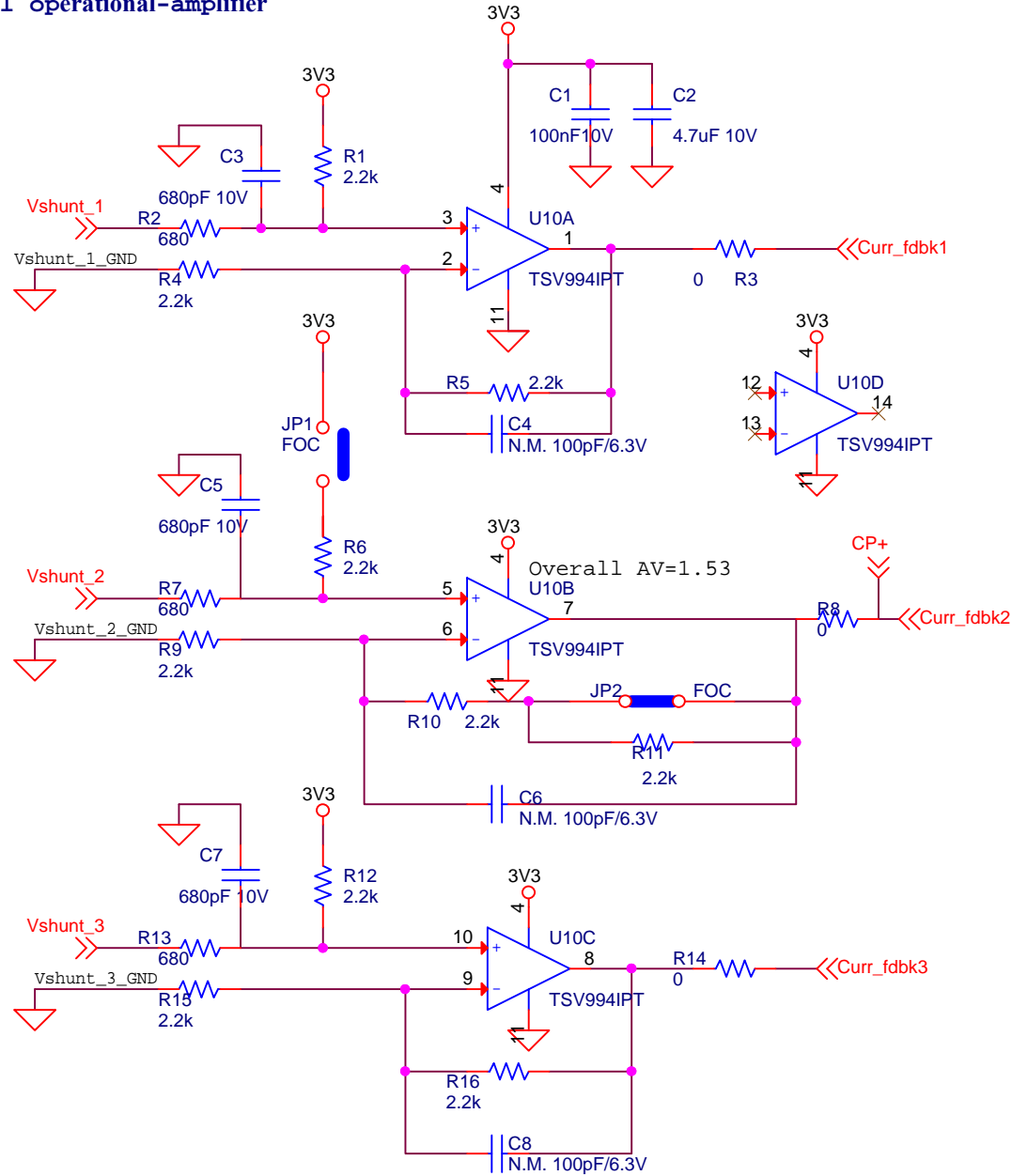
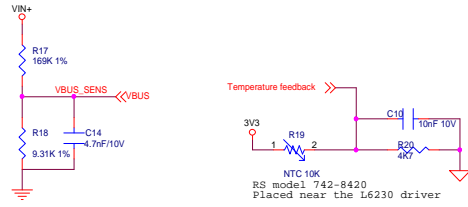


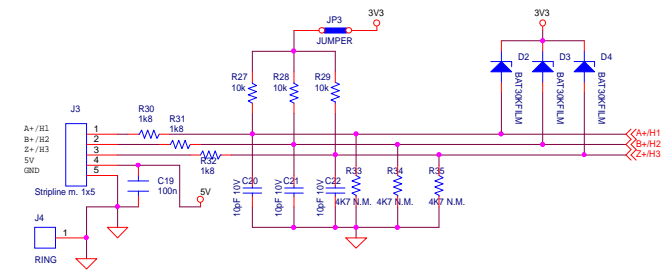
### External operational-amplifier



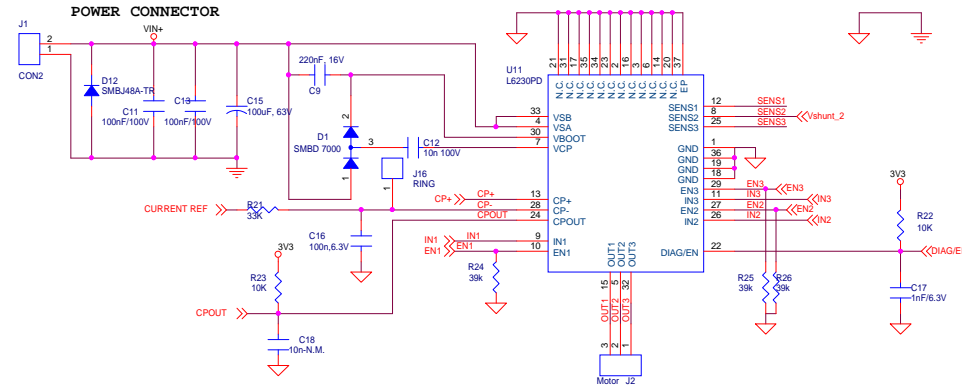
**VBUS SENSOR**



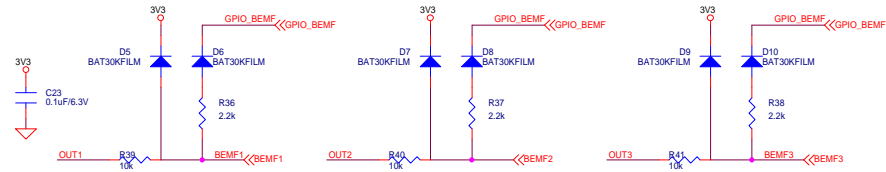
**HALL / ENCODER SENSOR**



**L6230 DMOS driver for three-phase brushless DC motor**



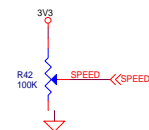
**BEMF DETECTION - SIX STEP**



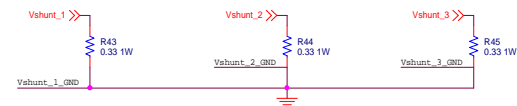
**SINGLE / THREE SHUNT CONFIGURATION**



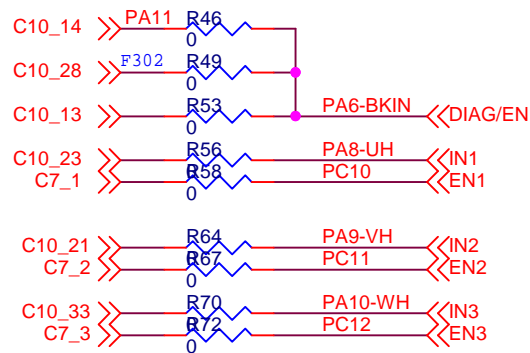
**SPEED REGULATION**



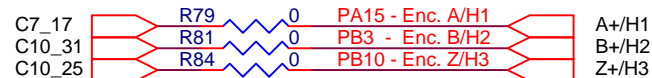
**SHUNT RESISTOR**



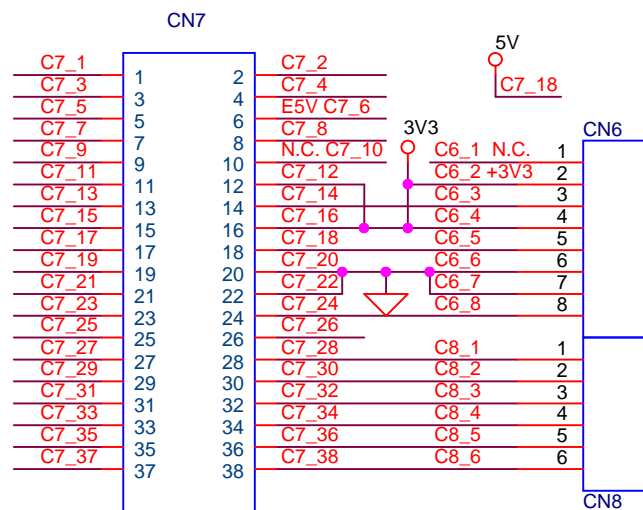
**PWM**



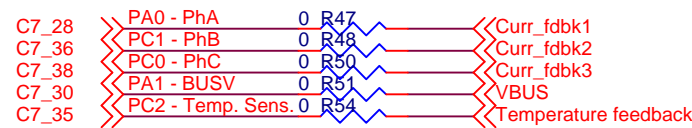
**HALL / ENCODER SENSOR**



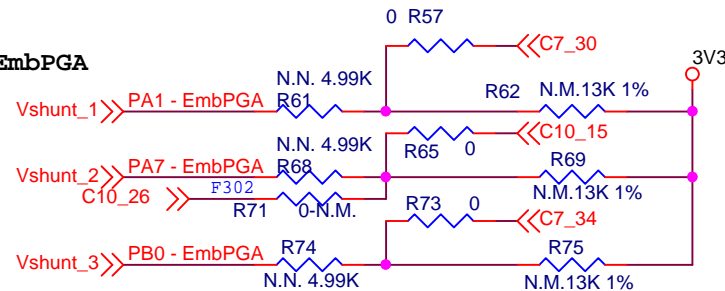
**ARDUINO UNO R3/ ST MORPHO CONNECTOR**



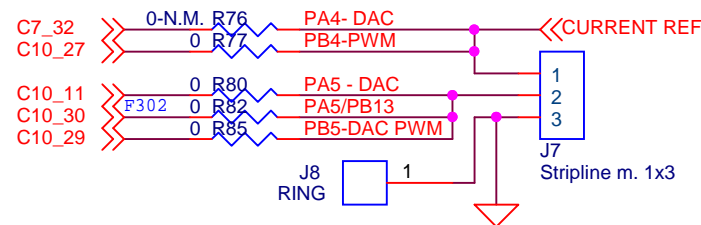
**Currents**



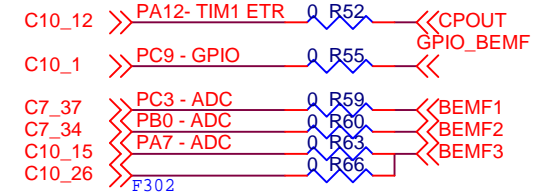
**EmbPGA**



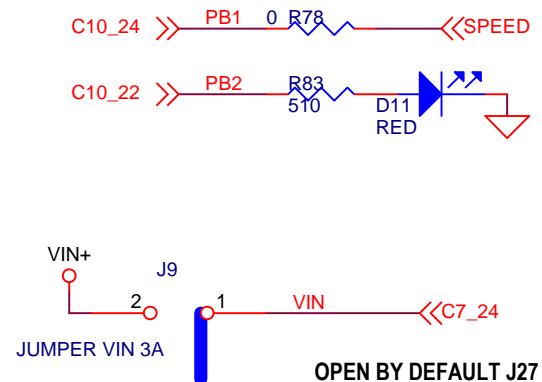
**DAC/REF**



**BEMF six STEP**



**USER**



OPEN BY DEFAULT J27 ON:

- 1) 12VMAX ON J26
- 2) JP5 (Nucleo pin 2,3)
- 2) JP1 (Nucleo) Removed



**STM32 NUCLEO PART USED**

PC13 - START/STOP (B1 BUTTON)

RESET - MCU RST (B2 BUTTON)

