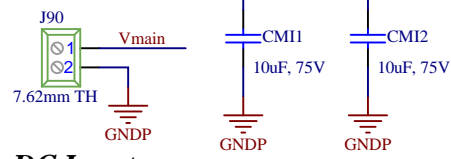


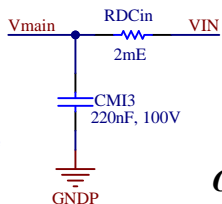
15 Vmin. to 65 Vmax.  
limited by capacitors



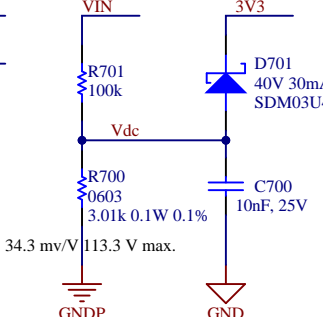
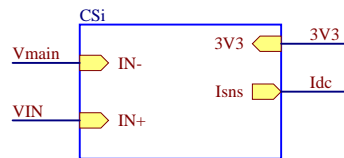
**DC Input**



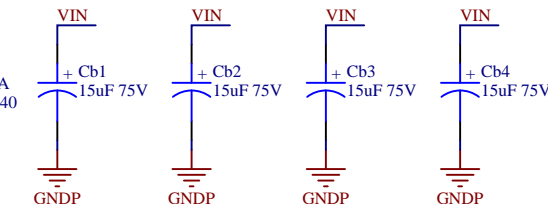
High Voltage



**Optional DC Link Current sense**

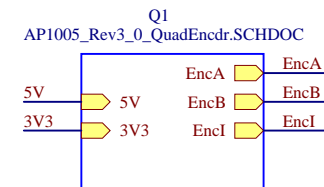


**DC Link Voltage sense**

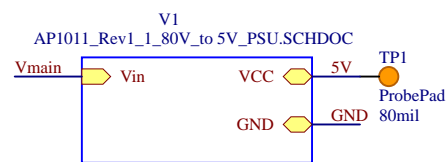


**Bulk Capacitors**

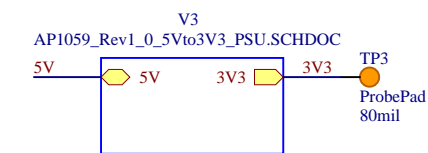
For evaluation only;  
not FCC approved for resale



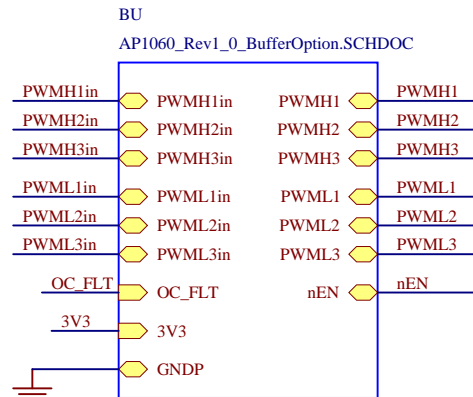
**Shaft encoder input  
Quadrature with Index**  
Supports optical and hall



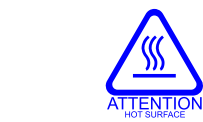
**5 V Supply**



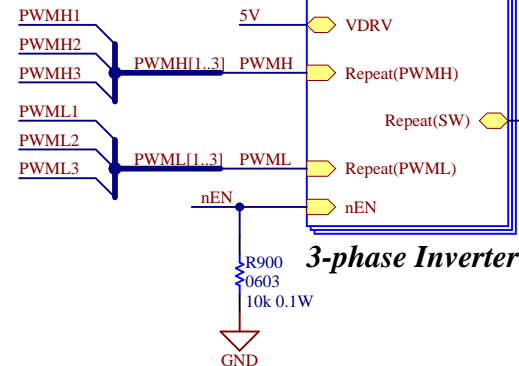
**3V3 Supply**



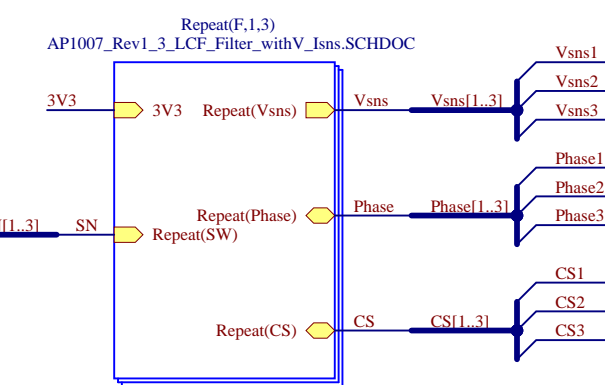
**PWM Buffer & Disconnect**



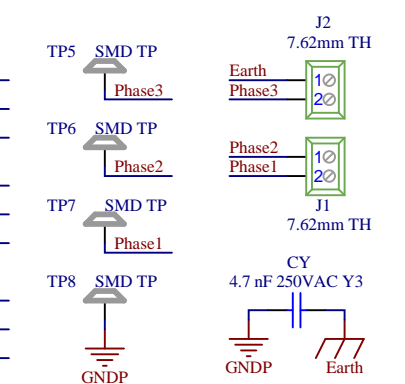
ATTENTION  
HOT SURFACE



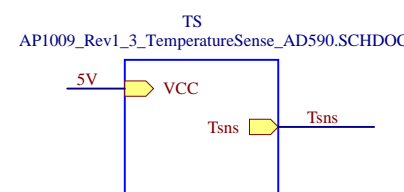
**3-phase Inverter**



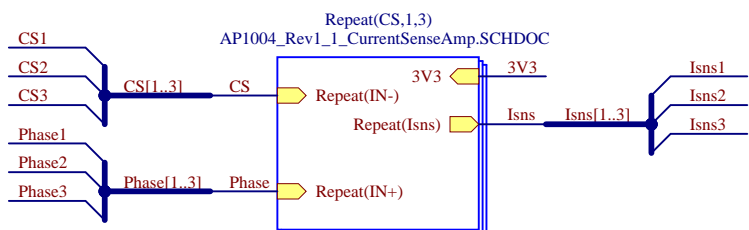
**Output Filter**



**Motor Connection**

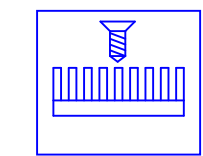


**Temperature Sense**

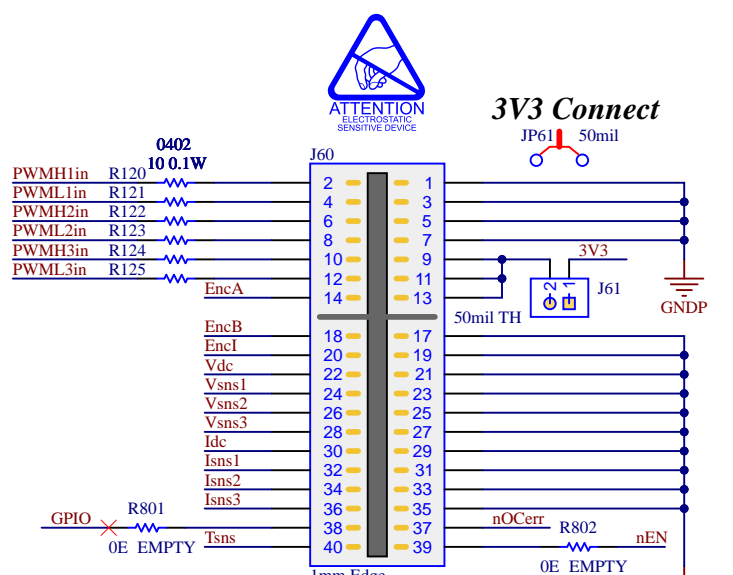


**Current sense**

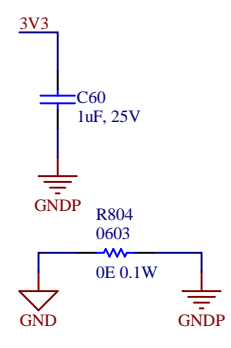
MC  
AP1042\_Rev1\_0\_ThermalKit.SCHDOC



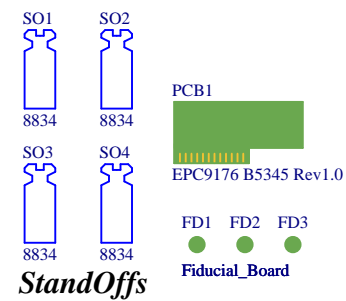
**Heatsink Kit**



**Control interface connector**

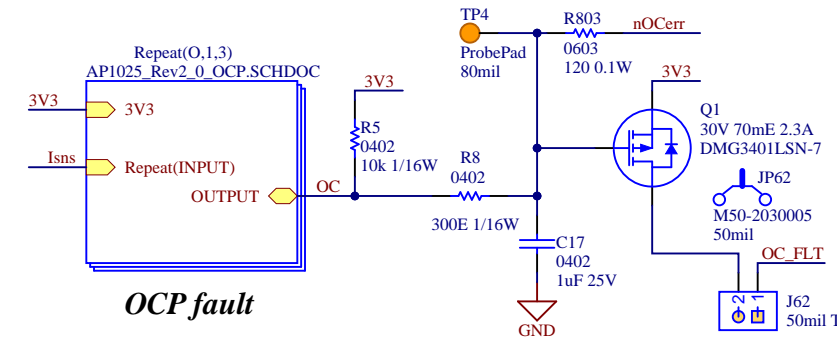


**GND connection**



**StandOffs**

© Copyright EPC 2022 © EPC



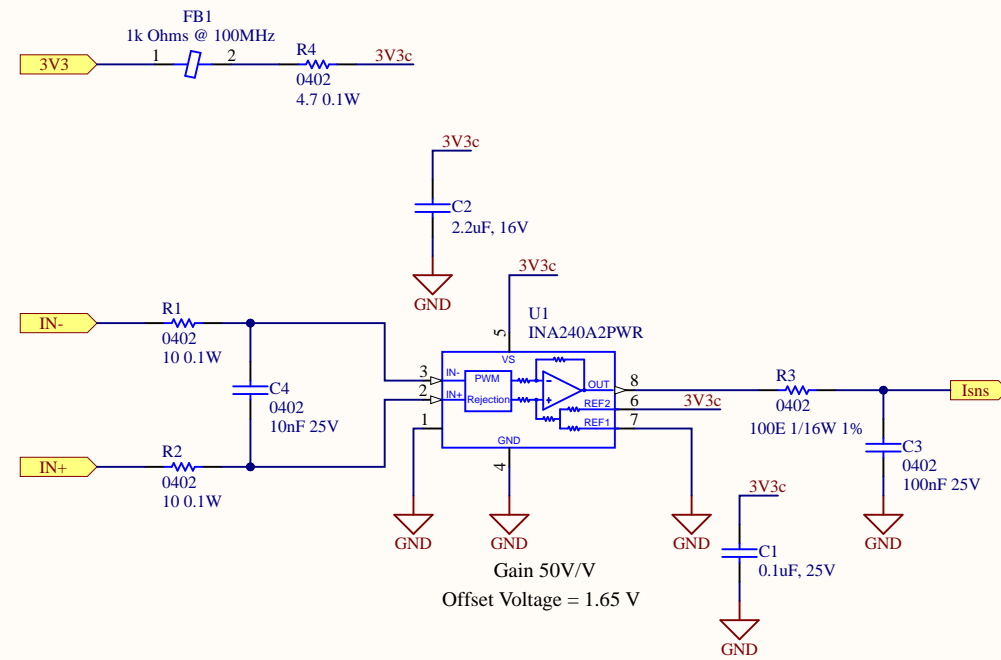
**OCP fault**

**OCP disconnect**

**3-phase motor drive board using EPC23102 power stage**

Title EPC9176 B5345 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	1	Revision: 1	
Date: 10/27/2022	Sheet 1 of 10		
File: EPC9176_B5345_Rev1_1_Main.SCHDOC			





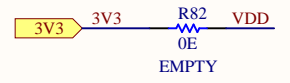
### Bi-Directional 80 V Current Sense Amplifier

Title AP1004 Rev. 1.1		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>	
Size: A	3	Revision: 1	
Date: 9/6/2022	Sheet 2 of 11		
File: AP1004_Rev1_1_CurrentSenseAmp.SCHDOC			

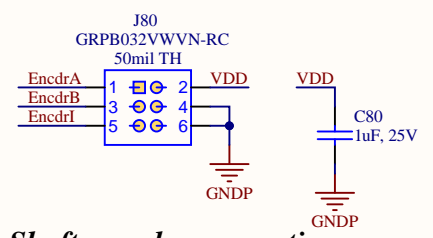
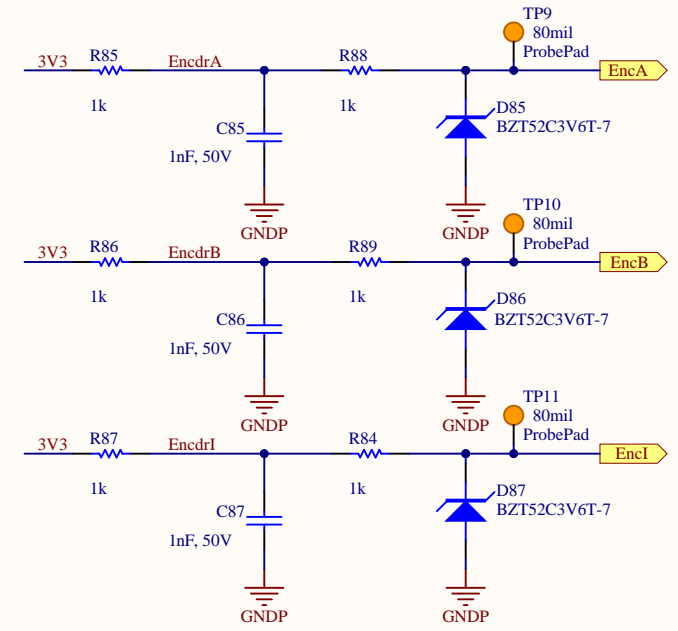


A

A



Source Selection



Shaft encoder connection  
 Quadrature with Index  
 Supports optical and hall

B

B

C

C

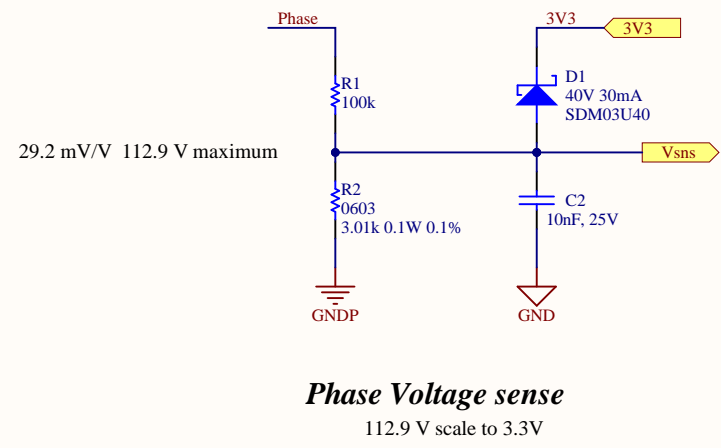
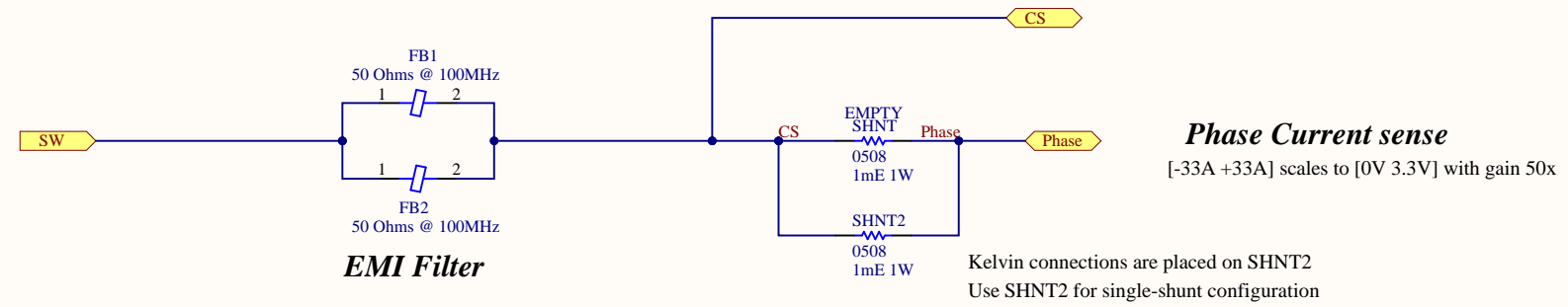
D

D


Quadrature Encoder Interface

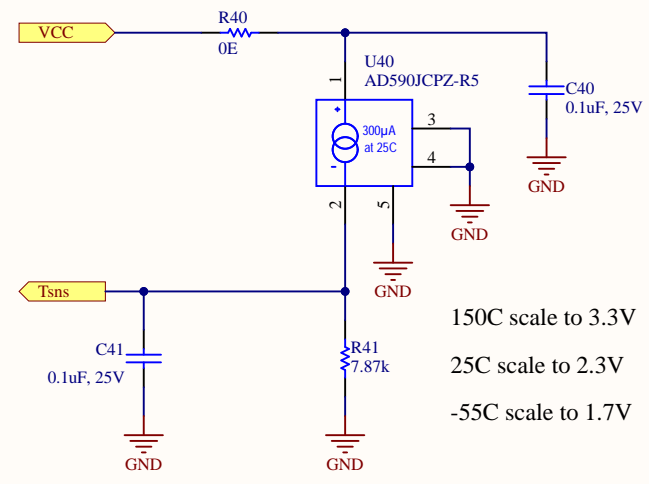
Title AP1005 Rev. 3.0		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>	
Size: A	4	Revision: 1	
Date: 9/6/2022	Sheet 3 of 11		
File: AP1005_Rev3_0_QuadEncdr.SCHDOC			





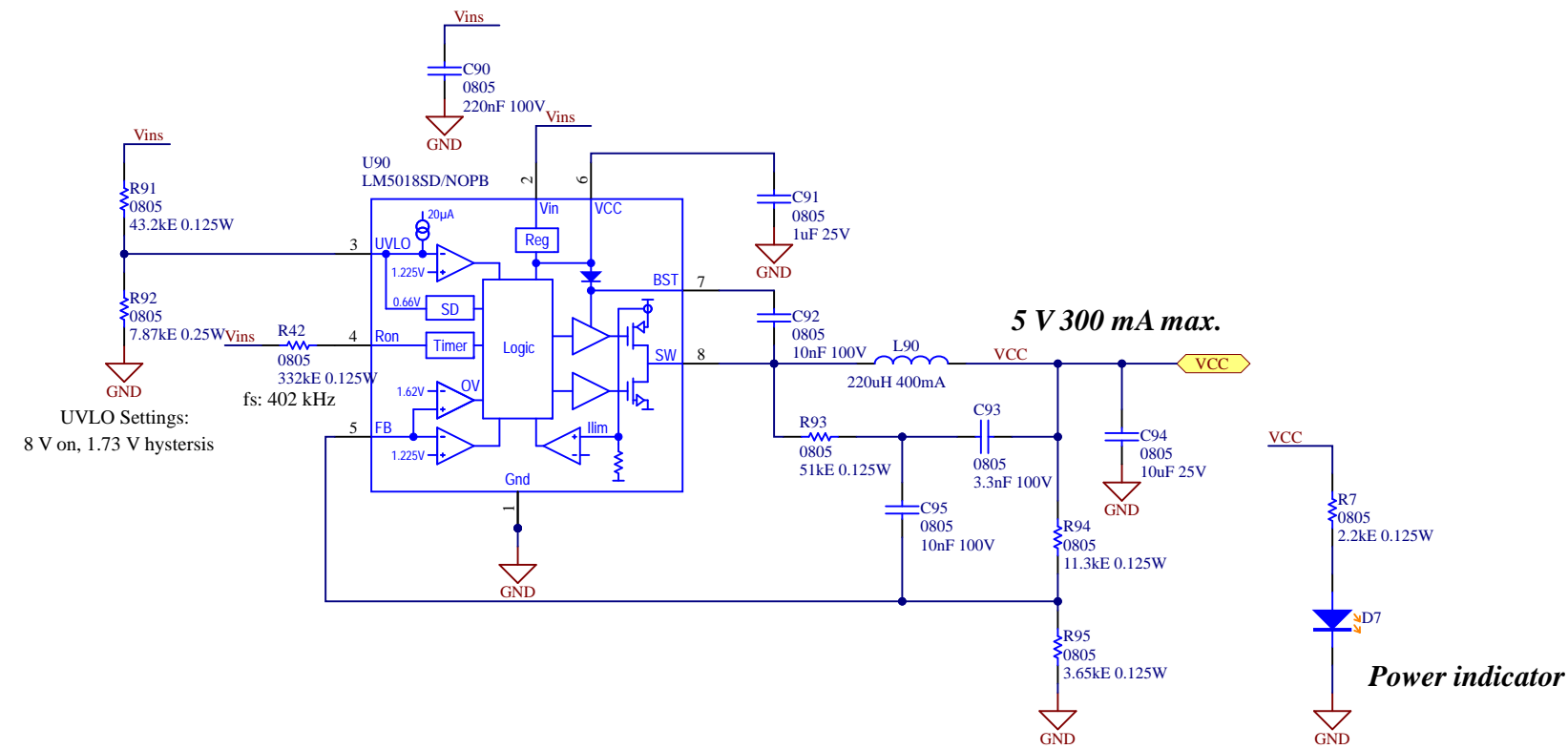
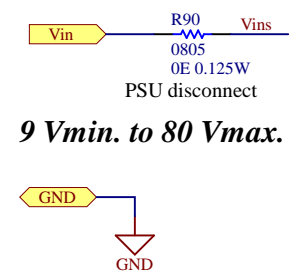
Motor drive filter

Title AP1007 Rev. 1.3		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	5	Revision: 1		
Date: 10/28/2022	Sheet 4 of 11			
File: AP1007_Rev1_3_LCF_Filter_withV_Isns.SCHDOC				



Temperature sense using AD590 with separate GND

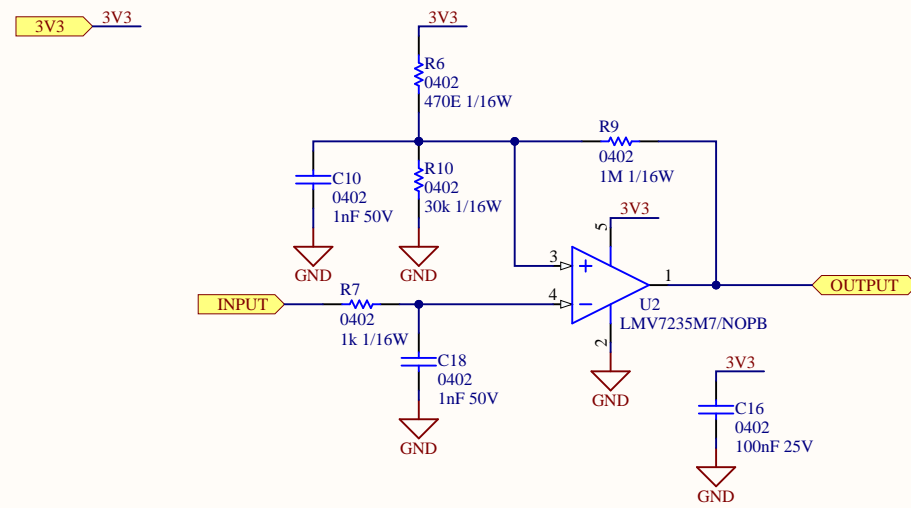
Title AP1009 Rev. 1.3		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	6	Revision: 1		
Date: 9/6/2022	Sheet 5 of 11			
File: AP1009_Rev1_3_TemperatureSense_AD590.SCHDOC				




80 V to 5 V Housekeeping Power Supply

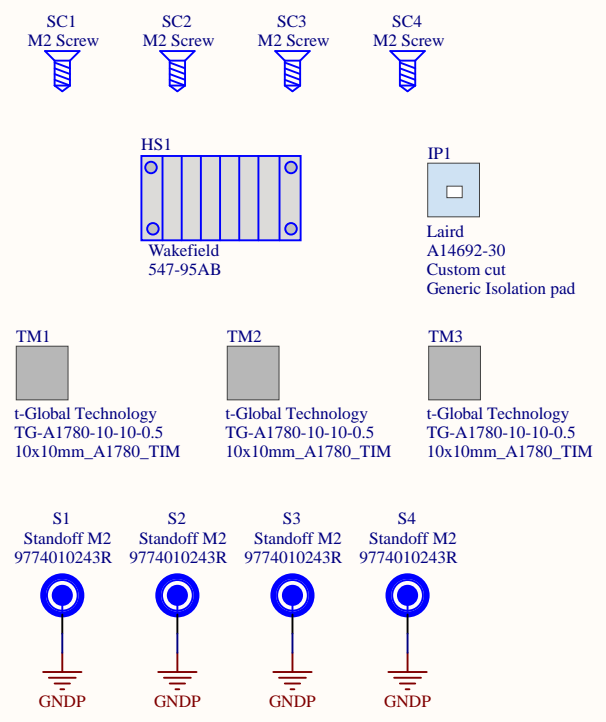
Title AP1011 Rev. 1.1		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>	
Size: A	7	Revision: 1	
Date: 9/6/2022	Sheet 6 of 11		
File: AP1011_Rev1_1_80V_to_5V_PSU.SCHDOC			

© Copyright EPC 2021



### Over-Current Protection

Title AP1025 Rev. 2.0		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	8	Revision: 1		
Date: 9/6/2022		Sheet 7 of 11		
File: AP1025_Rev2_0_OCP.SCHDOC				

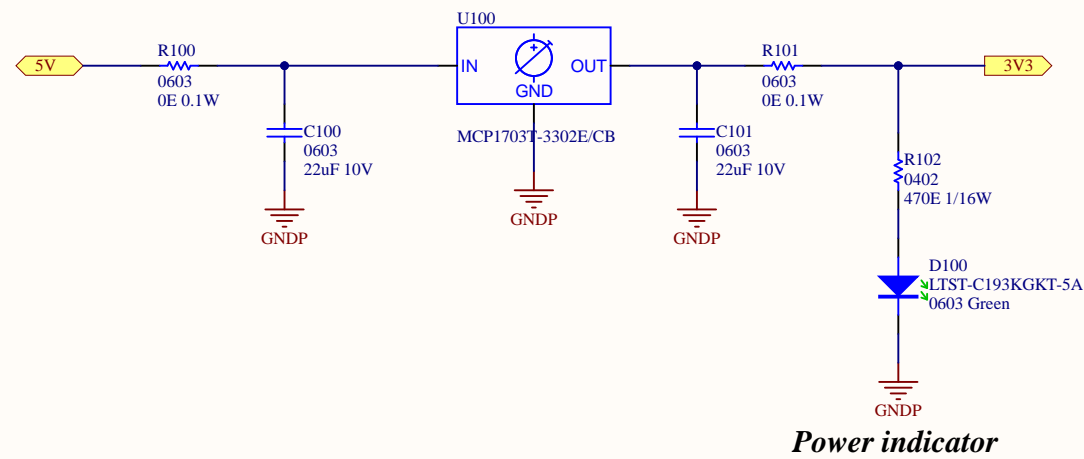


**Heatsink Kit**

**Basic 4 screw heatsink kit**

Title <b>AP1042 Rev. 1.0</b>		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>	
Size: A	9	Revision: 1	
Date: 9/6/2022	Sheet 8 of 11		
File: AP1042_Rev1_0_ThermalKit.SCHDOC			



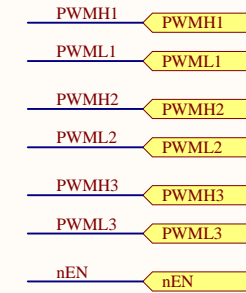
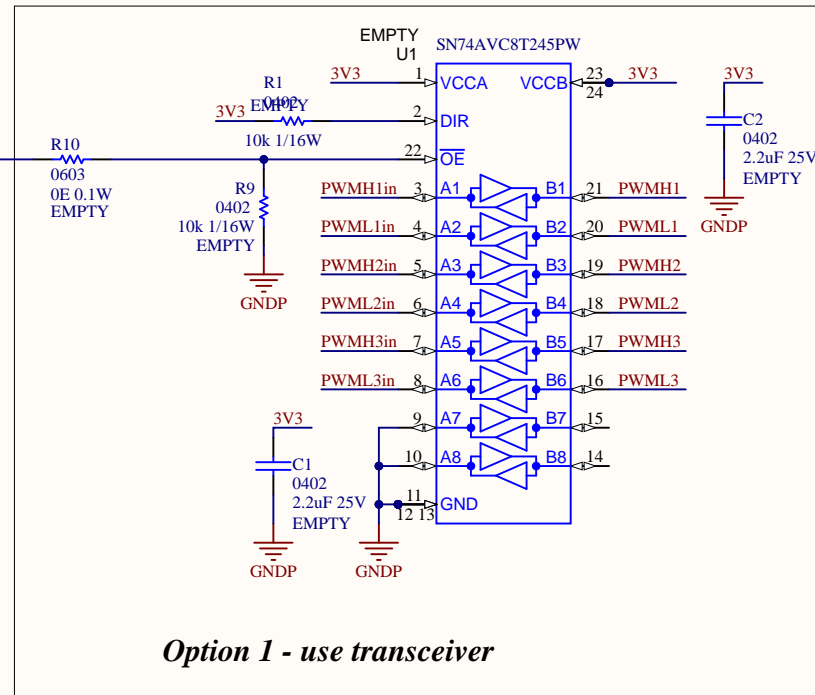
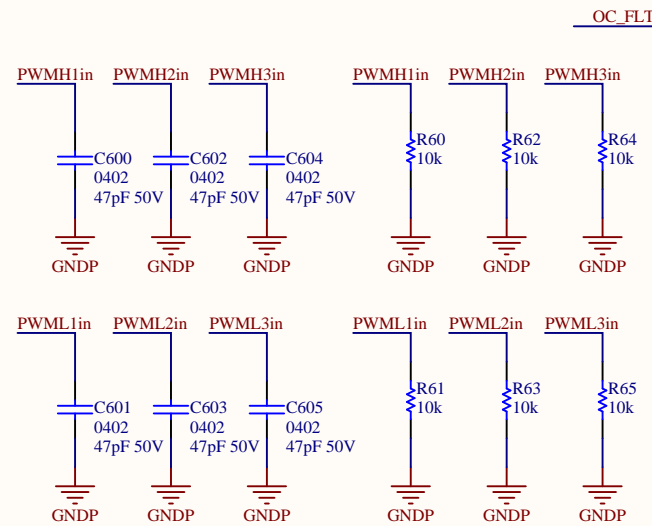
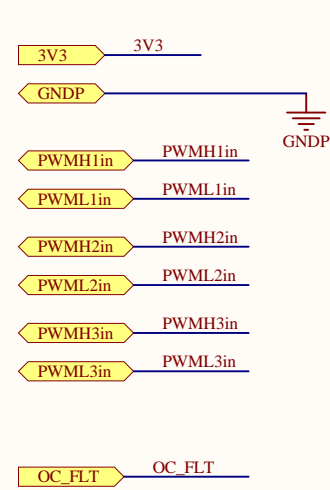


*Power indicator*

5 V to 3.3 V LDO power supply

Title AP1059 Rev. 1.0		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	10	Revision: 1		
Date: 9/6/2022	Sheet 9 of 11			
File: AP1059_Rev1_0_5Vto3V3_PSU.SCHDOC				

© Copyright EPC 2022



Place either R10 for option 1 or R11 for Option 2

OC_FLT	R11	nEN
	0603	
	0E 0.1W	
PWMH1in	R12	PWMH1
	0402	0E 0.1W
PWML1in	R13	PWML1
	0402	0E 0.1W
PWMH2in	R14	PWMH2
	0402	0E 0.1W
PWML2in	R15	PWML2
	0402	0E 0.1W
PWMH3in	R16	PWMH3
	0402	0E 0.1W
PWML3in	R17	PWML3
	0402	0E 0.1W

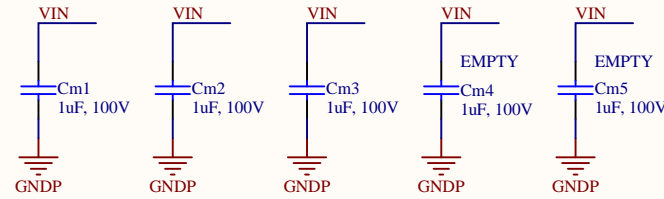
Option 2 - nEN function - Default

Buffer option for EPC IC with Enable pin

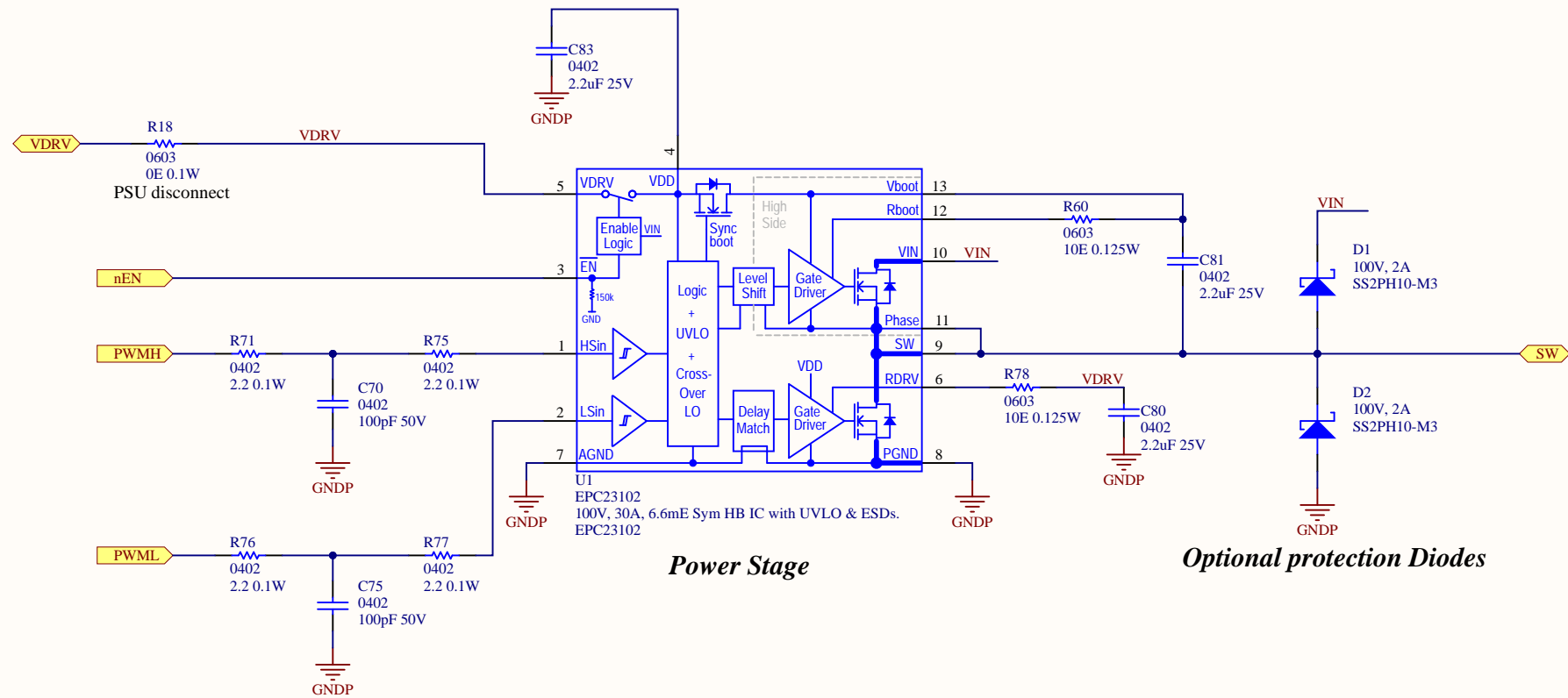
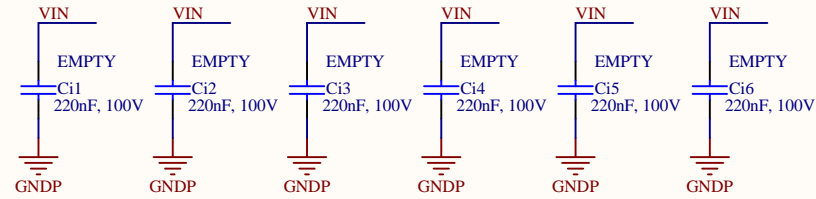
Title AP1060 Rev. 1.0		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	11	Revision: 1		
Date: 10/20/2022	Sheet 10 of 11			
File: AP1060_Rev1_0_BufferOption.SCHDOC				

Vin

### Intermediate Capacitors



### HF loop Capacitors



### Power Stage

### Optional protection Diodes

### Motor Phase Leg using EPC23102

Title: EPC23102 MotorPhaseleg Rev. 1		Efficient Power Conversion 909 N. Pacific Coast Hwy, Ste. 231 El Segundo, CA 90245 United States <a href="http://www.epc-co.com">www.epc-co.com</a>		
Size: A	2	Revision: 1		
Date: 1/25/2023		Sheet 11 of 11		
File: EPC23102_Rev1_1_MotorPhaseLeg.SCHDOC				