BATTERY IN

+V_BATTERY

J5
282857-2
GND

R9 47k
R10 10k
R11 470
D1
C18 1.0uF
ADC0_SE4b PTE29

C16 1.0uF
GND
GND

U8
VIN VOUT
GND VOUT
NCV1117ST50T3G

+5v
C17 1.0uF
GND

Line Scan Camera In

J6
640454-5
1 PTD5 ADC0_SE6b
2 SI PTD7
3 CLK PTE1
4 +3.3v
5 GND

J7
640454-5
1 PTD6 ADC0_SE7b
2 SI PTD7
3 CLK PTE1
4 +3.3v
5 GND

SPEED SENSOR INPUTS

+3.3v
R23 10k
+3.3v
FTM2_CH0 PTA1

J8
640454-3
GND

R24 10k
+3.3v
FTM2_CH1 PTA2

640454-3
GND

POT1 100k
C19 1.0uF
+3.3v
PTB3 ADC0_SE13
GND

POT2 100k
C20 1.0uF
+3.3v
PTB2 ADC0_SE12
GND

SW1
EVQ-PAG05R
+3.3v
PTC13 R12 10k GND

SW2
EVQ-PAG05R
+3.3v
PTC17 R13 10k GND

SW3
219-4MST
+3.3v
PTE2 R14 10k
PTE3 R15 10k
PTE4 R16 10k
PTE5 R17 10k GND

GND D3 R18 220 PTB8
GND D4 R19 220 PTB9
GND D5 R20 220 PTB10
GND D6 R21 220 PTB11

Freedom Board Interface

J1
67996-416HLF
FTM2_CH0 PTA1
FTM2_CH1 PTA2
PTD4
PTA4
PTA5
PTC8
PTC9
PTC7
PTC0
PTC3 FTM0_CH2
PTC4 FTM0_CH3
PTC5
PTC6
PTC10
PTC11

J10
67996-412HLF
PTE30
ADC0_SE6b PTE29
ADC0_SE7a
ADC0_SE3 PTE22
ADC0_SE4a PTE21
ADC0_SE0 PTE20
PTC1 FTM0_CH0
PTC2 FTM0_CH1
PTB3 ADC0_SE13
PTB2 ADC0_SE12
PTB1 FTM1_CH1
PTB0 FTM1_CH0

J2
67996-420HLF
PTA13
ADC0_SE6b PTD5
PTD0
PTD2
PTD3
PTD1
GND
VREFH
PTE0
PTE1
PTC12
PTC13
PTC16
PTC17
PTA16
PTA17
PTE31
PTD6 ADC0_SE7b
PTD7

J9
67996-416HLF
PTE5
PTE4
PTE3
PTE2
PTB11
PTB10
PTB9
PTB8
+V_BATTERY
GND
GND
P5V_USB
+3.3v
RESET-PTA20
SDA_PTD5
+3.3v

Note: All pinout documentation as of R1.0 in the freedom documention have PTE0 and PTE1 incorrect. Correct pinout shown here

T1 T2
GND GND

PTC5 FTM0_CH2
PTC4 FTM0_CH3
PTE23 ADC0_SE7a
PTE21
PTE20
PTC1 FTM0_CH0
PTC2 FTM0_CH1
PTE22 ADC0_SE3

H-BRIDGE_CONTROL
H-BRIDGE SchDoc

H-BRIDGE_A-IN1
H-BRIDGE_A-IN2
H-BRIDGE_A-IFB
H-BRIDGE_ENABLE
H-BRIDGE-FAULT
H-BRIDGE_B-IN1
H-BRIDGE_B-IN2
H-BRIDGE_B-IFB

U_H-BRIDGE
H-BRIDGE_CONTROL MOTOR_OUT

HBRIDGE-OUT
H-BRIDGE_A-OUT1
H-BRIDGE_A-OUT2
H-BRIDGE_B-OUT1
H-BRIDGE_B-OUT2

MOTOR - A
J10
282857-2

MOTOR - B
J11
282857-2

STEERING SERVO
+V_BATTERY R8
GND
PTB0 FTM1_CH0
J12
640454-3

SPARE SERVO
+V_BATTERY R22
GND
PTB1 FTM1_CH1
J13
640454-3

2πλ⁻¹
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H-BRIDGE_CONTROL

H-BRIDGE_A-IN1
H-BRIDGE_A-IN2
H-BRIDGE_A-IFB
H-BRIDGE_ENABLE
H-BRIDGE-FAULT
H-BRIDGE_B-IN1
H-BRIDGE_B-IN2
H-BRIDGE_B-IFB

H-BRIDGE_CONTROL

HBRIDGE-OUT
H-BRIDGE_A-OUT1
H-BRIDGE_A-OUT2
H-BRIDGE_B-OUT1
H-BRIDGE_B-OUT2

MOTOR_OUT

+V_BATTERY

U2
MC33887APVW

U1
M74VHC1GT50DTT1G

U3
M74VHC1GT50DTT1G

U4
M74VHC1GT50DTT1G

U5
M74VHC1GT50DTT1G

U7
M74VHC1GT50DTT1G

U6
MC33887APVW

VCC OUT
IN
GND

C1 47uF
C2 47uF
C3 0.1uF
C4 33nF
C5 33nF
C6 0.1uF
C7 0.1uF
C8 0.1uF
C9 47uF
C10 0.1uF
C11 47uF
C12 33nF
C13 0.1uF
C14 33nF
C15 0.1uF

R1 10k
R2 10k
R3 10k
R4 10k
R5 220
R6 10k
R7 220

+5v
GND

CCP
OUT1
OUT2
IN1
IN2
FS
FB
EN
D1
D2

AGND PGND HEATSINK

2πλ⁻¹
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FRDM-TFC
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H-Bridge
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