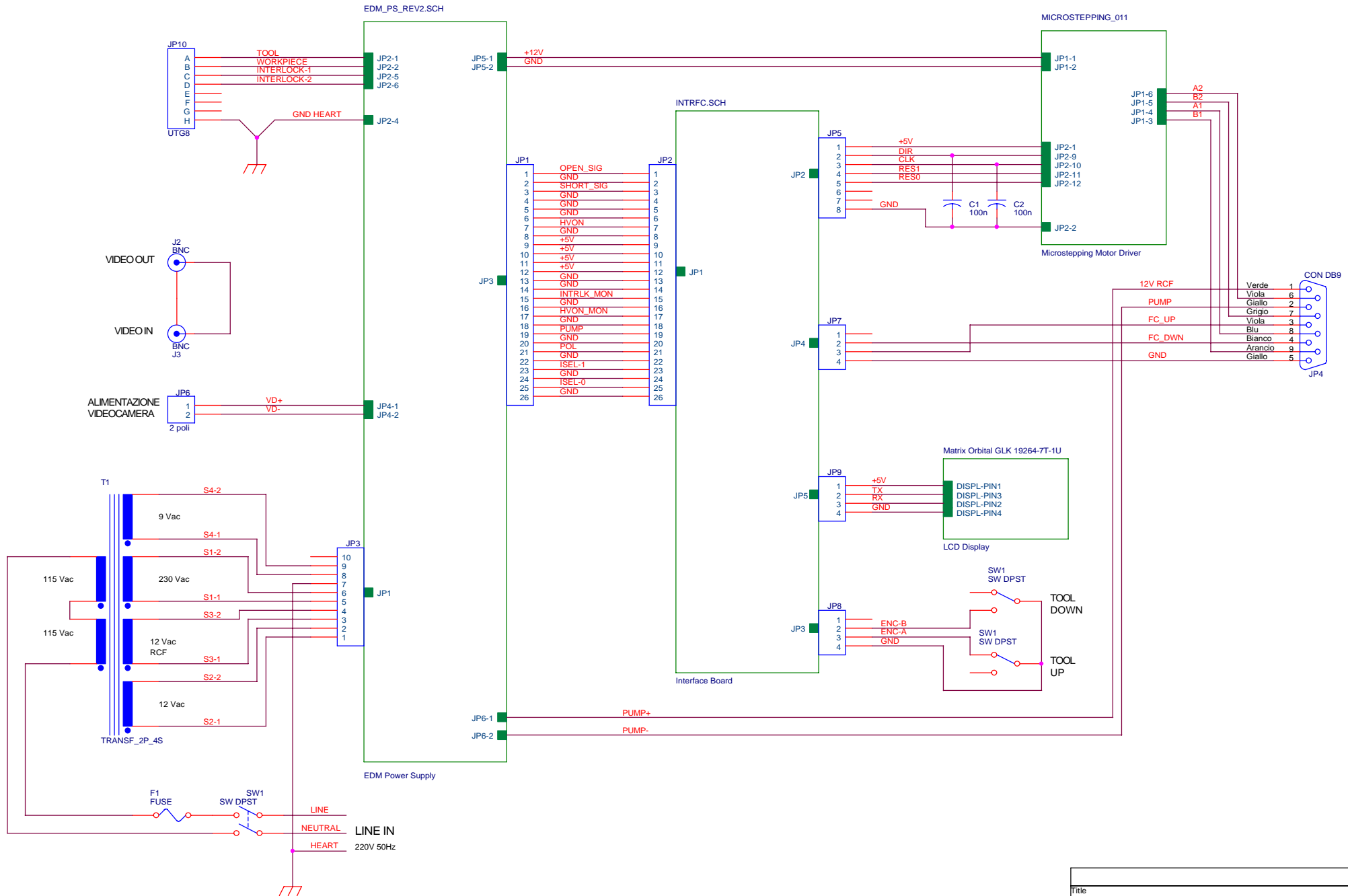


Title		
SPARK ERODER ASSEMBLY		
Size	Document Number	Rev
A4	edm_power_supply_rev1.1/Spark Eroder Assembly/ASSEMBLY.SCH	01
Date:	Tuesday, September 17, 2013	Sheet 1 of 3

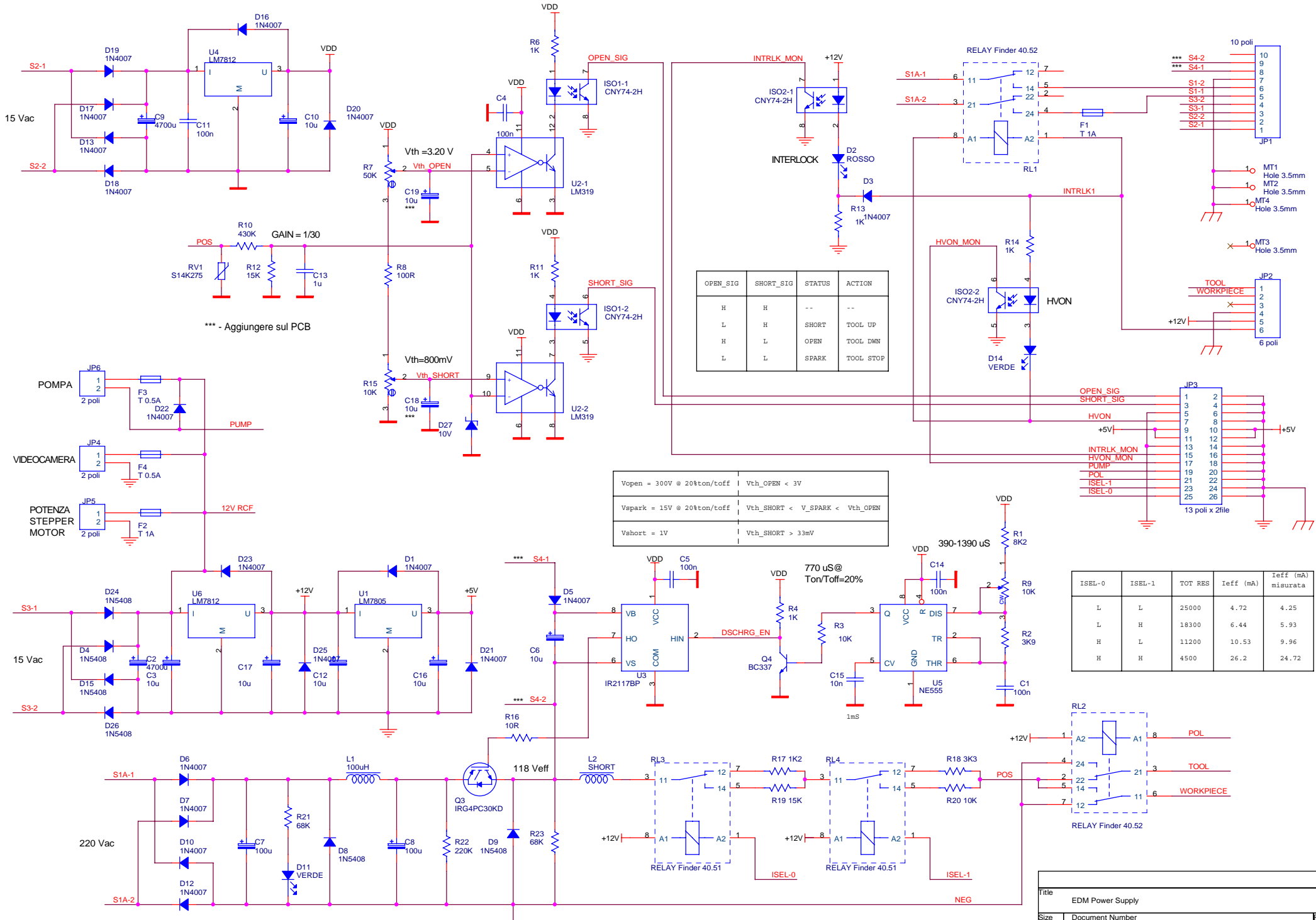
Revised: Tuesday, September 23, 2008  
Revision: 00

Bill Of Materials      September 23,2008      16:39:28    Page1

Item	Quantity	Reference	Description	Value	Supplier Ref
1	1	D7	Diodo Alta Luminosita	LED	Paoletti
2	1	F1	Fusibile 5X20	FUSE	Paoletti
3	1	GAP1	SPARK GAP		
4	1	J3,J7	Conn. per Flat Cable F Volante	HEADER 26	RS 454-2384
5	1	J6	Conn. Volante a Vite per Morsettiera P.150mils	HEADER 26	Adimpex 328-101-14-10P VL
6	2	J8,J9	Conn. per Flat Cable F Volante	HEADER 10	RS 454-2362
7	1	M1	Stepper Motor	PK246PB	
8	1	M2	Pompa 2 l/m tubo 3mm	M400-K	RS 702-6876
9	1	SW4	Line Switch	SW DPST	Paoletti
10	3	SW5,SW6,SW7	Microswitch	SW DPST	Paoletti
11	1	T1	Trasformatore	TRANSF_2P_3S	



Title		
EDM CONTROL BOX		
Size	Document Number	Rev
A3	EDM MODULE/PAGE1	00
Date:	Tuesday, September 17, 2013	Sheet 1 of 1



OPEN_SIG	SHORT_SIG	STATUS	ACTION
H	H	--	--
L	H	SHORT	TOOL UP
H	L	OPEN	TOOL DWN
L	L	SPARK	TOOL STOP

$V_{open} = 300V @ 20\%ton/toff$	$V_{th\_OPEN} < 3V$
$V_{spark} = 15V @ 20\%ton/toff$	$V_{th\_SHORT} < V_{SPARK} < V_{th\_OPEN}$
$V_{short} = 1V$	$V_{th\_SHORT} > 33mV$

ISEL-0	ISEL-1	TOT RES	Ieff (mA)	Ieff (mA) misurata
L	L	25000	4.72	4.25
L	H	18300	6.44	5.93
H	L	11200	10.53	9.96
H	H	4500	26.2	24.72

DANGER HIGH VOLTAGE

Spark Eroder Power Supply Revised: Tuesday, February 14, 2012  
 edm\_ps\_brd.dsn\EDM\_PS\_BRD\PCB Rev. 2.1 Revision:

LENS - Università di Firenze  
 Via N. Carrara, 1

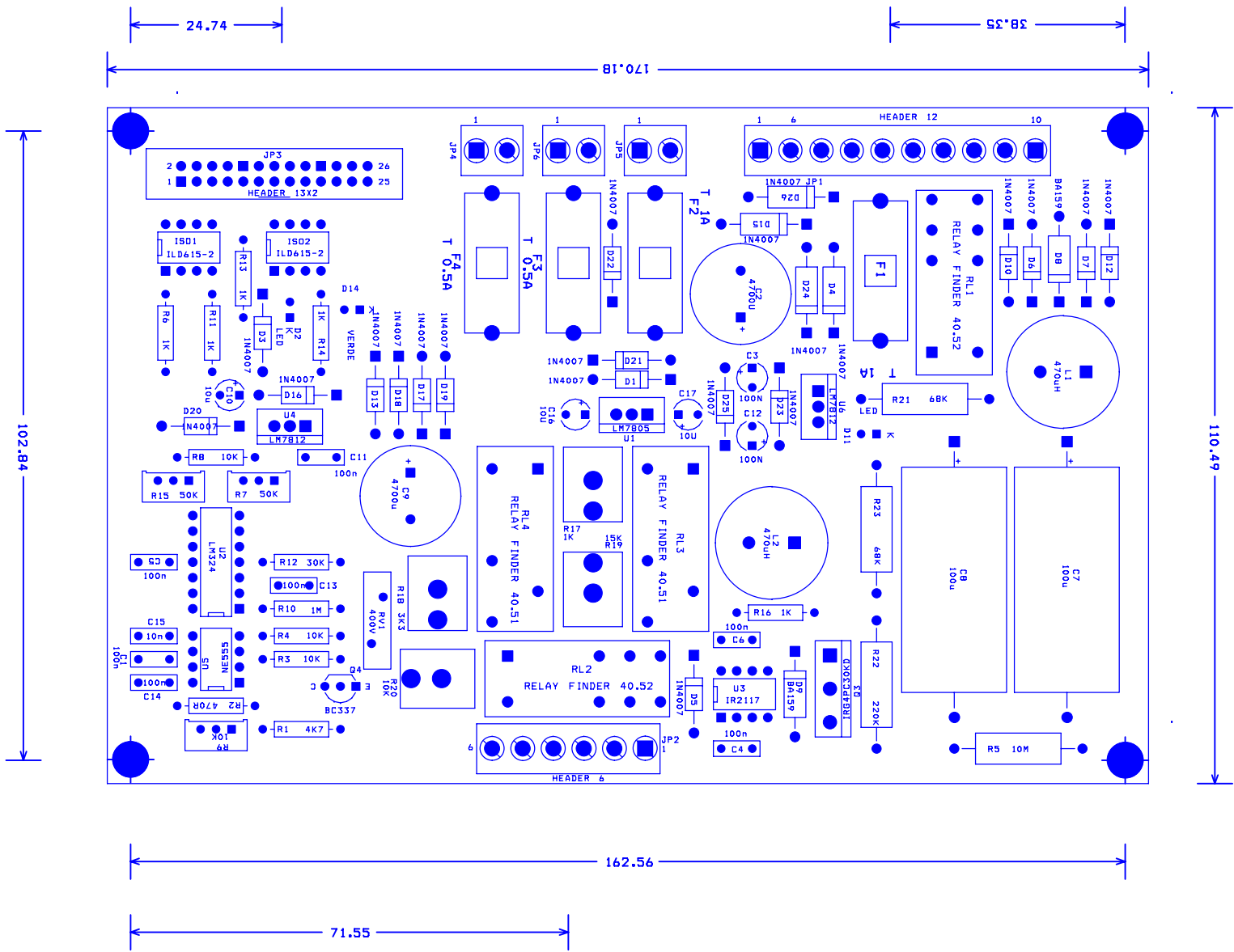
Bill Of Materials February 14,2012 15:03:01 Page1

Item	Qty.	Reference	Description Value	Supplier Ref
1	5	C1,C4,C5,C11,C14	Cond. Cer. 50V p5.08	100n Paoletti
2	2	C9,C2	Cond. Elet. Elettr. 25V Radial	4700u Paoletti
3	8	C3,C6,C10,C12,C16,C17,C18,C19	Cond. Elet. Tantallio 25V Radial	10u Paoletti
4	2	C8,C7	Cond. Elet. 450V Axial	100u RS 267-4940
5	1	C13	Cond. Cer. 50V p5.08	1u Paoletti
6	1	C15	Cond. Cer. 50V p5.08	10n Paoletti
7	17	D1,D3,D5,D6,D7,D10,D12,D13,D16,D17,D18,D19,D20,D21,D22,D23,D25	Diodo	1N4007 Paoletti
8	1	D2	Diodo LED 3mm	ROSSO Paoletti
9	6	D4,D8,D9,D15,D24,D26	Diodo	1N5408 Paoletti
10	2	D11,D14	Diodo LED 3mm	VERDE Paoletti
11	1	D27	Diodo Zener 10V	
12	2	F1,F2	Fusibile 5x20	T 1A Paoletti
13	2	F4,F3	Fusibile 5x20	T 0.5A Paoletti
14	2	ISO1,ISO2	Optocoupler	CNY74-2H
15	1	JP1	Morsettiera da PCB angolo retto P.5mm	10 poli RS 361-7752
16	1	JP2	Morsettiera da PCB angolo retto P.5mm	6 poli RS 361-7702
17	1	JP3	Connettore per Flat Cable M da PCB Dritto	13 poli x 2file RS 473-8298
18	3	JP4,JP5,JP6	Morsettiera da PCB angolo retto P.5mm	2 poli
19	1	L1	Induttanza	100uH RS 233-5421
20	1	L2	Induttanza	SHORT
21	4	MT1,MT2,MT3,MT4	Hole 3.5mm	
22	1	Q3	Transistor IGBT	IRG4PC30KD RS 395-7842
23	1	Q4	Transistor	BC337 Paoletti
24	2	RL2,RL1	Relay	RELAY Finder 40.52 Paoletti
25	2	RL4,RL3	Relay	RELAY Finder 40.51 Paoletti
26	1	RV1	Varistore 400V	S14K275 RS 289-7092
27	1	R1	Resistenza 0.25W 1%	8K2 Paoletti
28	1	R2	Resistenza 0.25W 1%	3K9 Paoletti
29	1	R3	Resistenza 0.25W 1%	10K Paoletti
30	5	R4,R6,R11,R13,R14	Resistenza 0.25W 1%	1K Paoletti
31	1	R7	Trimmer Multigiri Vert.	50K Paoletti
32	1	R8	Resistenza 0.25W 1%	100R Paoletti
33	2	R15,R9	Trimmer Multigiri Vert.	10K Paoletti

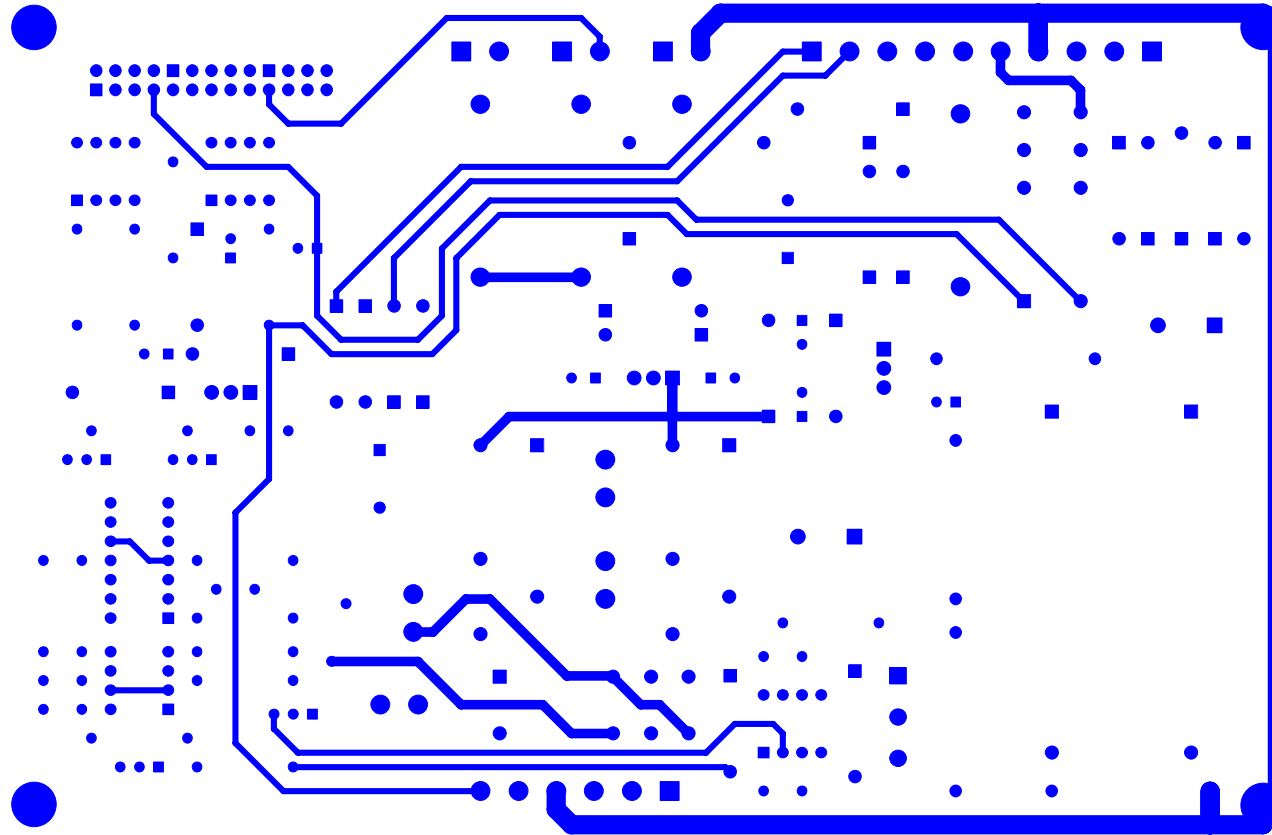
34	1	R10	Resistenza 0.25W 1%	430K	Paoletti
35	1	R12	Resistenza 0.25W 1%	15K	Paoletti
36	1	R16	Resistenza 0.25W 1%	10R	Paoletti
37	1	R17	Resistenza 10W 5%	1K2	ADIMPEX PRM10 AR400212
38	1	R18	Resistenza 10W 5%	3K3	ADIMPEX PRM10 AR400233
39	1	R19	Resistenza 10W 5%	15K	ADIMPEX PRM10 AR400315
40	1	R20	Resistenza 10W 5%	10K	ADIMPEX PRM10 AR400310
41	2	R23,R21	Resistenza 3W 5%	68K	RS 214-3014
42	1	R22	Resistenza 3W 5%	220K	RS 214-3070
43	1	U1	Regolatore	LM7805	Paoletti
44	1	U2	Circuito Integrato 14PIN DIL	LM319	Paoletti
45	1	U3	Circuito Integrato 8PIN DIL	IR2117BP	RS 540-9711
46	2	U4,U6	Regolatore	LM7812	Paoletti
47	1	U5	Circuito Integrato 8PIN DIL	NE555	Paoletti

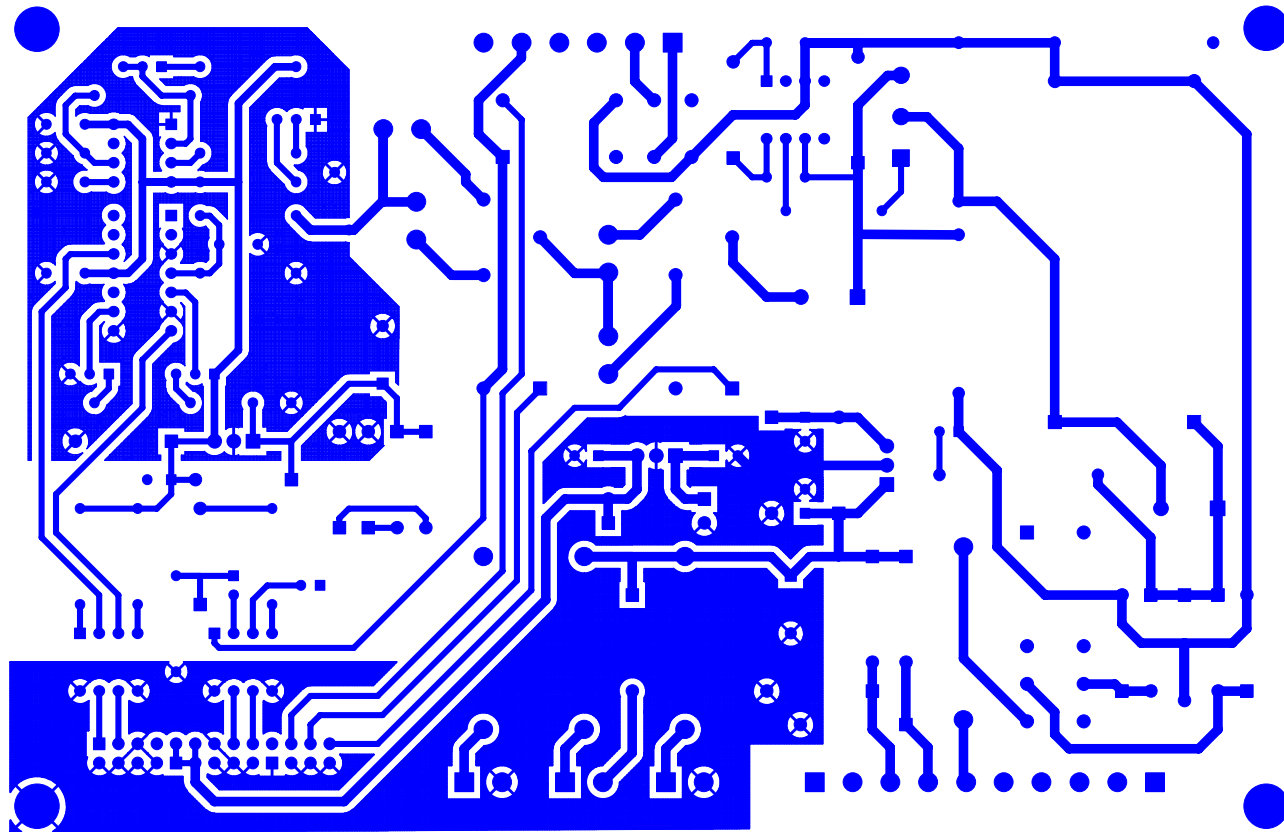
Modifiche da apportare al circuito stampato EDM-PS-REV2.PCB

- 1) Aggiungere un diodo zener da 10V in parallelo a R12 con l'anodo verso massa
- 2) Sollevare il PIN 2 di U5 dallo zoccolo e collegarlo al PIN 6 con un filo da wire wrap
- 3) Scollegare l'anodo di D5 (S4-1) dal PCB e collegarlo con un filo volante al PIN 8 di JP1 sul bottom del PCB
- 4) Collegare con un filo volante il PIN 6 di U3 (S4-2) al PIN 9 di JP1 sul bottom del PCB
- 5) Sostituire R10 con una resistenza da 1M2
- 6) Aggiungere un condensatore tag da almeno 10uF in parallelo a C6 col positivo collegato al PIN 8 di U3
- 7) Aggiungere 2 condensatori ceramici da 1uF fra i PIN 5 e 6 e i PIN 9 10 di U2

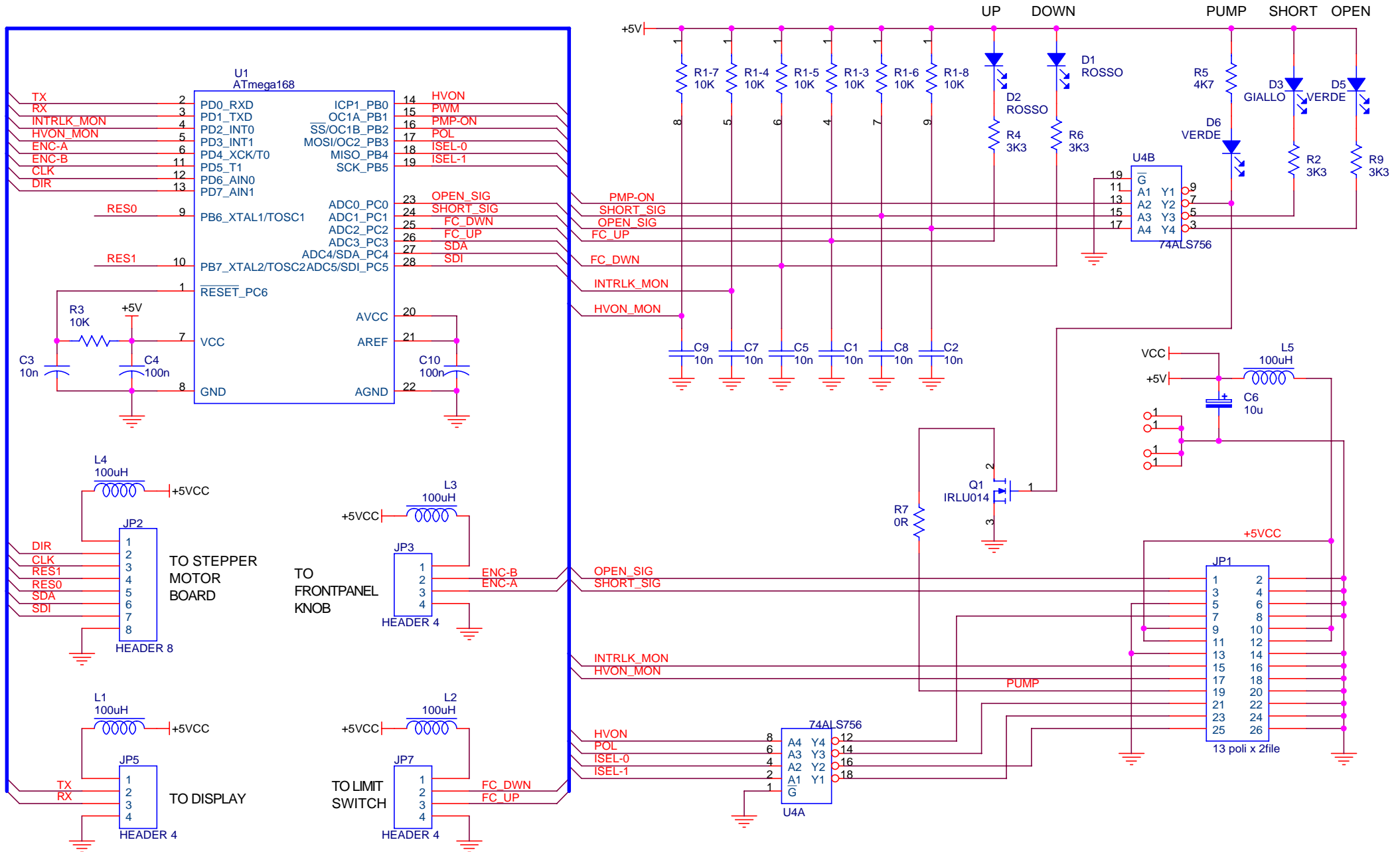












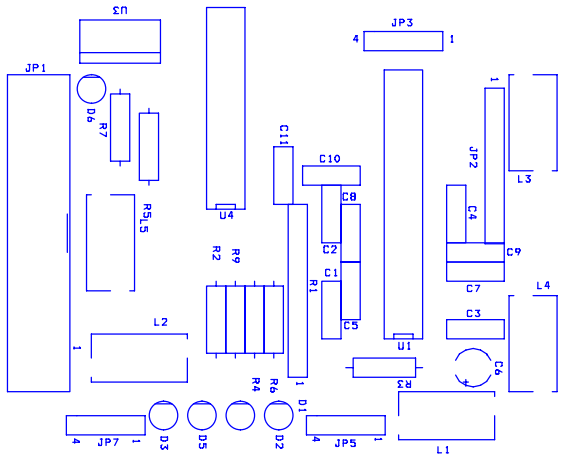
Title		
Interface Board		
Size	Document Number	Rev
A4	edm_power_supply_rev1.dsn/Interface Board/INTRFC.BRD	00
Date:	Tuesday, September 17, 2013	Sheet 0 of 5

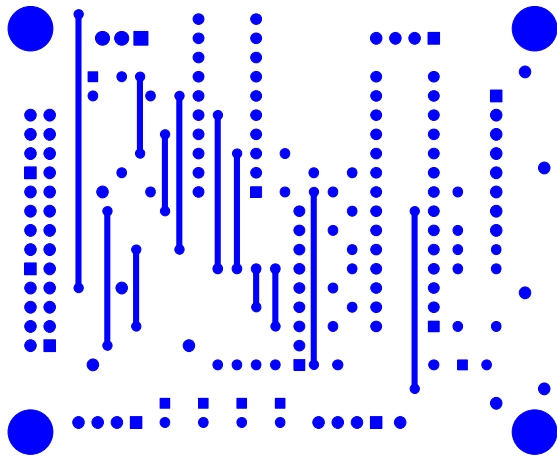
Interface Board Revised: Wednesday, September 18, 2013  
 edm\_power\_supply\_rev1.dsn/Interface Board/INTRFC.BRD

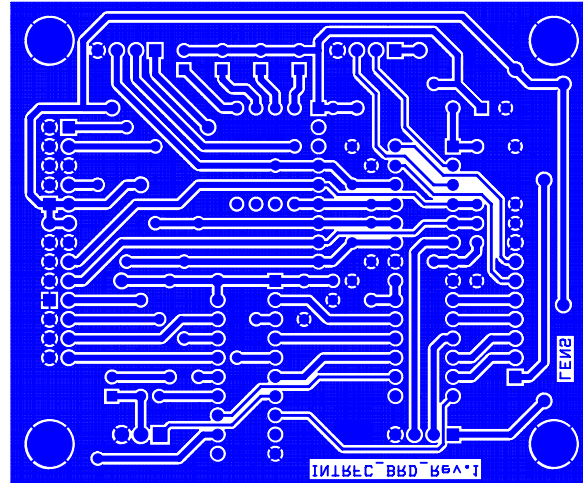
Revision: 00

Bill Of Materials      September 18,2013      10:46:44    Page1

Item	Q.ty	Reference	Description	Value	Supplier Ref
1	7	C1,C2,C3,C5,C7,C8,C9	Cond. Cer. 50V P5.08	10n	
2	2	C4,C10	Cond. Cer. 50V P5.08	100n	
3	1	C6	Cond. Elet. Tant. 25V Radial	10u	
4	2	D1,D2	Diodo LED 3mm	ROSSO	
5	1	D3	Diodo LED 3mm	GIALLO	
6	2	D5,D6	Diodo LED 3mm	VERDE	
7	1	JP1	Connettore x Flat Cable M PCB 90	2x13 poli	
8	1	JP2	Connettore M dirtto P2.54	HEADER 8	
9	3	JP3,JP5,JP7	Connettore M dirtto P2.54	HEADER 4	
10	5	L1,L2,L3,L4,L5	Induttanza	100uH	
11	1	Q1	N Mosfet	IRLU014	
12	1	R1	Res. SIL 9PIN	10K	
13	4	R2,R4,R6,R9	Res. 0.25W 1%	3K3	
14	1	R3	Res. 0.25W 1%	10K	
15	1	R5	Res. 0.25W 1%	4K7	
16	1	R7	Res. 0.25W 1%	0R	
17	1	U1	Circuito Integrato DIL	ATmega328	
18	1	U4	Circuito Integrato DIL	74ALS756	









MODE SET	
JP3	COM
OPEN	TTL
CLOSE	RS232

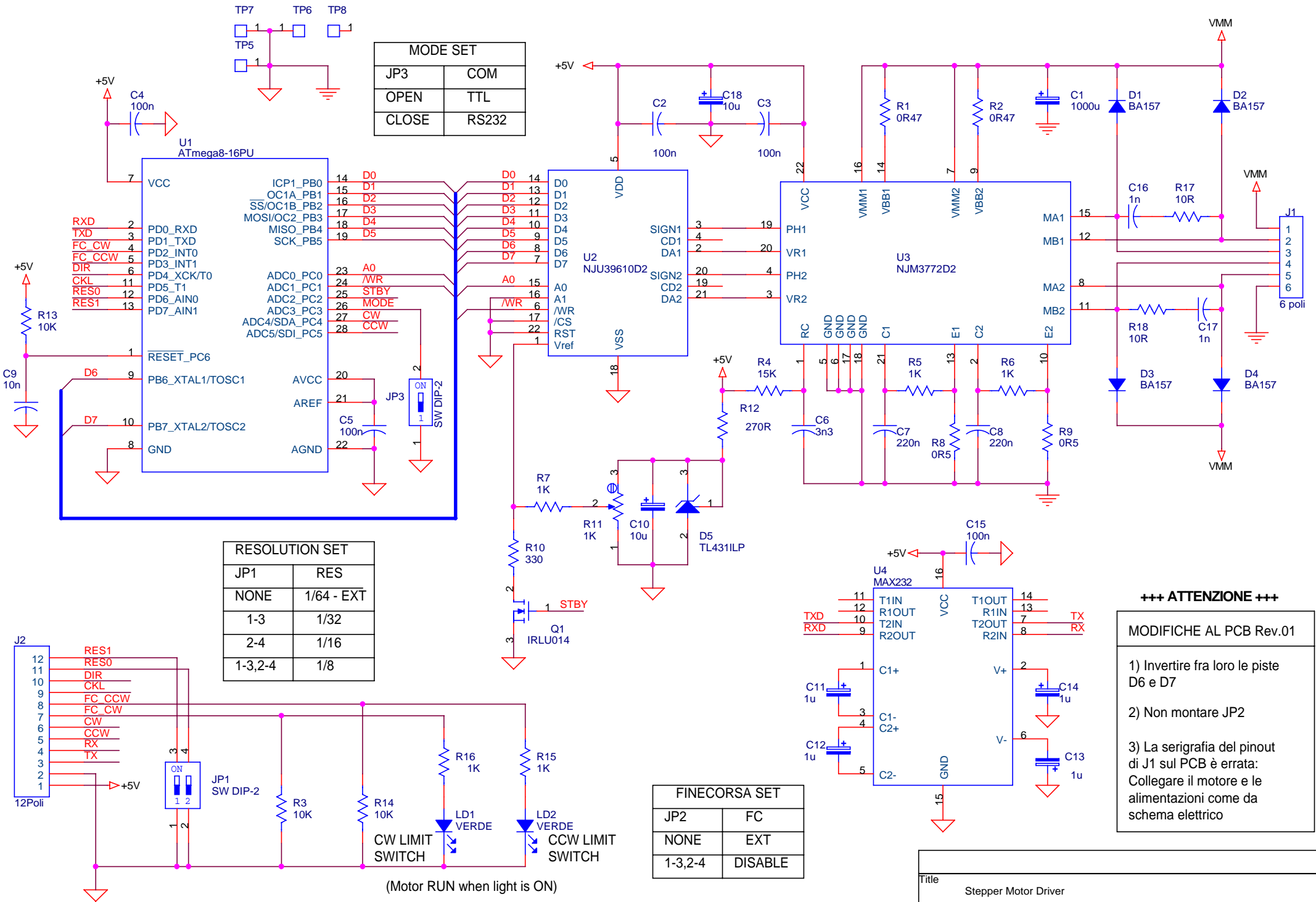
RESOLUTION SET	
JP1	RES
NONE	1/64 - EXT
1-3	1/32
2-4	1/16
1-3,2-4	1/8

FINECORSIA SET	
JP2	FC
NONE	EXT
1-3,2-4	DISABLE

**+++ ATTENZIONE +++**

**MODIFICHE AL PCB Rev.01**

- 1) Invertire fra loro le piste D6 e D7
- 2) Non montare JP2
- 3) La serigrafia del pinout di J1 sul PCB è errata: Collegare il motore e le alimentazioni come da schema elettrico



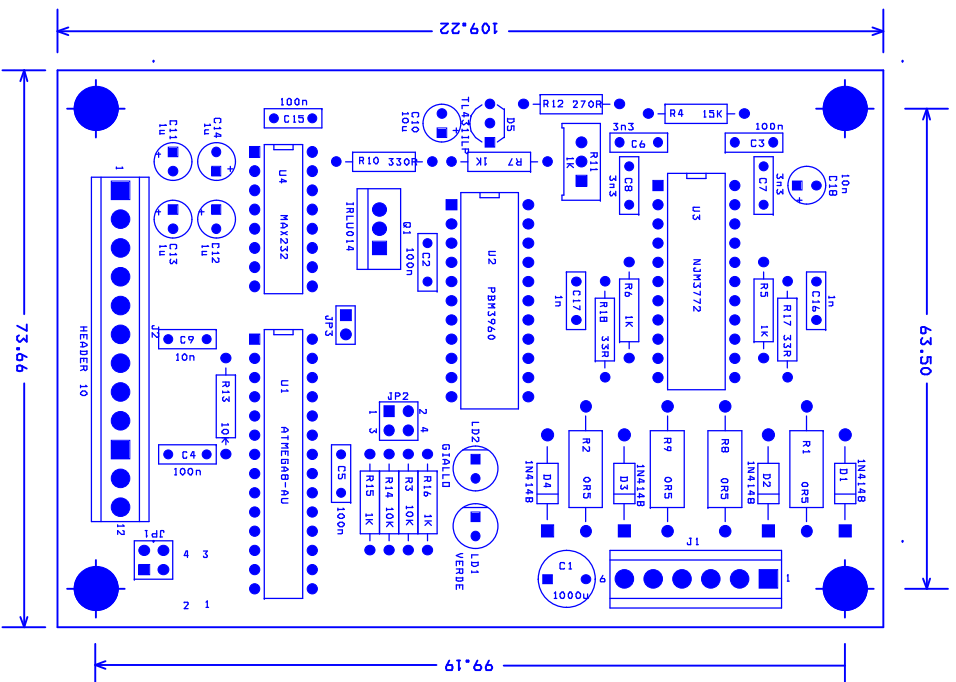
(Motor RUN when light is ON)

Title		
Stepper Motor Driver		
Size	Document Number	Rev
A4	Microstepping Motor Driver/REV011	1,2
Date:	Tuesday, September 17, 2013	Sheet 1 of 1

Stepper Motor Driver Revised: Friday, November 27, 2009  
microstepping\_01.dsn\board Revision: 1,2

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Q.ty	Reference	Description	Value	Supplier Ref
1	1	C1	Cond. Elettr. 50V Vert.p5.08	1000u
2	5	C2,C3,C4,C5,C15	Cond. Cer. 50V p5.08	100n
3	1	C6	Cond. Cer. 50V p5.08	3n3
4	2	C7,C8	Cond. Cer. 50V p5.08	220n
5	1	C9	Cond. Cer. 50V p5.08	10n
6	2	C18,C10	Cond. Tantadio 25V p5.08	10u
7	4	C11,C12,C13,C14	Cond. Tantadio 25V p5.08	1u
8	2	C17,C16	Cond. Cer. 50V p5.08	1n
9	4	D1,D2,D3,D4	Diodo Silicio	BA157
10	1	D5	Voltage Reference	TL431ILP RS 810-289
11	2	JP1	Fila aghi DOPPIA p.5.08	2 poli
12	1	JP3	Fila aghi p.5.08	2 poli
13	1	J1	Morsettiera da PCB p3.81mm	6 poli RS 220-4377 (5 pz)
14	1	J2	Morsettiera da PCB p3.81mm	12Poli 2 x RS 220-4377 (5 pz)
15	2	LD1,LD2	Diodo LED 3mm	VERDE
16	1	Q1	Mosfet N	IRLU014NPBF Farnell 8660220
17	4	R1,R2,R8,R9	Resistenza 2 W 5%	0R47 Farnell 1219195 (5 pz)
18	3	R3,R13,R14	Resistenza 0.25W 1%	10K
19	1	R4	Resistenza 0.25W 1%	15K
20	5	R5,R6,R7,R15,R16	Resistenza 0.25W 1%	1K
21	1	R10	Resistenza 0.25W 1%	330R
22	1	R11	Trimmer Multigiri Vert.64W	1K
23	1	R12	Resistenza 0.25W 1%	270R
24	2	R17,R18	Resistenza 1 W 5%	10R
25	1	U1	Circuito Integrato DIL	ATmega8-16PU RS 628-1788
26	1	U2	Circuito Integrato DIL	NJU39610D2 RS 657-189
27	1	U3	Circuito Integrato DIL	NJM3772D2 RS 215-9491
28	1	U4	Circuito Integrato DIL	MAX232 RS 540-3268
29	1		Zoccolo per IC	28pin w.300mils
30	1		Zoccolo per IC	14pin w.300mils
31	2		Zoccolo per IC	22pin w.400mils



MicroStep Motor Driver Rev. 1.1

