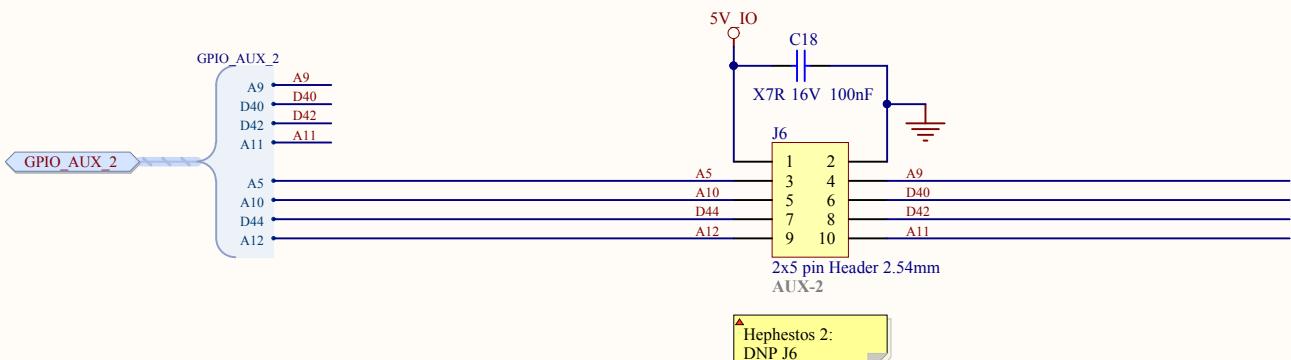
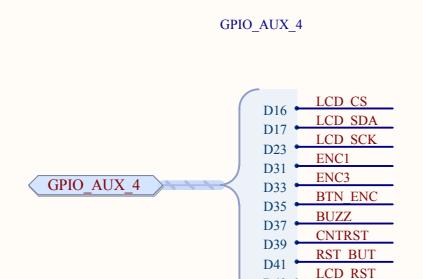


RAMPS CONNECTOR AUX-1 & BT Port

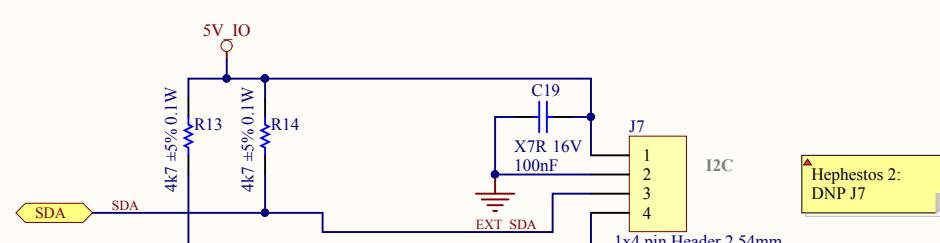


RAMPS CONNECTOR AUX-2

Filament Detection



LCD & SD CONNECTOR

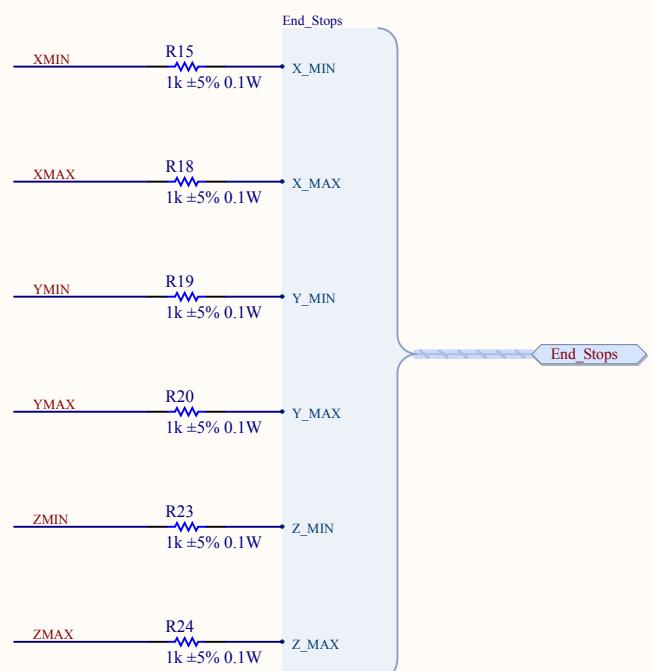


I2C

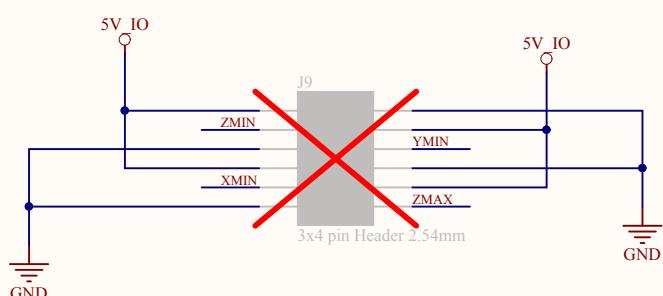
5V IO ○ 5V IO

Title	GPIO	
Project	bqCNC_Prusa.PrjPcb	
Author	Álvaro Hernando	
Size:	A3	Number: 1
Date: 26/08/2015	Time: 11:12:57	Revision: 1.2

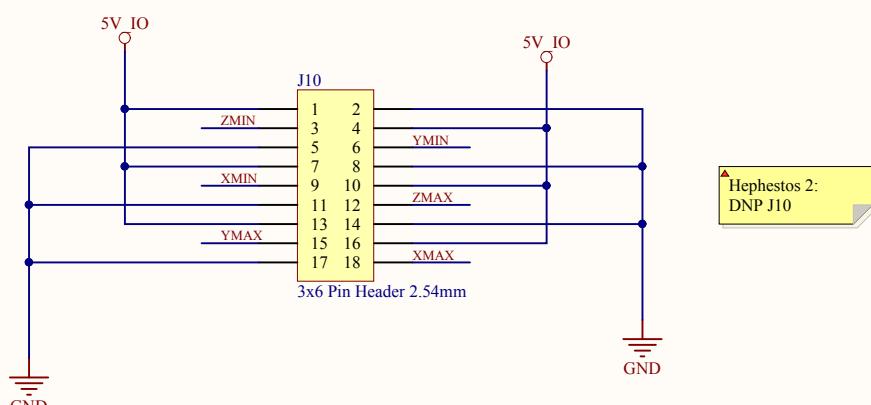
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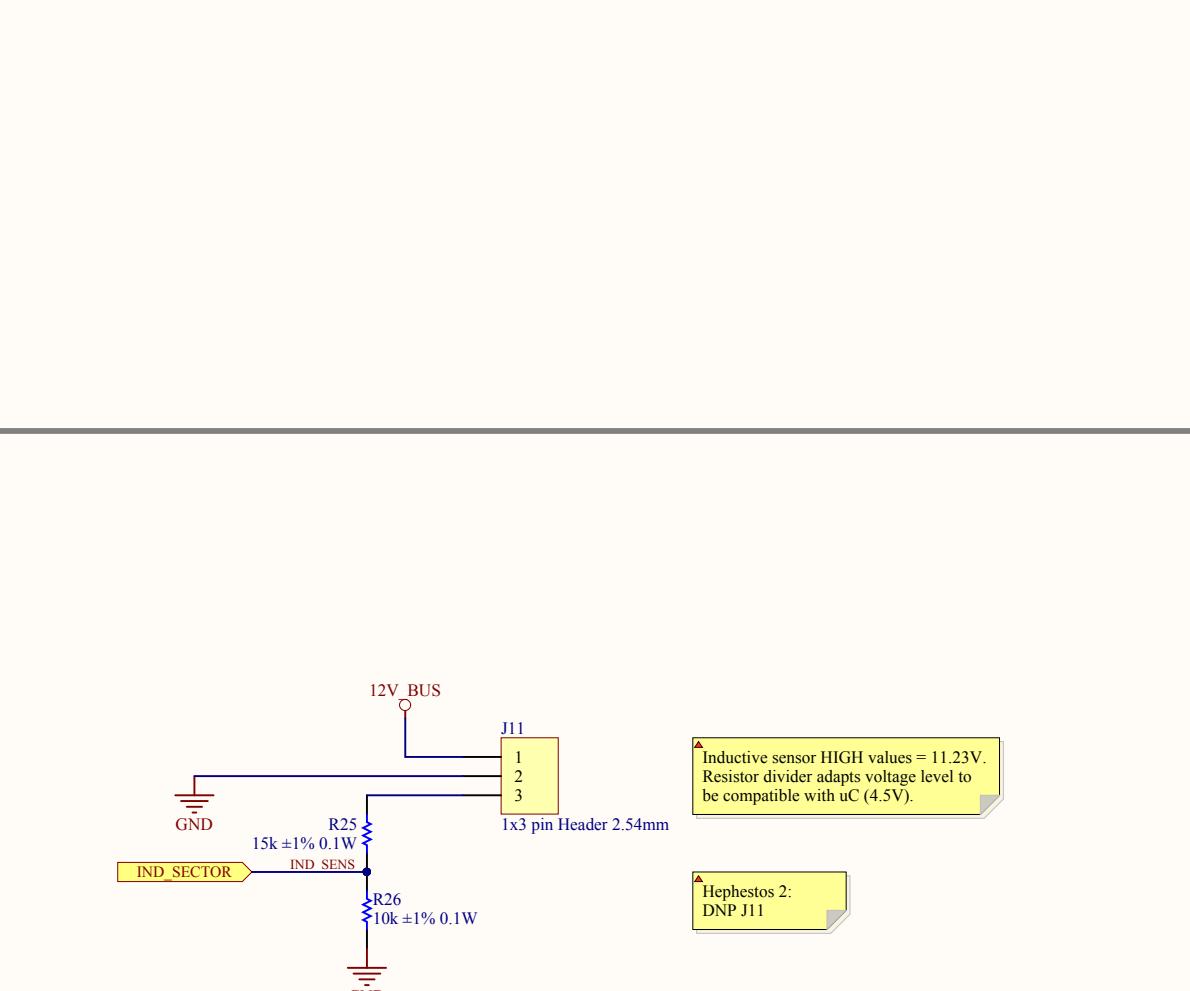
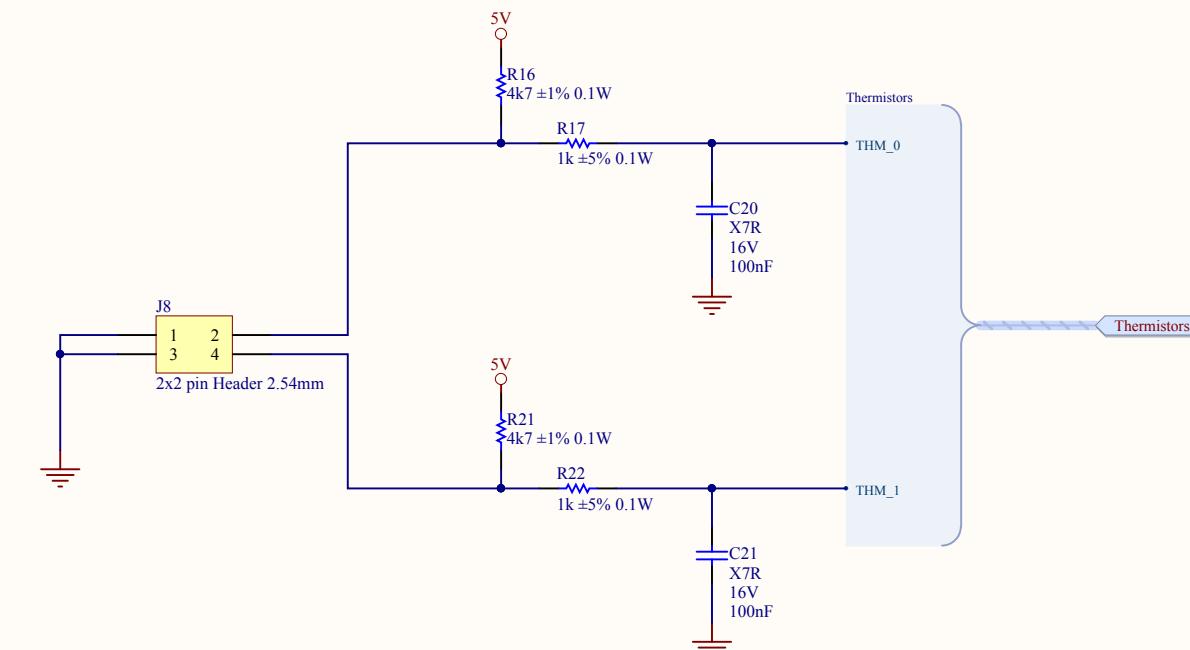
B



C



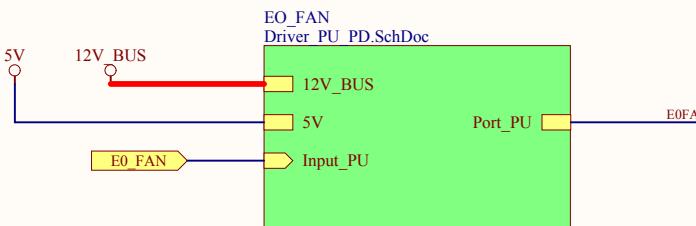
End Stops Inputs



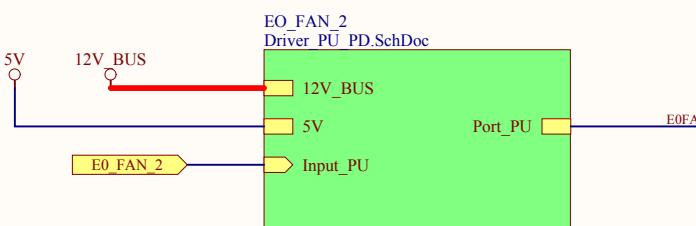
5V	5V
5V_IO	5V_IO
12V_BUS	12V_BUS

Sensors Signal Conditioners		
Project	bqCNC_Prusa.PrjPcb	
Author	Álvaro Hernando	
Size:	A3	Number: 1
Date: 26/08/2015	Revision: 1.2	Time: 11:12:58
		Sheet 3 of 11

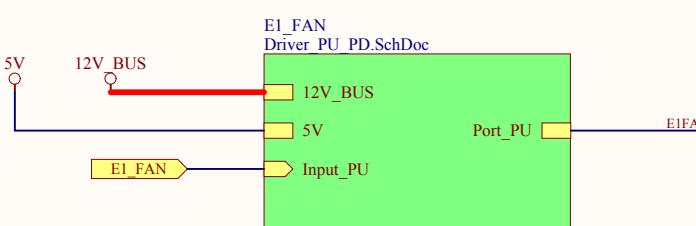




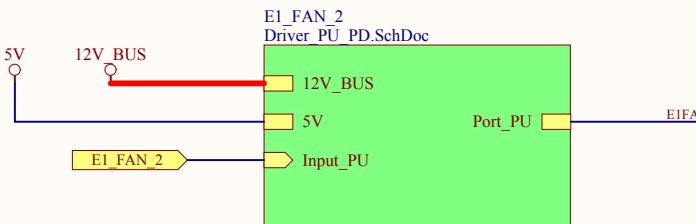
E0_FAN



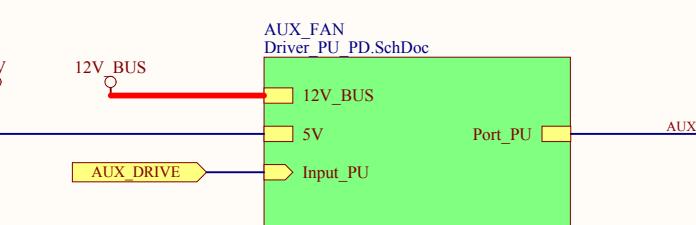
E0_FAN_2

Extruder 0 Fans

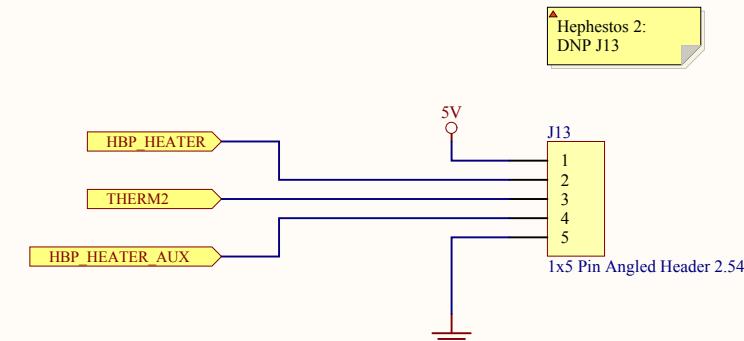
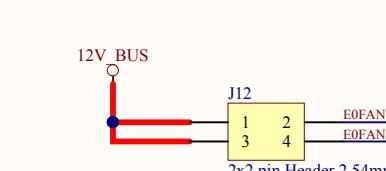
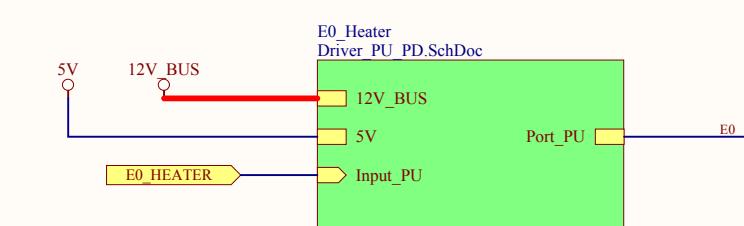
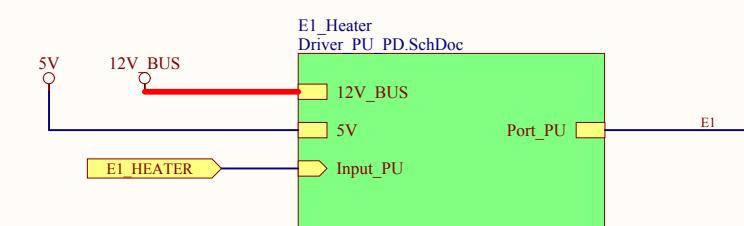
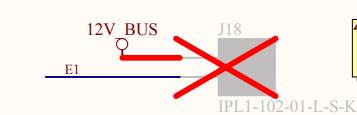
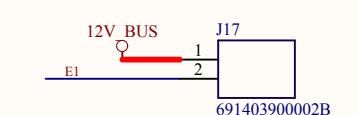
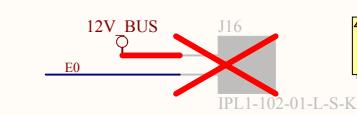
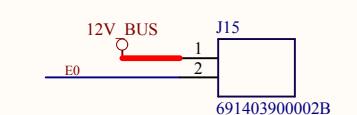
E1_FAN



E1_FAN_2

Extruder 1 Fans

AUX_FAN

Aux Fan**Heated Build Plate Connector****Fans Connector****Extruder 0 Heater****Extruder 1 Heater**

Title	Power Drive	
Project	bqCNC_Prusa.PnjPcb	
Author	Álvaro Hernando	
Size:	A3	Number: 1
Date: 26/08/2015	Revision: 1.2	Time: 11:12:58
	Sheet 4 of 11	

A

A

B

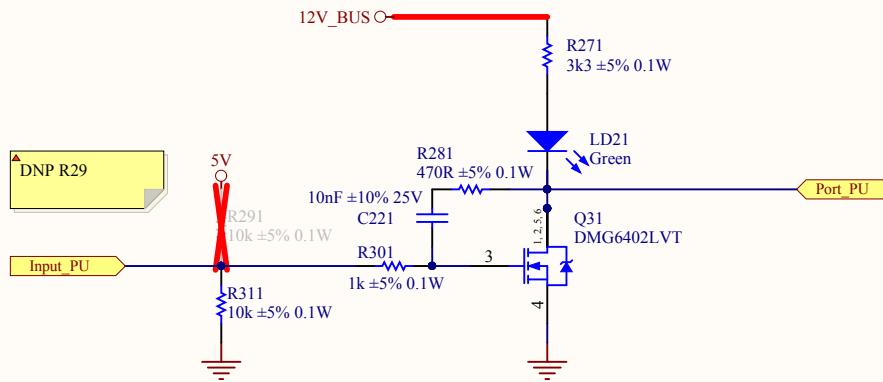
B

C

C

D

D



5V O 5V
12V_BUS O 12V_BUS



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:58	Sheet 5 of 11

A

A

B

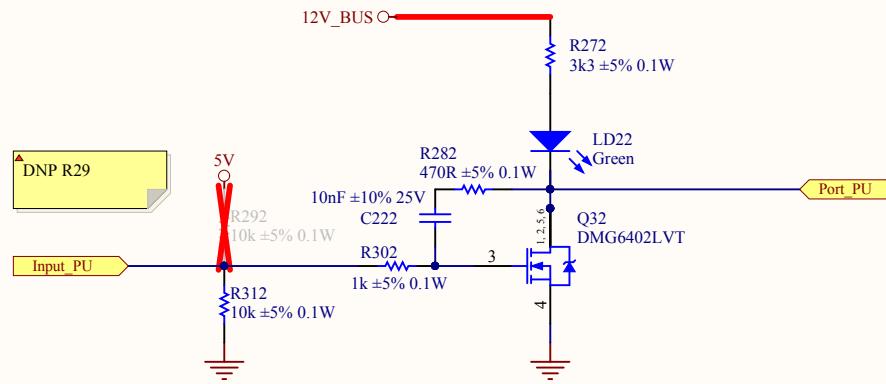
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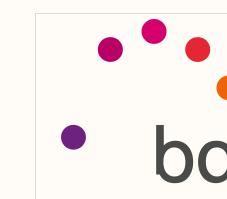
C

D

D



5V O 5V
12V_BUS O 12V_BUS



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:58	Sheet 5 of 11

A

A

B

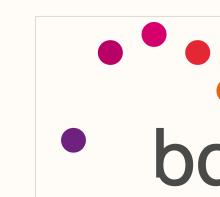
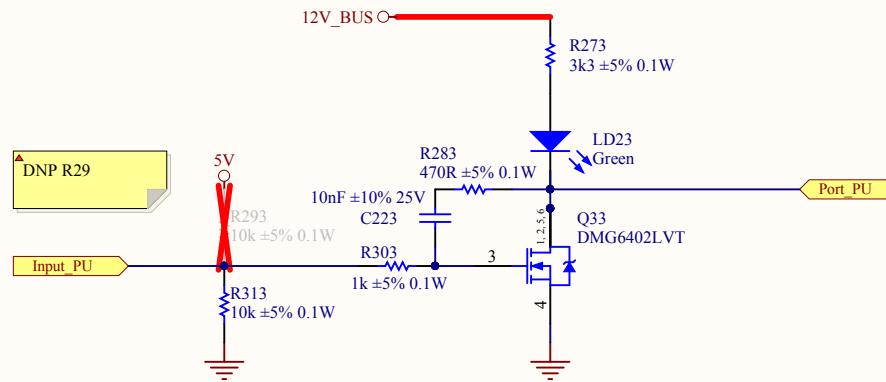
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C

C

D

D



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:59	Sheet 5 of 11

A

A

B

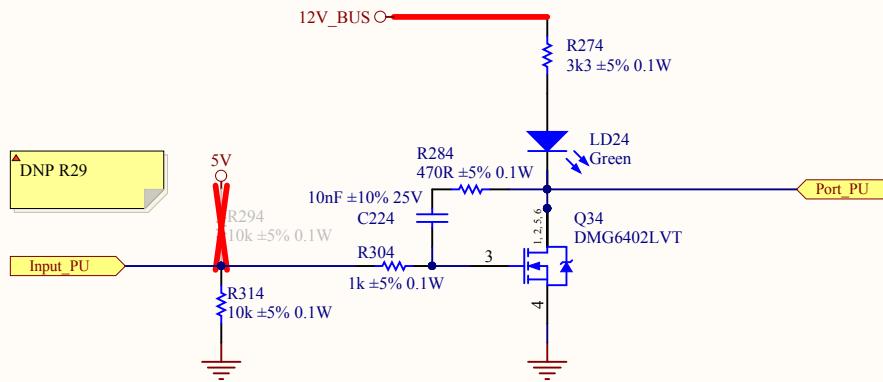
B

C

C

D

D



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author	Álvaro Hernando	
Size:	A4	Number: 1
		Revision: 1.2
Date:	26/08/2015	Time: 11:12:59
		Sheet 5 of 11

A

A

B

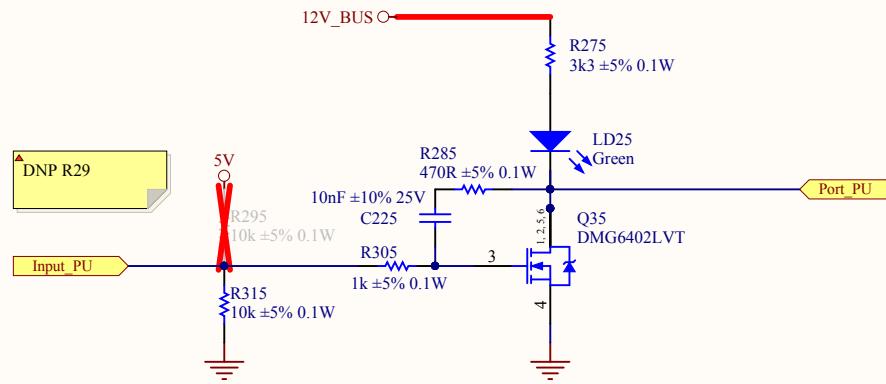
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C

C

D

D



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:59	Sheet 5 of 11



A

A

B

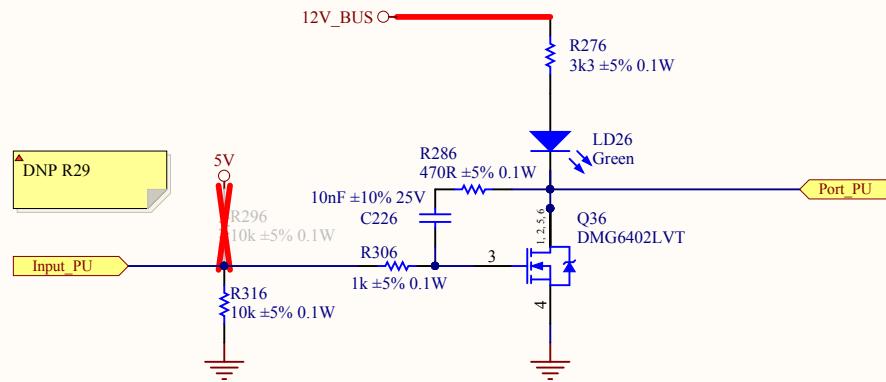
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C

C

D

D



5V O 5V
12V_BUS O 12V_BUS



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PrjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:59	Sheet 5 of 11

A

A

B

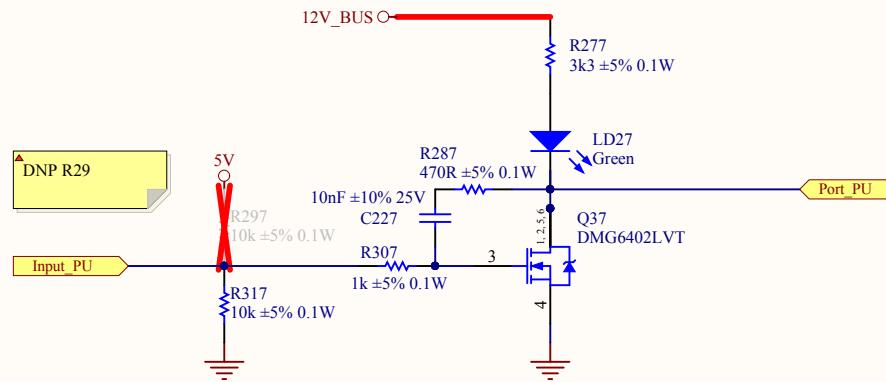
B

C

C

D

D



Title		
Driver_PU_PD		
Project		
bqCNC_Prusa.PnjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number:
	1	Revision:
Date:	26/08/2015	Time:
	11:12:59	Sheet 5 of 11



A

A

B

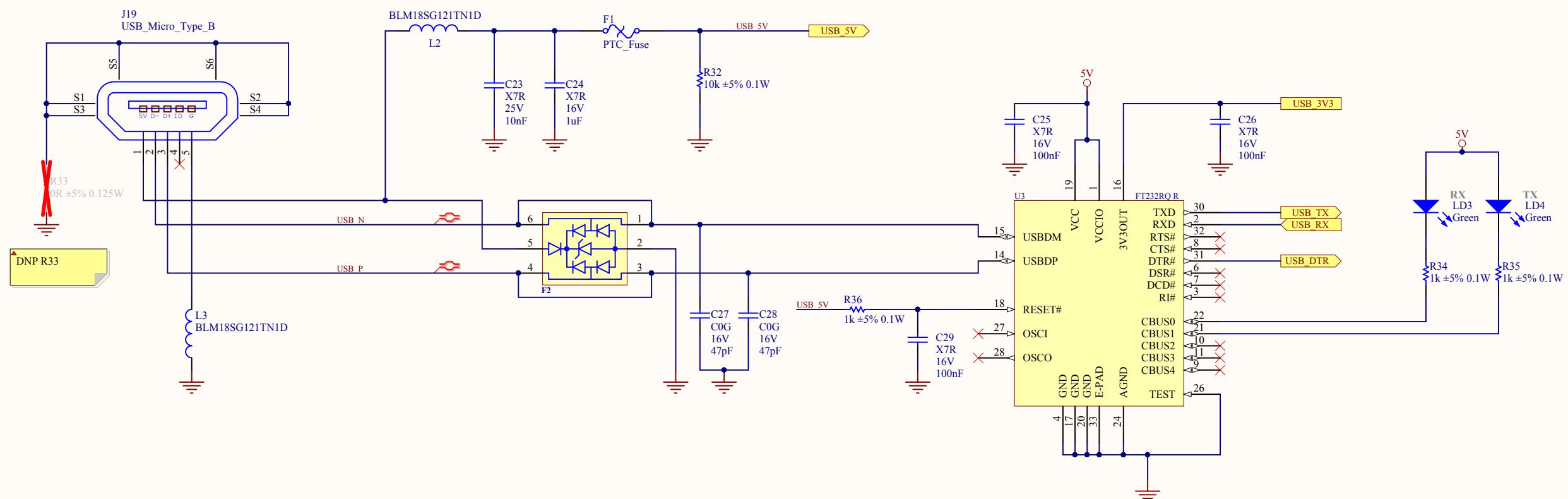
B

C

C

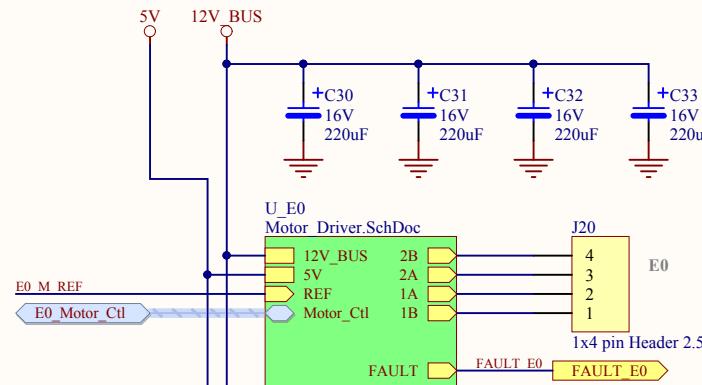
D

D

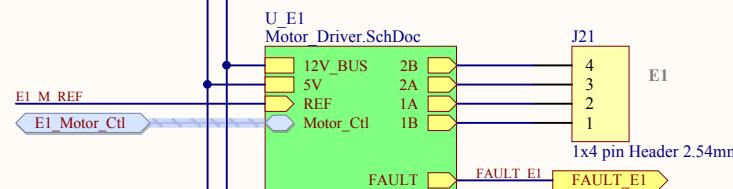


	Title	USB
	Project	bqCNC_Prusa.PrjPcb
	Author	Álvaro Hernando
	Size:	A3
	Number:	1
	Revision:	1.2
	Date:	26/08/2015
	Time:	11:13:00
	Sheet	6 of 11

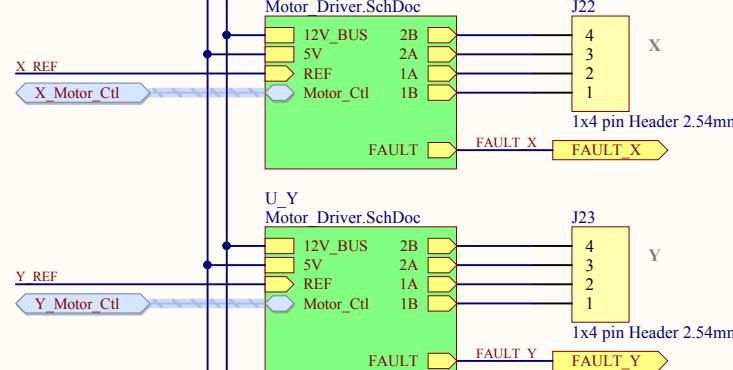
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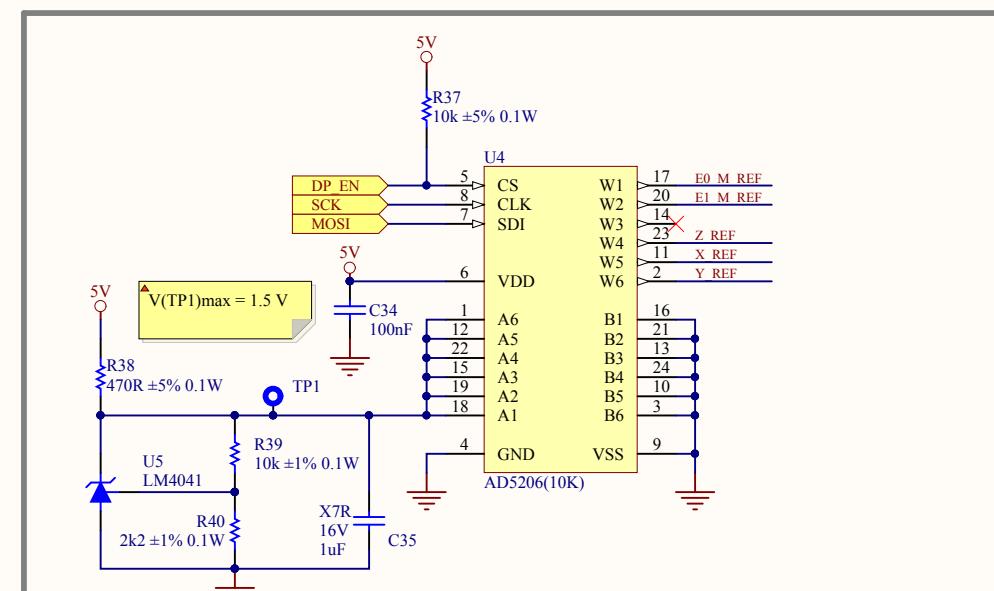
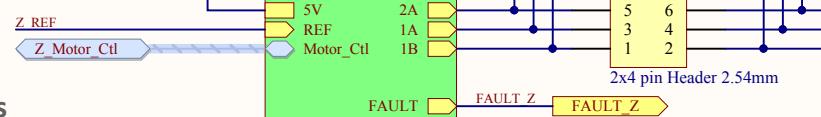
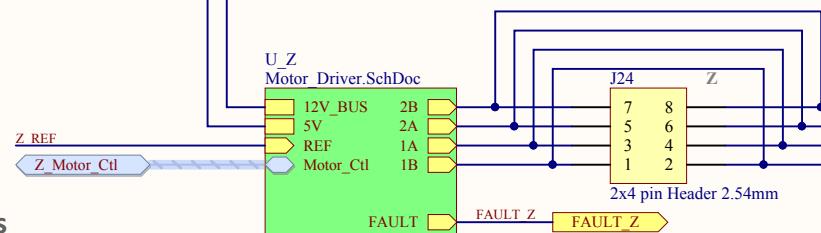
B



C



Motor Drivers



Motor Current Control

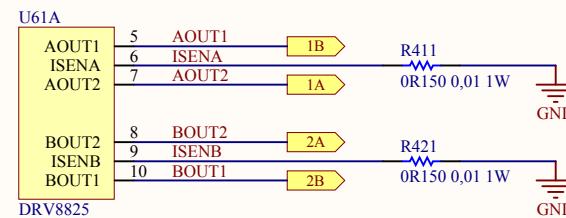
5V ○ 5V
12V_BUS ○ 12V_BUS



Title	Stepper Motors Control	
Project	bqCNC_Prusa.PrjPcb	
Author	Álvaro Hernando	
Size:	A4	Number: 1
Revision:	1.2	
Date: 26/08/2015	Time: 11:13:00	Sheet 7 of 11

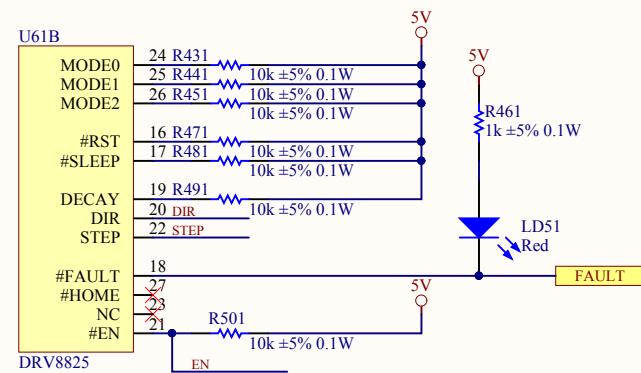
A

10



B

10

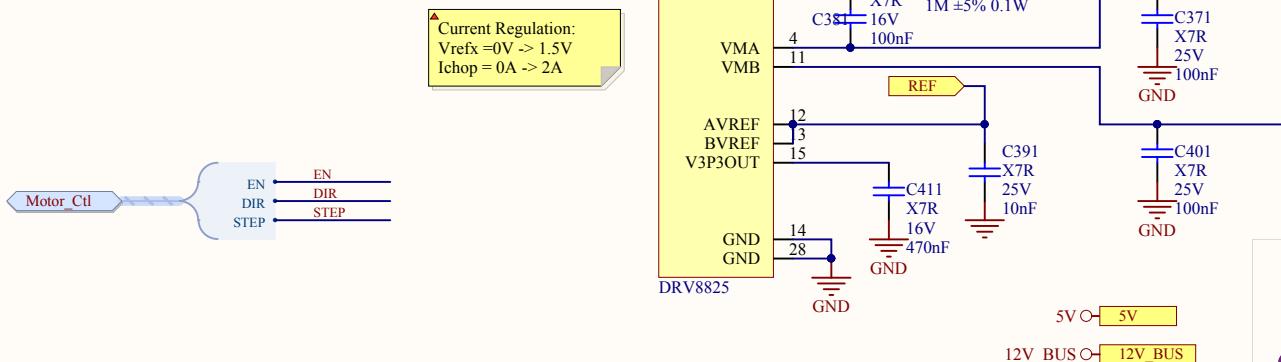


1/32 μ Steps
Mixed decay mode: DNP R49
Fast decay mode: Place R49

► E0, E1: Fast Decay --> R491,
R492 = 10k
X,Y,Z: Mixed Decay --> DNP
R493, R494, R495

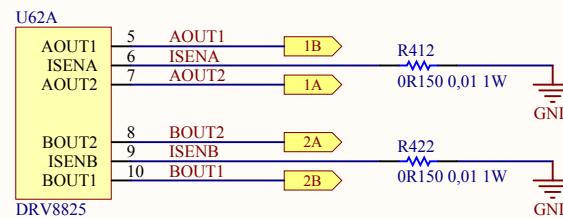
6

10

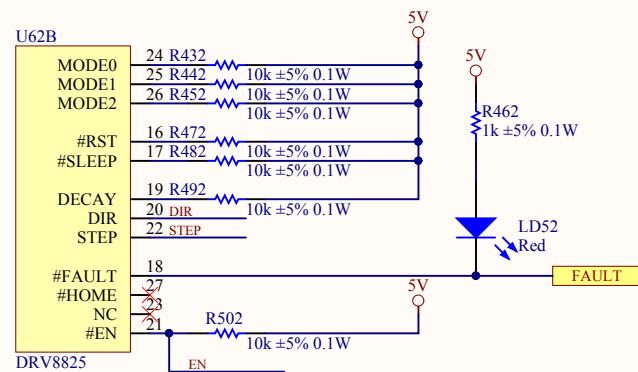


Title	Motor Driver				
Project	bqCNC_Prusa.PrjPcb				
Author	Álvaro Hernando				
Size:	A4	Number:	1	Revision:	1.2
Date:	26/08/2015	Time:	11:13:00	Sheet	8 of 11

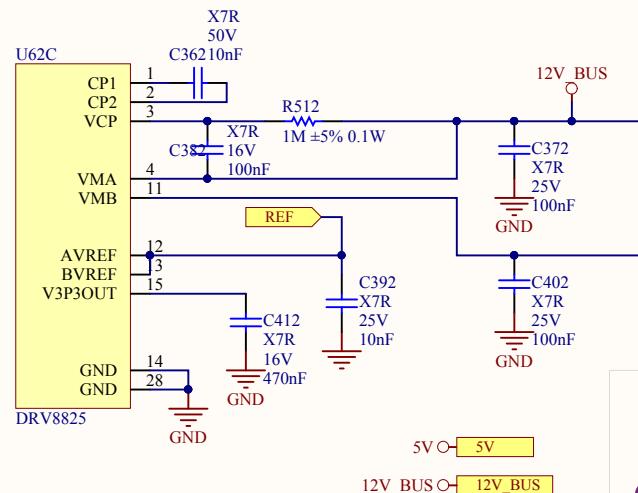
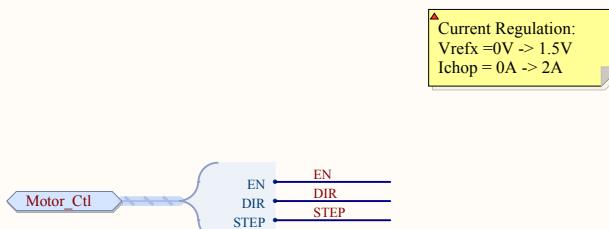
A



B

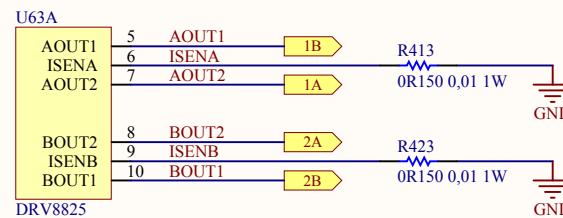


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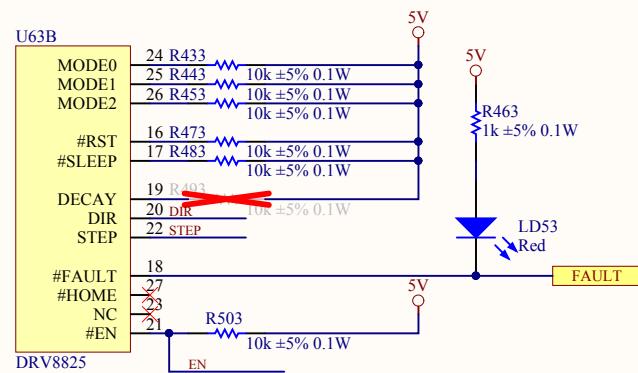


Title	Motor Driver	
Project	bqCNC_Prusa.PnjPcb	
Author	Álvaro Hernando	
Size:	A4	Number: 1
Revision:	1.2	
Date:	26/08/2015	Time: 11:13:00
Sheet	8	of 11

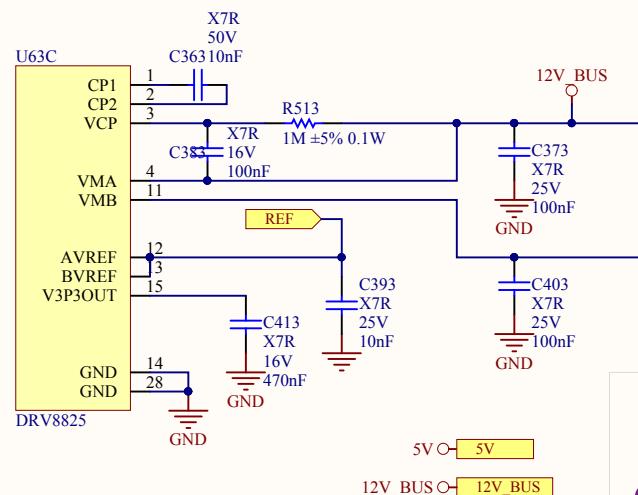
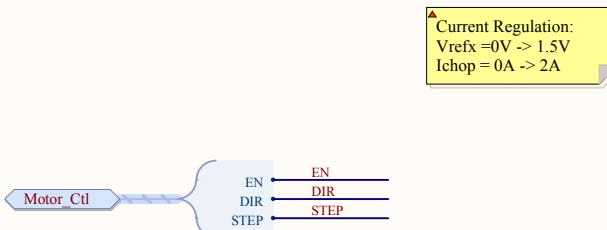
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B



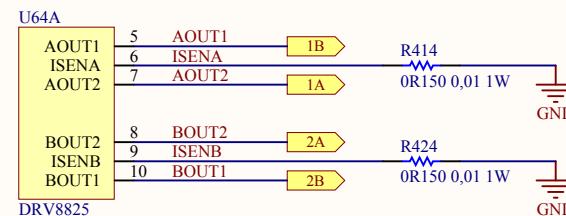
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Title		
Motor Driver		
Project		
bqCNC_Prusa.PnjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number: 1
Revision:	1.2	
Date:	26/08/2015	Time: 11:13:01
Sheet 8 of 11		

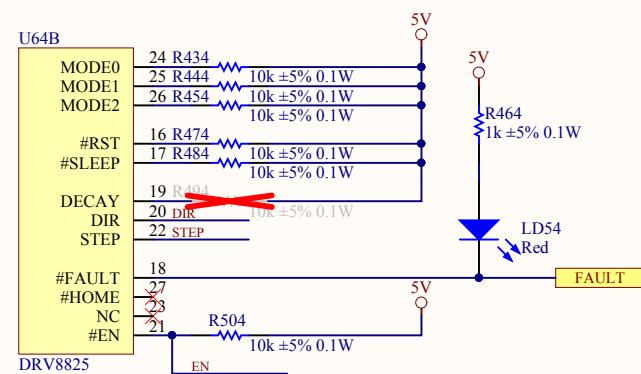
A

10



P

10

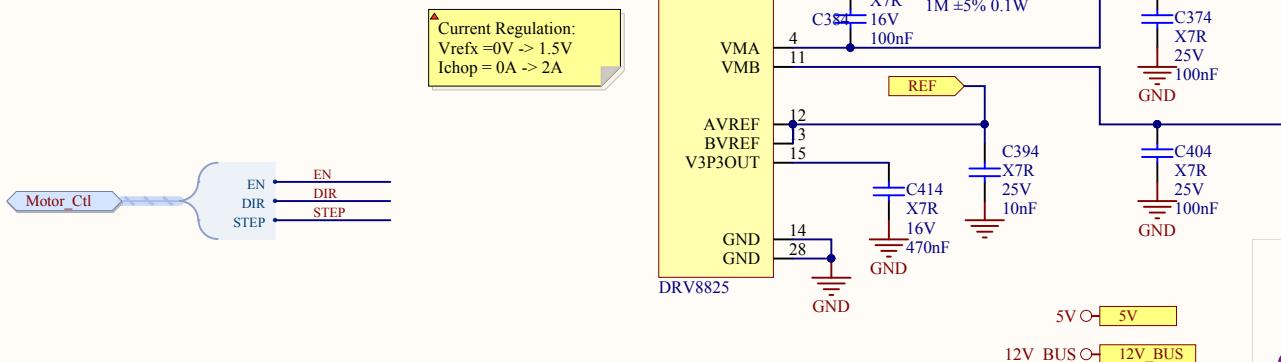


1/32 μ Steps
Mixed decay mode: DNP R49
Fast decay mode: Place R49

- ▲ E0, E1: Fast Decay --> R491,
R492 = 10k
- X,Y,Z: Mixed Decay --> DNP
R493, R494, R495

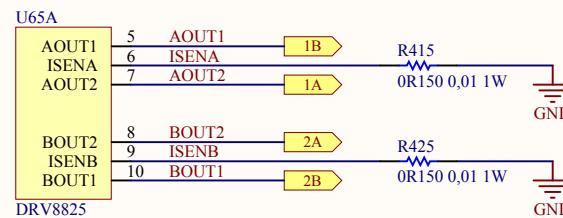
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10

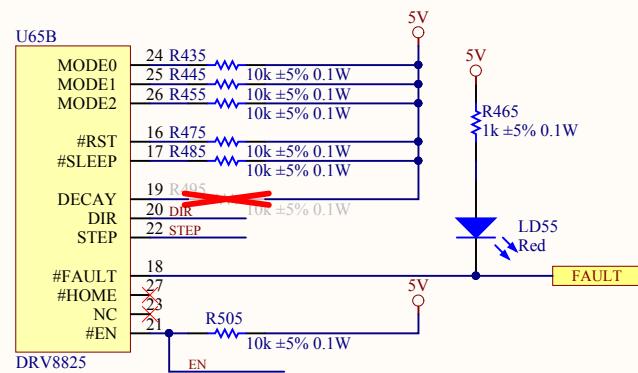


Title	Motor Driver				
Project	bqCNC_Prusa.PrjPcb				
Author	Álvaro Hernando				
Size:	A4	Number:	1	Revision:	1.2
Date:	26/08/2015	Time:	11:13:01	Sheet	8 of 11

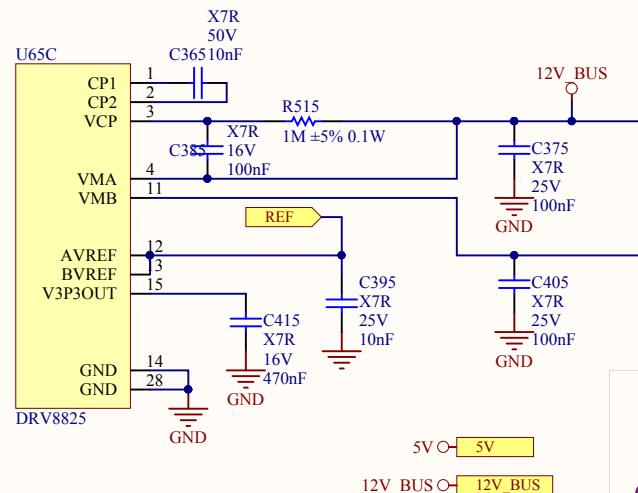
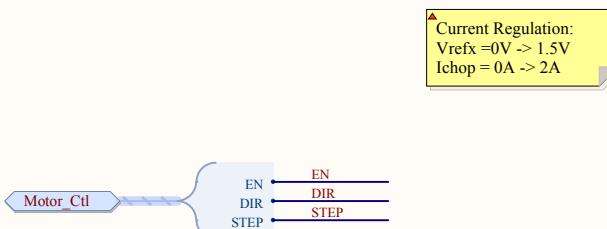
A



B

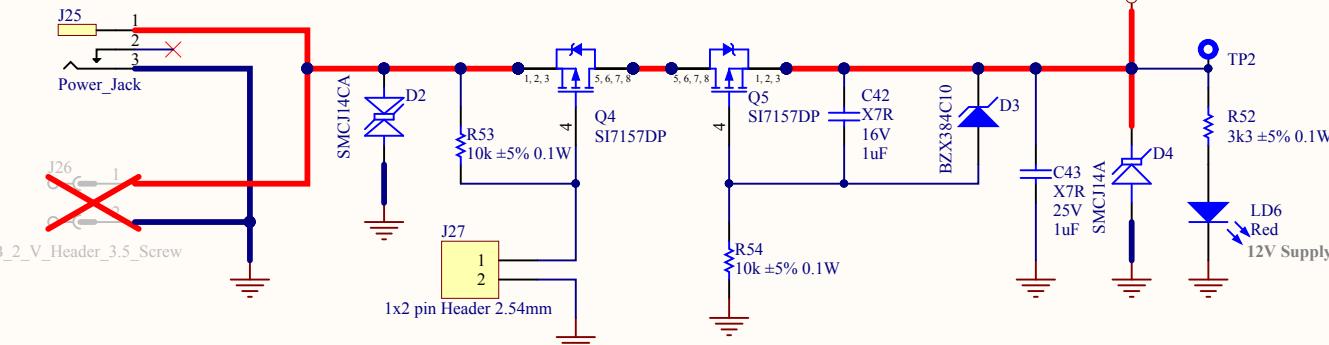


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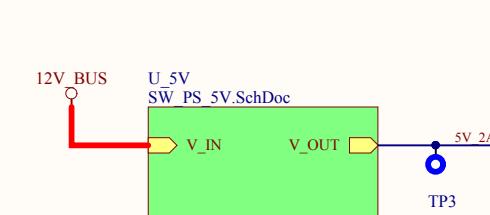


Title		
Motor Driver		
Project		
bqCNC_Prusa.PnjPcb		
Author		
Álvaro Hernando		
Size:	A4	Number: 1
Revision:	1.2	
Date:	26/08/2015	Time: 11:13:01
Sheet 8 of 11		

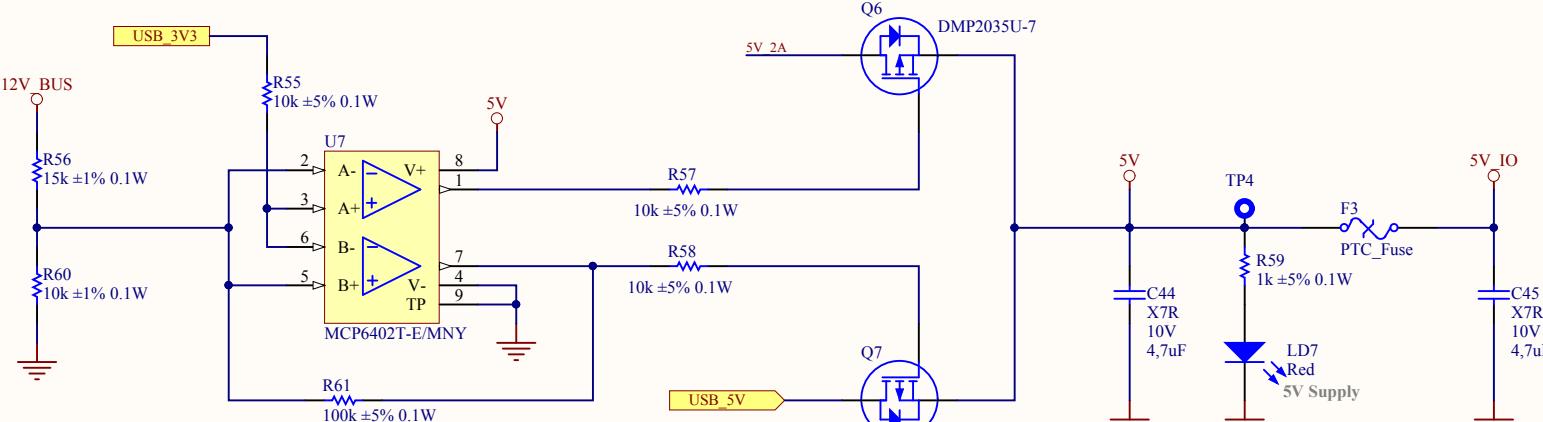
Supply Input 12V
(10 to 13.8V)
Imax = 8 A



Power Supply Input Protection



5V Logic Power Supply



5V Logic Source Select

5V O 5V
5V_IO O 5V_IO
12V_BUS O 12V_BUS

Title	Power Supply	
Project	bqCNC_Prusa.PnjPcb	
Author	Álvaro Hernando	
Size:	A3	Number: 1
Revision:	1.2	
Date: 26/08/2015	Time: 11:13:02	Sheet 9 of 11

A

A

B

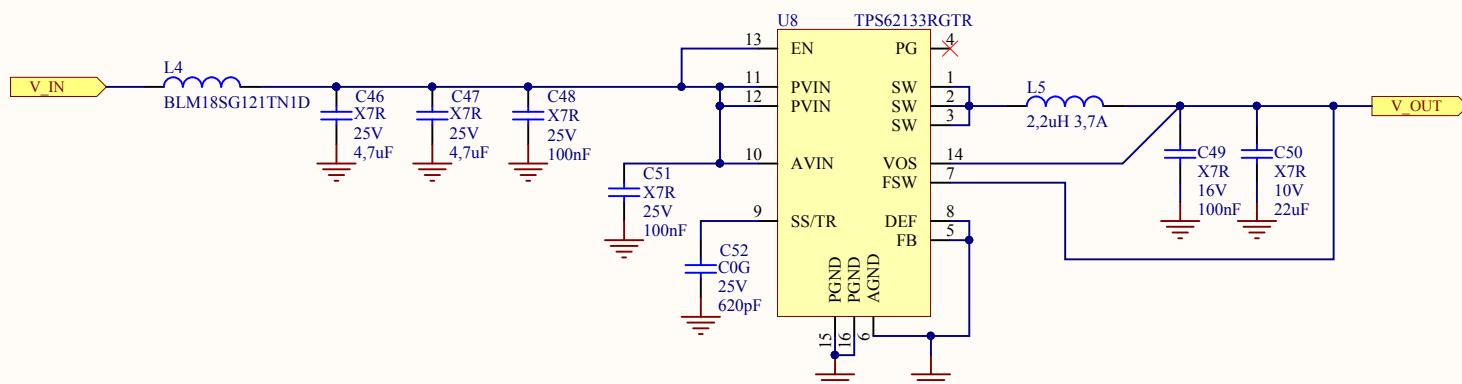
B

Text

C

C

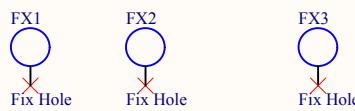
D



Title 5V Power Supply		
Project bqCNC_Prusa.PrjPcb		
Author Álvaro Hernando		
Size: A4	Number: 1	Revision: 1.2
Date: 26/08/2015	Time: 11:13:02	Sheet 10 of 11

A

FX1: 3.5 mm
FX2: 3.5 mm
FX3: 3.2 mm



B



C

D

Title Mechanic		
Project bqCNC_Prusa.PrjPcb		
Author Álvaro Hernando		
Size: A4	Number: 1	Revision: 1.2
Date: 26/08/2015	Time: 11:13:02	Sheet 11 of 11



