCAN Ignition_RAW
External Connections
CAN/J1939 Message Requester
U6
ARM® Cortex®-M0
STM32F042G4U6
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7 PA8 PA9 PA10 PA13(SWDAT) PA14(SWCLK) PA15
PB0 PB1 PB3 PB4 PB5 PB6 PB7 BOOT0 NRST VDD VDDA VSS
PF0-OSC_IN(PF0) PF1-OSC_OUT(PF1)
REQ_SHDN REQ_STB SHDN_J1939 REQ_USART_TX REQ_USART_RX REQ_OSC_IN REQ_OSC_OUT REQ_NRST
3V3 R7 10k C8 0.1uF GND
GND1
R9 10k
REQ_CAN_RX REQ_CAN_TX REQ_SWDAT REQ_SWCLK
C12 0.1uF C13 0.1uF
PA8 = VDDIO2
Y2 20MHz
REQ_OSC_OUT REQ_OSC_IN
C14 18pF C15 18pF
P7 JTAG/SWD
REQ_SWDAT REQ_SWCLK REQ_NRST
ARM Cortex 32-bit Microprocessor with CAN. Programmed with Serial Wire Debug. End User Interface through UART.
Power Input, Protection, and Regulation
RAW D1 ACURA107-HF
TVS1 Transfeed Varistor 26V
12V0 C9 47uF C10 0.1uF
U7B TLS810B1LDV33XUMA1
3V3 C11 22uF
12V0 R8 120 Ignition
Must be populated if ignition wire is not available.
P6 Header 3
RAW Ignition_RAW
Conductive Noise Suppression
Ignition_RAW D2 ACURA107-HF
TVS2 Transfeed Varistor 26V
Ignition
P1 Header 6
ACK_USART_TX ACK_USART_RX
FTDI TTL UART Connections
P4 Header 6
REQ_USART_TX REQ_USART_RX
Fits BUD HP-3650-B Enclosure
CAN Data Diode - STM32F0
Controller Area Network security device
Revision 7 - September 2018
Sheet 1 of 1
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