

A

B

C

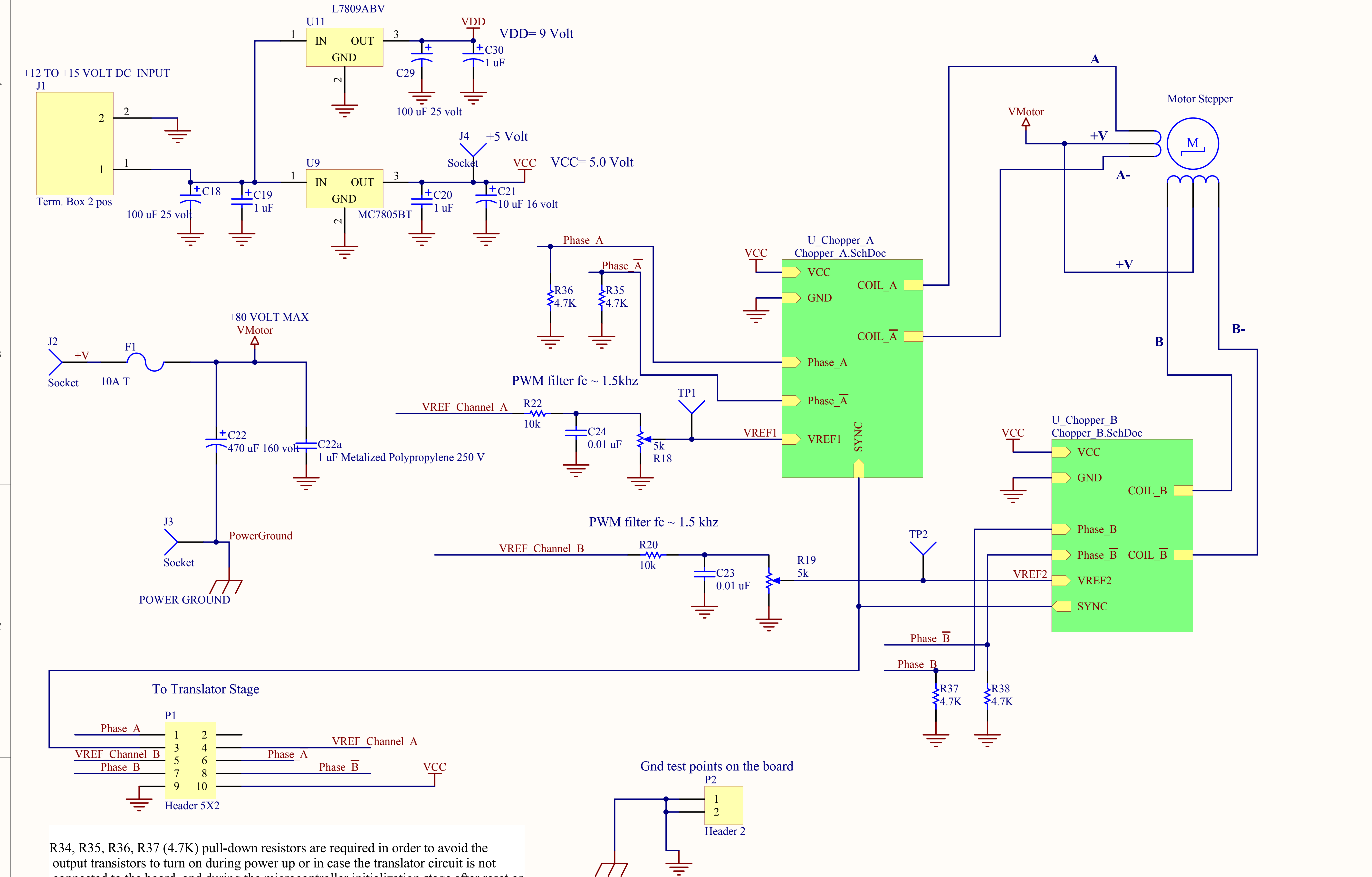
D

A

B

C

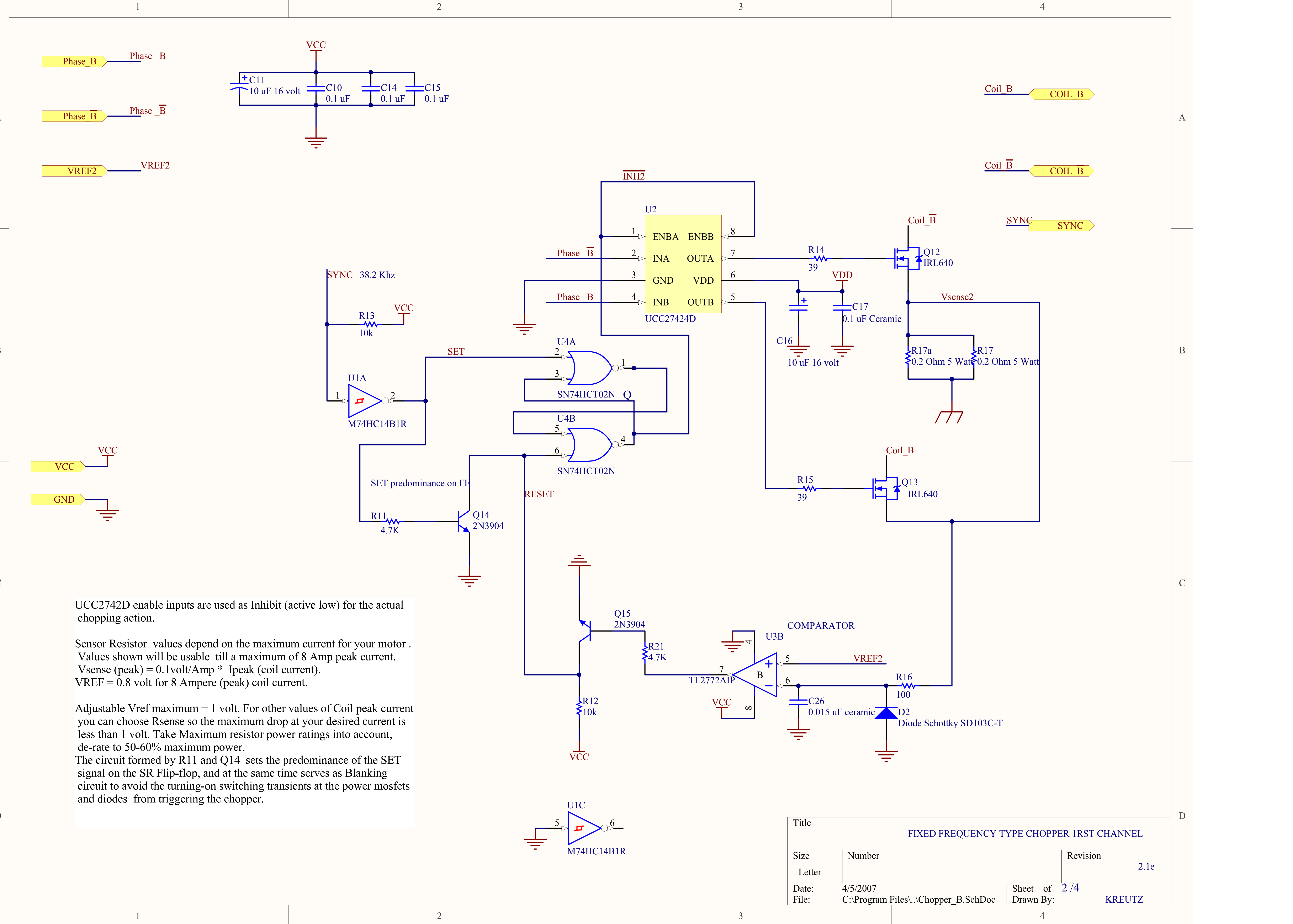
D



R34, R35, R36, R37 (4.7K) pull-down resistors are required in order to avoid the output transistors to turn on during power up or in case the translator circuit is not connected to the board, and during the microcontroller initialization stage after reset or power up. +12 volt must be present before powering up the +Vmotor power supply.

For 8 Amp option use 2 Oz copper FR4 pcb or beefup with solder the PCB traces corresponding with the coil connections and +Vmotor. Replace also the 10 Amp slow Blow fuse by 20 Amp Slow Blow Fuse. 10 Amp fuse has been calculated for 4 Amp peak coil current. Keep the Sensor resistor's bodies separated from the PCB board by at least 1 mm.

Title			FIXED FREQUENCY UNIPOLAR STEPPER DRIVER	
Size	Number		Revision	
Letter			2.1e	
Date:	4/5/2007		Sheet of	1/4
File:	C:\Program Files\...\Input-Power.SchDoc		Drawn By:	KREUTZ



UCC2742D enable inputs are used as Inhibit (active low) for the actual chopping action.

Sensor Resistor values depend on the maximum current for your motor .
Values shown will be usable till a maximum of 8 Amp peak current.
 $V_{sense} (peak) = 0.1 \text{ volt/Amp} * I_{peak} (\text{coil current})$.
 $VREF = 0.8 \text{ volt for } 8 \text{ Ampere (peak) coil current}$.

Adjustable Vref maximum = 1 volt. For other values of Coil peak current you can choose Rsense so the maximum drop at your desired current is less than 1 volt. Take Maximum resistor power ratings into account, de-rate to 50-60% maximum power.
The circuit formed by R11 and Q14 sets the predominance of the SET signal on the SR Flip-flop, and at the same time serves as Blanking circuit to avoid the turning-on switching transients at the power mosfets and diodes from triggering the chopper.

Title			FIXED FREQUENCY TYPE CHOPPER 1RST CHANNEL	
Size	Number		Revision	
Letter			2.1e	
Date:	4/5/2007		Sheet of	2 / 4
File:	C:\Program Files\...\Chopper_B.SchDoc		Drawn By:	KREUTZ

A

B

C

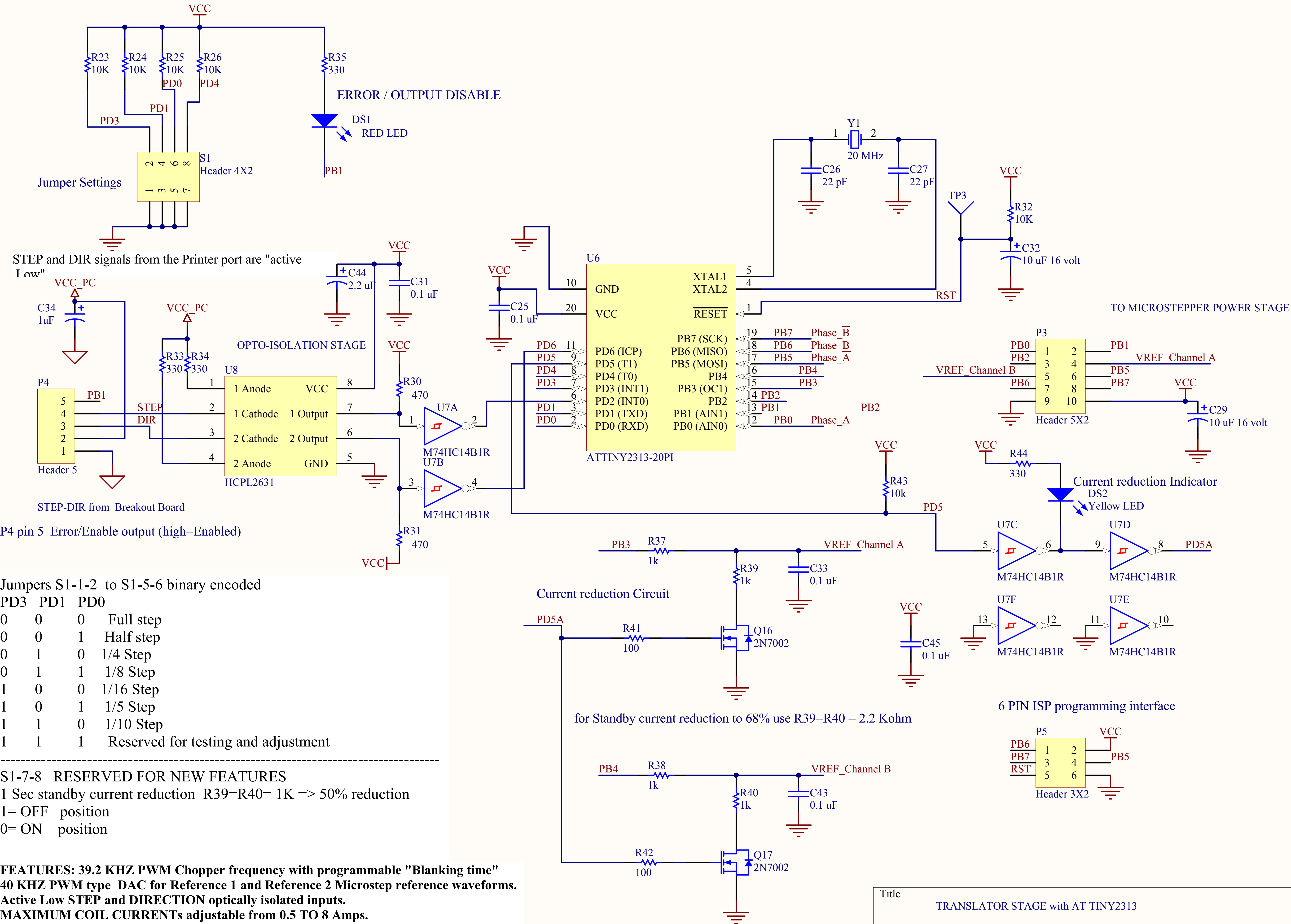
D

A

B

C

D



Jumpers S1-1-2 to S1-5-6 binary encoded

PD3	PD1	PD0	
0	0	0	Full step
0	0	1	Half step
0	1	0	1/4 Step
0	1	1	1/8 Step
1	0	0	1/16 Step
1	0	1	1/5 Step
1	1	0	1/10 Step
1	1	1	Reserved for testing and adjustment

S1-7-8 RESERVED FOR NEW FEATURES
1 Sec standby current reduction R39=R40= 1K => 50% reduction
1= OFF position
0= ON position

FEATURES: 39.2 KHZ PWM Chopper frequency with programmable "Blanking time"
40 KHZ PWM type DAC for Reference 1 and Reference 2 Microstep reference waveforms.
Active Low STEP and DIRECTION optically isolated inputs.
MAXIMUM COIL CURRENTs adjustable from 0.5 TO 8 Amps.
Automatic coil current reduction after 1 seconds (selectable %)
Microstep Modes: Full, Half, 1/4, 1/5, 1/8, 1/10, 1/16

Title			TRANSLATOR STAGE with AT TINY2313	
Size	Number		Revision	
Letter			2.1G	
Date:	4/5/2007		Sheet of	4 /4
File:	C:\Program Files\...\Translator2.G.SchDoc		Drawn By:	KREUTZ