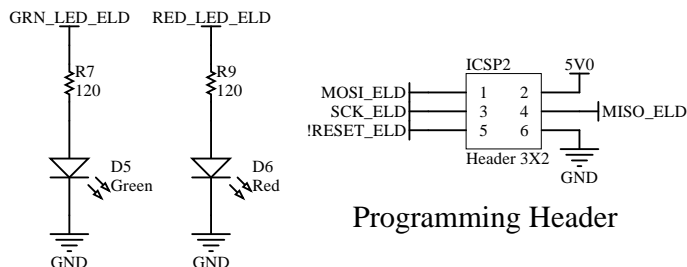


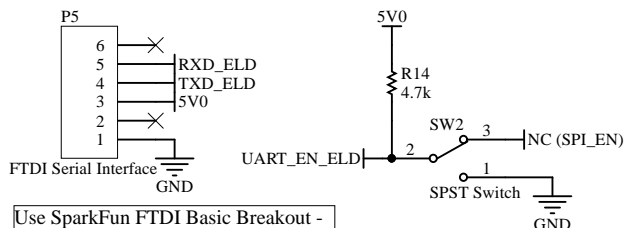
ELD Side CAN Controller and Transceiver

Used to Acknowledge ELD Connection CAN Frames.

External Interfaces (to be removed for production)

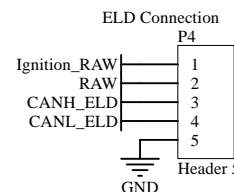
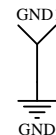
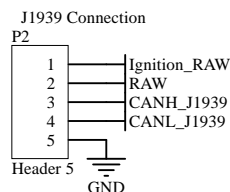


LED Indication



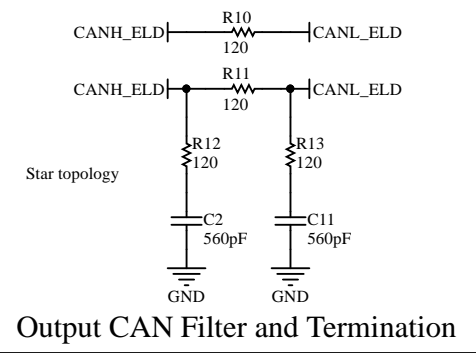
Mode Switch

Use SparkFun FTDI Basic Breakout - 5V (DEV-09716) for serial communication. Pull UART_Enable Low to send serial commands to the ATtiny for field configuration.



External Connections and Solder Points

Wires and connectors enter here. Power, Ground and Ignition pass through.



Title: **CAN Data Diode**

Subtitle: **ELD Side Controllers**

Date: 1/15/2018 Time: 8:21:26 AM Size: Letter Sheet 1 of 2

File: C:\Users\dailyadmin\Dropbox (Synercon)\Electronics\CAN Diode\CAN Data Diode With TXRX and Acknowledger Rev 4.SchDoc

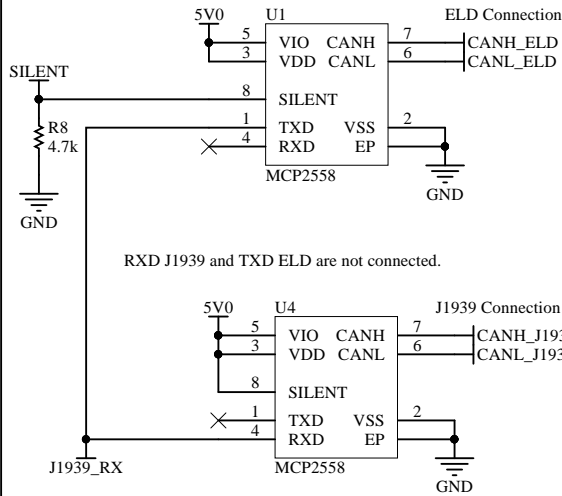
Revision: 4

Jeremy Daily
Mechanical Engineering
The University of Tulsa
800 S. Tucker Dr
Tulsa, OK 74104



Department of Mechanical Engineering

Pull SILENT High if too many CAN errors on ELD side.

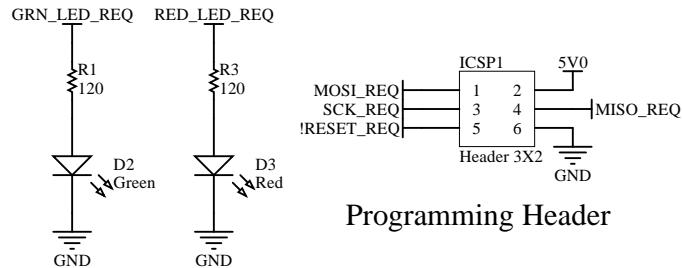


CAN Transceivers for One Way Communication

There is no physical path for the ELD Connection to write to the J1939 Connection.

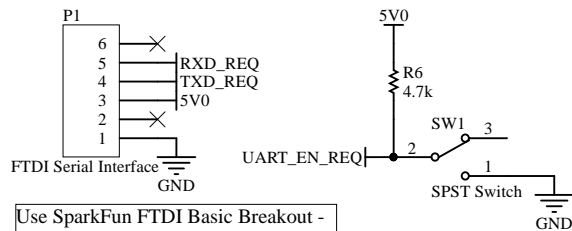
External Interfaces

(to be removed for production)



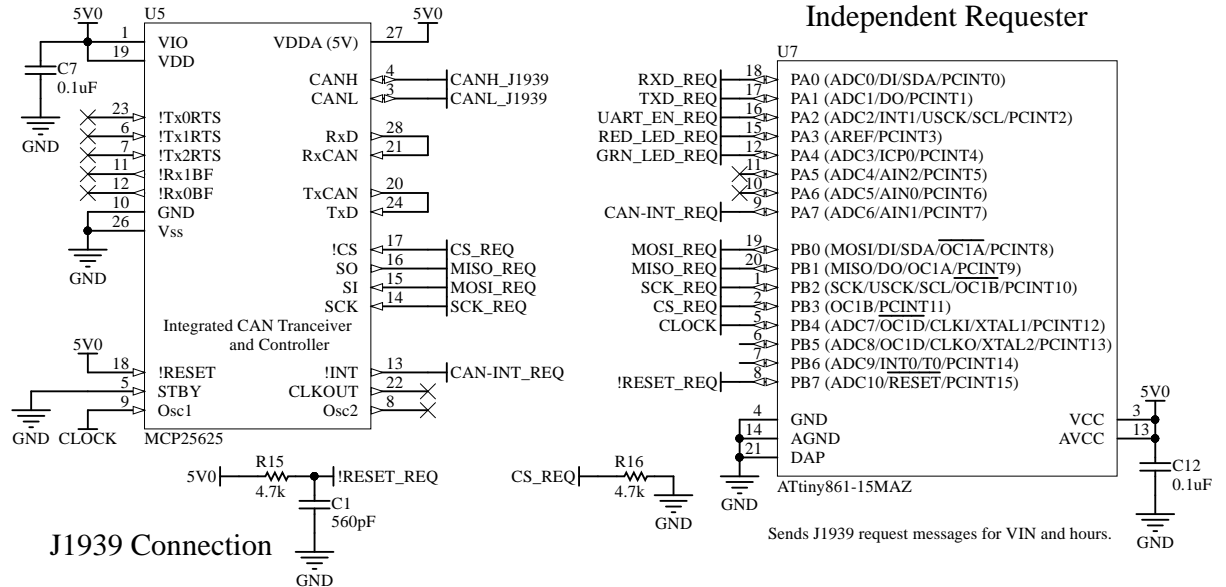
LED Indication

Programming Header

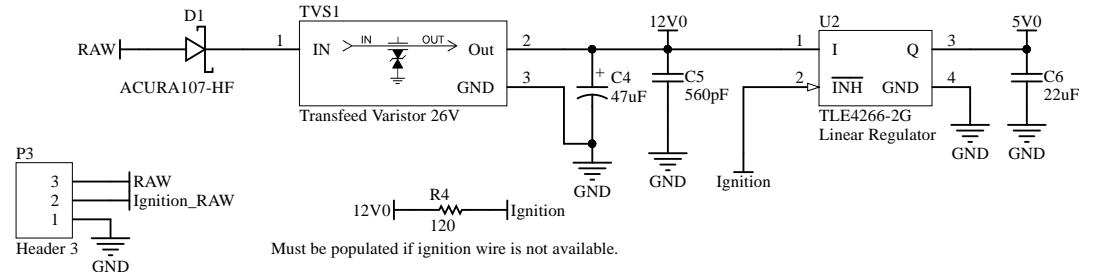


Use SparkFun FTDI Basic Breakout - 5V (DEV-09716) for serial communication. Pull UART_Enable Low to send serial commands to the ATtiny for field configuration.

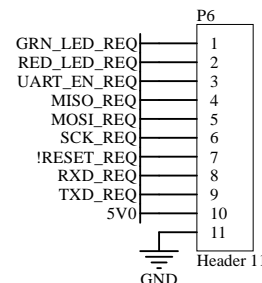
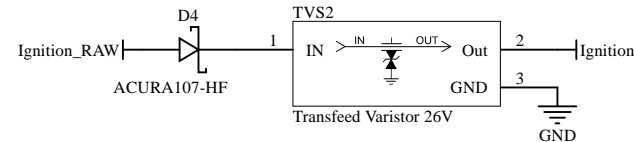
Mode Switch



Power Input, Protection, and Regulation



Conductive Noise Suppression



Title: **CAN Data Diode**

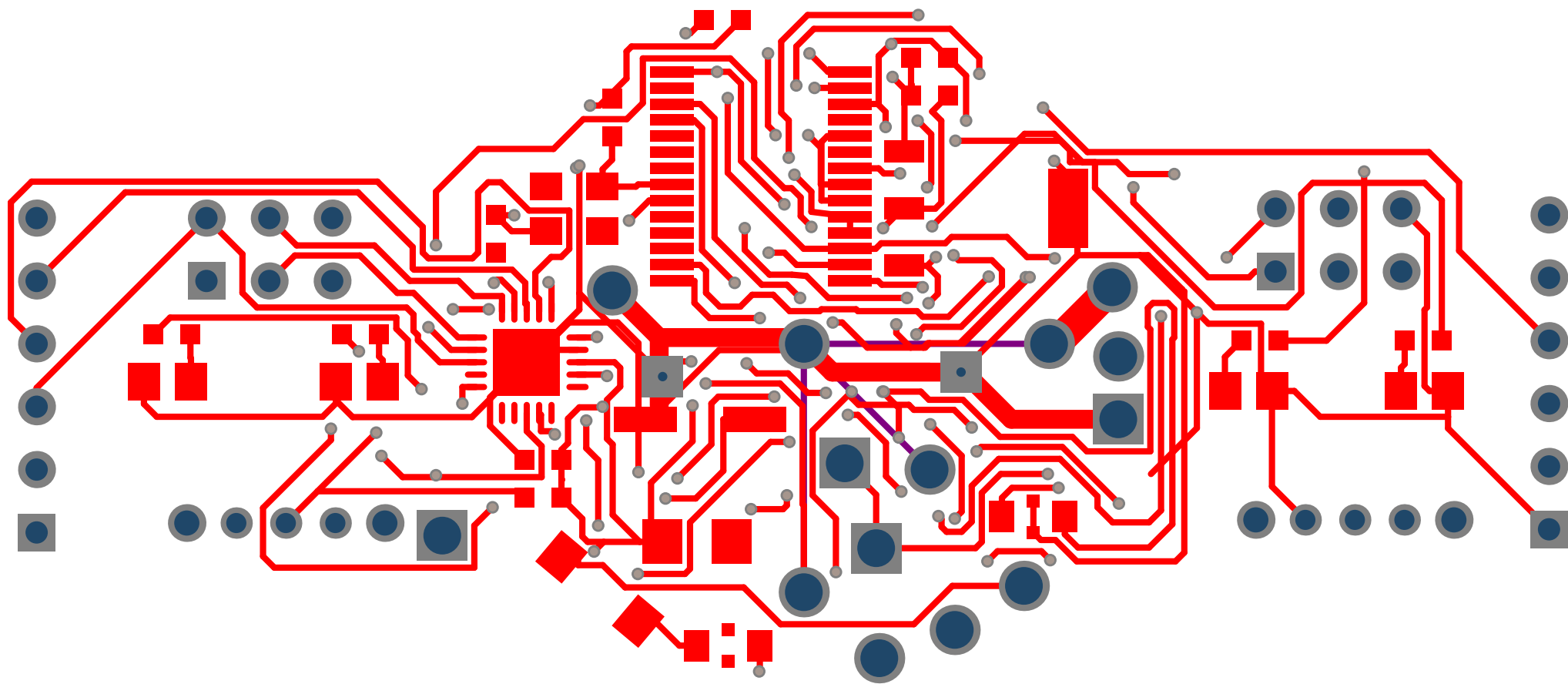
Subtitle: **J1939 Transceivers and Controller**

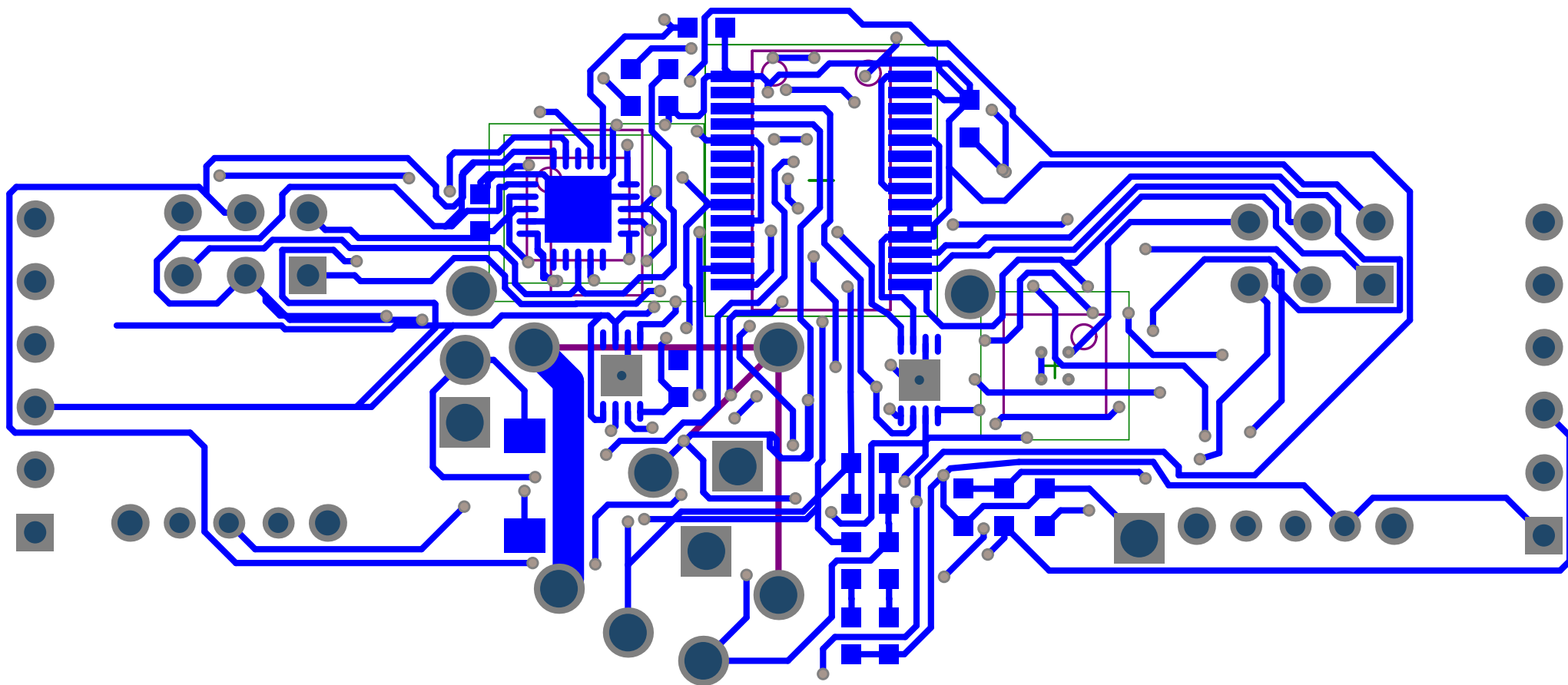
Date: 1/15/2018 Time: 8:21:26 AM Size: Letter Sheet 2 of 2

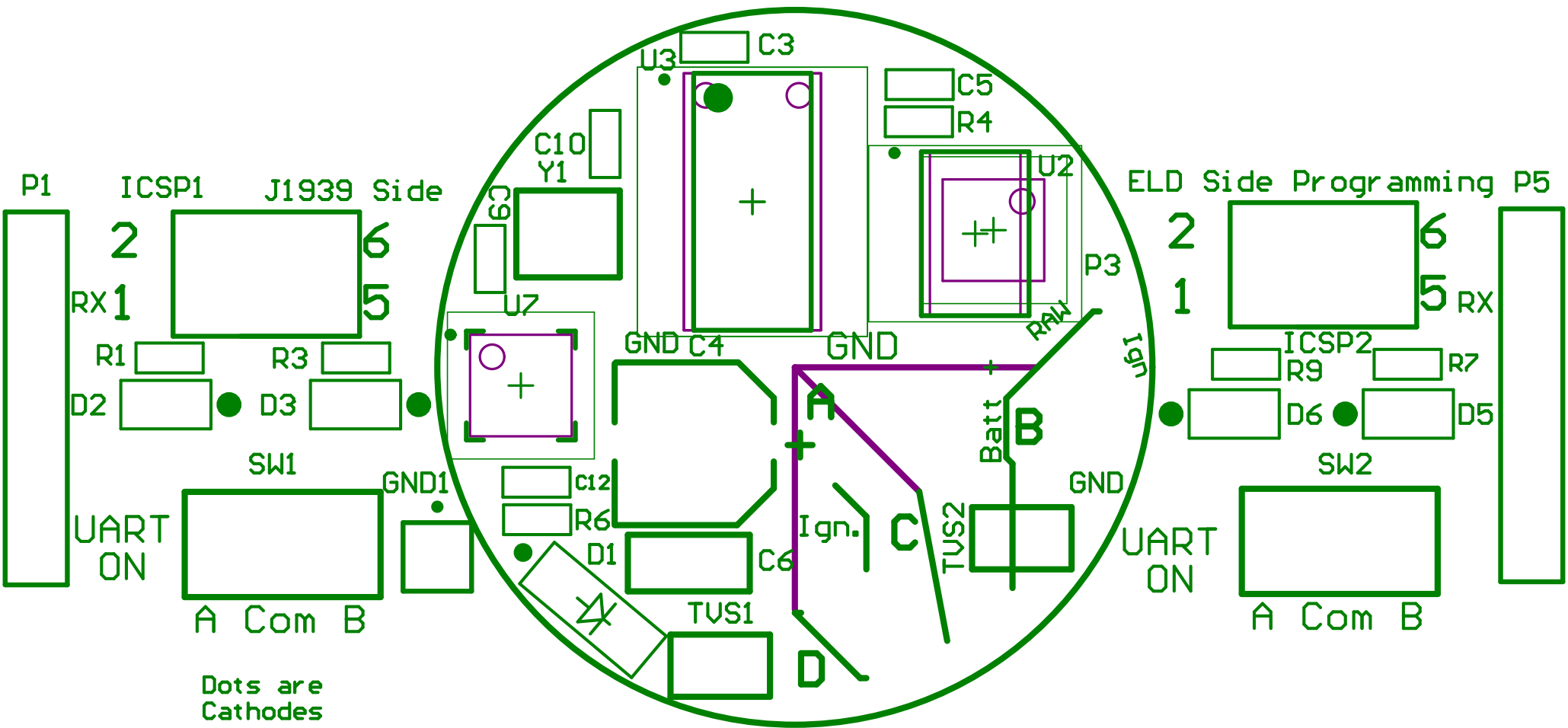
File: C:\Users\dailyadmin\Dropbox (Synercon)\Electronics\CAN Diode\CAN Data Diode With TXRX and Requester Rev 4.SchDoc

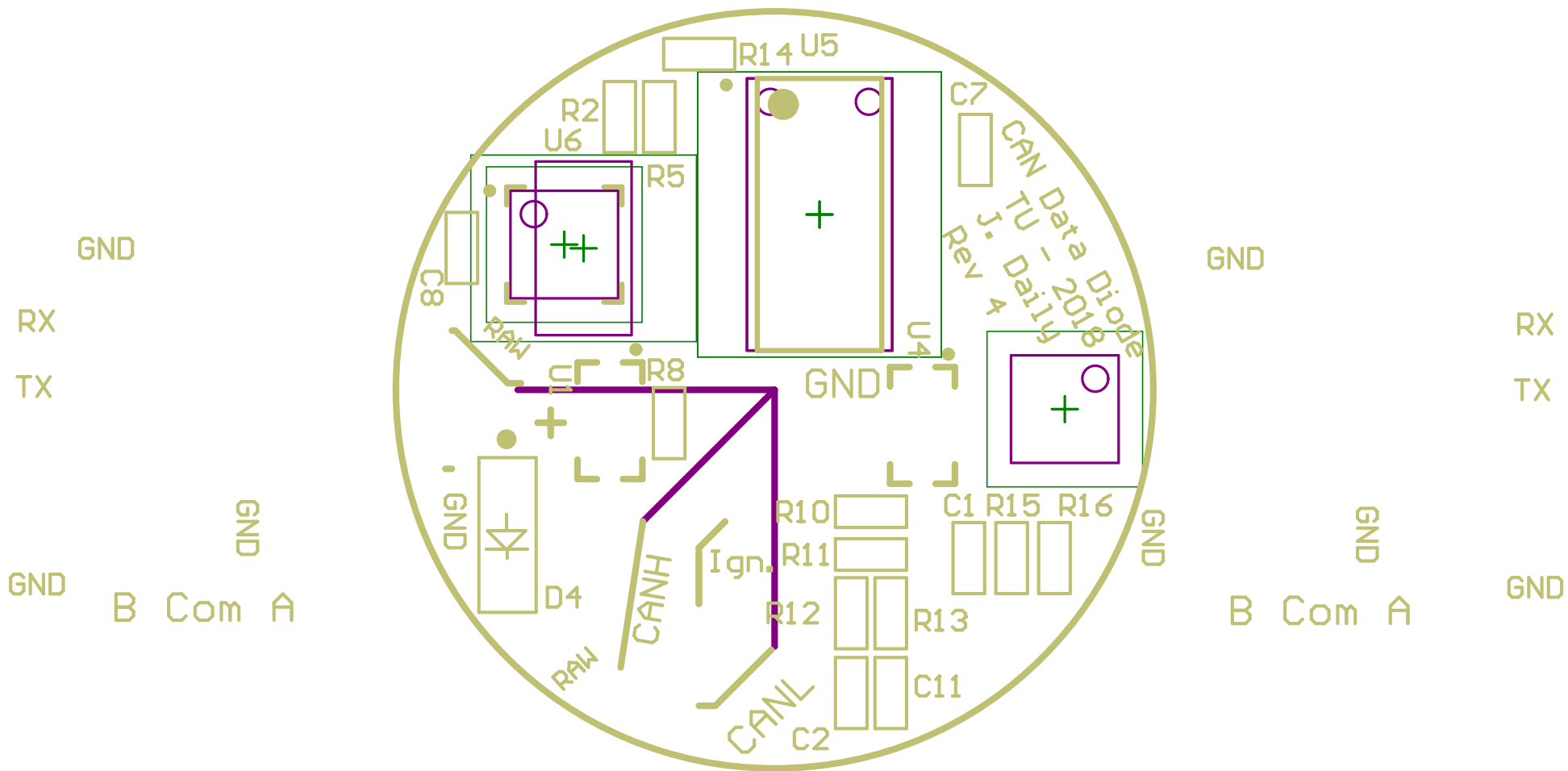
Jeremy Daily
Mechanical Engineering
The University of Tulsa
800 S. Tucker Dr
Tulsa, OK 74104











Comment	Description	Designator	Footprint	Quantity	Supplier Stock 1	Supplier Subtotal 1	Supplier Unit Price 1	Manufacturer	PartNumber	Supplier 1	Supplier Part Number 1
0.1uF	560pF ±10% 100V Ceramic Capacitor X7R 0603 (1608 Metric)	C3, C7, C8, C12	0603	4	10125	0.48	0.12	AVX Corporation	06031C561K4T2A	Digi-Key	478-9867-1-ND
4.7k	4.7 kOhms ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200, High Voltage Thick Film	R2, R5, R6, R8, R14, R15, R16	0603	7	13896	1.12	0.16	Rohm Semiconductor	KTR03EZPF4701	Digi-Key	RHM4.7KAYCT-ND
16MHz	16MHz ±30ppm Crystal 18pF 30 Ohm -20°C ~ 70°C Through Hole HC49/US	Y1	XTAL 4 pad	1	21706	1.09	1.09	ECS Inc.	ECS-160-18-33Q-DS	Digi-Key	XC1991CT-ND
18pF	18pF ±5% 50V Ceramic Capacitor COG, NPO 0603 (1608 Metric)	C9, C10	0603	2	227080	0.2	0.1	Kemet	C0603C180J5GACTU	Digi-Key	399-1052-1-ND
22uF	22µF ±20% 25V Ceramic Capacitor X5R 1206 (3216 Metric)	C6	1206	1	20254	0.55	0.55	Murata Electronics North America	GRT31CR61E226ME01L	Digi-Key	490-12451-1-ND
47uF	47µF 35V Aluminum Capacitors Radial, Can - SMD 5000 Hrs @ 105°C	C4	Elec. Cap - D	1	25288	0.62	0.62	Panasonic Electronic Components	EEE-HDV470XAP	Digi-Key	PCE4968CT-ND
120	120 Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	R1, R3, R4, R7, R9, R10, R11, R12, R13	0603	9	60495	0.9	0.1	Stackpole Electronics Inc.	RMCF0603FT120R	Digi-Key	RMCF0603FT120R CT-ND
560pF	560pF ±10% 100V Ceramic Capacitor X7R 0603 (1608 Metric)	C1, C2, C5, C11	0603	4	10125	0.48	0.12	AVX Corporation	06031C561K4T2A	Digi-Key	478-9867-1-ND
ACURA107-HF	Diode Schottky 1000V 1A Surface Mount DO-214AC (SMA)	D1, D4	SMA with A and K	2				Comchip Technology	ACURA107-HF	Digi-Key	641-1884-1-ND
ATTiny861-15MAZ	AVR Automotive, AEC-Q100, AVR® ATtiny Microcontroller IC 8-Bit 16MHz 8KB (4K x 16) FLASH 20-QFN (4x4)	U6, U7	20PC_M	2				Microchip Technology	ATTINY861-15MAZ	Digi-Key	1611-ATTINY861-15MAZCT-ND
FTDI Serial Interface	CONN HEADER .100 SNGL STR 6POS	P1, P5	HDR1X6	2	1152	1.24	0.62	3M	929400-01-06-RK	Digi-Key	929400E-01-06-ND
Green	Green 570nm LED Indication - Discrete 2.2V 0805 (2012 Metric)	D2, D5	0805 Polarized	2	280047	0.52	0.26	OSRAM Opto Semiconductors Inc.	LG R971-KN-1	Digi-Key	475-1410-1-ND
Header 3	Header, 3-Pin	P3	HDR1X3	1							
Header 3X2	CONN HEADER 6POS DUAL .100 TIN	ICSP1, ICSP2	HDR2X3	2	0	1.48	0.74	3M	929836-01-03-RK	Digi-Key	929836E-01-03-ND
Header 5	Header, 5-Pin	P2, P4	HDR1X5	2							
Header 11	Header, 11-Pin	P6, P7	HDR1X11	2							
MCP2558	Microchip CAN FD Transceiver with Silent Mode	U1, U4	TDFN	2				Microchip	MCP2558FDT-H/MNY	Arrow	MCP2558FDT-H/MNY, MCP2558FDT-H/MNYCT-ND
MCP25625	CAN Interface IC CAN Controller with Int. Transceiver 28-QFN, CAN Interface IC CAN Controller with Int. Transceiver 28-QFNP	U3, U5	SOP65P780X200-28N	2	2439	5.34	2.67	Microchip	MCP25625-E/SS	Digi-Key	MCP25625-E/SS-ND
Red	Red 633nm LED Indication - Discrete 2V 0805 (2012 Metric)	D3, D6	0805 Polarized	2	363028	0.52	0.26	OSRAM Opto Semiconductors Inc.	LS R976-NR-1	Digi-Key	475-1278-1-ND
Socket	Socket	GND1	PIN1	1							
SPST Switch	SWITCH SLIDE SPDT 200MA 30V	SW1, SW2	Slide Switch R/A	2	20892	0.56	0.28	TE Connectivity AMP Connectors	1825232-1	Digi-Key	A107673-ND
TLE4266-2G	5 V Low Drop Voltage Regulator, 5.5 to 45 V Supply, -40 to 150 degC, PG SOT223 (SC-73), Reel, Green	U2	INF-PG-SOT223_SC-73_N	1				Infineon	TLE4266-2G	Digi-Key	TLE42662GHTMA2 CT-ND
Transfeed Varistor 26V	34.5V 80A Varistor 1 Circuit Surface Mount 0805 (2012 Metric)	TVS1, TVS2	Transfeed	2	2000	1.56	0.78	AVX	V2AF126C600Y2EDP	Digi-Key	478-10038-1-ND