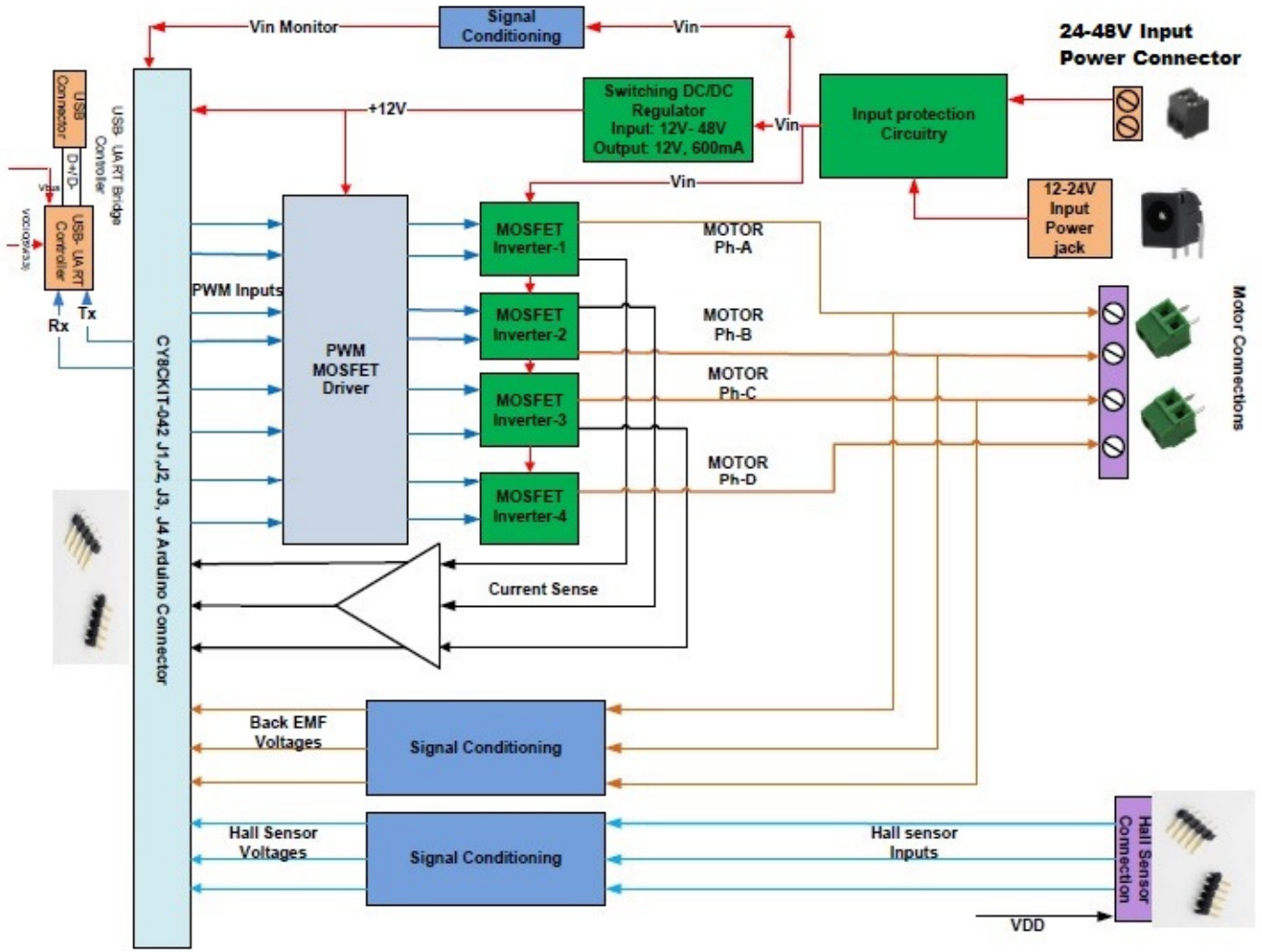
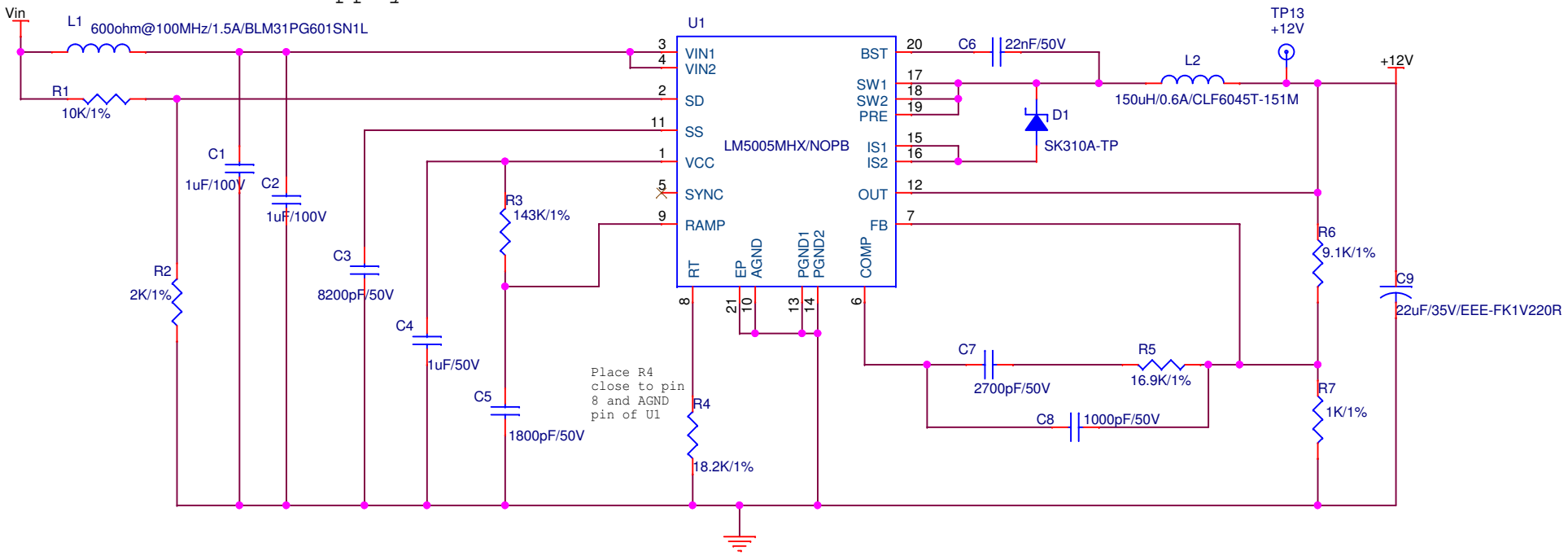
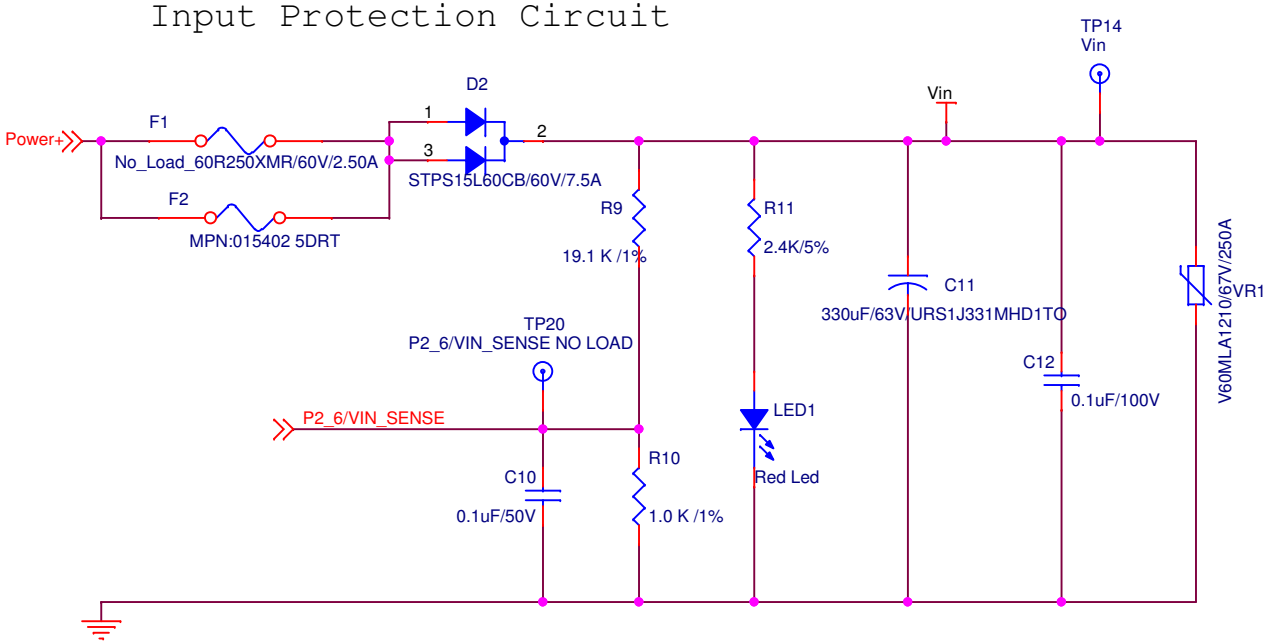
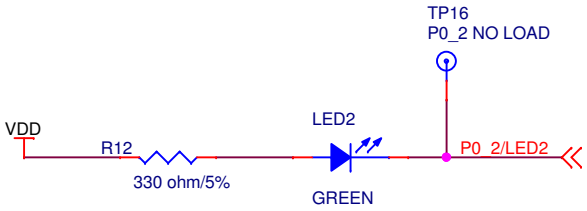


PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

CYPRESS SEMICONDUCTOR © 2014		
Title: CY8CKIT-037 MOTOR CONTROL EVK: Block Diagram		
Size: A4	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 1 of 8	





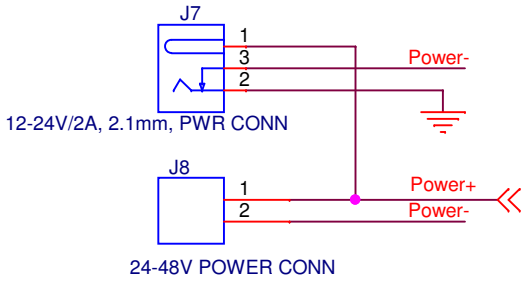


PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

CYPRESS SEMICONDUCTOR © 2014

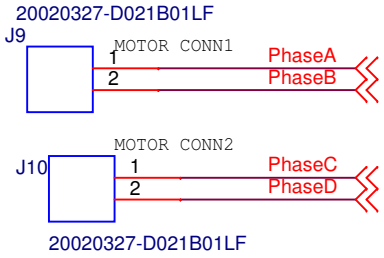
Title: CY8CKIT-037 MOTOR CONTROL EVK: Power Supply		
Size: A4	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 2 of 8	

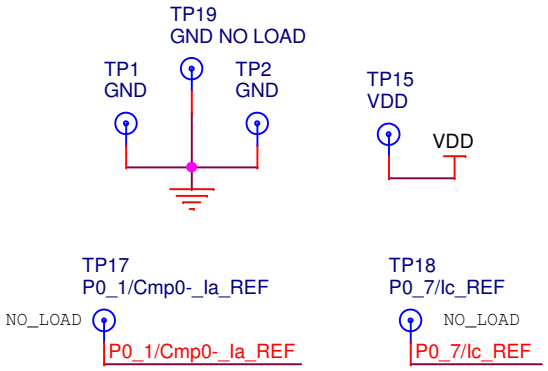
Input Power Supply Connectors



Motor Winding Connectors

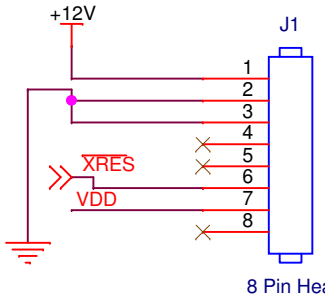
POS	BLDC MOTOR WINDING COLOUR
1A/A/PhaseA	RED
2A/B/PhaseB	YELLOW
1B/C/PhaseC	BLACK
2B/PhaseD	NO CONNECT

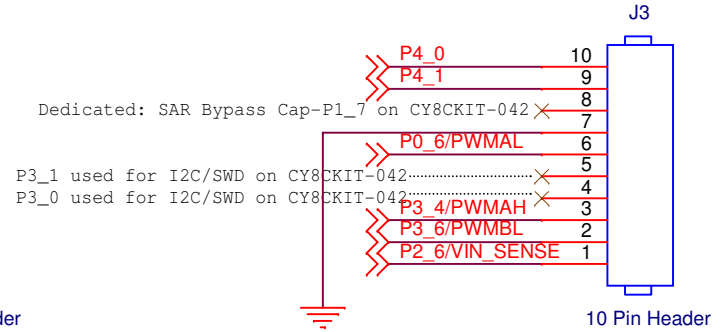


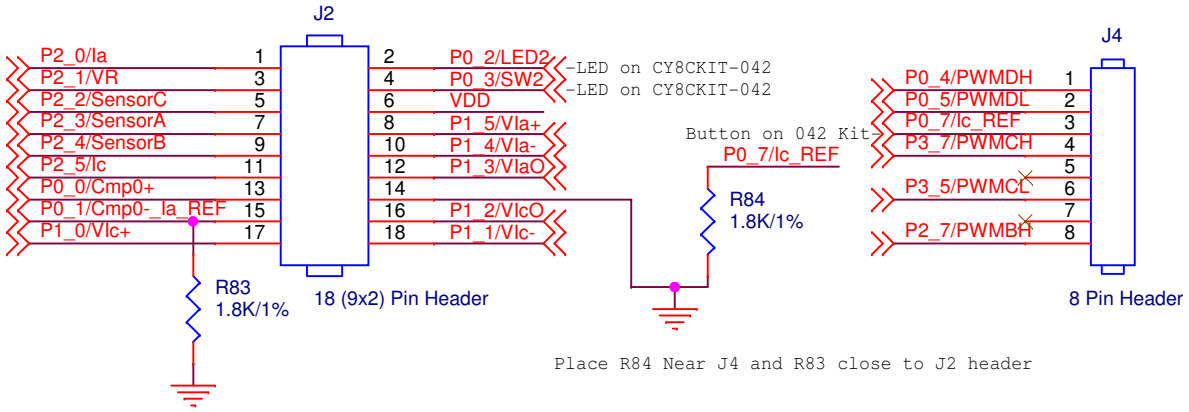


Test Points

Connectors to CY8CKIT-042 Kit





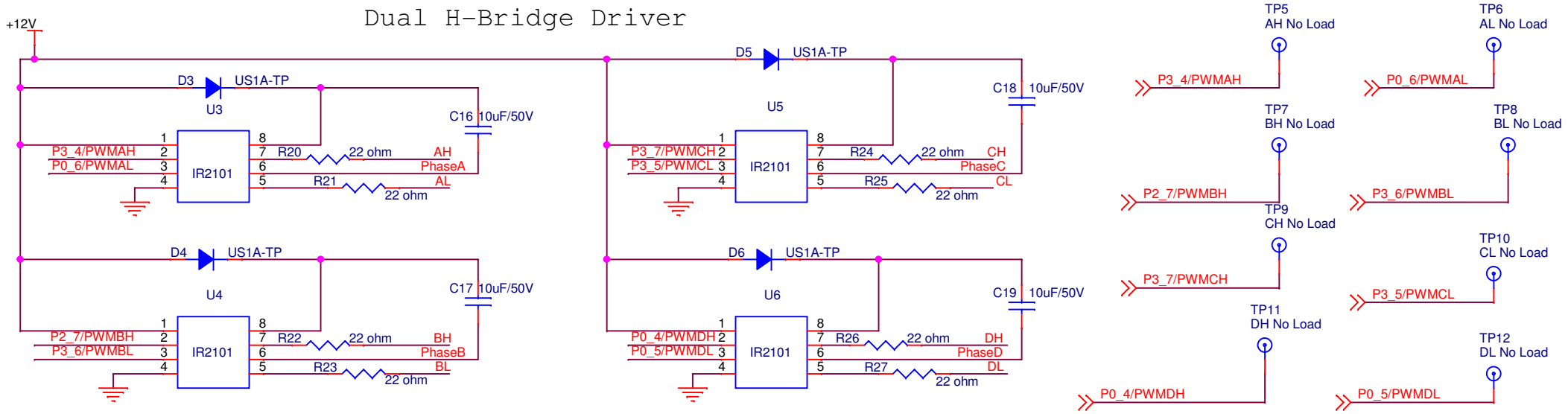


PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

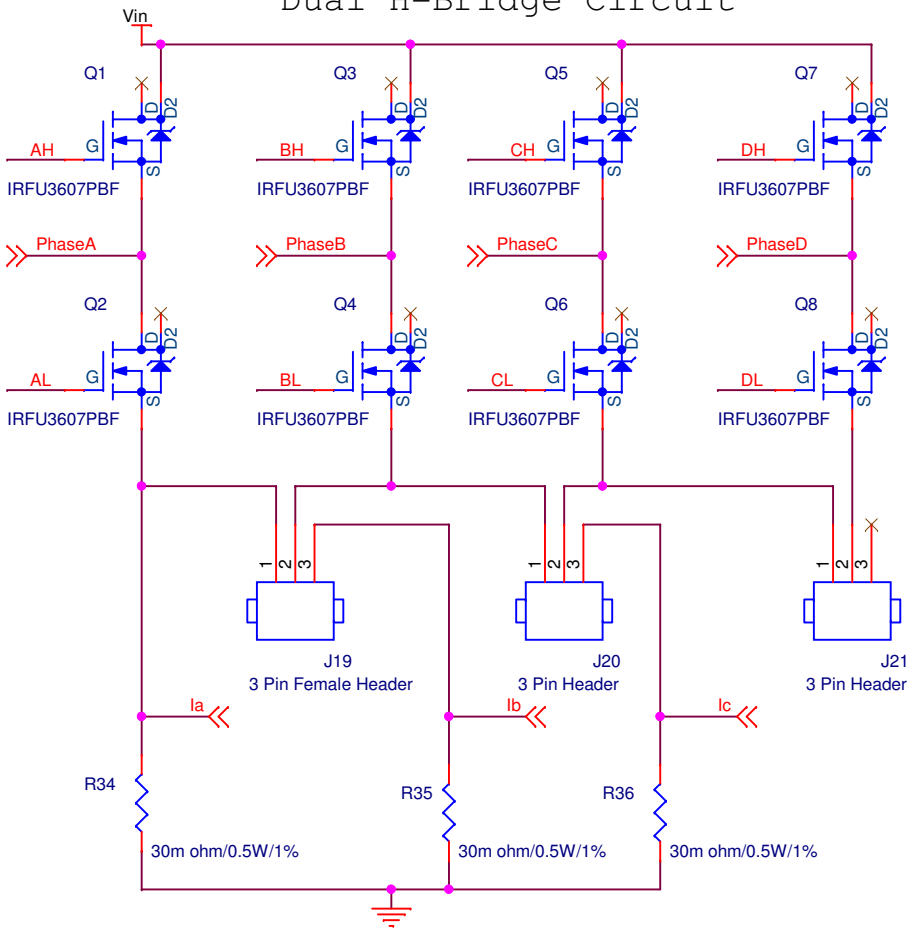
CYPRESS SEMICONDUCTOR © 2014

Title: Motor Power Supply & Windings Connections		
Size: A	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 3 of 8	

Dual H-Bridge Driver



Dual H-Bridge Circuit



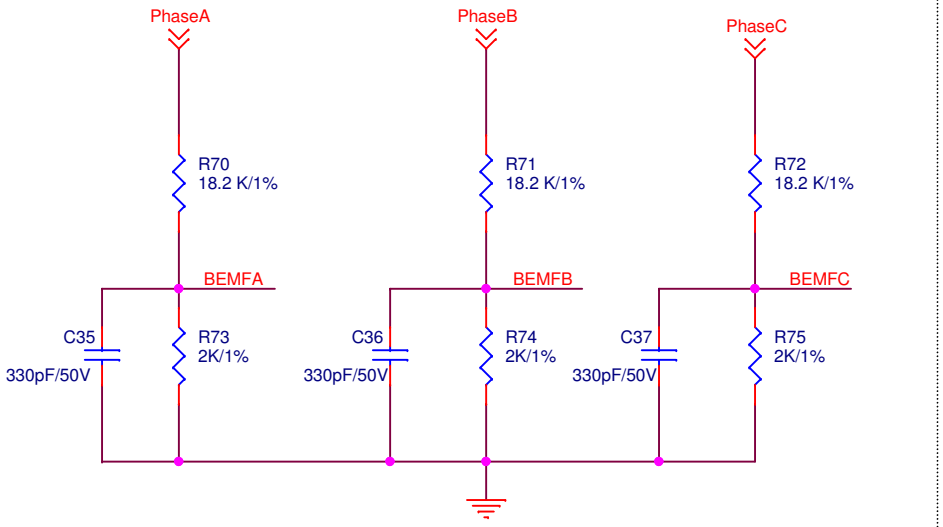
MOTOR TYPE/JUMPER	J13	J14	J15	J16	J17	J18
HALL SENSOR BLDC	1-2	1-2	1-2	1-2	1-2	1-2
SENSORLESS BLDC	2-3	2-3	2-3	1-2	1-2	1-2
STEPPER	1-2	1-2	1-2	2-3	2-3	1-2
BLDC 1-SHUNT FOC	1-2	1-2	1-2	1-2	1-2	2-3
BDLC 2-SHUNT FOC	1-2	1-2	1-2	1-2	1-2	2-3

MOTOR TYPE/JUMPER	J19	J20	J21	J22	J23	J24
HALL SENSOR BLDC	1-2	1-2	2-3	1-2	2-3	1-2
SENSORLESS BLDC	1-2	1-2	2-3	2-3	2-3	1-2
STEPPER	1-2	2-3	1-2	1-2	2-3	2-3
BLDC 1-SHUNT FOC	1-2	1-2	2-3	1-2	1-2	1-2
BDLC 2-SHUNT FOC	2-3	2-3	2-3	1-2	1-2	1-2

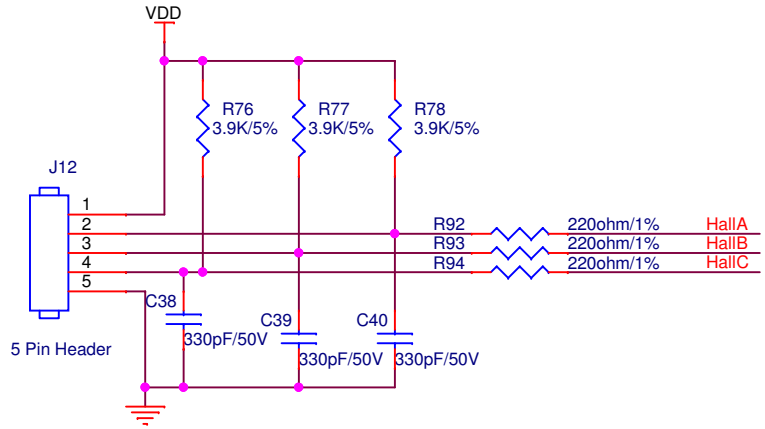
PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

CYPRESS SEMICONDUCTOR © 2014

Title	CY8CKIT-037 MOTOR CONTROL EVK: Dual H-Bridge Motor Driver	
Size: A4	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 4 of 8	

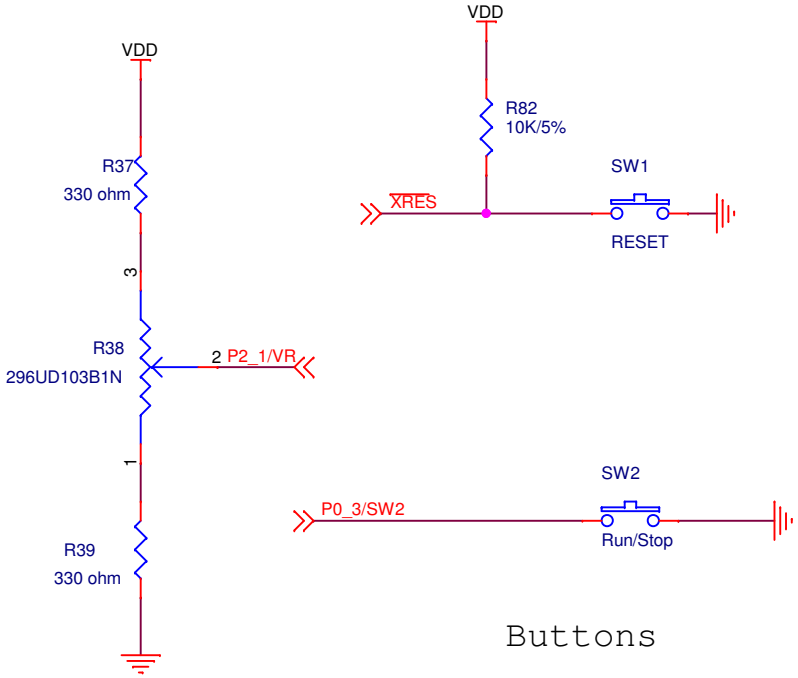


Sensorless BLDC BEMF Detecting

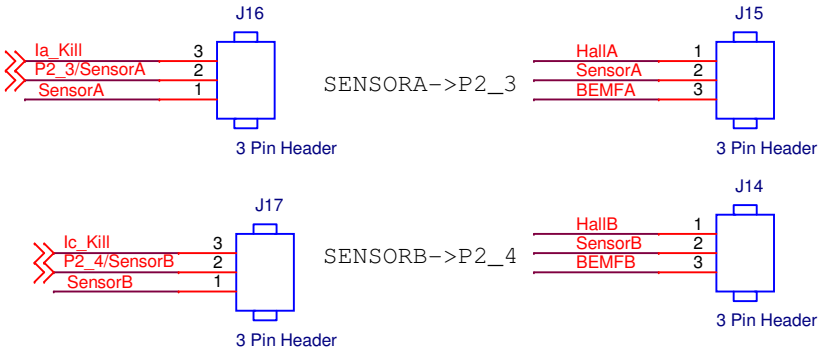


Hall Sensor Interface

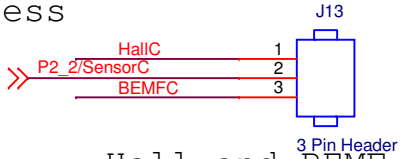
Potentiometer to
Control Motor Speed



Buttons



Stepper Kill Signal and Sensorless
BLDC BEMF Pins Multiplexing

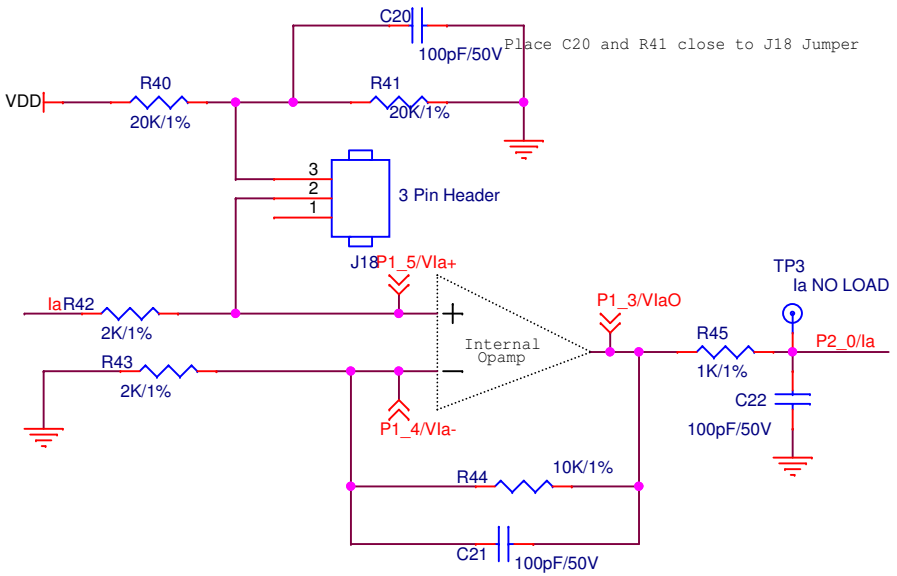


Hall and BEMF
Selection

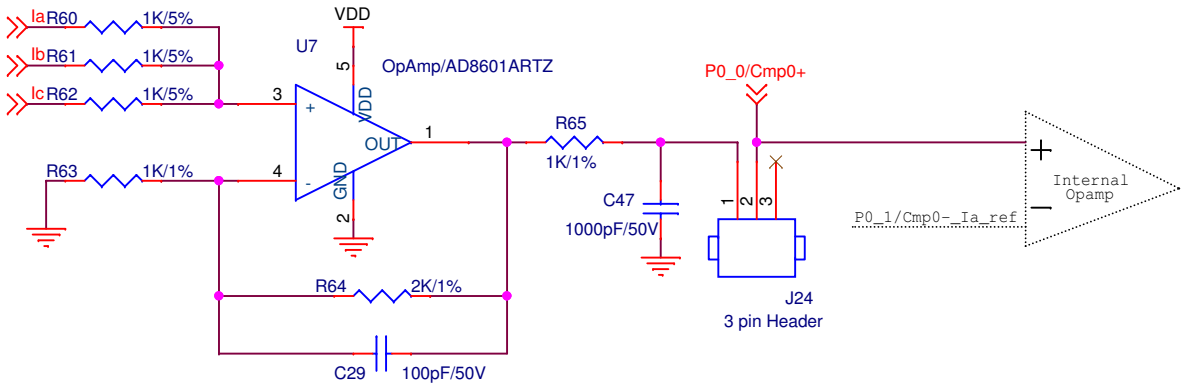
PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

CYPRESS SEMICONDUCTOR © 2014		
Title: CY8CKIT-037 MOTOR CONTROL EVK:Signal Conditioning of Sensor Signals		
Size: A4	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 5 of 8	

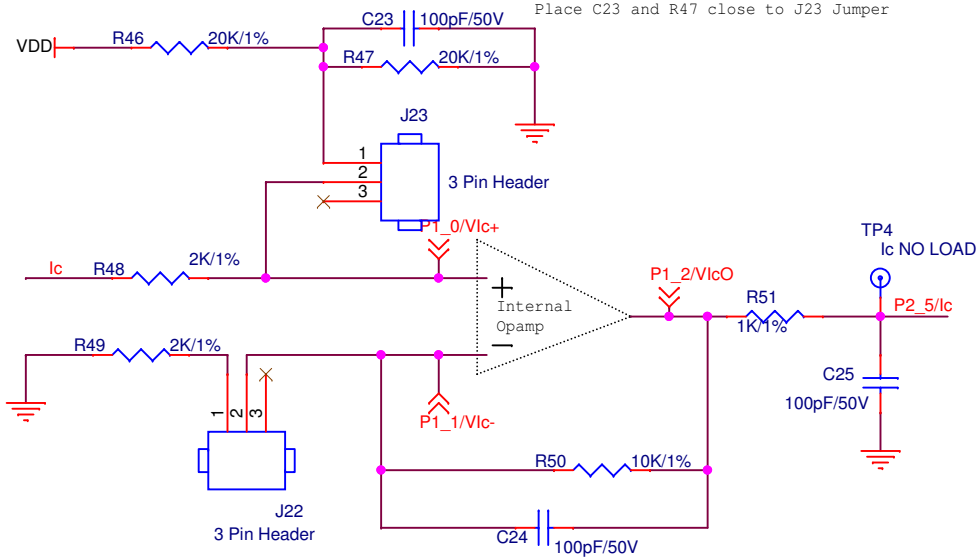
Winding A Current Detection



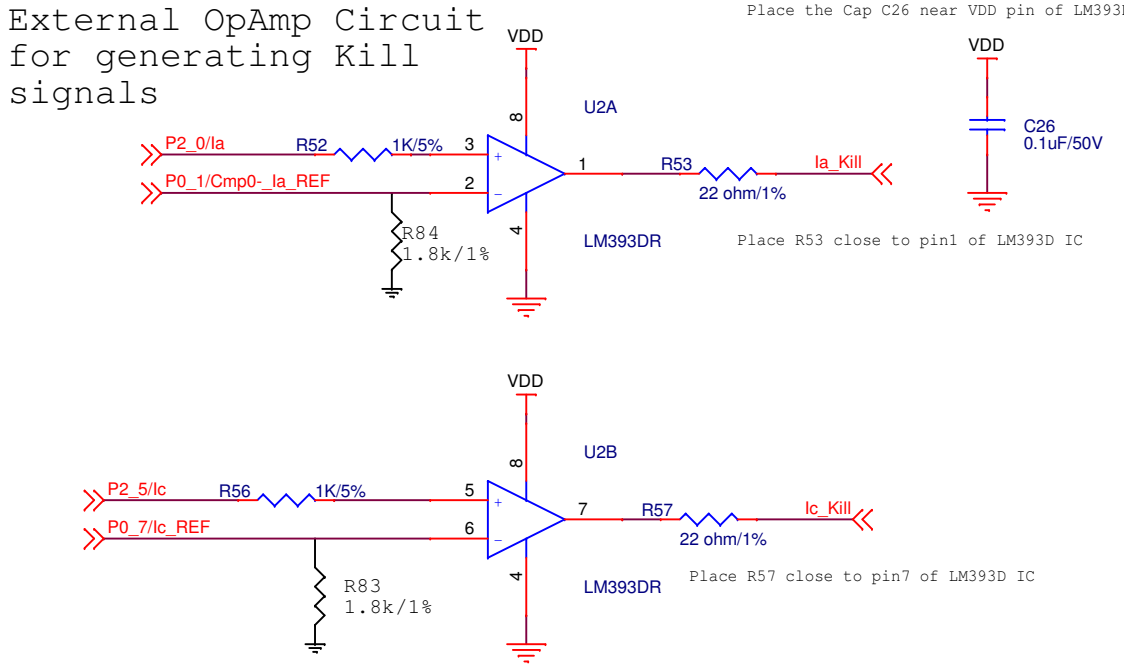
Over Current Detection



Winding C Current Detection



External OpAmp Circuit for generating Kill signals

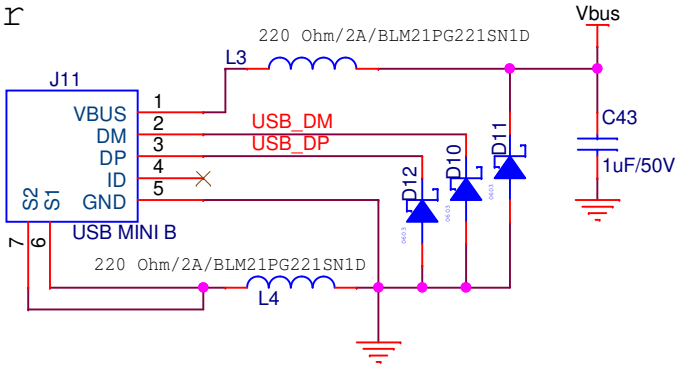


PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

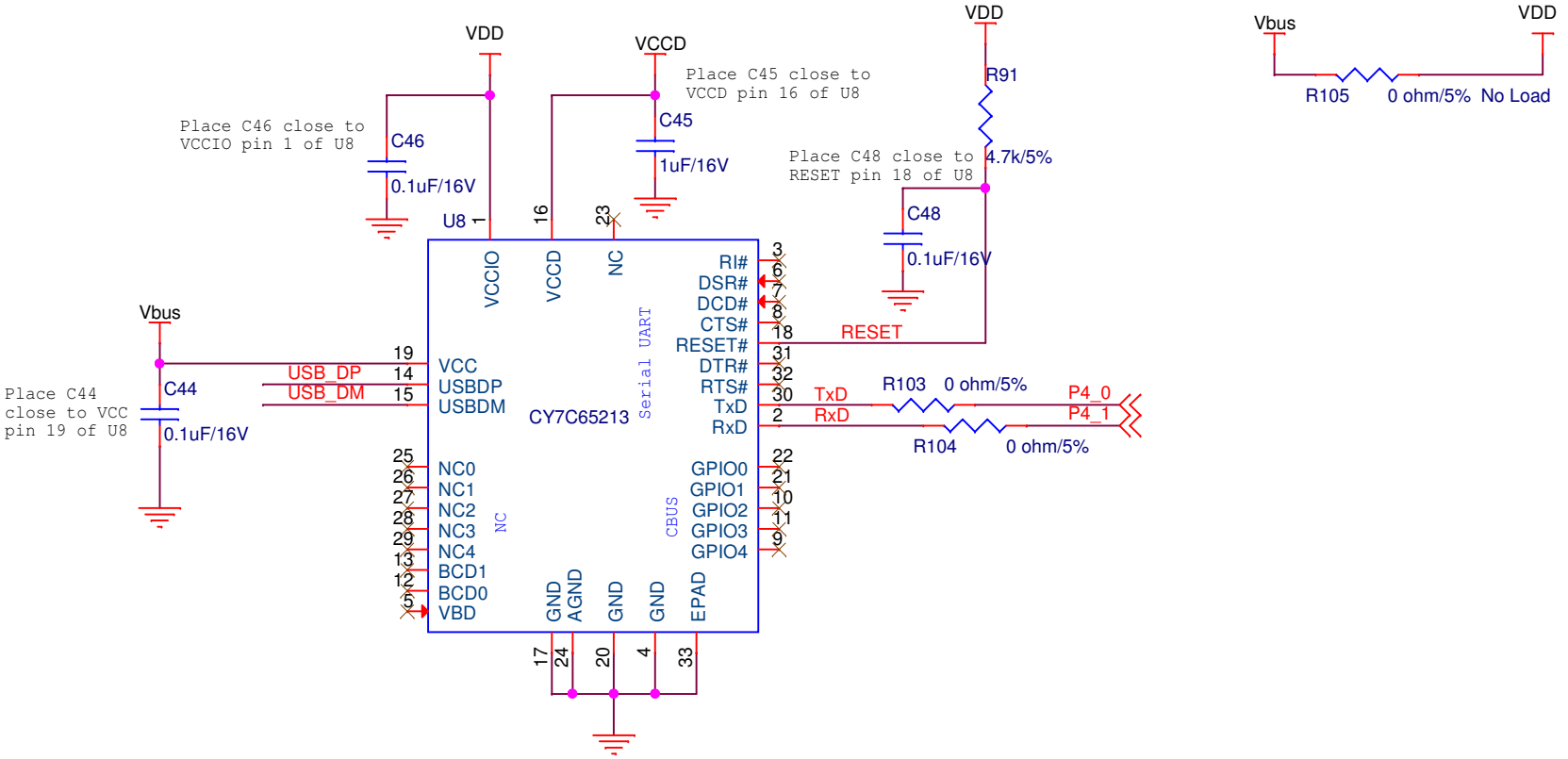
CYPRESS SEMICONDUCTOR © 2014

Title	CY8CKIT-037 MOTOR CONTROL EVK: Current Sense Circuit	
Size: A4	Document Number: 630-60168-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 6 of 8	

USB Connector



USB-UART Bridge Controller



PCA: 121-60166-01
PCB: 600-60202-01
FAB DRW: 610-60194-01
ASSY DRW: 620-60202-01

CYPRESS SEMICONDUCTOR © 2014

Title: **CY8CKIT-037 MOTOR CONTROL EVK: USB-UART Bridge Controller**		
Size: **A**	Document Number: **630-60168-01**	Rev: **04**
Date: Thursday, December 18, 2014	Sheet 7 of 8	

Rev	Details	Engg
Rev 01		
Rev 02		
Rev 03	C11 changed to lower height part, F1 made No load and F2 made Load R38 replaced with Potentiometer part with lengthy shaft	SHIB
Rev 04	1.R9=19.1K 1% 0603 2.R10=1K, 1% 0603 3.R70,71,72= 18.2K, 1% 0603 4.Block Diagram updated	SHIB

CYPRESS SEMICONDUCTOR © 2014

Title: CY8CKIT-037 MOTOR CONTROL EVK: Block Diagram		
Size: A	Document Number: 630-60198-01	Rev: 04
Date: Thursday, December 18, 2014	Sheet 8 of 8	