EasyDriver v4.5

www.schmalzhaus.com/EasyDriver

An easy to use bipolar stepper motor driver
Use 4 wire, 6 wire or 8 wire steper motors
From about 150mA/phase to about 750mA/phase
Defaults to 5V for Vcc (logic supply), settable to 3.3V
Supply 8V to 30V DC power input on JP1
Do not connect or disconnect motor
whlie EasyDriver is powered

DEFAULT OPTIONS
Short JP5, JP6, JP7 pins
to GND or Vcc to override

SLEEP = Vcc (awake)
MS1 = Vcc (1/8 microstep)
MS2 = Vcc (1/8 microstep)
ENABLE = GND (enabled)
RESET = Vcc (not reset)
PFD = Vcc (slow decay mode)

JP5 SLEEP MS1
JP6 MS2 ENABLE
JP7 RESET PFD

DIR is level sensitive
A rising edge on STEP
causes a step
Both take 0V to Vcc

JP2 R18 1K DIR, R19 1K STEP, R20 10K, R21 10K, GND GND

Coil 1 of motor across
OUT1B and OUT1A
Coil 2 of motor across
OUT2B and OUT2A

JP3 OUT1B OUT1A OUT2B OUT2A

TP1 = Vref input to driver
Monitor this test point with meter
as you adjust current adj pot
Valid range 1.0V to Vcc
At Vref of 5V max current will be 833mA
At Vref of 2V max current will be 333mA
At Vref of 1V max current will be 166mA
Minimum current gives smoothest microsteps
Maximum current gives highest torque
Max Coil Current(in Amps) = Vref(in Volts)/6
Set R16 to 2.0V at factory = 333mA/phase

PFD intermediate voltage
Set for 'mixed-decay' mode.

VCC, TP1 TEST-POINTTP_15TH_THRU, Current adj pot R16 10K, R5 2.49K, C4 680pF, R3 20K, GND

IC1 A3967SLB

1	REF	PFD	24
2	RC2	RC1	23
3	/SLEEP	/RESET	22
4	OUT2B	OUT1B	21
5	LOAD_SUPPLY2	LOAD_SUPPLY1	20
6	GND1	GND4	19
7	GND2	GND3	18
8	SENSE2	SENSE1	17
9	OUT2A	OUT1A	16
10	STEP	/ENABLE	15
11	DIR	LOGIC_SUPPLY	14
12	MS1	MS2	13

SLEEP, OUT2B, V+, OUT2A, STEP, DIR, MS1

R12 10K, R17 6.8K PFD, R4 20K, C5 680pF, R1 .75, R2 .75, GND

VCC: R11 10K SLEEP, R14 10K MS1, R10 10K MS2, R15 10K RESET, R13 10K ENABLE, GND

Power Input
8V to 30V (Vcc = 5V)
6.3V to 30V (Vcc = 3.3V)

JP1, C3 47uF, C1 .1uF, GND GND

Must use LM317
For 30V V+ input

IC2 V_REG_317SMD IN OUT ADJ, R8 240

SJ1 Normally Shorted
Cut to use your own
Vcc source from JP4

SJ1, VCC, C2 1uf, GND

Vcc output: JP4

R9 1K, PWR LED YELLOW, GND

Both C3 and C1 must
Be rated for >=35V

R6 390, SJ2, R7 330, GND

SJ2 Normally Open -> Vcc=5.0V
SJ2 Closed -> Vcc = 3.3V

Change List
v4.3 12/09/09 BPS Added mounting holes
v4.4 10/24/20 BPS
Fixed MIN/MAX silkscreen
All vias now .02"
v4.4 1/3/12 BPS : C3 now 47uF
v4.5 2/25/14 BPS

EasyDriver by Brian Schmalz is
licensed under a Creative Commons
Attribution Share Alike (CC BY-SA) 3.0 US License
Copyright 2010-2014

open hardware

Released under the Creative Commons
Attribution Share-Alike 3.0 License
https://creativecommons.org/licenses/by-sa/3.0/

TITLE: EasyDriver_v45 | SFE

Design by: Brian Schmalz
Produced by Spark Fun Electronics

REV: 4.5

Date: 12/18/2014 9:51:38 AM | Sheet: 1/1

Added series resistors and pull downs on STEP/DIR