J5 Vin
SMD M4 Screw Terminal
J6 SMD M4 Screw Terminal
GND

EPC91121_BusCapacitors_Rev1_0.SCHDOC
Vin VIN
GND
GND

Vin 3V3
R4 0603 100k 0.1W 1%
D5 30V 30mA SDM03U40-7
TP15 80mil Vdc
R8 0603 8.2k 0.1W
C2 0603 10nF 50V
TP16 80mil
75.79 mV/V 43.5 V maximum
GND AGND
DC Link Voltage sense

Q1
AP1005_Rev3_1_QuadEncdr.SCHDOC
5V 3V3 EncA EncB EncI
Shaft encoder input
Quadrature with Index
Supports optical and hall

V1
AP1065_5V2_100mA_0805_Rev2_1.SCHDOC
Vin Vin VCC 5V TP1 80mil GND
Driver Supply

5 V Supply

Repeat(P,1,3)
EPC2366_MP8699B_MotorPhaseLeg.SCHDOC
Vin 5V PWMH1 PWMH2 PWMH3 PWML1 PWML2 PWML3 PWMH[1..3] PWML[1..3] PWMH PWML Repeat(PWMH) Repeat(PWML) Repeat(SW) SN SN[1..3] GND
3-phase Inverter

Repeat(F,1,3)
ACS72981LLRATR_100B3.SchDoc
3V3 Repeat(Vsns) Repeat(Phase) Repeat(SW) Repeat(Isns) GND AGND
Vsns Vsns[1..3] Vsns1 Vsns2 Vsns3
Phase Phase[1..3] Phase1 Phase2 Phase3
Isns Isns[1..3] Isns1 Isns2 Isns3
Phase voltage and current sense

TP2 SMD TP Phase3
TP3 SMD TP Phase2
TP4 SMD TP Phase1
TP5 SMD TP GND
J3 Phase3 SMD M4 Screw Terminal
J2 Phase2 SMD M4 Screw Terminal
J1 Phase1 SMD M4 Screw Terminal
Motor Connection

5V J4 1 2 100mil TH EMPTY GND
+5V external connector

V3
AP1074_Rev1_0.SCHDOC
5V 5V 3V3 3V3 TP6 80mil GND
3V3 Regulator

3V3 Connect
0603
10E 0.125W
PWMH1 R5
PWML1 R6
PWMH2 R7
PWML2 R9
PWMH3 R10
PWML3 R12
EncA R38
EncB R39
EncI R42
Vdc R43
Vsns1 R44
Vsns2 R45
Vsns3 R46
Jdc R31 0E EMPTY
Isns1 R47
Isns2 R48
Isns3 R49
GPIO R14 0E EMPTY
Tsns R50 0603 10E 0.125W
J60 1mm Edge
JP1 50mil
3V3 J16 50mil TH
R26 0E EMPTY
R15 0E EMPTY
GND AGND
Control interface connector

3V3 C3 0603 1uF 25V GND
R13 0E AGND GND
GND connection

SO1 SO3 SO4 SO2
8834 8834 8834 8834
StandOffs

TS
AP1009_0805_2p3V_Rev3_1.SCHDOC
5V 5V °C °F Tsns Tsns GND AGND
Temperature Sense

MC
AP1042_Rev1_0_ThermalKit.SCHDOC
Heatsink Kit

TP11 SMD TP GND

Serial# yyww-nnn
Serial# yyww-nnn

PCB1 B5525_1.0

FD1 FD2 FD3
Fiducial_Board

For evaluation only;
not FCC approved for resale

Title:	EPC91121_B5525_Rev1_0	© EPC 2025	
Design #:	EPC91121	PCB #:	B5525
Revision	1.0	Revision:	1.0
Date:	9/25/2025	Sheet	1 of 9
File:	EPC91121_B5525_Rev1_1_Main.SCHDOC		

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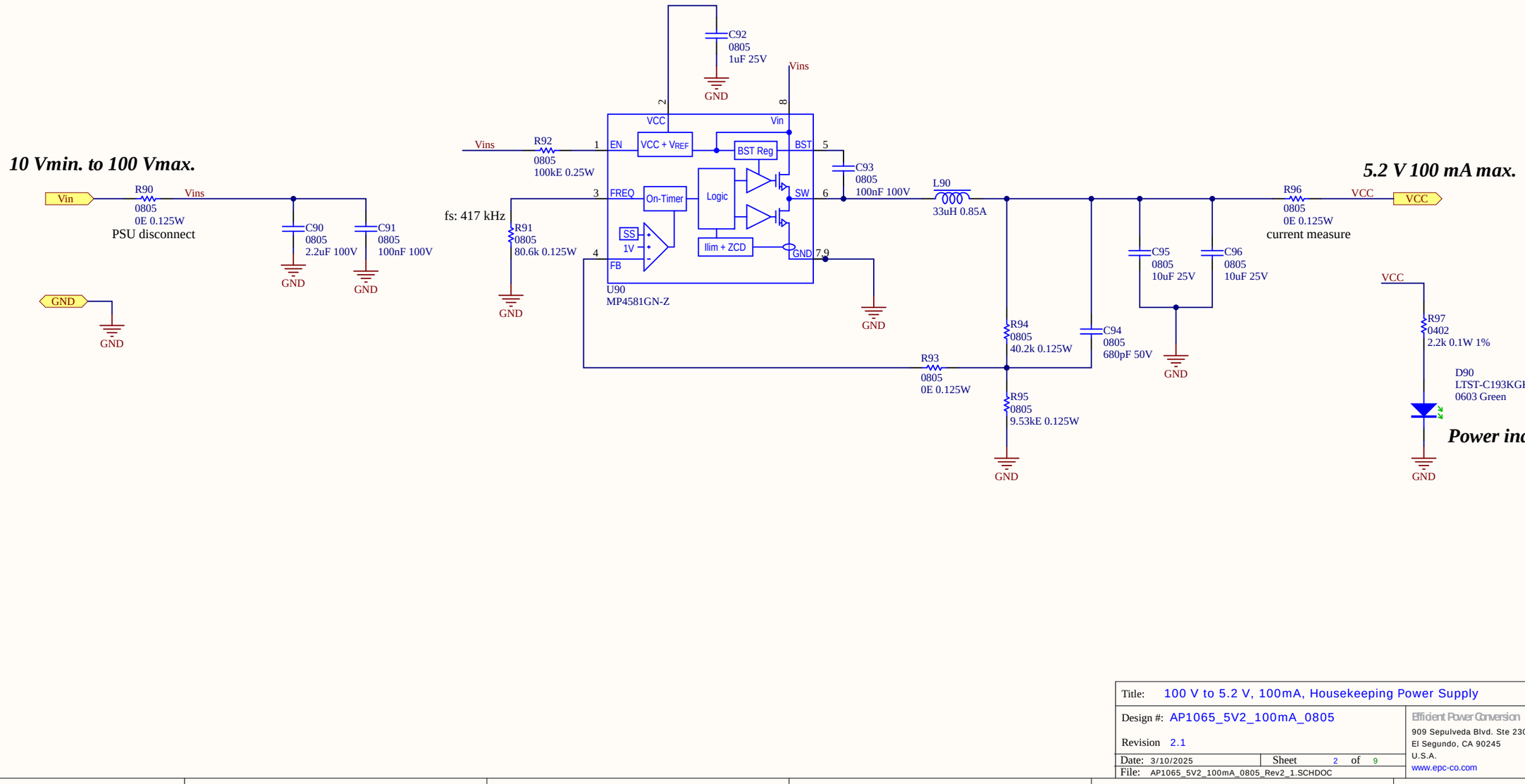

Title:	100 V to 5.2 V, 100mA, Housekeeping Power Supply
Design #:	AP1065_5V2_100mA_0805
Revision	2.1
Date:	3/10/2025
Sheet	2 of 9
File:	AP1065_5V2_100mA_0805_Rev2_1.SCHDOC

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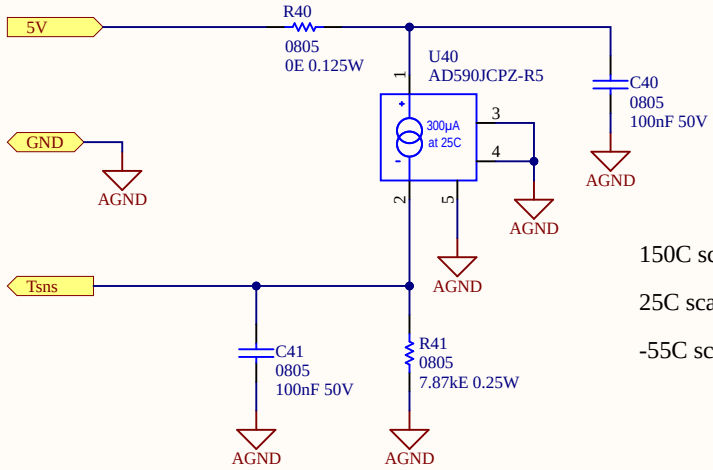

150C scale to 3.3V

25C scale to 2.3V

-55C scale to 1.7V

Title:	Temperature sense using AD590 - 0805 components		© EPC 2023
Design #:	AP1009_0805_2p3V		
Revision	3.1		
Date:	3/10/2025	Sheet 3 of 9	
File:	AP1009_0805_2p3V_Rev3_1.SCHDOC		

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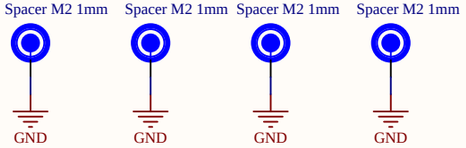
S1
Spacer M2 1mm

S2
Spacer M2 1mm

S3
Spacer M2 1mm

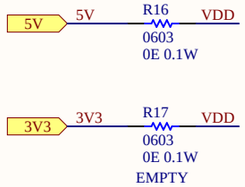
S4
Spacer M2 1mm



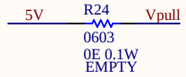
Heatsink Kit

Basic 4 screw heatsink kit

Title AP1042 Rev. 1.0			Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 23 El Segundo, CA 90245 United States www.epc-co.com
Size: A	9	Revision: 1	
Date: 3/11/2025		Sheet 4 of 9	
File: AP1042_Rev1_0_ThermalKit.SCHDOC			

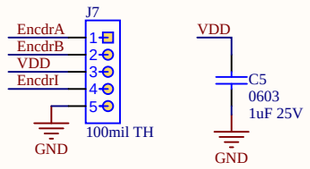


Default = 5 V

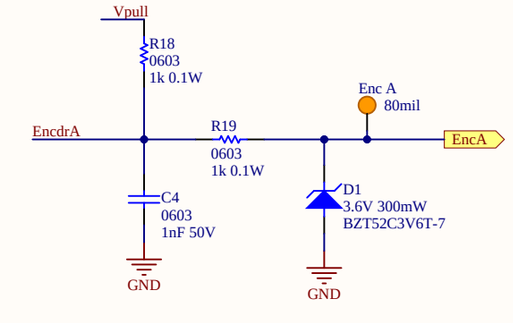


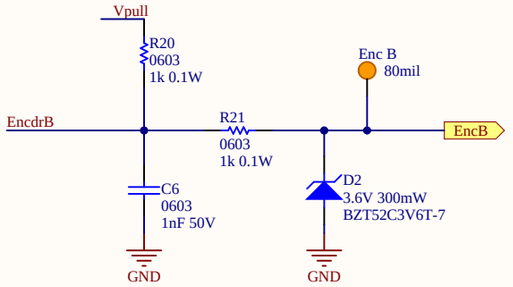
Pull Up Voltage for microcontroller input signals

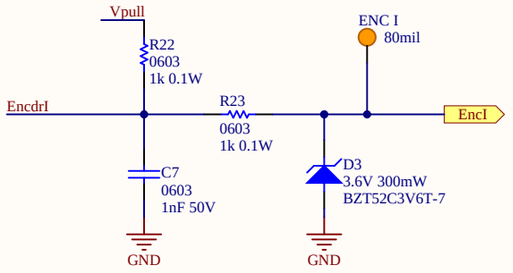
Sensors supply Voltage selection



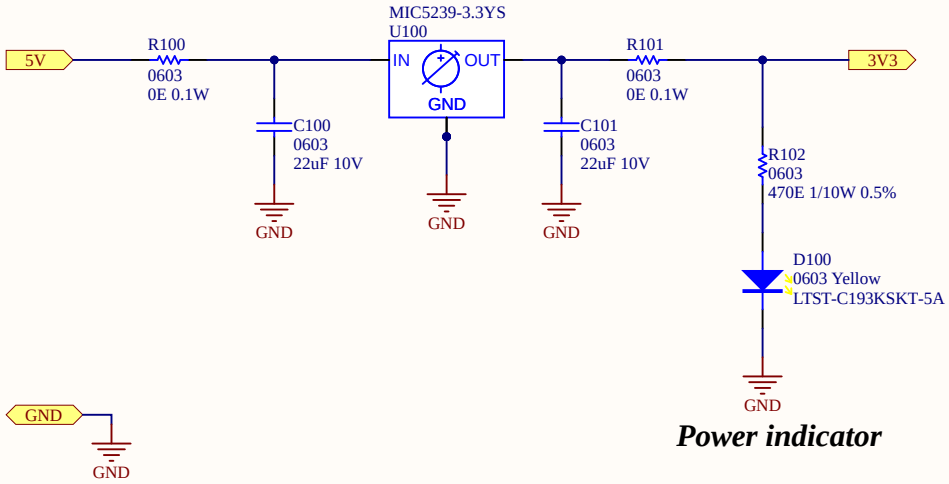
Shaft encoder connection
Quadrature with Index
Supports optical and hall





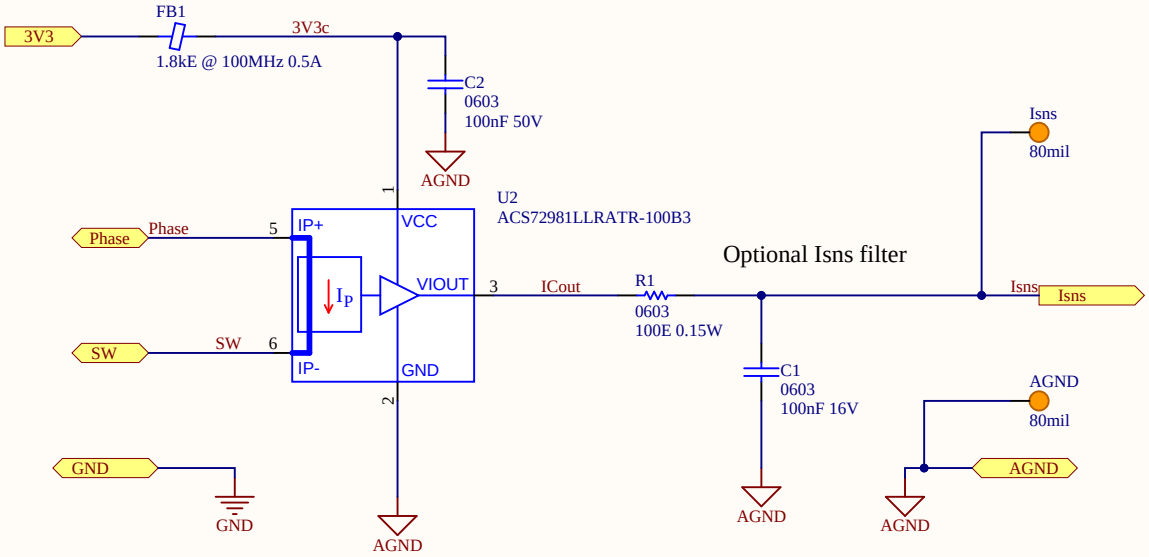


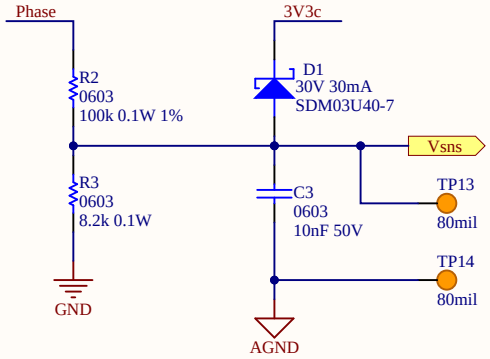
Title: Quadrature Encoder interface		© EPC 2023
Design #: AP1005 Revision 3.1		Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Date: 3/10/2025	Sheet 5 of 9	
File: AP1005_Rev3_1_QuadEncdr.SCHDOC		



Power indicator

Title:	5V to 3V3 500mA LDO using MIC5239-3.3YS	© EPC 2023
Design #:	AP1074	Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Revision	1.0	
Date: 3/10/2025	Sheet 6 of 9	
File: AP1074_Rev1_0.SCHDOC		





Phase Voltage sense

75.79 mV/V 43.5 V maximum

Title:	Bidirectional current sense using Hall effect sensor ACS72981	© EPC 2023
Design #:	AP1075	
Revision	1.0	
Date: 3/4/2026	Sheet 7 of 9	
File: ACS72981LLRATR_100B3.SchDoc		

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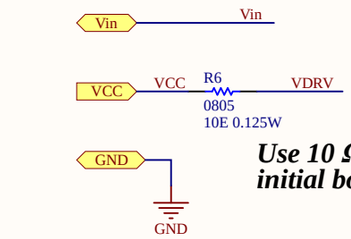
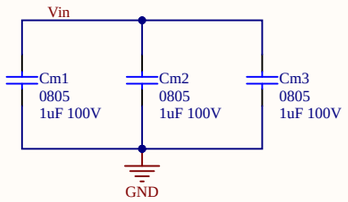
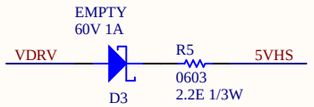


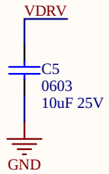
Use 10 Ω to limit inrush current during initial bootstrap capacitor charge

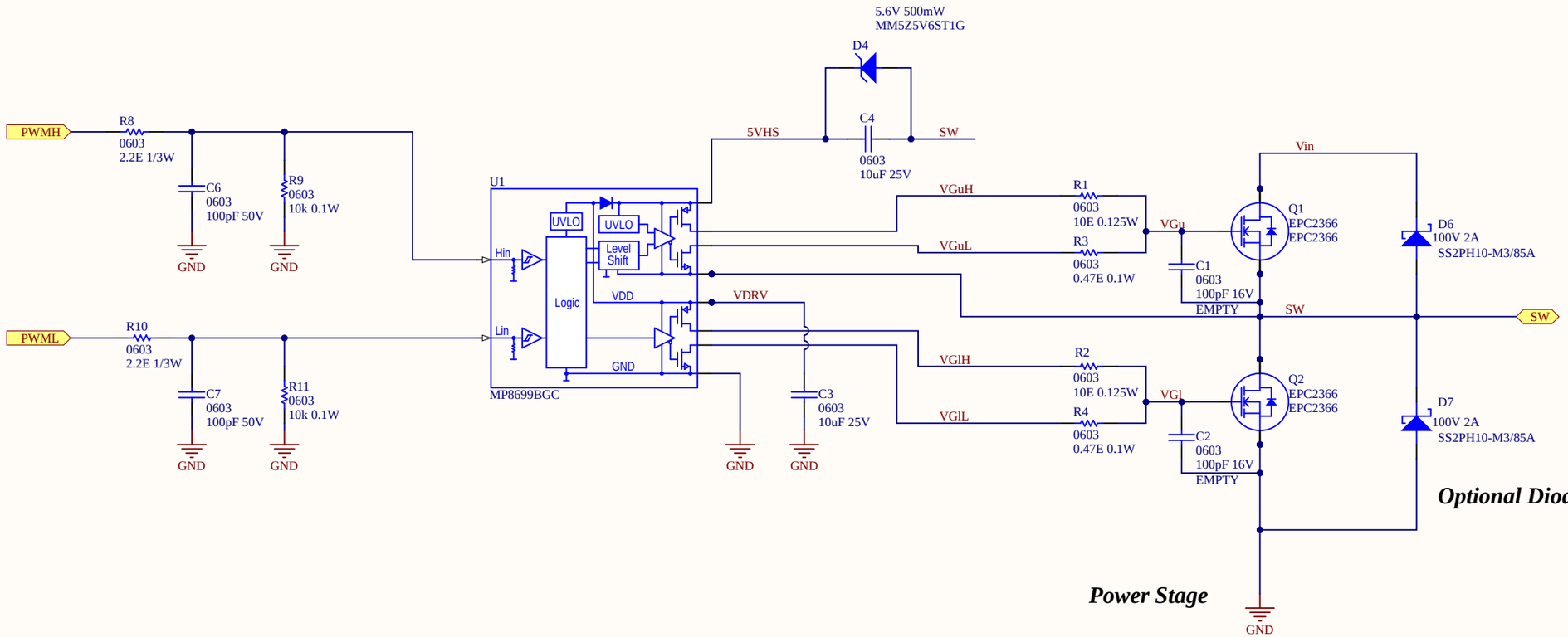


Intermediate Capacitors



Optional parts
Use only if needed in case of asynchronous bootstrap gate driver





Optional Diodes

Power Stage

Title:	EPC2366 with MP8699B motor phase leg		© EPC 2025
Design #:	Half-Bridge Phase Leg		
Revision	1.1	P/N#:	EPC2366
Date:	3/4/2026	Sheet	8 of 9
File:	EPC2366_MP8699B_MotorPhaseLeg.SCHDOC		

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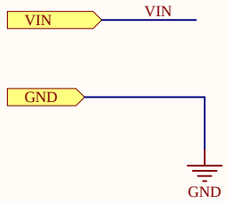

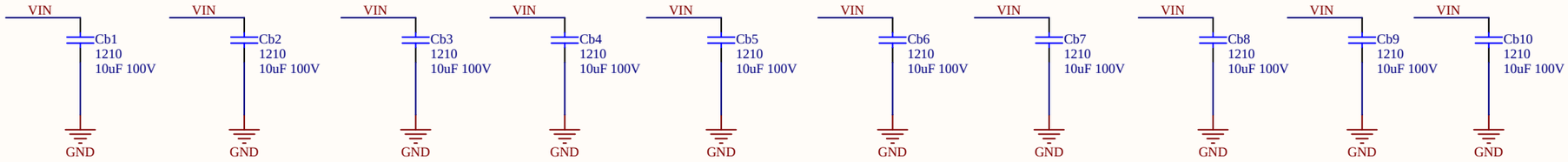

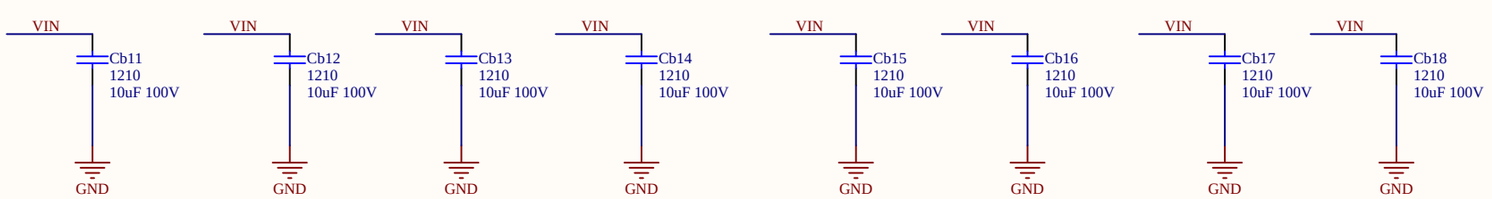

DC Bus Capacitors

Title: EPC91121_BusCapacitors		© EPC 2023
Design #: *		Efficient Power Conversion
Revision 1.1		909 Pacific Coast Hwy. Ste 230
Date: 3/4/2026	Sheet 9 of 9	El Segundo, CA 90245
File: EPC91121_BusCapacitors_Rev1_0.SCHDOC		U.S.A.
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