Freescale Freedom Board (KL25Z)

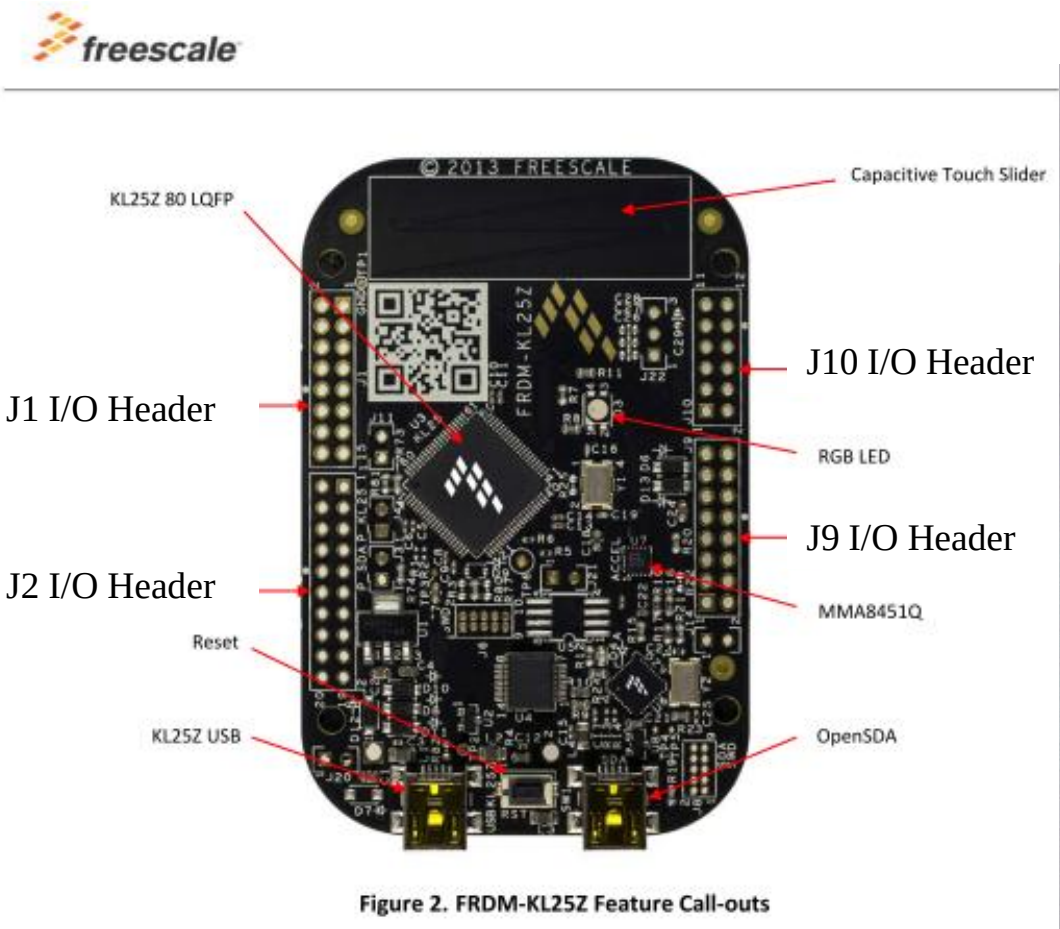
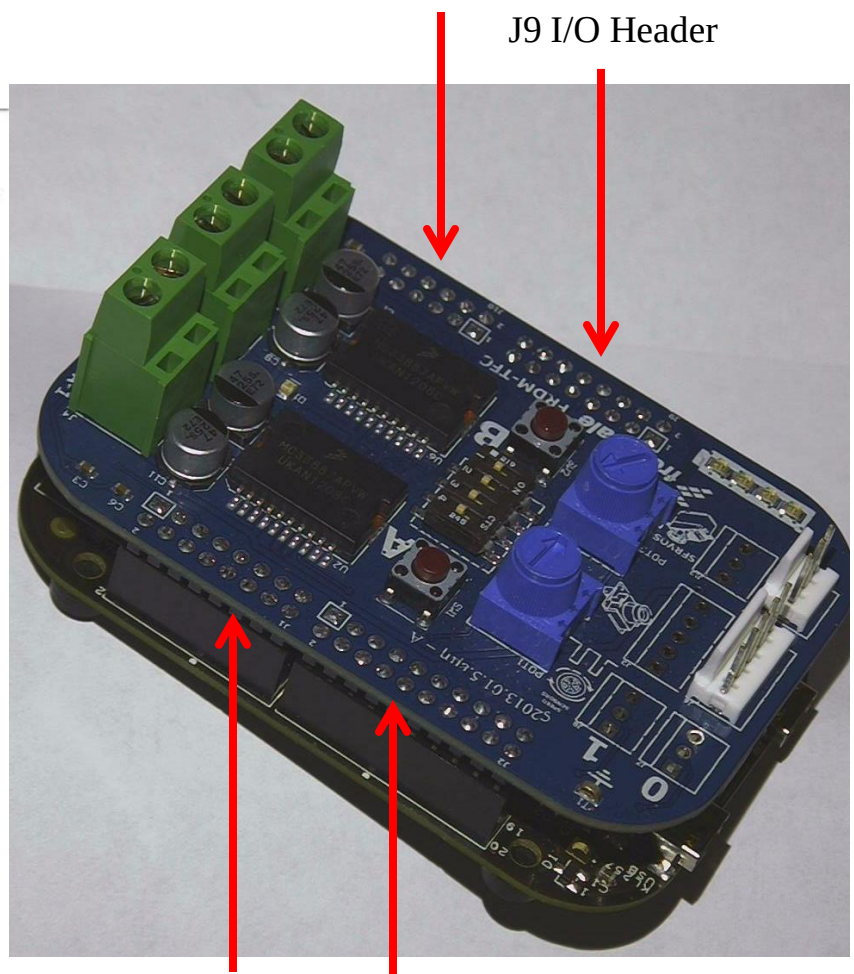


Figure 2. FRDM-KL25Z Feature Call-outs

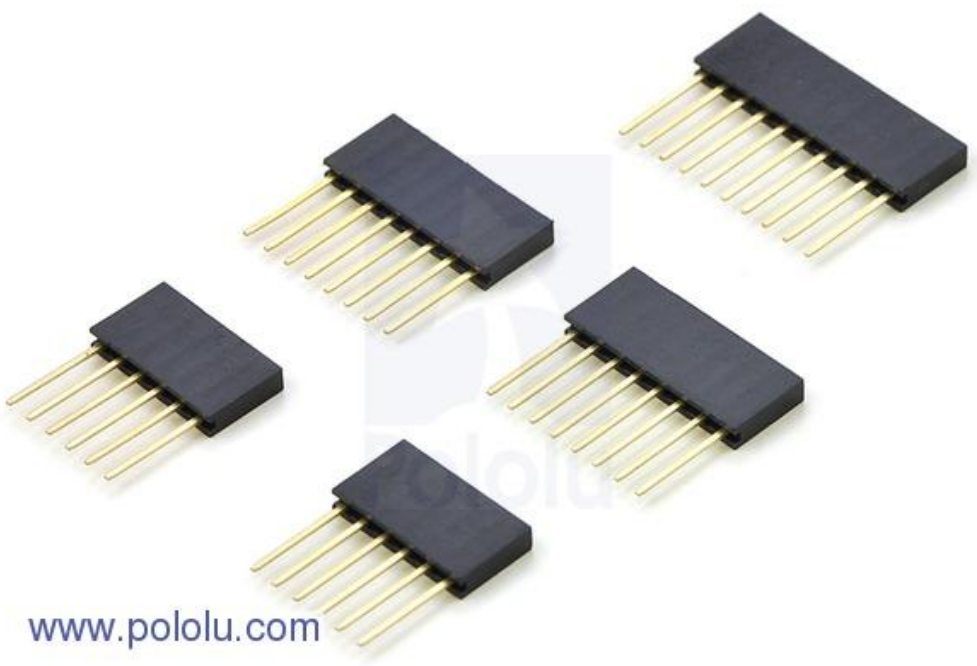
FRDM-KL25Z User's Manual (Rev 2)
http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=FRDM-KL25Z

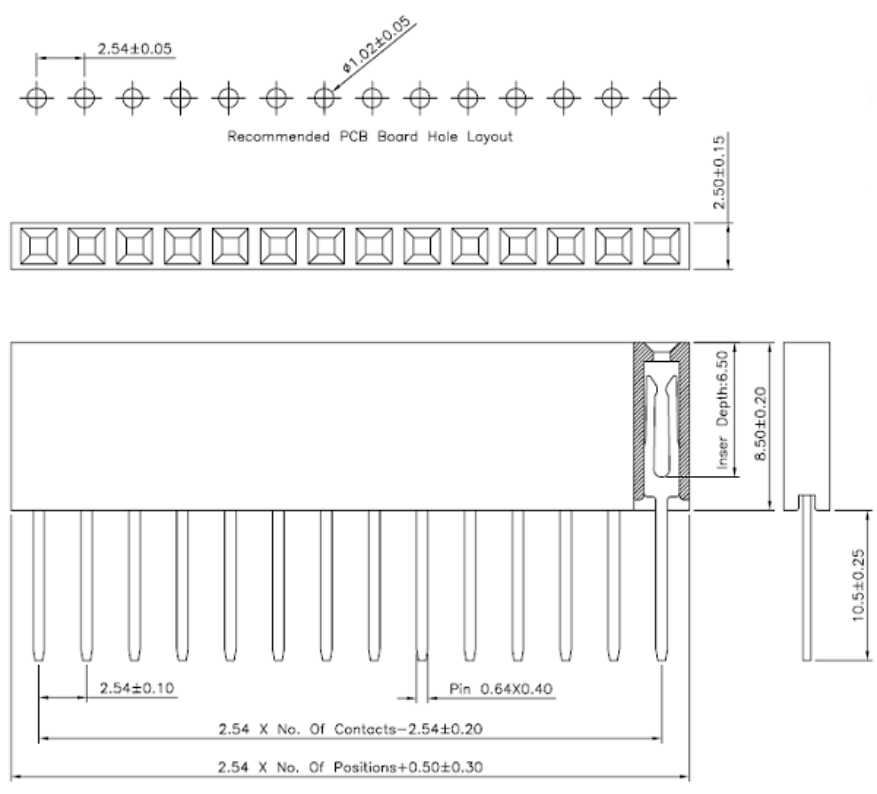
Freescale TFC Motor Controller



FRDM-TFC Schematics
https://community.freescale.com/docs/DOC-93914

Replace Motor Controller Headers with Stackable 0.100" Female Header Set
http://www.pololu.com/product/1035





PSpice Through Pin Header Connections

Unlabeled Pin (No Black Text) Unused

J1 I/O Header

TFC Controller Pins Used	FRDM Board Pins		FRDM Board Pins	TFC Controller Pins Used	
SPEED-SENSOR	PTA1	2	1	PTC7	
SPEED-SENSOR	PTA2	4	3	PTC0	
	PTD4	6	5	PTC3	H-BRIDGE
	PTA12	8	7	PTC4	H-BRIDGE
	PTA4	10	9	PTC5	
	PTA5	12	11	PTC6	
	PTC8	14	13	PTC10	
	PTC9	16	15	PTC11	

J10 I/O Header

TFC Controller Pins Used	FRDM Board Pins		FRDM Board Pins	TFC Controller Pins Used	
	PTE30	11	12	PTC1	H-Bridge
Battery	PTE29	9	10	PTC2	H-Bridge
H-Bridge	PTE23	7	8	PTB3	POT1
H-Bridge	PTE22	5	6	PTB2	POT2
H-Bridge	PTE21	3	4	PTB1	Servo 2
H-Bridge	PTE20	1	2	PTB0	Steering Servo

J2 I/O Header

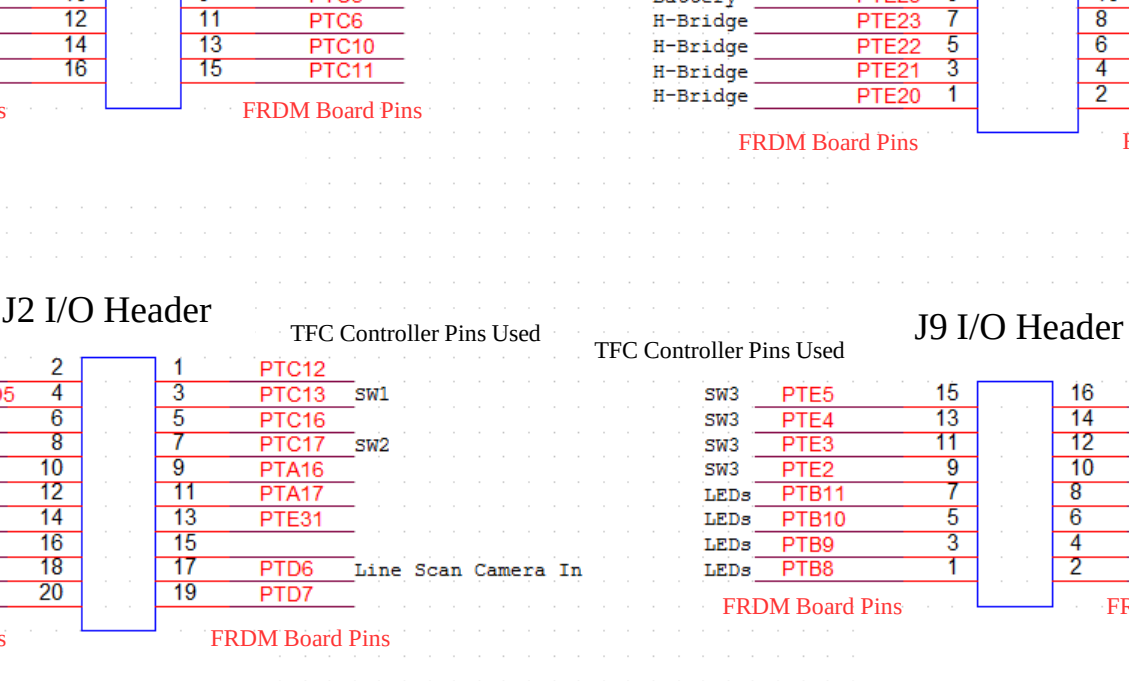
Pins for Xbee Perfboard	FRDM Board Pins		FRDM Board Pins	TFC Controller Pins Used	
ENCODER QRB1134_1	PTA13	2	1	PTC12	
Line Scan Camera In	PTD5	4	3	PTC13	SW1
ENCODER QRB1134_2	PTD0	6	5	PTC16	
XBEE RX	PTD2	8	7	PTC17	SW2
XBEE TX	PTD3	10	9	PTA16	
	PTD1	12	11	PTA17	
	GND	14	13	PTE31	
	VREFH	16	15		
	PTE0	18	17	PTD6	Line Scan Camera In
	PTE1	20	19	PTD7	

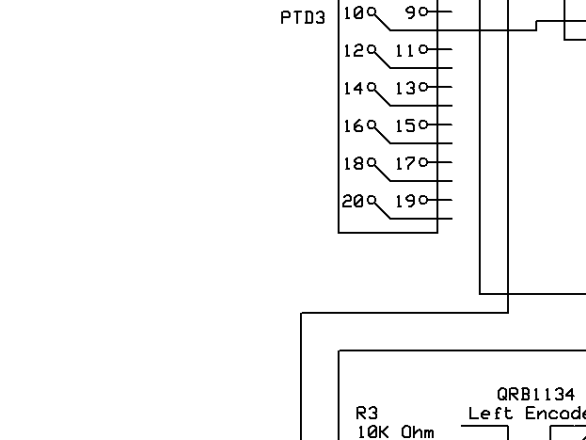
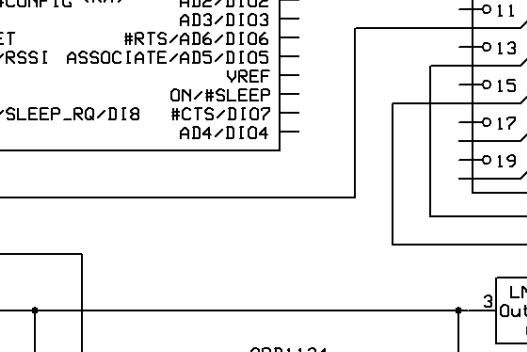
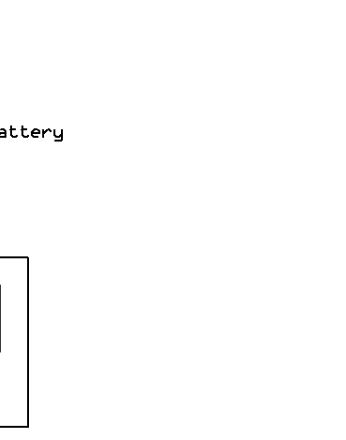
J9 I/O Header

TFC Controller Pins Used	FRDM Board Pins		FRDM Board Pins	TFC Controller Pins Used	
SW3	PTE5	15	16	+V_Battery	
SW3	PTE4	13	14	GND	
SW3	PTE3	11	12	GND	
SW3	PTE2	9	10	P5V_USB	
LEDs	PTB11	7	8	+3.3V	
LEDs	PTB10	5	6	RESET/PTA20	
LEDs	PTB9	3	4	+3.3V	
LEDs	PTB8	1	2	SDA PTD5	

Xbee Encoder Perfboard Circuit

http://www.fairchildsemi.com/ds/LM/LM7805.pdf
http://courses.cs.washington.edu/courses/csep567/10wi/labs/QRB1134.pdf



- Generic Perfboard Approximately 2.1” Wide x 2.5” Long
  - http://www.radioshack.com/product/index.jsp?productId=2103804
  - Painted Black with Spray Paint for Aesthetics
- Connect Perfboard with 0.100" (2.54 mm) Breakaway Male Header: 1x40-Pin, Straight, Double-Sided
  - http://www.pololu.com/product/1065
- Xbee Explorer Pins Soldered to Perfboard with Wiring
  - https://www.sparkfun.com/products/11373

RIT P14226 RC Camera Car		
Xbee Encoder Perfboard		
Tim Southerton	Rev 1.0 12/14/2013	Page 1 of 1