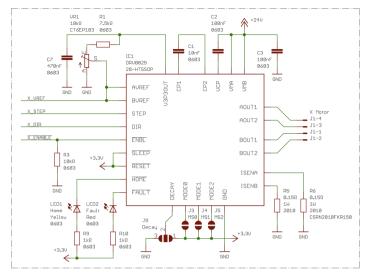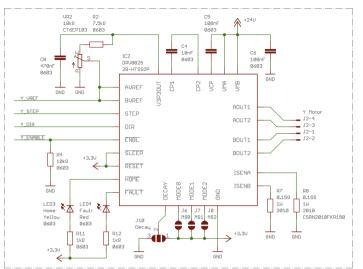5-channel DRV8825 Stepper Motor Driver Board

Luke Weston, 2013

http://github.com/lukeweston/3DPrinterController

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open hardware

TITLE: DRV8825

Document Number:

REV:

Date: not saved!

Sheet: 1/1

IC5
TLC555CP
8-SOIC

VR5
500kΩ
CT6EP504

STEP_TEST

R25
27Ω
0603

Q   TR
DIS R
THR CV
V+   GND

+3.3V

C19
100nF
0603

C17
10nF
0603

C18
100nF
0603

GND

IC6
TPS79801
8-MSOP

+24V

F1
M205 Fuse
5A

Power
J23-1

J23-2

IN   OUT
EN   FB
GND

+3.3V

R27
1kΩ
0603

C20
470µF
63V
UVR1J471MHD

C21
100pF
0603

R28
3.9kΩ
0603

R26
6.2kΩ
0603

C22
1µF
0603

LED9
Power
Blue
0603

GND

VR6
10kΩ
CT6EP103

R29
7.5kΩ
0603

C24
100nF
0603

+24V

C26
470nF
0603

C23
10nF
0603

C25
100nF
0603

IC7
DRV8825
28-HTSSOP

GND

AVREF
BVREF
STEP
DIR
ENBL
SLEEP
RESET
HOME
FAULT

V3P3OUT CP1 CP2 VCP VMA VMB

AOUT1
AOUT2
BOUT1
BOUT2
ISENA
ISENB

E2_VREF
E2_STEP
E2_DIR
E2_ENABLE

E2 Motor
J24-4
J24-3
J24-1
J24-2

R30
10kΩ
0603

+3.3V

R31
0.15Ω
1W
2010

R32
0.15Ω
1W
2010
CSRN2010FKR150

GND

LED10
Home
Yellow
0603

LED11
Fault
Red
0603

DECAY MODE0 MODE1 MODE2 GND

R33
1kΩ
0603

R34
1kΩ
0603

+3.3V

J28
Decay

J25 J26 J27
MS0 MS1 MS2

+3.3V

GND

GND

GND

GND
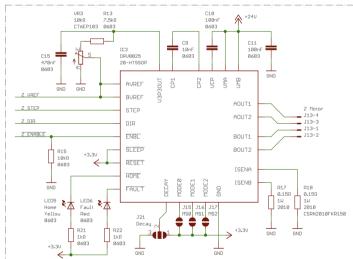
5-channel DRV8825 Stepper Motor Driver Board

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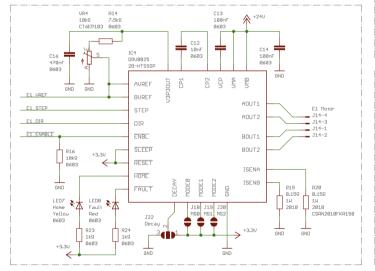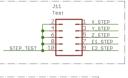
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open hardware

IC1 — X Motor

VR1 10kΩ CT6EP103
R1 7.5kΩ 0603
C2 100nF 0603
+24V
C1 10nF 0603
C3 100nF 0603
C7 470nF 0603
IC1 DRV8825 28-HTSSOP

X_VREF
X_STEP
X_DIR
X_ENABLE

AVREF
BVREF
STEP
DIR
ENBL
SLEEP
RESET
HOME
FAULT

V3P3OUT CP1 CP2 VCP VMA VMB

AOUT1
AOUT2
BOUT1
BOUT2
ISENA
ISENB

DECAY MODE0 MODE1 MODE2 GND

X Motor
J1-4
J1-3
J1-1
J1-2

R3 10kΩ 0603
+3.3V
LED1 Home Yellow 0603
LED2 Fault Red 0603
R9 1kΩ 0603
R10 1kΩ 0603
J9 Decay
J3 MS0 J4 MS1 J5 MS2
R5 0.15Ω 1W 2010
R6 0.15Ω 1W 2010 CSRN2010FKR150
+3.3V

IC2 — Y Motor

VR2 10kΩ CT6EP103
R2 7.5kΩ 0603
C5 100nF 0603
+24V
C4 10nF 0603
C6 100nF 0603
C8 470nF 0603
IC2 DRV8825 28-HTSSOP

Y_VREF
Y_STEP
Y_DIR
Y_ENABLE

AVREF
BVREF
STEP
DIR
ENBL
SLEEP
RESET
HOME
FAULT

V3P3OUT CP1 CP2 VCP VMA VMB

AOUT1
AOUT2
BOUT1
BOUT2
ISENA
ISENB

DECAY MODE0 MODE1 MODE2 GND

Y Motor
J2-4
J2-3
J2-1
J2-2

R4 10kΩ 0603
+3.3V
LED3 Home Yellow 0603
LED4 Fault Red 0603
R11 1kΩ 0603
R12 1kΩ 0603
J10 Decay
J6 MS0 J7 MS1 J8 MS2
R7 0.15Ω 1W 2010
R8 0.15Ω 1W 2010 CSRN2010FKR150
+3.3V

IC3 — Z Motor

VR3 10kΩ CT6EP103
R13 7.5kΩ 0603
C10 100nF 0603
+24V
C9 10nF 0603
C11 100nF 0603
C15 470nF 0603
IC3 DRV8825 28-HTSSOP

Z_VREF
Z_STEP
Z_DIR
Z_ENABLE

AVREF
BVREF
STEP
DIR
ENBL
SLEEP
RESET
HOME
FAULT

V3P3OUT CP1 CP2 VCP VMA VMB

AOUT1
AOUT2
BOUT1
BOUT2
ISENA
ISENB

DECAY MODE0 MODE1 MODE2 GND

Z Motor
J13-4
J13-3
J13-1
J13-2

R15 10kΩ 0603
+3.3V
LED5 Home Yellow 0603
LED6 Fault Red 0603
R21 1kΩ 0603
R22 1kΩ 0603
J21 Decay
J15 MS0 J16 MS1 J17 MS2
R17 0.15Ω 1W 2010
R18 0.15Ω 1W 2010 CSRN2010FKR150
+3.3V

IC4 — E1 Motor

VR4 10kΩ CT6EP103
R14 7.5kΩ 0603
C13 100nF 0603
+24V
C12 10nF 0603
C14 100nF 0603
C16 470nF 0603
IC4 DRV8825 28-HTSSOP

E1_VREF
E1_STEP
E1_DIR
E1_ENABLE

AVREF
BVREF
STEP
DIR
ENBL
SLEEP
RESET
HOME
FAULT

V3P3OUT CP1 CP2 VCP VMA VMB

AOUT1
AOUT2
BOUT1
BOUT2
ISENA
ISENB

DECAY MODE0 MODE1 MODE2 GND

E1 Motor
J14-4
J14-3
J14-1
J14-2

R16 10kΩ 0603
+3.3V
LED7 Home Yellow 0603
LED8 Fault Red 0603
R23 1kΩ 0603
R24 1kΩ 0603
J22 Decay
J18 MS0 J19 MS1 J20 MS2
R19 0.15Ω 1W 2010
R20 0.15Ω 1W 2010 CSRN2010FKR150
+3.3V

J11 Test

STEP_TEST

Pin	Signal
2	1 X_STEP
4	3 Y_STEP
6	5 Z_STEP
8	7 E1_STEP
10	9 E2_STEP

Interface — J12

Signal	Pin
X_DIR	J12-1
X_STEP	J12-2
X_ENABLE	J12-3
X_VREF	J12-4
	J12-5
Y_DIR	J12-6
Y_STEP	J12-7
Y_ENABLE	J12-8
Y_VREF	J12-9
	J12-10
Z_DIR	J12-11
Z_STEP	J12-12
Z_ENABLE	J12-13
Z_VREF	J12-14
	J12-15
	J12-16
E1_DIR	J12-17
E1_STEP	J12-18
E1_ENABLE	J12-19
E1_VREF	J12-20
E2_DIR	J12-21
E2_STEP	J12-22
E2_ENABLE	J12-23
E2_VREF	J12-24

GND

H1 3mm
H2 3mm
H3 3mm
H4 3mm