

Panel 1

Prior to Le04

Snubber Diodes Decoupling Capacitors and H-Bridges

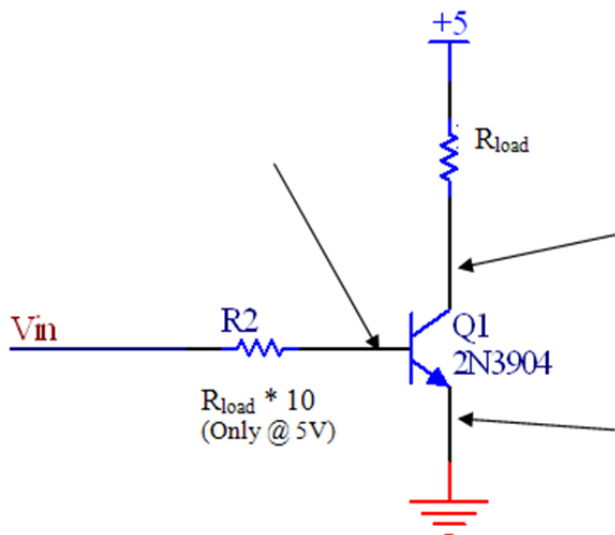
ME430 Mechatronics

1

Panel 2

NPN transistor

Quick Transistor review

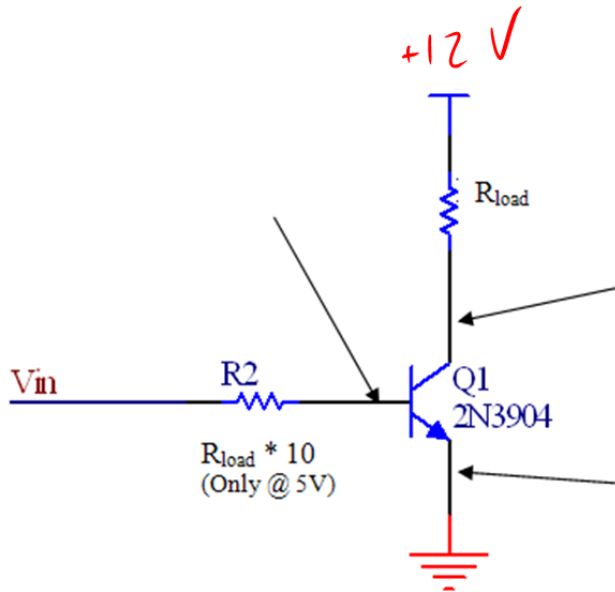


2

Panel 3

NPN transistor

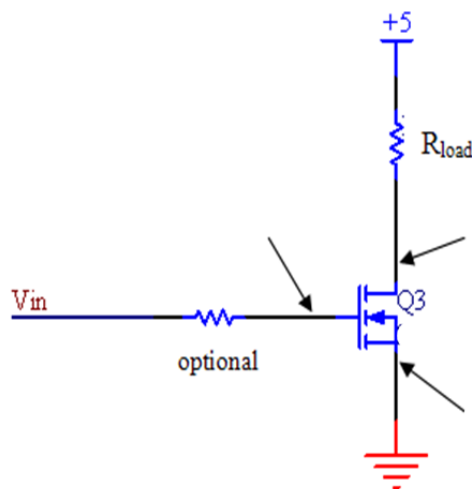
Think about the current ratio!



3

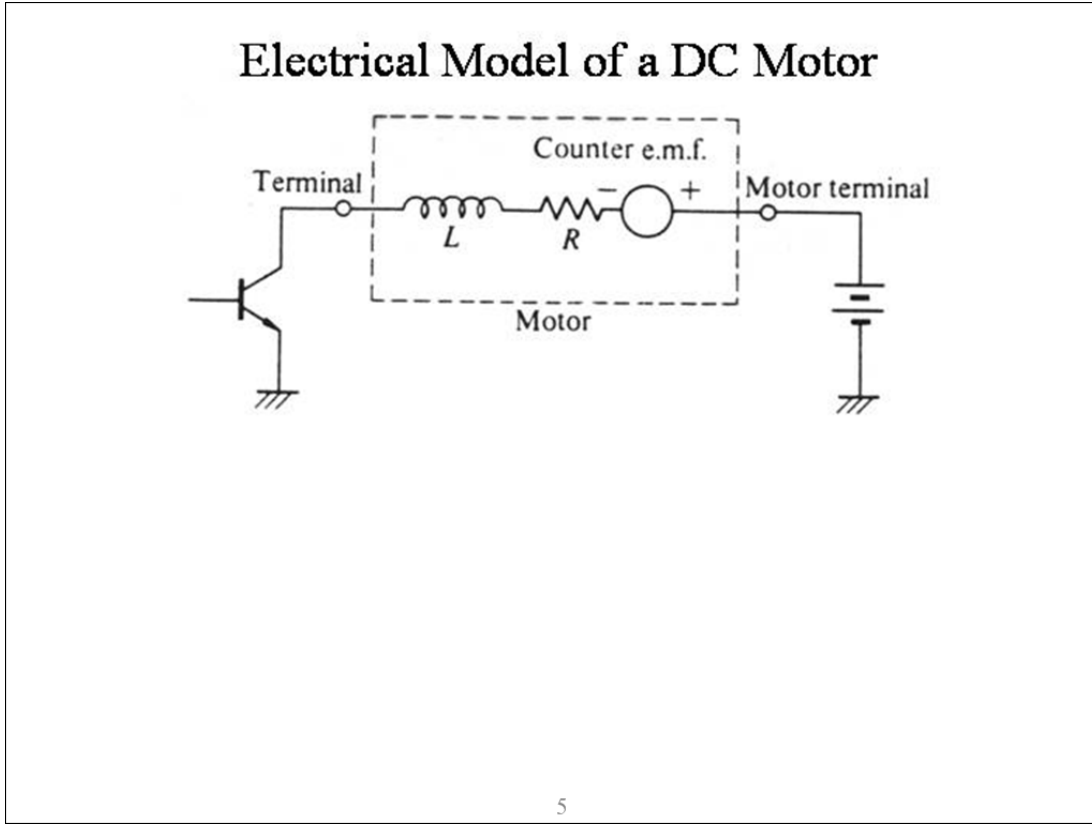
Panel 4

N-Channel

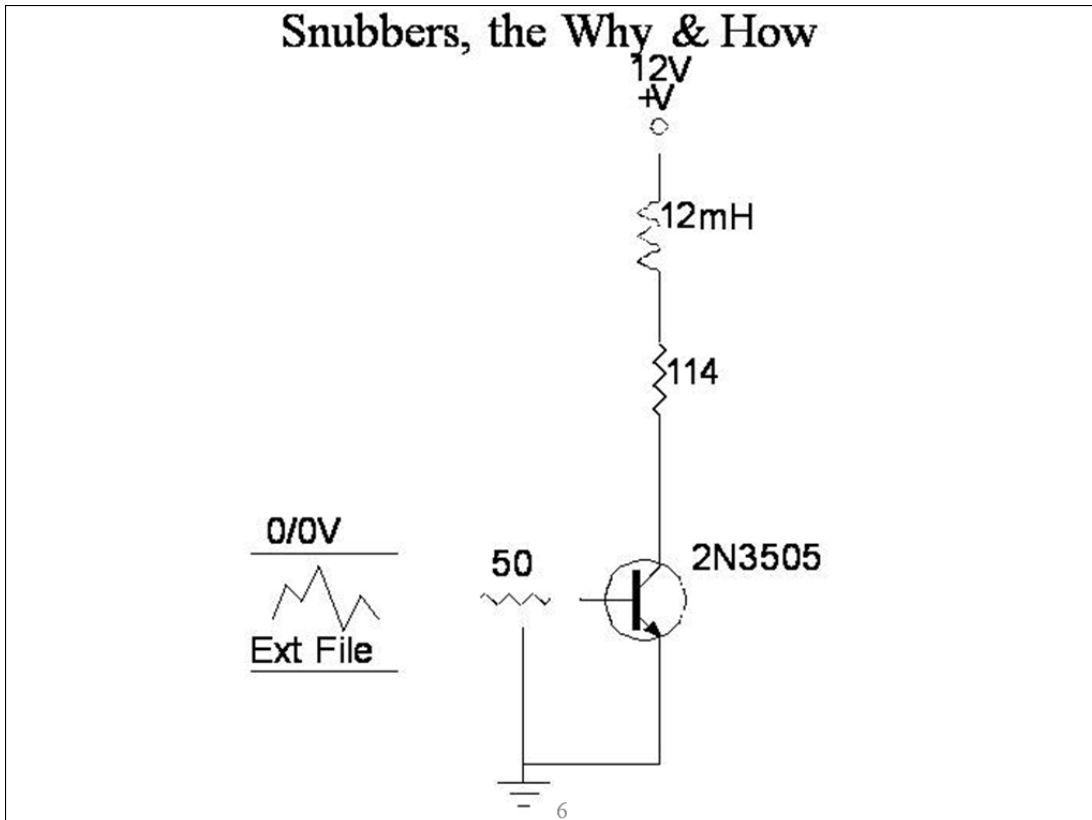


4

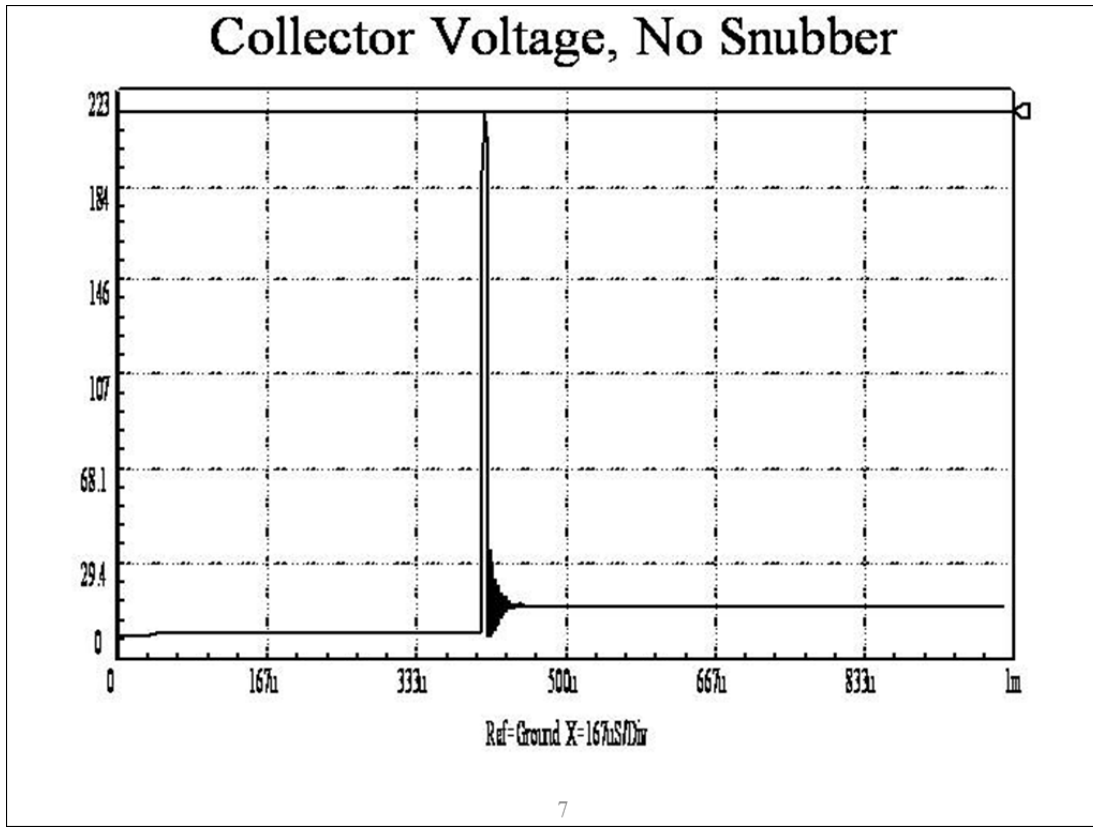
Panel.5



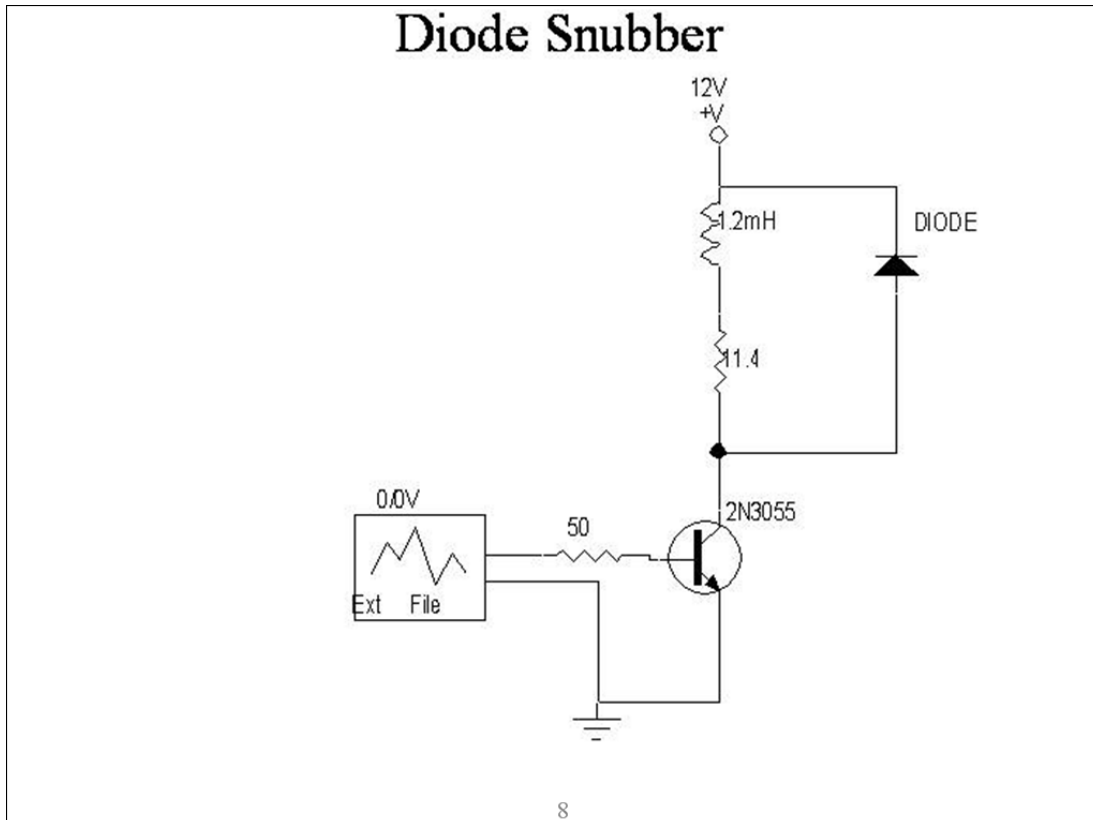
Panel.6



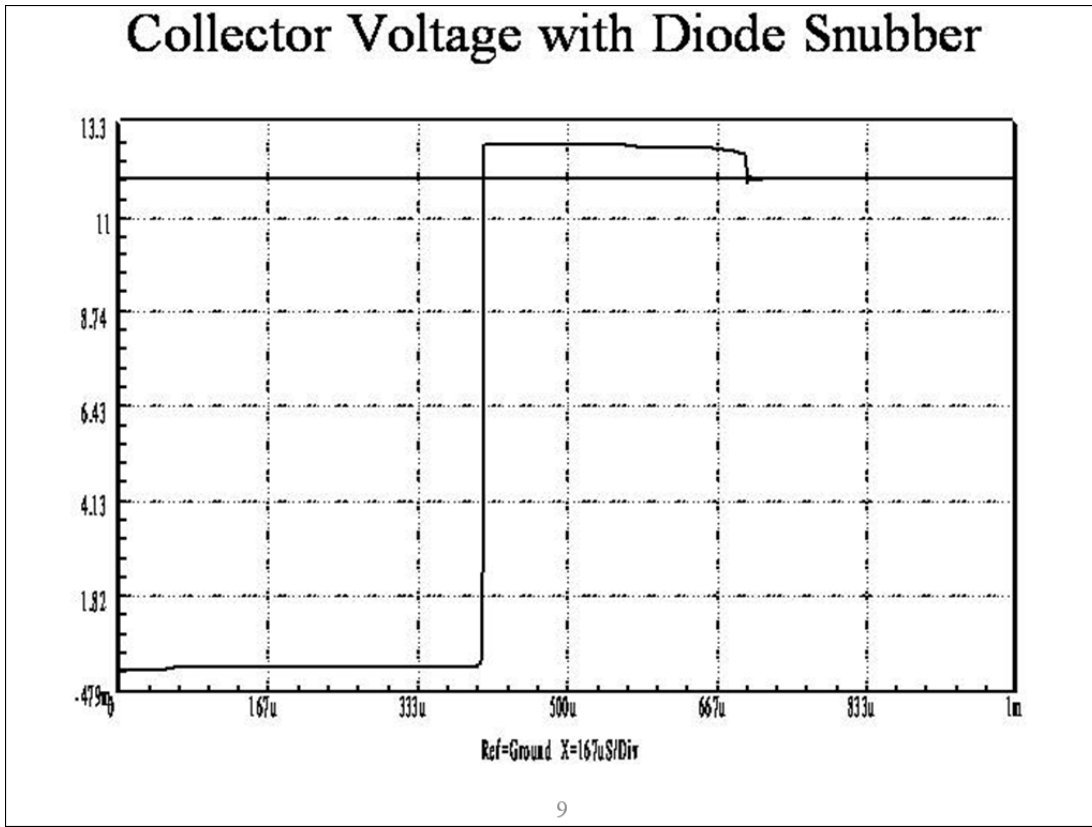
Panel 7



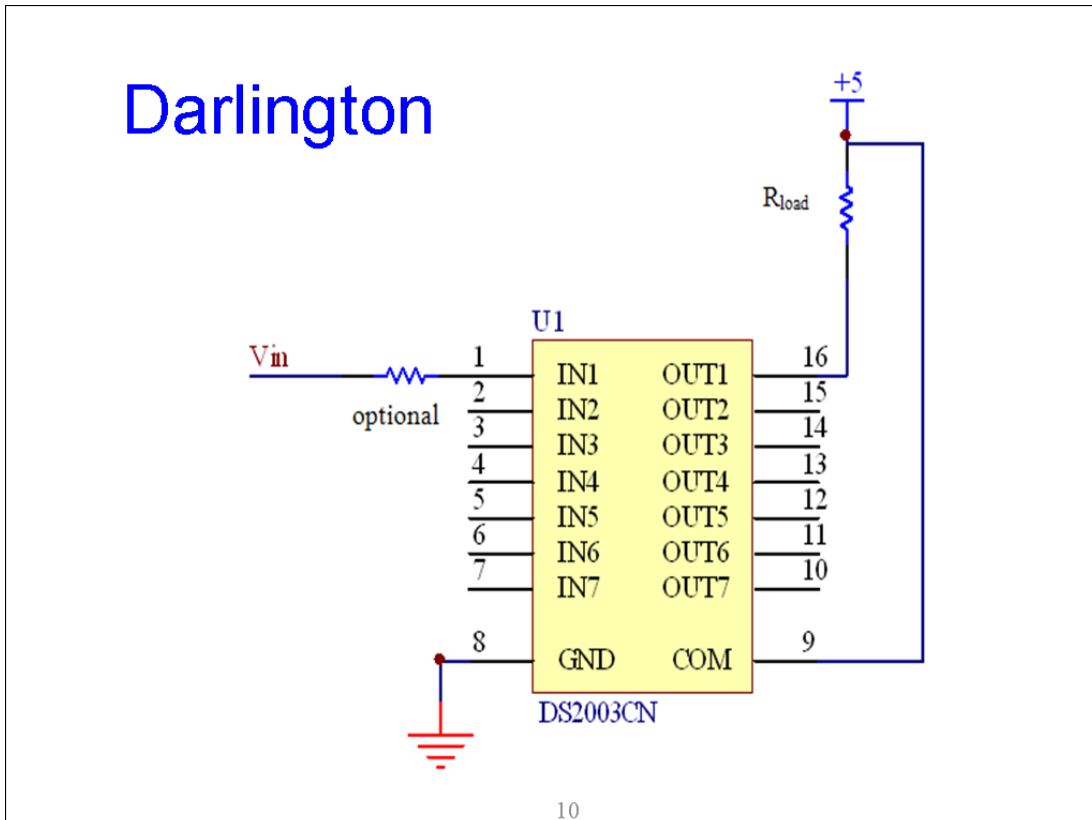
Panel 8



Panel 9



Panel 10



Panel 11

Decoupling Capacitor

A **decoupling capacitor** is a capacitor used to **decouple** one part of an electrical network (circuit) from another. Noise caused by other circuit elements is shunted through the capacitor reducing the effect they have on the rest of the circuit.

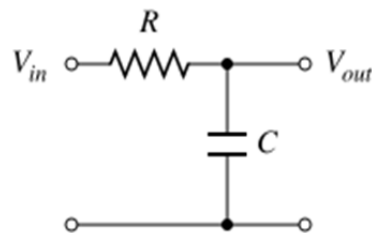
An alternative name is bypass capacitor as it is used to bypass the power supply or other high impedance component of a circuit.



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Panel 12

Decoupling Capacitor is very similar to a Low Pass Filter



Go back and add your capacitors!

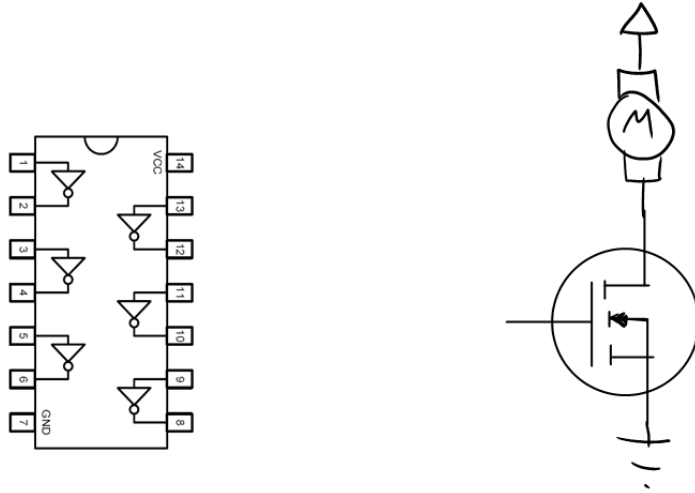
12

Panel 13

Usually use two decoupling capacitors

1st Near my control chip (PIC or logic gate)

2nd Near my biggest culprit of inductive kick

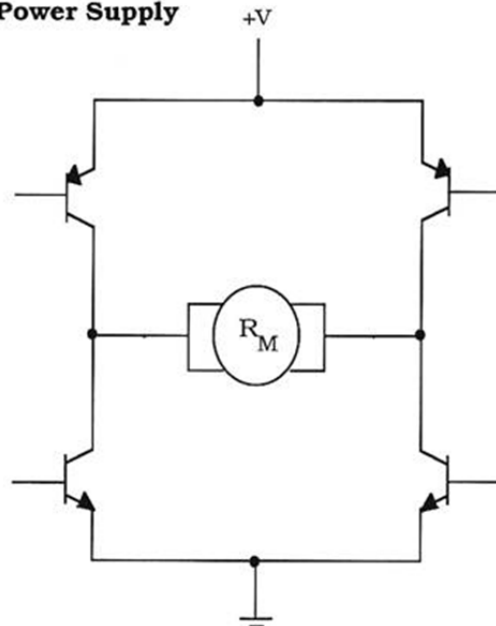


13

Panel 14

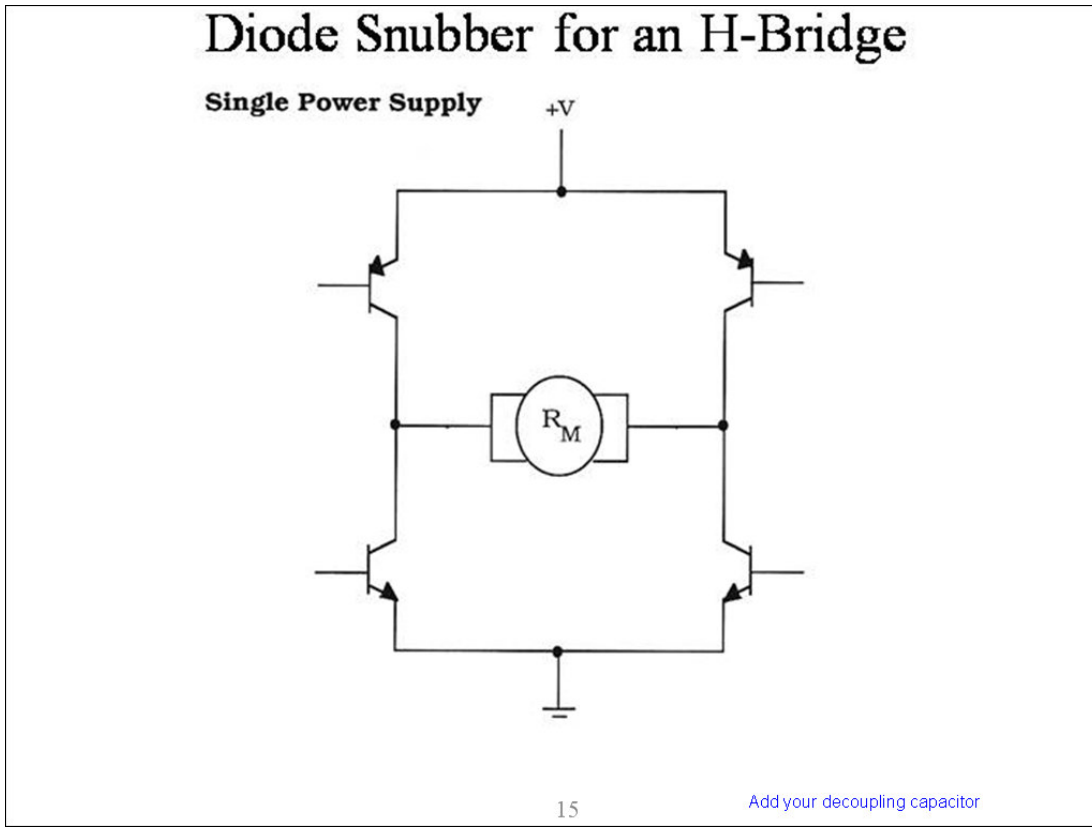
H-Bridge

Single Power Supply

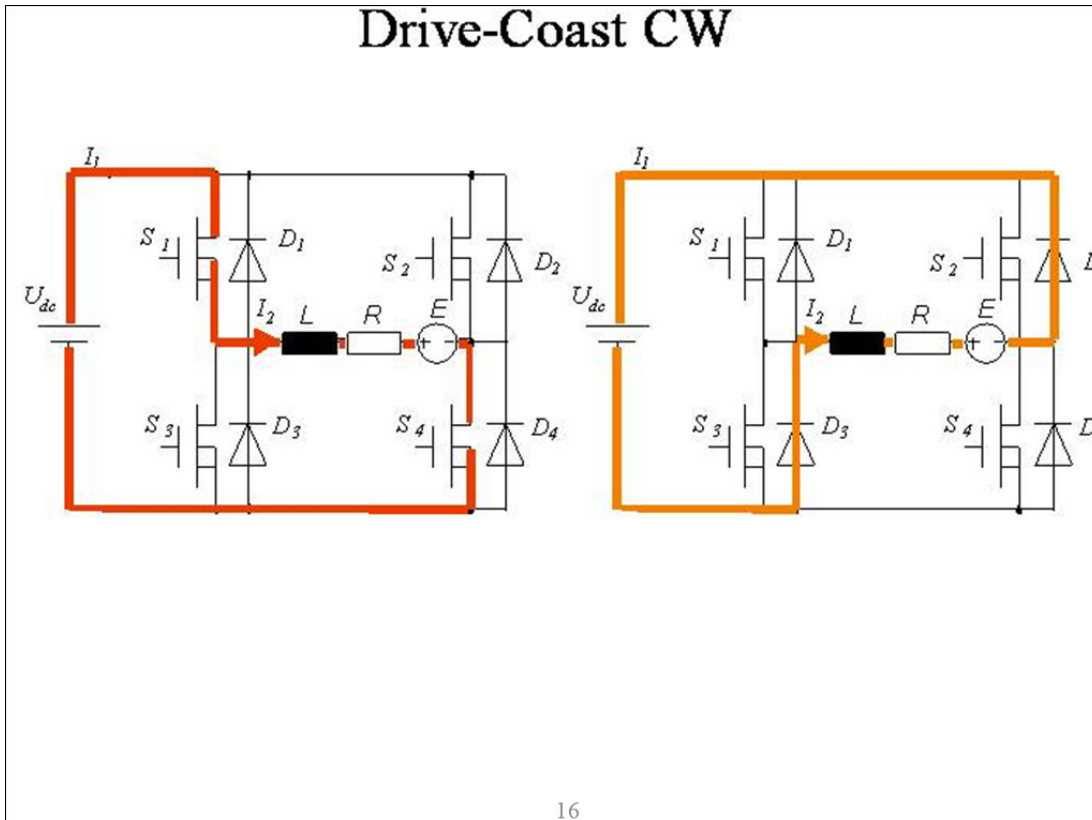


14

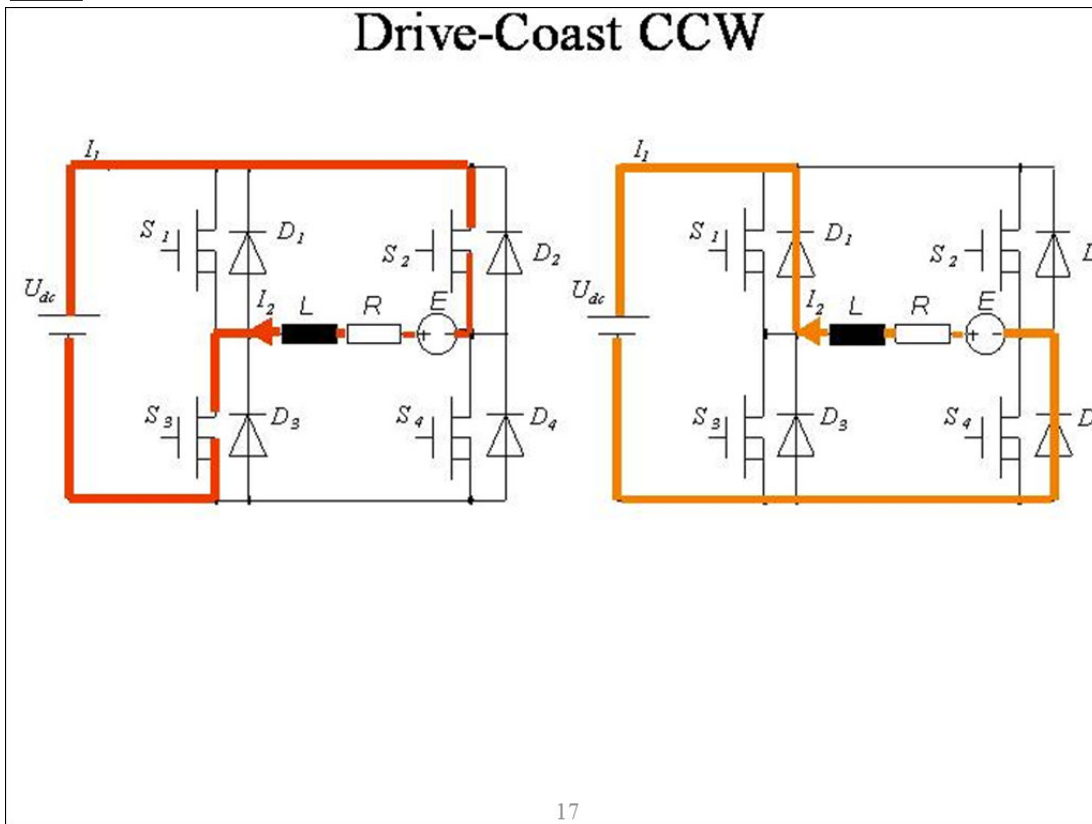
Panel 15



Panel 16



Panel 17



Panel 18

L293B



L293B
L293E

PUSH-PULL FOUR CHANNEL DRIVERS

- OUTPUT CURRENT 1A PER CHANNEL
- PEAK OUTPUT CURRENT 2A PER CHANNEL (non repetitive)
- INHIBIT FACILITY
- HIGH NOISE IMMUNITY
- SEPARATE LOGIC SUPPLY
- OVERTEMPERATURE PROTECTION

DESCRIPTION

The L293B and L293E are quad push-pull drivers capable of delivering output currents to 1A per channel. Each channel is controlled by a TTL-compatible logic input and each pair of drivers (a full bridge) is equipped with an inhibit input which turns off all four transistors. A separate supply input is provided for the logic so that it may be run off a lower voltage to reduce dissipation.

Additionally, the L293E has external connection of sensing resistors, for switchmode control.

The L293B and L293E are package in 16 and 20-pin plastic DIPs respectively ; both use the four center pins to conduct heat to the printed circuit board.



DIP16

ORDERING NUMBER : L293B



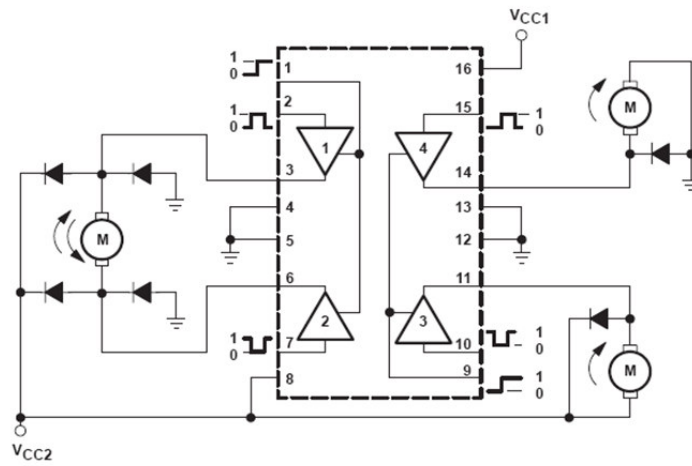
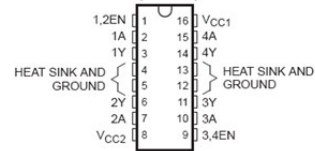
POWERDIP (16 + 2 + 2)

ORDERING NUMBER : L293E

18

Panel 19

The L293 H-Bridge



19

Don't forget your Decoupling capacitor!

Panel 20

Levels of defense against inductive kick!

- 1.
- 2.
- 3.
- 4.

20

Panel 21

