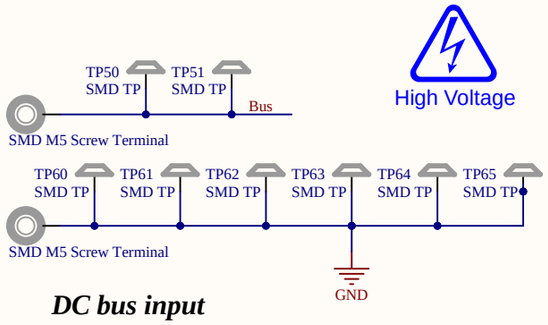
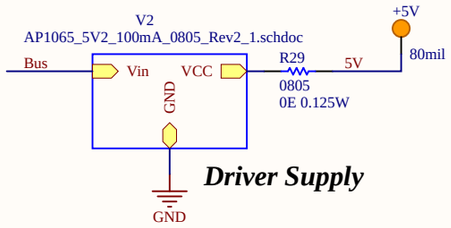
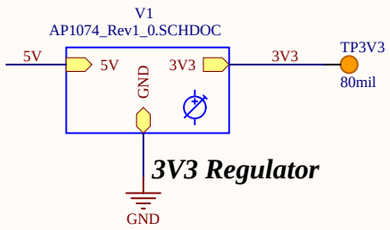


High Voltage

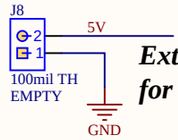
DC bus input



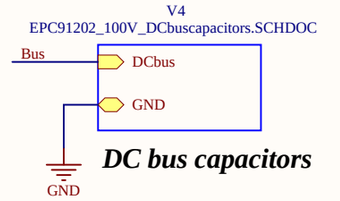
Driver Supply



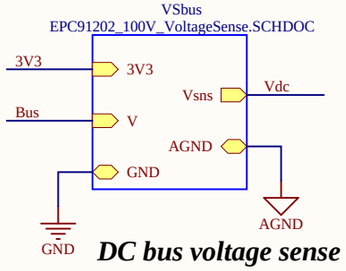
3V3 Regulator



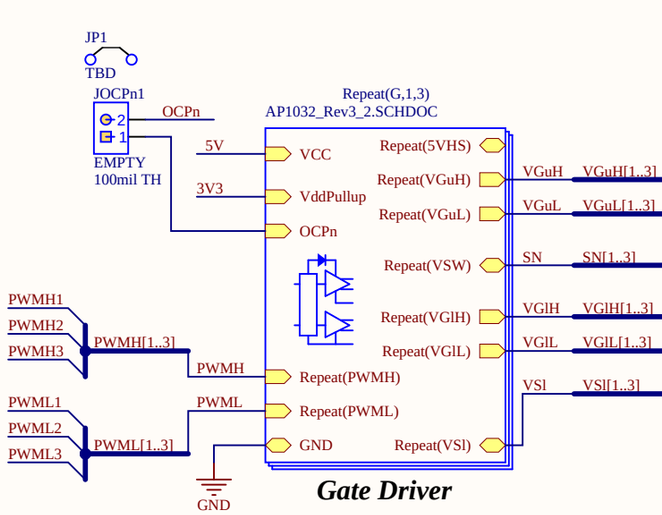
External jumper for 5 V generation



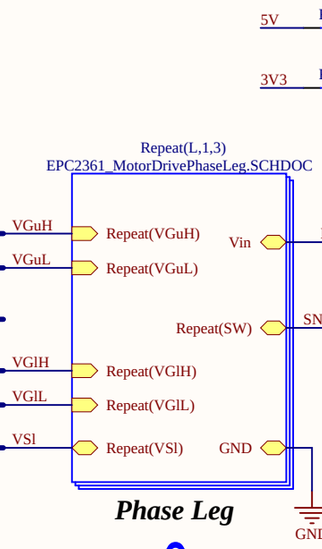
DC bus capacitors



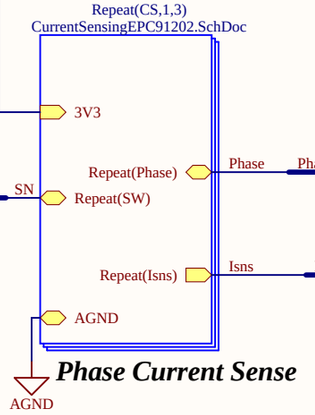
DC bus voltage sense



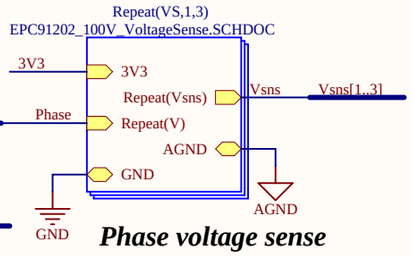
Gate Driver



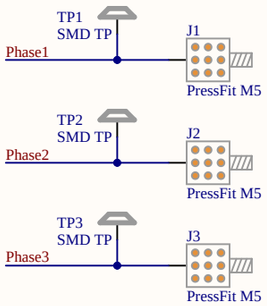
Phase Leg

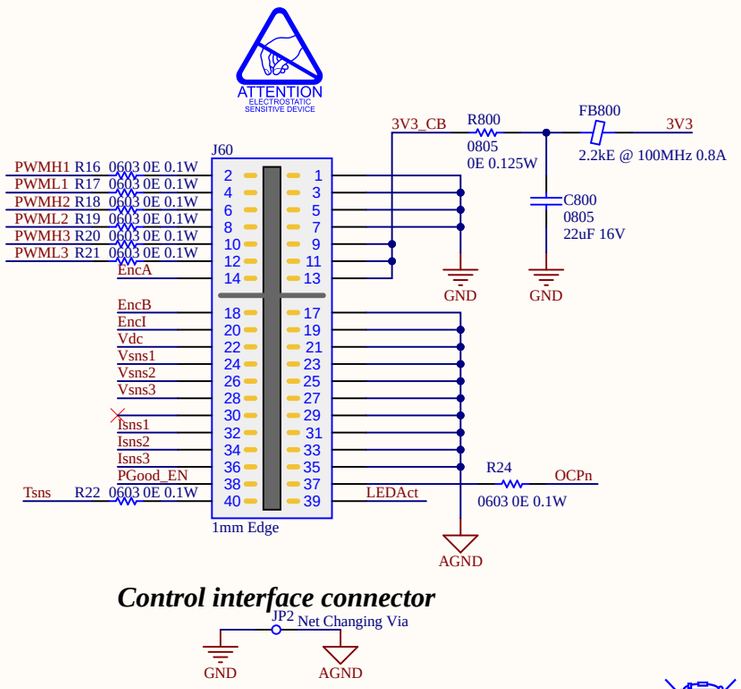


Phase Current Sense

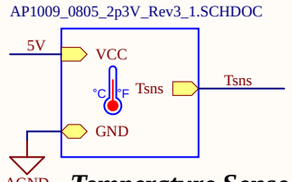


Phase voltage sense



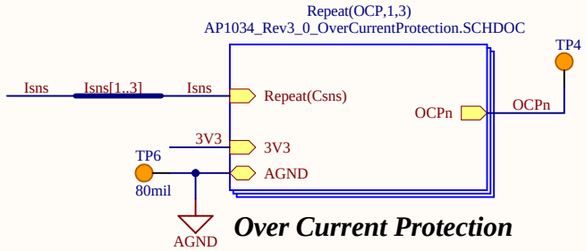


Control interface connector



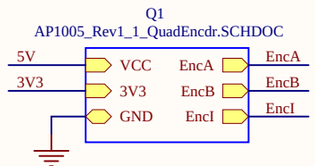
Heatsink Kit

ATTENTION
HOT SURFACE

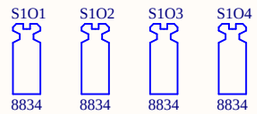


Over Current Protection

Temperature Sense

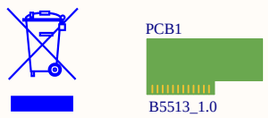


Shaft encoder input
Quadrature with Index
Supports optical and hall



Nylon Standoff

StandOffs



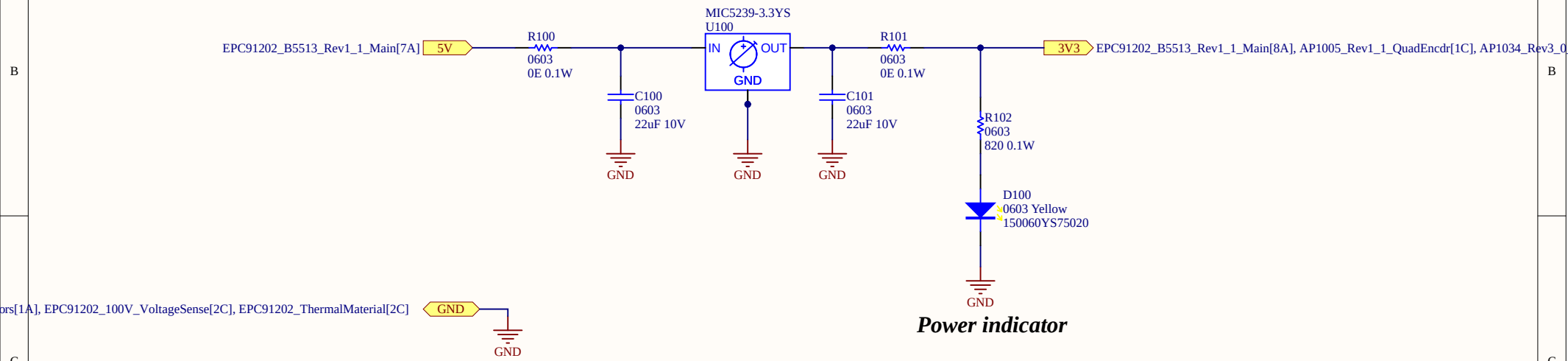
Serial# yyww-nnn

FD1 FD2 FD3

Fiducial_Board

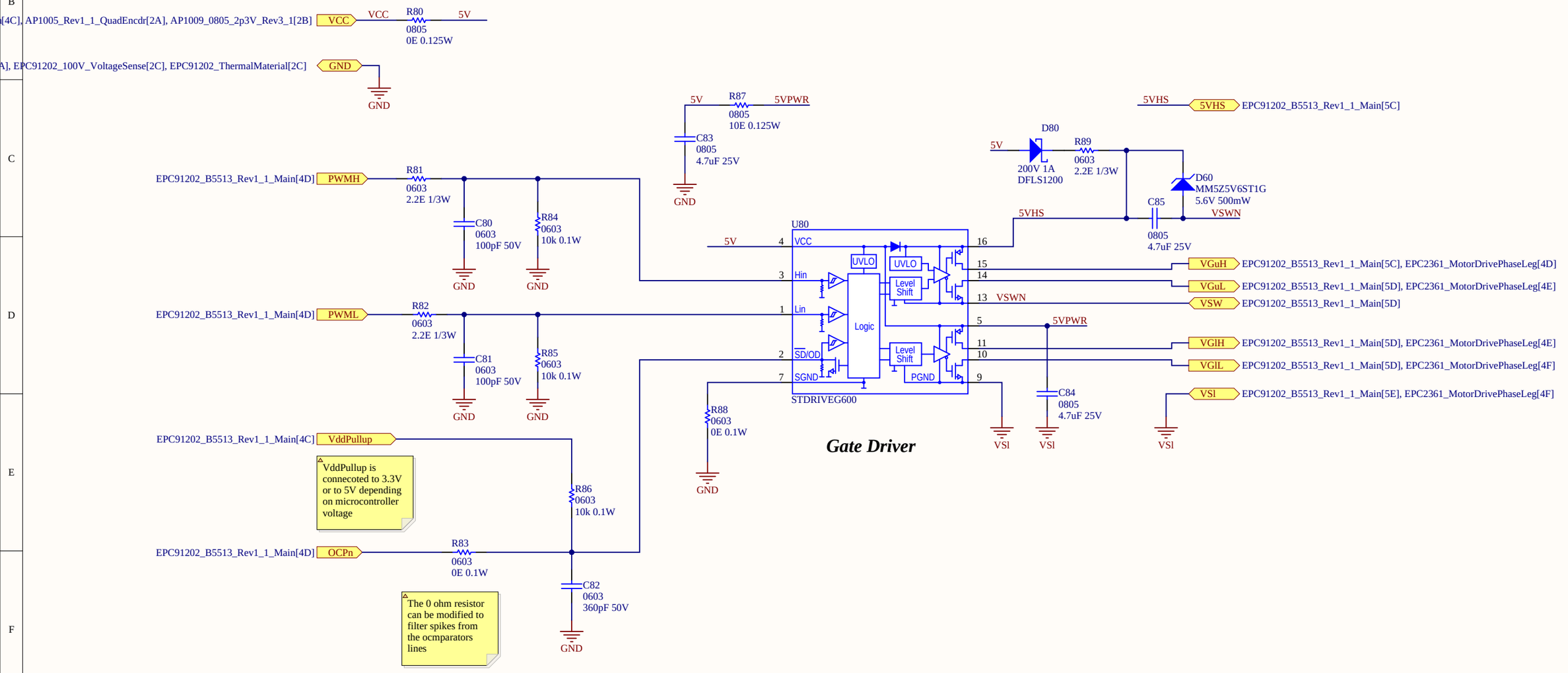
For evaluation only;
not FCC approved for resale

Title: EPC91202 - 3phase Motor Drive with EPC2361			© EPC 2026
Design #: EPC91202		PCB #: B5513	Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Revision 1.1		Revision: 1.0	
Date: 27/01/2026	Sheet 1 of 12		
File: EPC91202_B5513_Rev1_1_Main.SCHDOC			



Power indicator

Title:	5V to 3V3 500mA LDO using MIC5239-3.3YS	© EPC 2026
Design #:	EPC91202	Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Revision	1.1	
Date: 02/03/2026	Sheet 2 of 12	
File: AP1074_Rev1_0.SCHDOC		



Title:	600 V Gate Driver using STDRIVE600G
Design #:	EPC91202
Revision	1.1
Date:	26/01/2026
Sheet	3 of 12
File:	AP1032_Rev3_2.SCHDOC

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EPC91202_B5513_Rev1_1_Main[7C], AP1065_5V2_100mA_0805_Rev2_1[1B] Vin Vin

apacitors[1A], EPC91202_100V_VoltageSense[2C], EPC91202_ThermalMaterial[2C] GND

GND

DC Input
100 Vmax.

Vin C3 0805 100nF 100V GND
Vin C4 0805 100nF 100V GND
Vin C5 0805 100nF 100V GND

Decoupling Capacitors

EPC91202_B5513_Rev1_1_Main[6C], AP1032_Rev3_2[8D] VGuH R1 0603 10E 0.125W
EPC91202_B5513_Rev1_1_Main[6D], AP1032_Rev3_2[8D] VGuL R3 0603 0.47E 0.1W
VGu
C1 0603 100pF 16V EMPTY
Q1 EPC2361
SW
EPC91202_B5513_Rev1_1_Main[6D], AP1032_Rev3_2[8D] VGlH R2 0603 10E 0.125W
EPC91202_B5513_Rev1_1_Main[6D], AP1032_Rev3_2[8D] VGlL R4 0603 0.47E 0.1W
VGl
C2 0603 100pF 16V EMPTY
Q2 EPC2361
EPC91202_B5513_Rev1_1_Main[6D], AP1032_Rev3_2[8E] VSl VSl JP1 Net Tie

Power Stage

GND

Vin D1 100V 2A SS2PH10-M3/85A
Vin D2 100V 2A SS2PH10-M3/85A

Optional Diodes

GND C_snu 0603 330pF 100V
R_snu 0603 4.7E 1/3W
SW EPC91202_B5513_Rev1_1_Main[7D], CurrentSensingEPC91202[3C]

Title:	Phase Leg using EPC2361
Design #:	EPC91202
Revision	1.1
P/N#:	EPC2361
Date:	02/03/2026
Sheet	4 of 12
File:	EPC2361_MotorDrivePhaseLeg.SCHDOC

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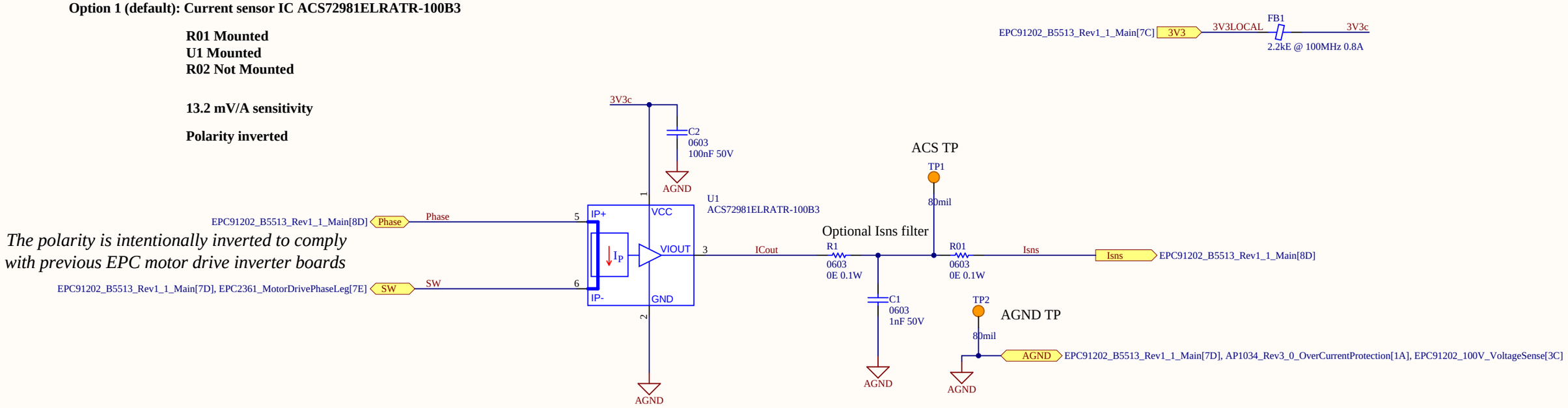
Option 1 (default): Current sensor IC ACS72981ELRATR-100B3

R01 Mounted
U1 Mounted
R02 Not Mounted

13.2 mV/A sensitivity

Polarity inverted



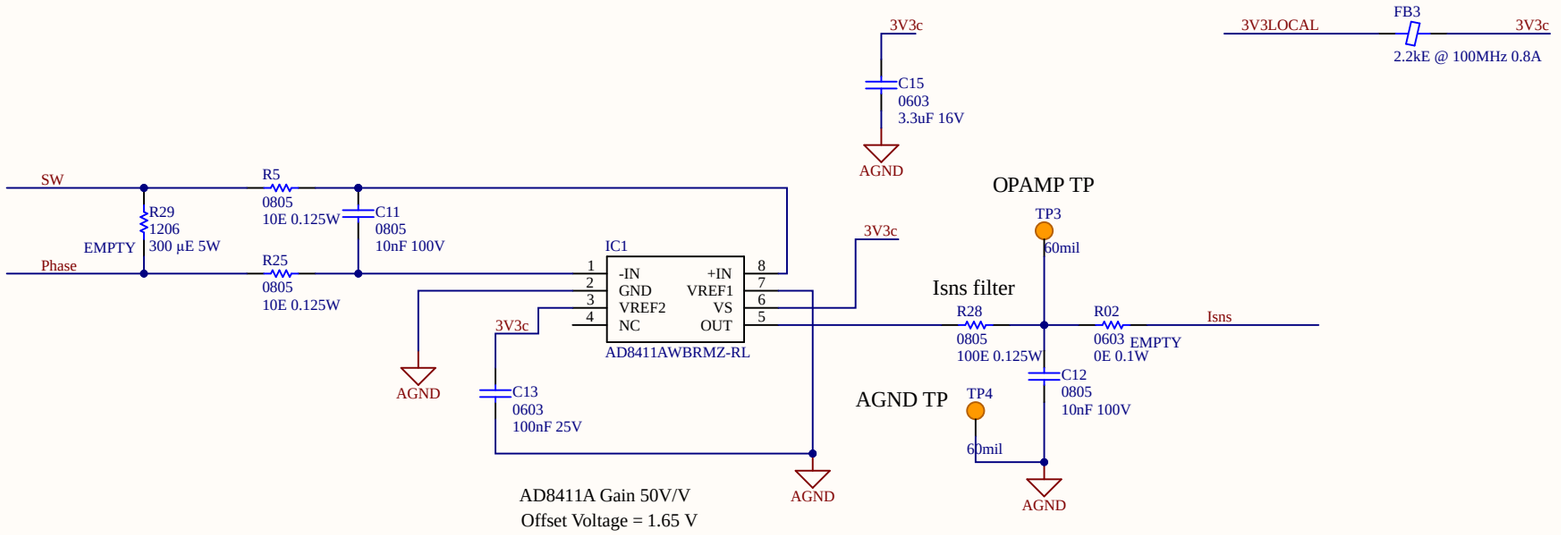
The polarity is intentionally inverted to comply with previous EPC motor drive inverter boards

Option 2: 300 µE Phase shunt resistor with current-sense amplifier AD8411AWBRMZ-RL

R01 Not Mounted
U1 Not Mounted
R02 Mounted

15 mV/A sensitivity

Polarity not inverted



100V_VoltageSense[3C] AGND

AGND

Title:	Bidirectional current sensing using Hall effect sensor or Phase shunt
Design #:	EPC91202
Revision	1.1
Date:	02/03/2026
Sheet	5 of 12
File:	CurrentSensingEPC91202.SchDoc

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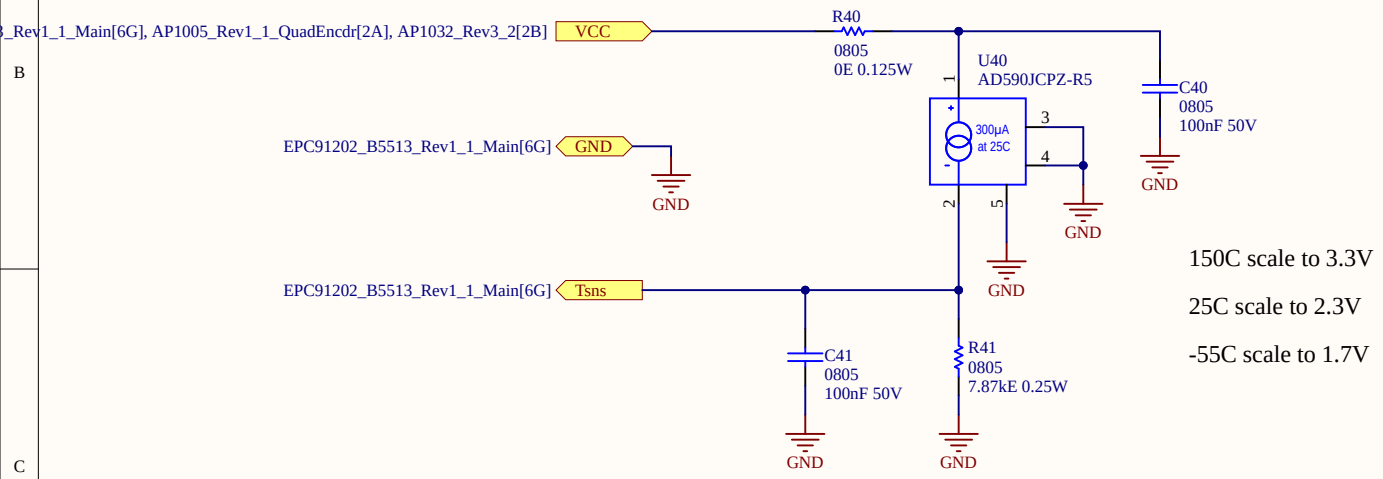
5V supply

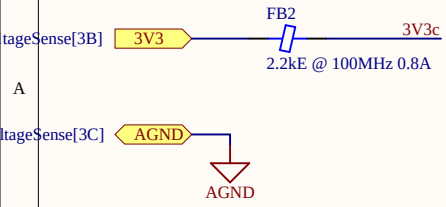


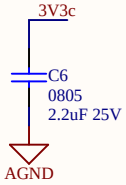
150C scale to 3.3V

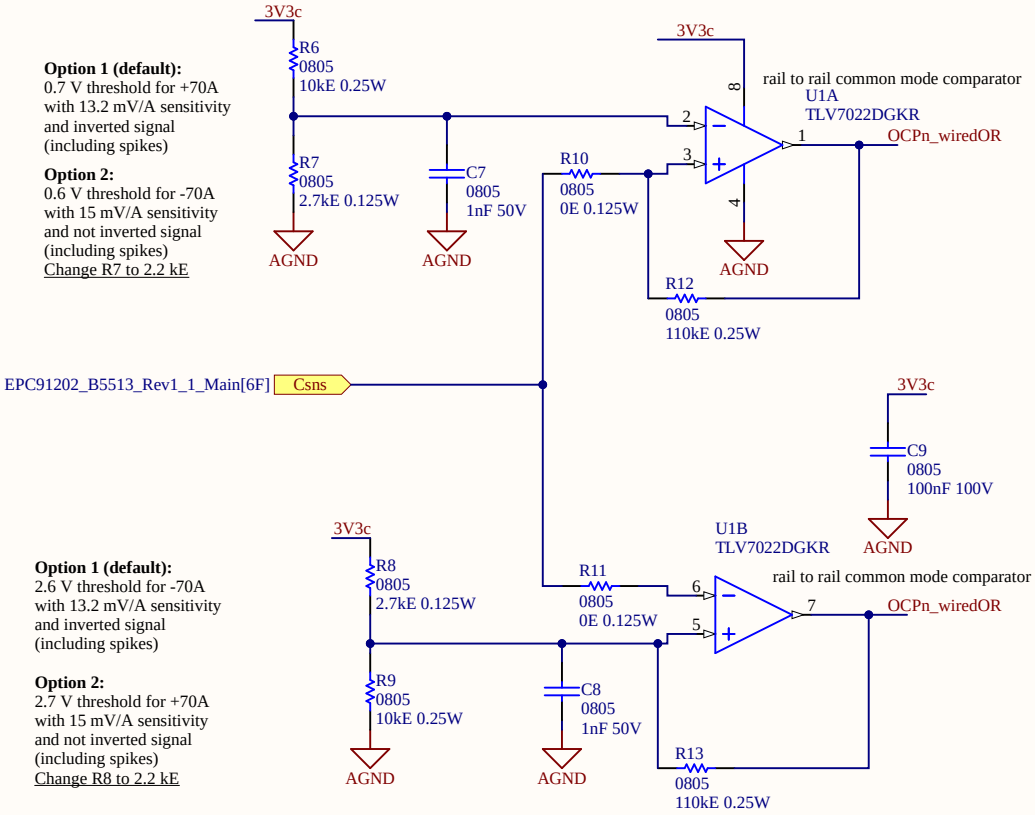
25C scale to 2.3V

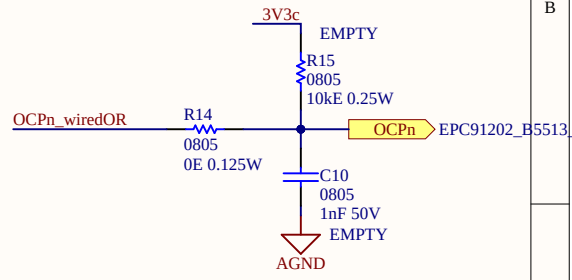
-55C scale to 1.7V

Title:	Temperature sensing using AD590 - 0805 components	© EPC 2026
Design #:	EPC91202	Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Revision	1.1	
Date: 26/01/2026	Sheet 6 of 12	
File: AP1009_0805_2p3V_Rev3_1.SCHDOC		









R12 and C9 are not mounted because they are mounted in front of the gate driver.

Title:	Bidirectional Over Current detection	© EPC 2026
Design #:	EPC91202	
Revision	1.1	
Date: 26/01/2026	Sheet 7 of 12	
File: AP1034_Rev3_0_OverCurrentProtection.SCHDOC		

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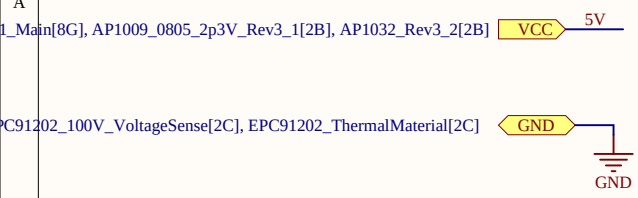
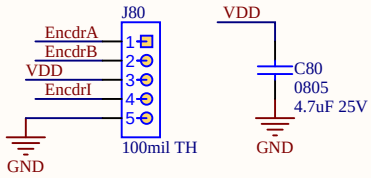
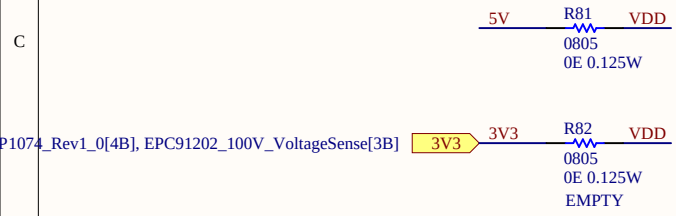
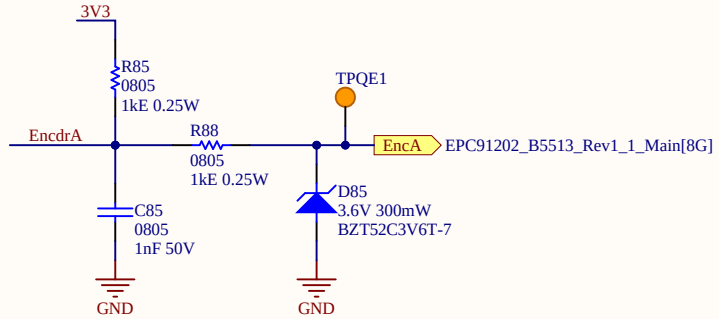


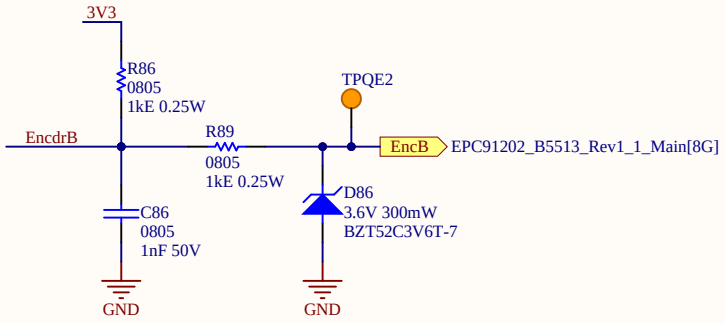


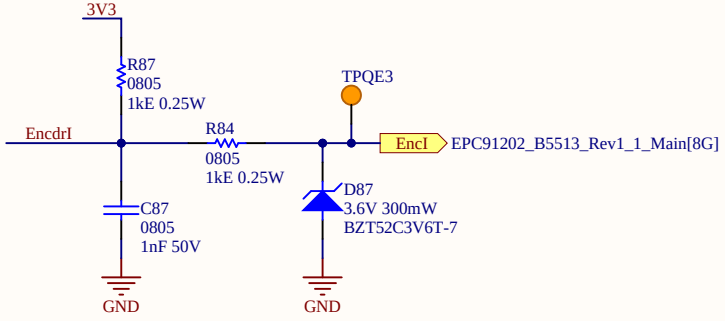
Shaft encoder connection
Quadrature with Index
Supports optical and hall



Source Selection







Title:	Shaft encoder interface	© EPC 2026
Design #:	EPC91202	Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 230 El Segundo, CA 90245 United States www.epc-co.com
Revision	1.1	
Date: 02/03/2026	Sheet 8 of 12	
File: AP1005_Rev1_1_QuadEncdr.SCHDOC		

C91202_B5513_Rev1_1_Main[1C] DCbus Bus

C91202_ThermalMaterial[2C] GND

GND

Always mount capacitors Cb1->Cb39

Bus Cb37 1210 10uF 100V GND
Bus Cb38 1210 10uF 100V GND
Bus Cb39 1210 10uF 100V GND

Bus Cb1 1210 10uF 100V GND
Bus Cb2 1210 10uF 100V GND
Bus Cb3 1210 10uF 100V GND
Bus Cb4 1210 10uF 100V GND
Bus Cb5 1210 10uF 100V GND
Bus Cb6 1210 10uF 100V GND
Bus Cb7 1210 10uF 100V GND
Bus Cb8 1210 10uF 100V GND
Bus Cb9 1210 10uF 100V GND
Bus Cb10 1210 10uF 100V GND
Bus Cb11 1210 10uF 100V GND
Bus Cb12 1210 10uF 100V GND
Bus Cb13 1210 10uF 100V GND
Bus Cb14 1210 10uF 100V GND
Bus Cb15 1210 10uF 100V GND
Bus Cb16 1210 10uF 100V GND
Bus Cb17 1210 10uF 100V GND
Bus Cb18 1210 10uF 100V GND

Bus Cb19 1210 10uF 100V GND
Bus Cb20 1210 10uF 100V GND
Bus Cb21 1210 10uF 100V GND
Bus Cb22 1210 10uF 100V GND
Bus Cb23 1210 10uF 100V GND
Bus Cb24 1210 10uF 100V GND
Bus Cb25 1210 10uF 100V GND
Bus Cb26 1210 10uF 100V GND
Bus Cb27 1210 10uF 100V GND
Bus Cb28 1210 10uF 100V GND
Bus Cb29 1210 10uF 100V GND
Bus Cb30 1210 10uF 100V GND
Bus Cb31 1210 10uF 100V GND
Bus Cb32 1210 10uF 100V GND
Bus Cb33 1210 10uF 100V GND
Bus Cb34 1210 10uF 100V GND
Bus Cb35 1210 10uF 100V GND
Bus Cb36 1210 10uF 100V GND

Additional capacitors

Bus EMPTY Cb40 1210 10uF 100V GND
Bus EMPTY Cb41 1210 10uF 100V GND
Bus EMPTY Cb42 1210 10uF 100V GND
Bus EMPTY Cb43 1210 10uF 100V GND
Bus EMPTY Cb44 1210 10uF 100V GND
Bus EMPTY Cb45 1210 10uF 100V GND
Bus EMPTY Cb46 1210 10uF 100V GND
Bus EMPTY Cb47 1210 10uF 100V GND
Bus EMPTY Cb48 1210 10uF 100V GND
Bus EMPTY Cb49 1210 10uF 100V GND
Bus EMPTY Cb50 1210 10uF 100V GND
Bus EMPTY Cb51 1210 10uF 100V GND
Bus EMPTY Cb52 1210 10uF 100V GND
Bus EMPTY Cb53 1210 10uF 100V GND
Bus EMPTY Cb54 1210 10uF 100V GND
Bus EMPTY Cb55 1210 10uF 100V GND

Bus EMPTY Cb56 1210 10uF 100V GND
Bus EMPTY Cb57 1210 10uF 100V GND
Bus EMPTY Cb58 1210 10uF 100V GND
Bus EMPTY Cb59 1210 10uF 100V GND
Bus EMPTY Cb60 1210 10uF 100V GND
Bus EMPTY Cb61 1210 10uF 100V GND
Bus EMPTY Cb62 1210 10uF 100V GND
Bus EMPTY Cb63 1210 10uF 100V GND
Bus EMPTY Cb64 1210 10uF 100V GND
Bus EMPTY Cb65 1210 10uF 100V GND
Bus EMPTY Cb66 1210 10uF 100V GND
Bus EMPTY Cb67 1210 10uF 100V GND
Bus EMPTY Cb68 1210 10uF 100V GND
Bus EMPTY Cb69 1210 10uF 100V GND
Bus EMPTY Cb70 1210 10uF 100V GND
Bus EMPTY Cb71 1210 10uF 100V GND
Bus EMPTY Cb72 1210 10uF 100V GND

Title: DC bus capacitors

Design #: EPC91202

Revision 1.1

Date: 26/01/2026 Sheet 9 of 12

File: EPC91202_100V_DCbuscapacitors.SCHDOC

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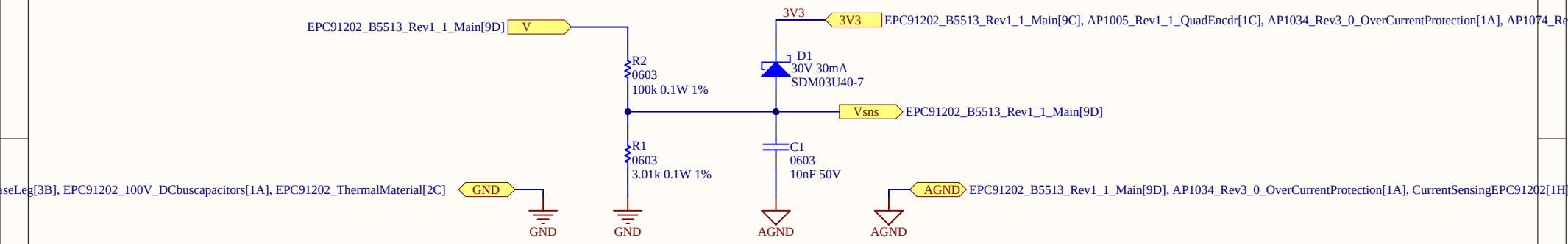
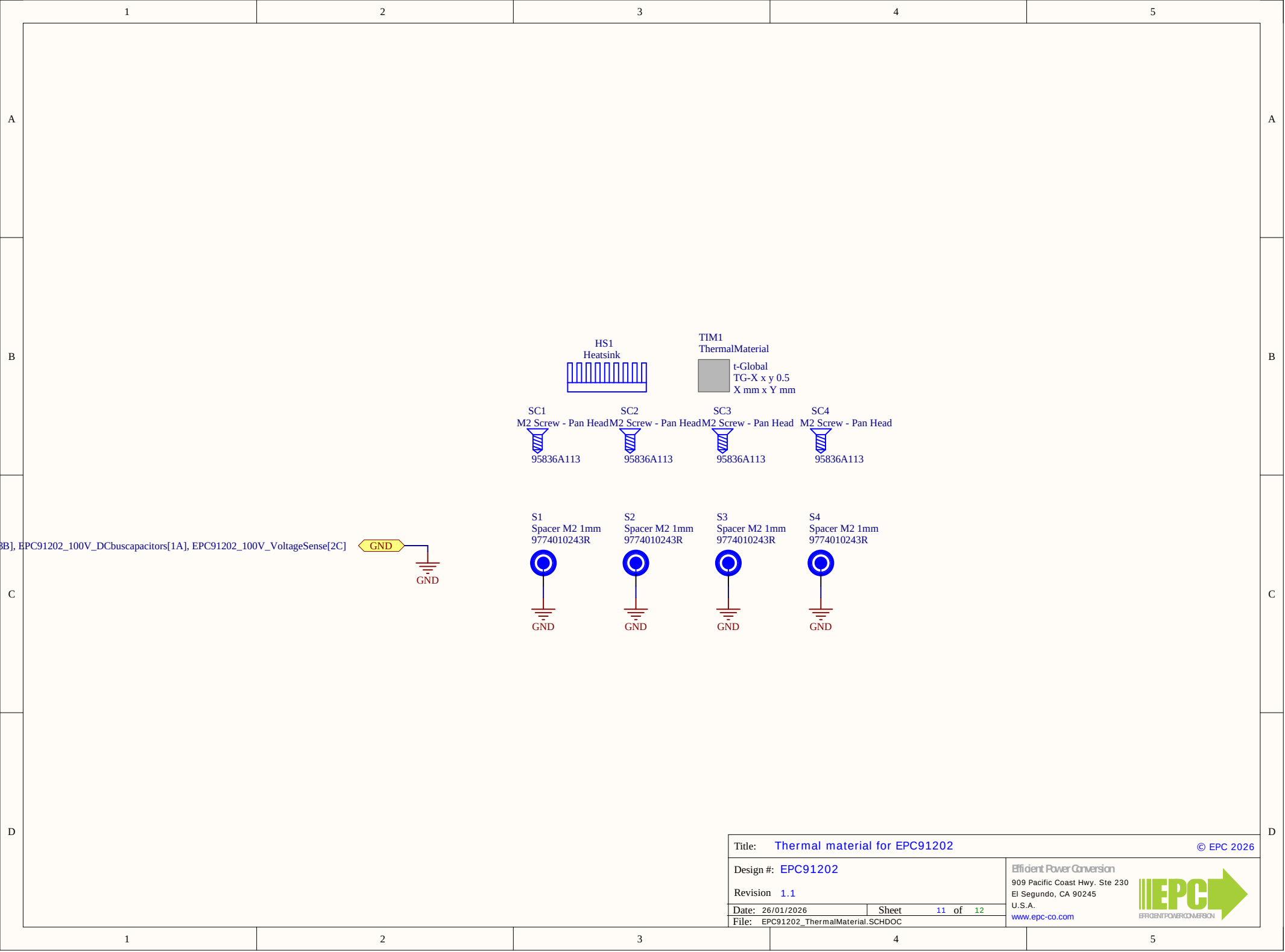


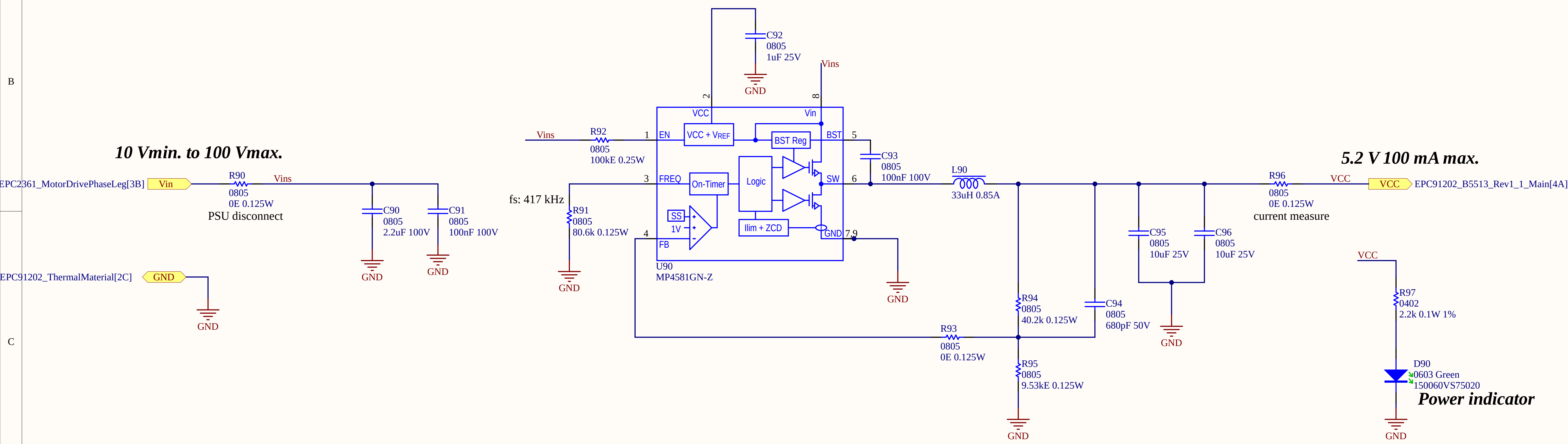
29.2 mV/V

112.9 V maximum readable voltage

Title: Voltage sensing		© EPC 2026
Design #: EPC91202 Revision 1.1		Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Date: 26/01/2026	Sheet 10 of 12	
File: EPC91202_100V_VoltageSense.SCHDOC		



Title:	Thermal material for EPC91202	© EPC 2026
Design #:	EPC91202	Efficient Power Conversion 909 Pacific Coast Hwy. Ste 230 El Segundo, CA 90245 U.S.A. www.epc-co.com
Revision	1.1	
Date: 26/01/2026	Sheet 11 of 12	
File: EPC91202_ThermalMaterial.SCHDOC		



Title: 100 V to 5.2 V, 100mA, Housekeeping Power Supply

Design #: EPC91202

Revision 1.1

Date: 02/03/2026 Sheet 12 of 12

File: AP1065_5V2_100mA_0805_Rev2_1.SCHDOC

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