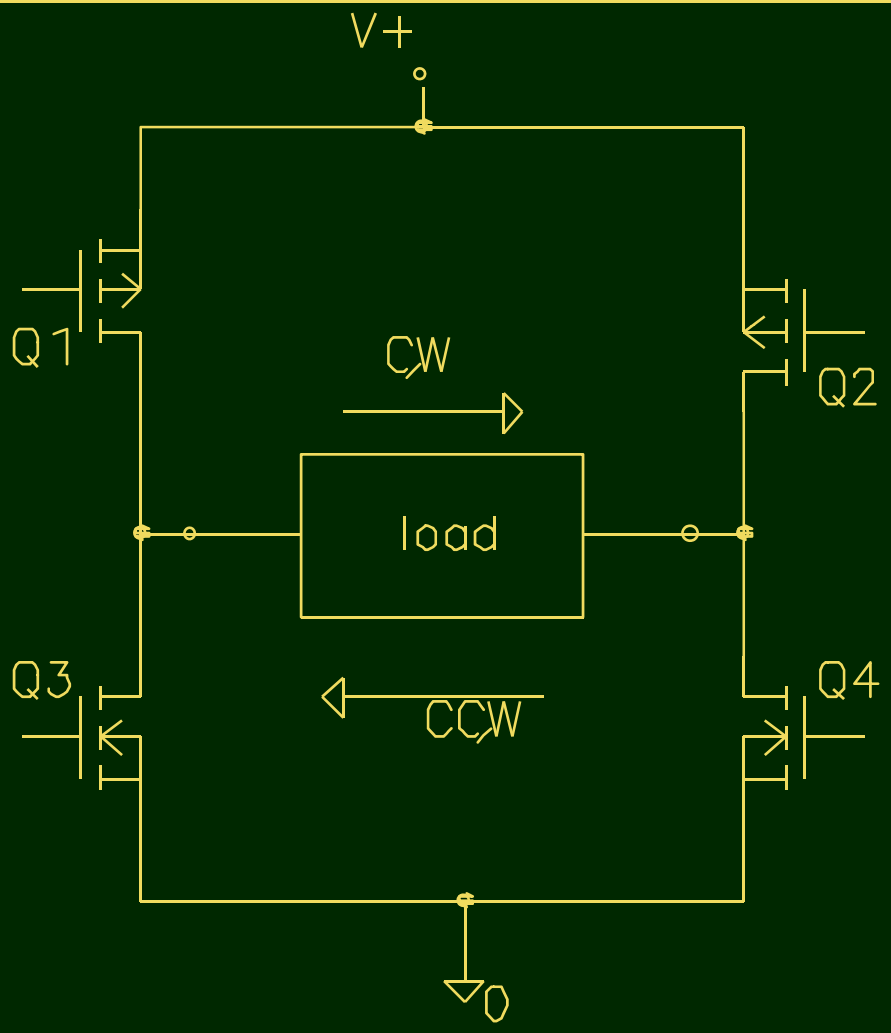
H Bridge



N channel

low side switch

V_g=0 => OFF

$V_g > V_{th}$ => ON

P channel

high side switch

V_g = 0 => ON

V_g = V+ => OFF

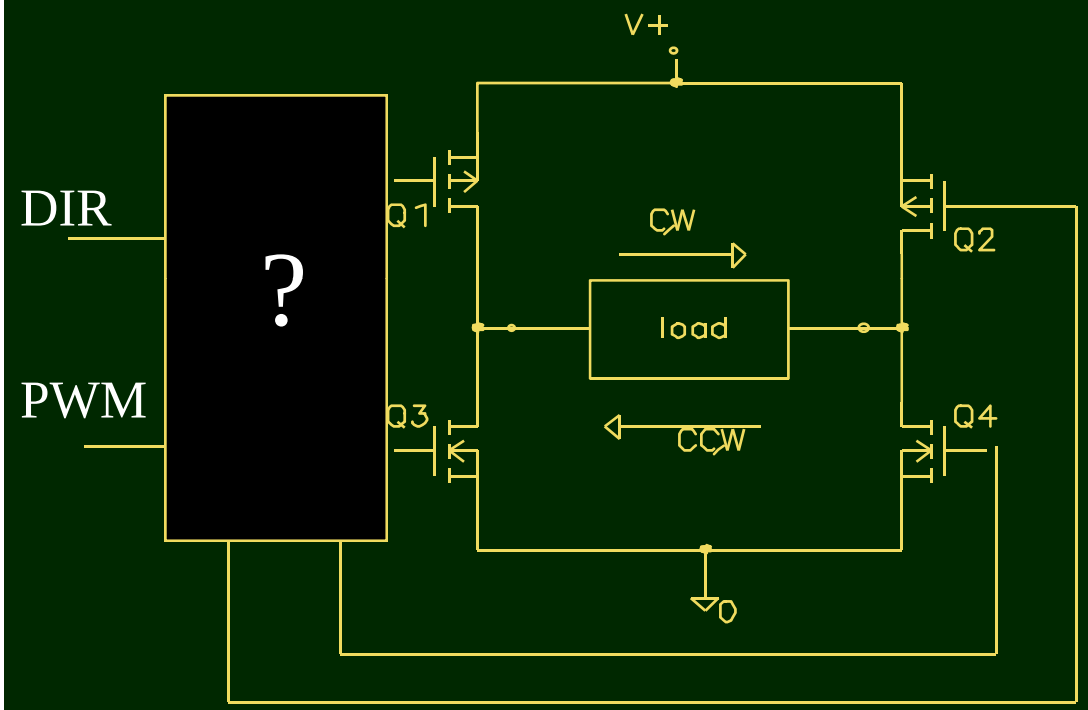
CW

Q1 & Q4 on Q2 & Q3 off

CCW

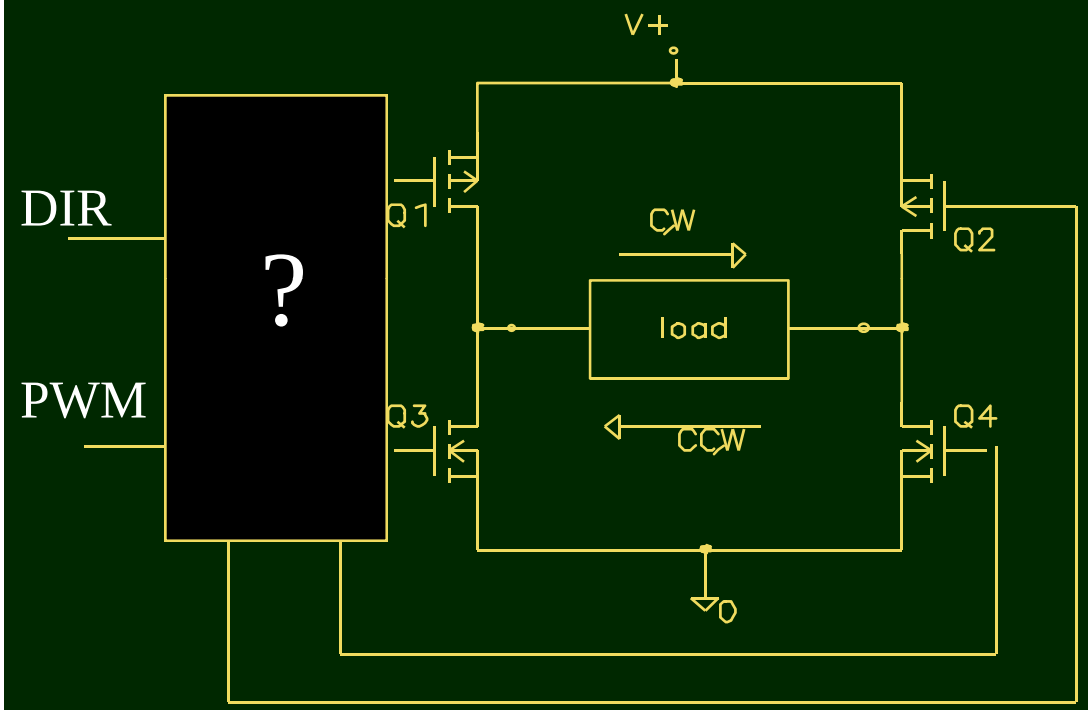
Q2 & Q3 on Q1 & Q4 off

H Bridge Logic Control



- DIR
  - sets direction
  - 0 => CW
  - 1 => CCW
- PWM
  - sets speed

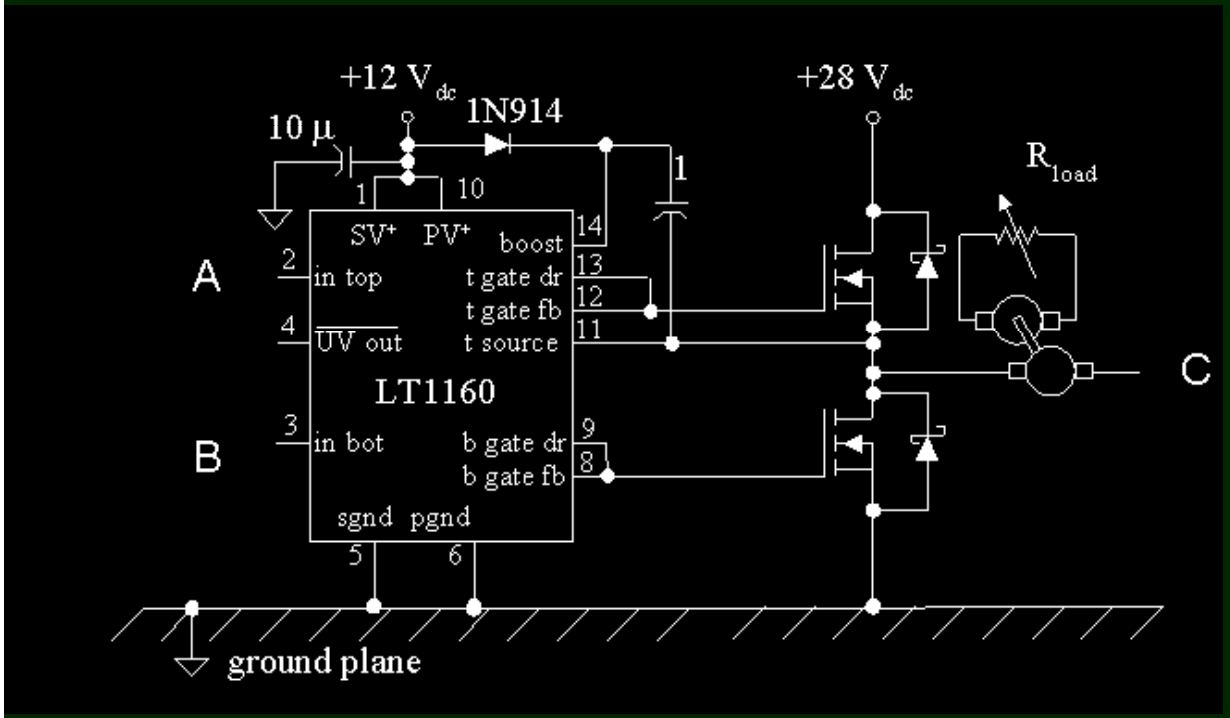
H Bridge Logic Control



- DIR
  - sets direction
  - 0 => CW
  - 1 => CCW
- PWM
  - sets speed

DIR	cw/ccw	Q1	Q2	Q3	Q4
0					
1					

Half Bridge

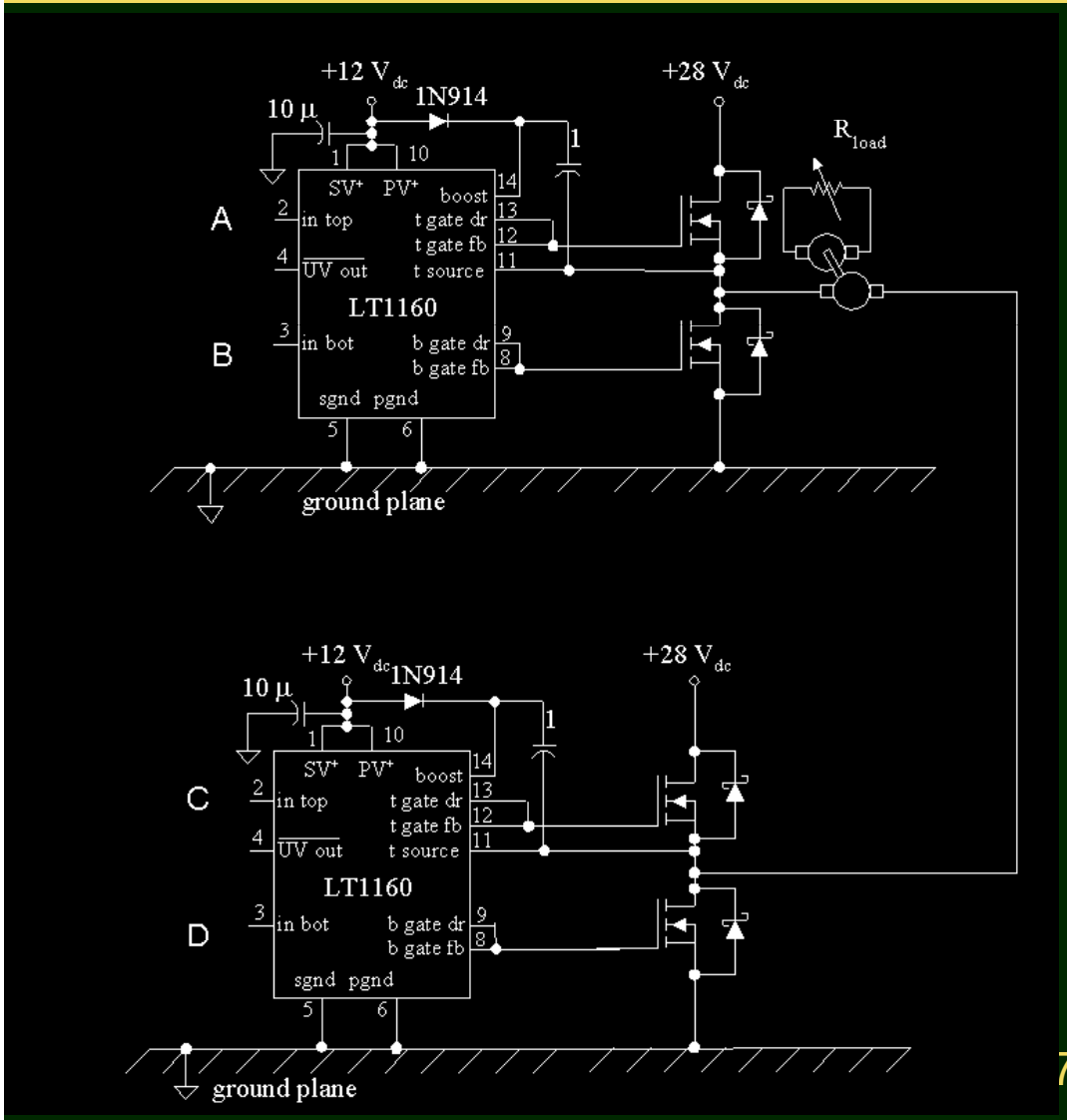


Schottky diode place

Add decoupling caps – position *critical*

Connect to supply common

N Channel High Side Switches



Add decoupling caps – position *critical*

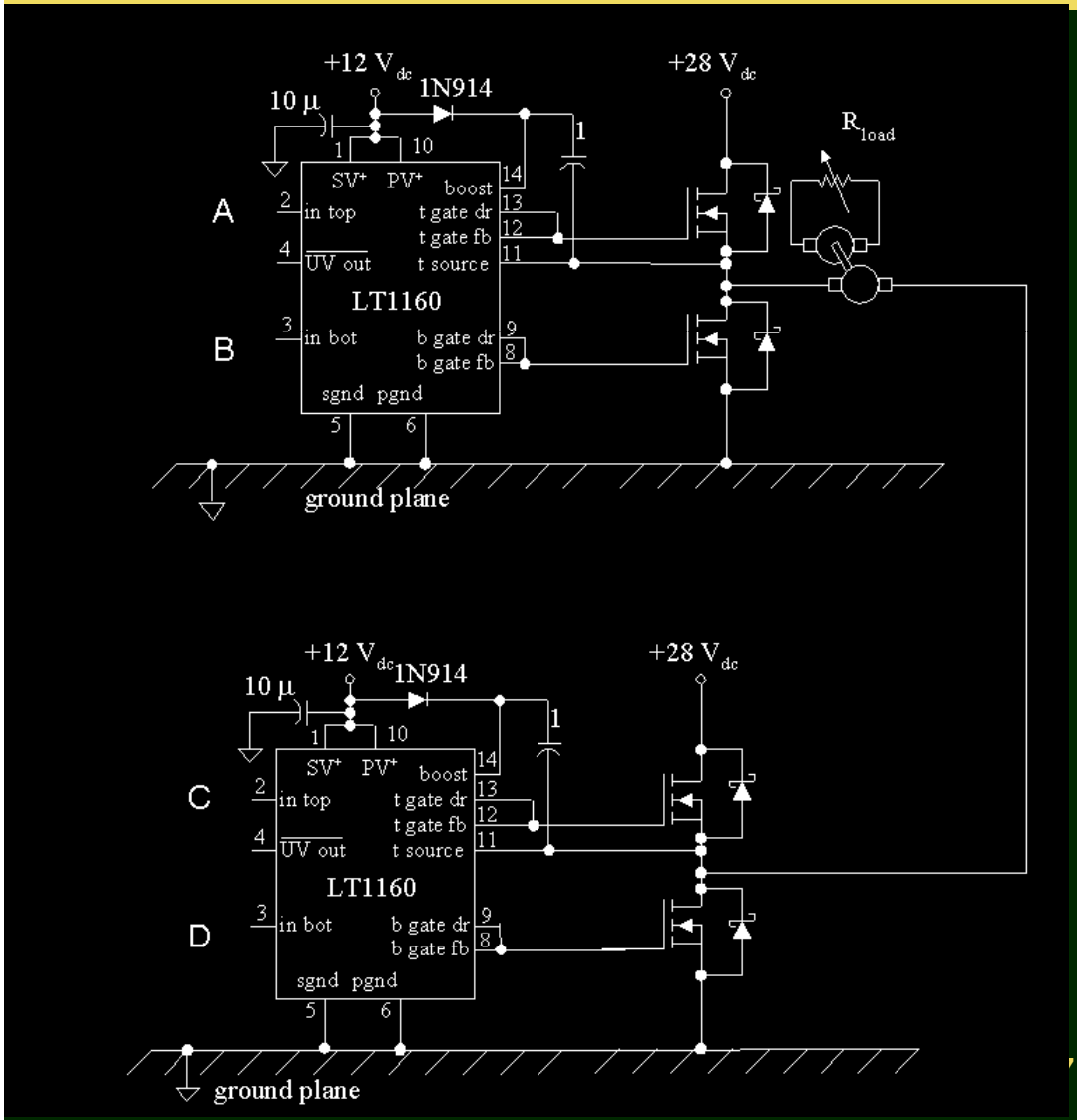
One leg in one driver =>

Dead time control

Ground planes connected

Connect to supply common

N Channel High Side Switches

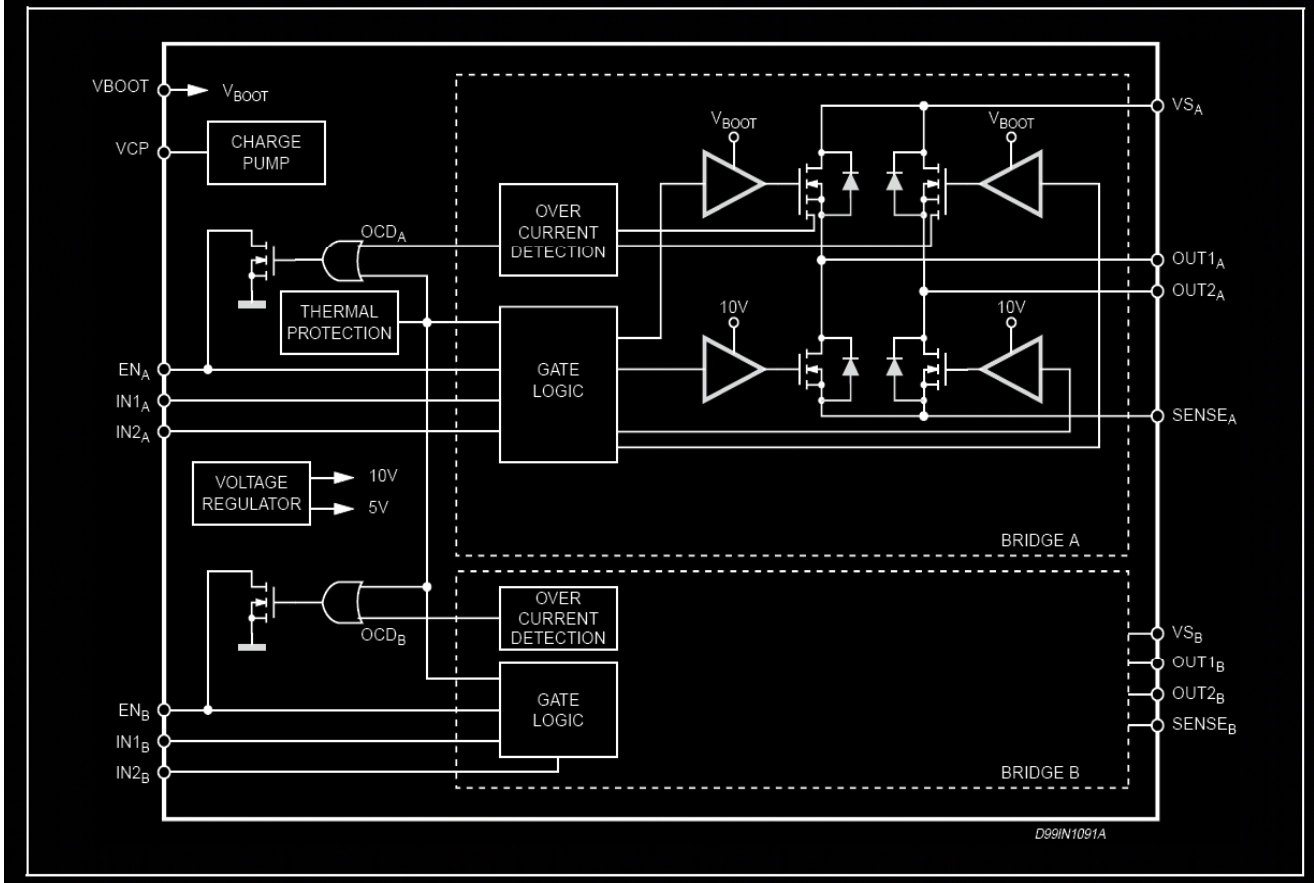


Dir	pwm	Q1	Q2	Q3	Q4
0	0				
0	1				
1	0				
1	1				

H Bridge IC

STMicroelectronics L6225N

BLOCK DIAGRAM



Load 8 V to 52 V

$I_{load} \leq 1.4\ A_{rms}$

f < 100 kHz

T_J & I_{load} shutdown

Dual

Power Calc

- $T_J < 125$ C
- $\Theta_{JA\ bare} = 57$ C/W
- $R_{on} < 0.73\ \Omega$

TRUTH TABLE

INPUTS			OUTPUTS	
EN	IN1	IN2	OUT1	OUT2
L	X	X	High Z	High Z
H	L	L	GND	GND
H	H	L	Vs	GND
H	L	H	GND	Vs
H	H	H	Vs	Vs

X = Don't care

High Z = High Impedance Output

http://www.st.com/stonline/products/literature/ds/9451/l6225.pdf