



Max current to detect: $I_{max} = 100 \text{ A}$.
R value: $R_{sense} = 200 \text{ uOhm}$.
Thus: $P = I^2 \cdot R = 10^4 \cdot 2 \cdot 10^{-6} = 2 \text{ W}$.

According to the datasheet, the mosfets have a turn on time $t_{on} \approx 25 \text{ ns}$ and $t_{off} = 46 \text{ ns}$.
We want to operate the bridge at 25kHz, and we want to see the transients be 0.5% of the duty cycle so t_{on} around 200 ns.
 $R_g = -\frac{t_{on}}{C_{gate} \cdot \ln(1 - V_{gate}/V_{source})} - R_{source}$ where $V_{source} = 12.5 \text{ V}$ is the floating voltage of the high output. We get $R_g = 2.71$ for 200 ns, $R_g = 5$ for 250 ns and $R_g = 7$ for 300 ns

Title		
Size	Number	Revision
A		
Date:	19-Oct-17	Sheet of
File:	F:\Users\...HBridge.SchDoc	Drawn By:

Bill of Materials

<Parameter Title not found>

Source Data From: MechanicalShutter.PrjPcb
 Project: MechanicalShutter.PrjPcb
 Variant: None

Creation Date: 19-Oct-17 11:34:33 PM
 Print Date: 43027 43027.98245

Footprint	Comment	LibRef	Designator	Description	Quantity
242431 Banana	242431	242431	+5/+3.3V, Bat+, GND	Banana PCB Connector	3
CAP 1206/3216 - 1.8MM	3.3uF	CGA5L3X7S2A3 35K160AB	C2	CAP CER 3.3UF 100V X7S 1206	1
Radial Capacitor 12.5mm	680uF	EEUFR1J681L	C3	CAP ALUM 680UF 20% 63V Through Hole	1
SOD-123 ST DO214AB SMC	SD101AW-7-F SMCJ43CA	SD101AW-7-F SMCJ43CA	D9, D10, D16, D17	DIODE SCHOTTKY 60V 15MA SOD123	4
			D11, D12, D13, D14, D15	TVS DIODE 43VWM 69.4VC SMC	5
MOLEX SD- 73100-0114 TE	5-1814400-1	5-1814400-1	DIR 1, DIR 2, PWM 1, PWM 2	CONN SMA JACK R/A 50 OHM PCB	4
FSM4JSMA Cable Hole 6.54mm	FSM4JSMATR	FSM4JSMATR	DIS	SWITCH TACTILE SPST-NO 0.05A 24V	1
MOLEX KK 0022272021	Cable Hole 6.54mm	Cable Pad AWG 2	GND_H1, V+_H1		2
LED-0 MOLEX KK 0022272061	0022272021	0022272021	HCPWR, PWR	CONN HEADER 2POS .100 VERT TIN	2
LED-0 MOLEX SDA- 70555-7PIN	LED0	LED0	LED_DIS	Typical INFRARED GaAs LED	1
Cable Hole 6.54mm	0022272061	0022272061	LOG1	CONN HEADER 6POS .100 VERT TIN	1
Cable Hole 6.54mm	0705550041	0705550041	LOGIC_CON	CONN HEADER 7POS .100 R/A 15AU	1
INFINEON PG-HSOF-8- 1	H1	Cable Pad AWG 2	MOTOR3		1
RES 1206/3216	H2	Cable Pad AWG 2	MOTOR4		1
RES 1206/3216	IPT020N10N3AT MA1	IPT020N10N3AT MA1	Q5, Q6, Q7, Q8	MOSFET N-CH 100V 300A 8HSOF	4
RES 1206/3216	9.53k	ERJ- 8ENF9531V	R1, R2, R3, R4, R19	RES SMD 9.53K OHM 1% 1/4W 1206	5
RES 1206/3216	5.1	ERJ- 8GEYJ5R1V	R6, R7, R8, R9, R10	RES SMD 5.1 OHM 5% 1/4W 1206	5
RES 1206/3216	100	ERA-8AEB101V	R20	RES SMD 100 OHM 0.1% 1/4W 1206	1
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Approved	Notes