IGBT GATE DRIVER CIRCUIT BASED ON IXDD614PI AND HCPL-316J.

the circuit drives a single IGBT and works as low side and high side drive with undervoltage lockout and DESAT protection.

power flags are used to tell the Eeschema program which pins are driven by powe sources, they have no physical existance.

PWR_FLAG PWR_FLAG PWR_FLAG

MICSUPP COM GND1

RST

PWR_FLAG

PWR_FLAG PWR_FLAG PWR_FLAG

T1 15V -5V

Output and Input ports grouped togeather.

POWER SUPPLY CONNECTOR.

p1: 3 COM 15V; 2; 1 -5V

IGBT CONNECTOR.

p2: 3 COM C; 2; 1 G

CONTROLLER CONNECTOR.

p3: 5 T1 GND1; 4; 3 MICSUPP; 2; 1 FAULT RST

C1 0.1uF: MICSUPP, FAULT

C2 0.1uF: 15V, -5V

C3 330pF: FAULT, GND1

C4 0.1uF: COM, -5V

C5 0.1uF: 15V, COM

0.1 uF are bypass caps, the 330 pF is the fault filter cap.

blanking capacitor C6 100pF

R3 100 DESAT resistor and diode.

RGP02-20 D1

R1 10K Fault pull-up resistor.

HCPL-316J IC1

T1	1	16	VE
	2	15	Vled2+
	3	14	DESAT
	4	13	Vcc2
	5	12	Vc
FAULT	6	11	Vout
	7	10	VEE
	8	9	VEE

Vin+ Vin- Vcc1 GND1 RESET FAULT Vled1+ Vled1-

R2 25K Pull-Down resistor recommended by the data sheet; based on the-414 which I am not so sure of.

10nF C7 a cap to ensure soft turn-off, recommended by datasheet of hcpl.

R6 100 LEFT OPEN OR CONNECTED TO THE VCC.

IXDD614PI IC2

15V	1	8	Vcc
	2	7	IN+
	3	6	IN-
-5V	4	5	GND

Vcc IN+ IN- GND OUT OUT Vcc GND

1N5821 D2

R4 60

R5 30ohm ,0.5W

7,15 must be left unconnected.

T1 is the PWM control signal from the microcontroller.

MICSUPP is 5 volt from the vcc of the microcontroller.

COM is the auxiliary emitter of the IGBT.

G is the Gate of the IGBT.

C is the collector of the IGBT.

GND1 is the ground of the microcontroller.

I'M USING GLOBAL LABELS INSTEAD OF LOCAL LABELS AS THEY LOOK NEATER, LOL.

ALL SMD PACKAGES USED SHOULD BE 1206.
THIS CIRCUIT IS A PROTOTYPE VERSION.
VSD GRADUATION PROJECT.

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Title: IGBT GATE DRIVE SCHEMATIC.

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