

Magnet Control Board Parts List

Schematic: v1.2 10/5/09

Board: v1.2 10/5/09

Resistors

Part 1 of 6

Quan	Value	*Tol	Note	Package	Part numbers	Comment
1	150Ω	10%	may be thick film	0805	R4	
4	330Ω	10%	may be thick film	0805	R1 R6 R7 R9	
1	470Ω	10%	may be thick film	0805	R12	
3	10k	10%	may be thick film	0805	R2 R3 R13	
3	100k	10%	may be thick film	0805	R8 R10 R11	
1	1.0M	10%	may be thick film	0805	R5	
1	4.7M	10%	may be thick film	0805	R14	

* If Tol = 10%, then any standard 5% or 1% value within 10% of the value shown may be substituted

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Capacitors

Part 2 of 6

Quan	Value	Type	Tol	V (min)	Package	Part numbers	Comment
10	0.1u	X7R	20%	10V	0805	All except the two listed below	
2	22u	*X5R	20%	10V	B/3528/3216/1210/1206	C4 C7	

* Low-ESR tantalum may be substituted. See Package column for acceptable sizes.

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Diodes and Transistor

Part 3 of 6

Quan	Type	Description	Package	Catalog Number	Vendor	Part numbers	Comment
2	1N4148W	Small signal	SOD-323	1N4148WXTMSCT-ND	DigiKey	D2 D3	
1	Avalanche	5.0V TVS Unipolar 400W	DO-214AC	SMAJ5.0ALFCT-ND	DigiKey	D1	
4	LED	CML 5310F1 (Red, 10mA)	T1 Vert Thru	L20261-ND	DigiKey	LED1 LED2 LED3 LED4	
1	PZT2222A	NPN Gen Purpose Switch	SOT-223	PZT2222ACT-ND	DigiKey	Q1	May have mark: P1F

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Integrated Circuits

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Quan	Type	Mark†	Description	Package	Catalog Number	Vendor	Comment
1	ADM707ARZ		Supervisory Circuit	SOIC-8	ADM707ARZ-ND	DigiKey	U8
1	LS7184		Quadrature Clock Converter	SOIC-8	LS7184-SOIC	US Digital	U4
3	MAX6817	AAAU	Dual CMOS Switch Debouncer	SOT23-6	MAX6817EUT+TCT-ND	DigiKey	U1 U3 U6
1	TLC555		CMOS Timer	SOIC-8	296-10341-1-ND	DigiKey	U7
1	74AC00		Quad 2-input Nand	SOIC-14	74AC00SC-ND	DigiKey	U14
1	74AC11		Triple 3-input And	SOIC-14	74AC11SC-ND	DigiKey	U9
2	74AC112		Dual JK Flip-flop	SOIC-16	296-4224-5-ND	DigiKey	U10 U11
2	74AC157		Quad 2:1 Multiplexer	SOIC-16	74AC157SC-ND	DigiKey	U12 U13
1	74LVC2G00	C00__	Dual 2-input Nand	SSOP-8 (SM8)	296-13257-1-ND	DigiKey	U5
1	74LVC2G86	C86__	Dual 2-input Xor	SSOP-8 (SM8)	296-13274-1-ND	DigiKey	U2

† Identifying marking on the IC package. An underscore ("_") denotes an additional character which varies in value

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Connectors

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Part	Manufacturer Description	Manufacturer	Catalog Number	Vendor	Comment
J1	1x2 Male Hdr, Vert Thru, 0.1", 0.230"-0.240" contact len				
J2	Fem Thru-hole, 2 pos, Low profile, P/N 44812-0020	Molex/Waldom	WM18601-ND	DigiKey	
J3	Fem Thru-hole, 10 pos, Low profile, P/N 44812-0028	Molex/Waldom	WM18609-ND	DigiKey	
J4	Fem Thru-hole, 4 pos, Low profile, P/N 44812-0022	Molex/Waldom	WM18603-ND	DigiKey	
J5	Fem Thru-hole, 2 pos, Low profile, P/N 44812-0020	Molex/Waldom	WM18601-ND	DigiKey	
J6	Fem Thru-hole, 10 pos, Low profile, P/N 44812-0028	Molex/Waldom	WM18609-ND	DigiKey	
J7	Fem Thru-hole, 4 pos, Low profile, P/N 44812-0022	Molex/Waldom	WM18603-ND	DigiKey	
J8	2x8 Male Hdr, Vert Thru, 0.1", 0.230"-0.240" contact len				
J9	1x8 Male Hdr, Vert Thru, 0.1", 0.230"-0.240" contact len				

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Controls

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Part	Type	Description	Package	Catalog Number	Vendor	Comment
SW1	C&K 7101K2CQE	Locking SPDT, On-On, PC Pin	Mini Panel	CKN1216-ND	DigiKey	
SW2	C&K 7105SYCQE	SPDT, Mom-Off-Mom, PC Pin	Mini Panel	CKN1007-ND	DigiKey	
SW3	Grayhill 62P22-L6	Opt Encoder w/button	PC Mount	GH7296-ND	DigiKey	
SW4	C&K KSL0M312LFT	PB SPST-NO, PC Thru Vert	PC Mount	401-1831-ND	DigiKey	
SW5	C&K 8125SDCBE	PB SPDT, PC Pin	Mini Panel	CKN1632-ND	DigiKey	
SW6	C&K 8125SDCBE	PB SPDT, PC Pin	Mini Panel	CKN1632-ND	DigiKey	

Other components

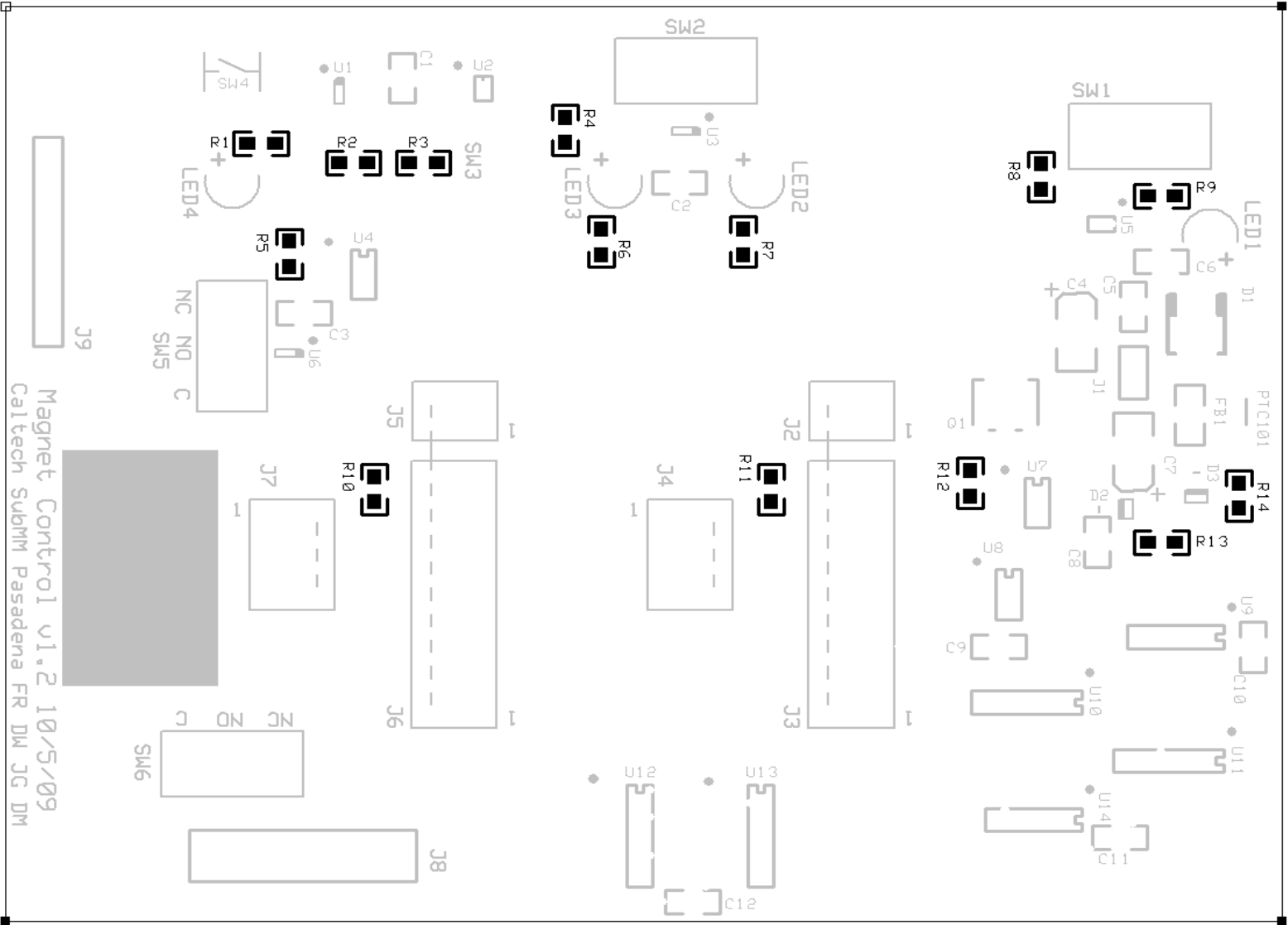
Part	Type	Description	Package	Catalog Number	Vendor	Comment
FB1	Ferrite Bead	120Ω Murata BLM31PG121SN1	1206	490-1056-1-ND	DigiKey	
PTC101	Resettable Fuse	60V 0.4A 60R040 Littelfuse	Radial 0.2"	576-060R0040U	Mouser	

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Resistor Placement



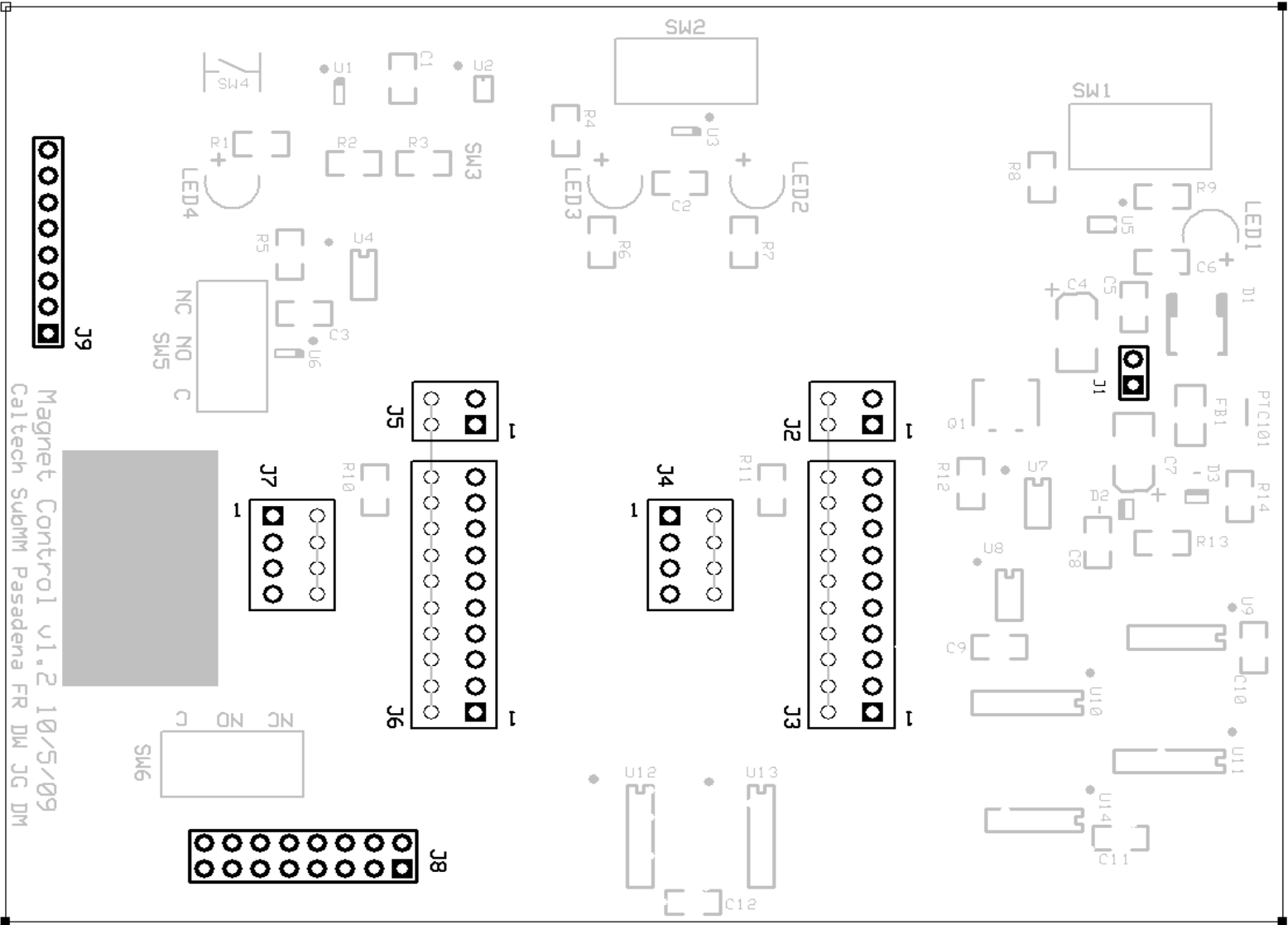
Magnet Control v1.2 10/5/09
Caltech SubMM Pasadena FR DM JG DM

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Connector Placement



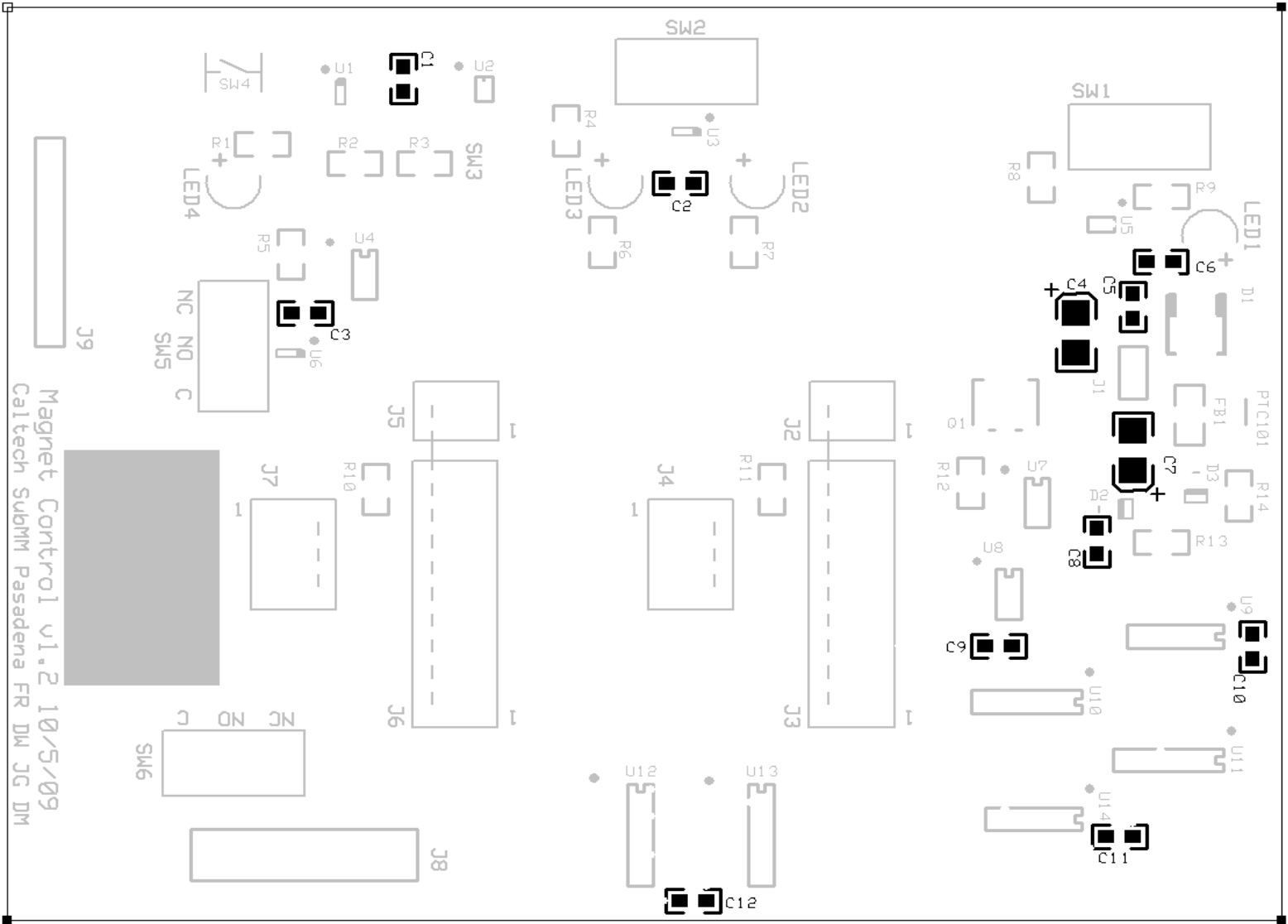
Magnet Control v1.2 10/5/09
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Capacitor Placement

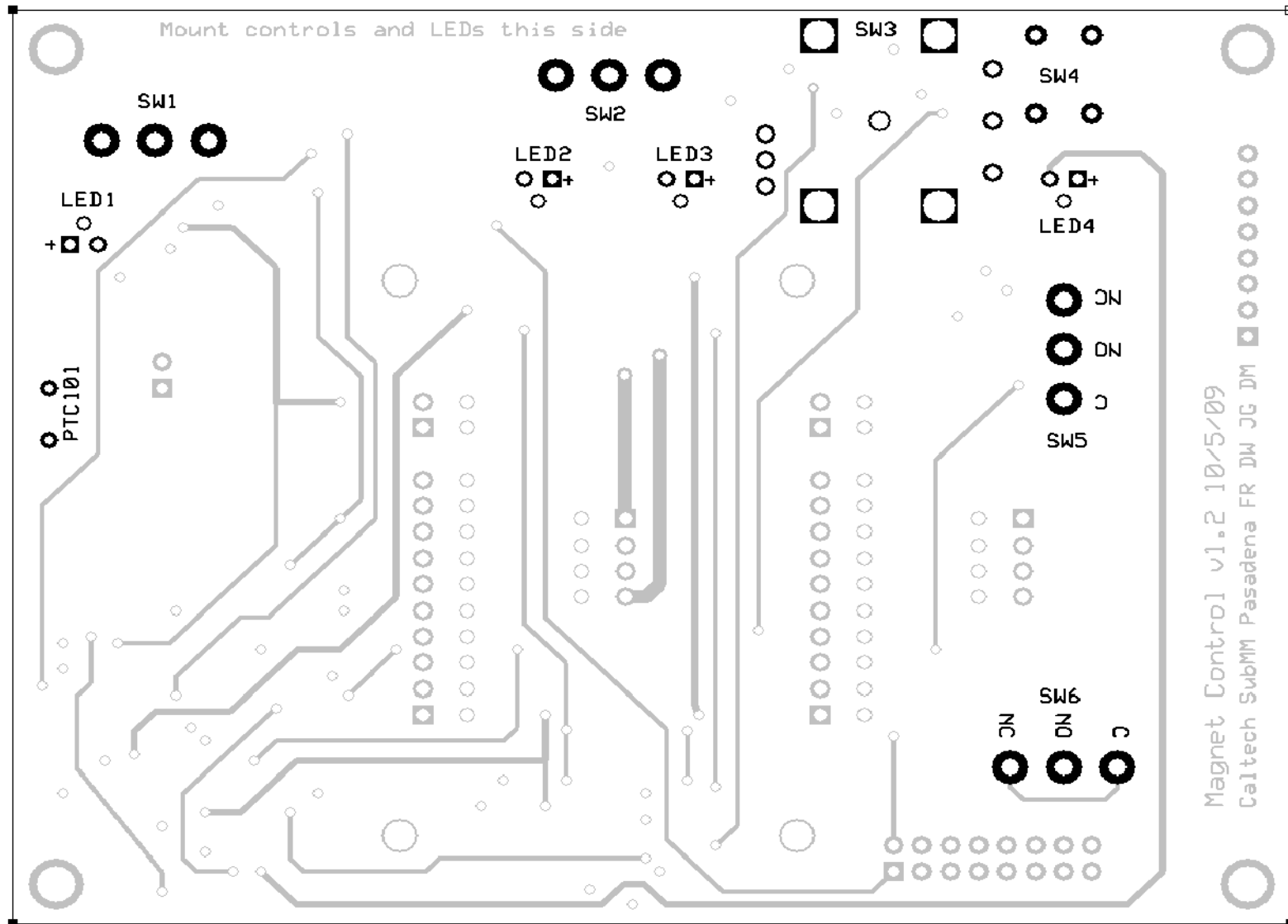


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Controls, LEDs, and PTC Placement (mount to backside of board, which is shown here)



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IC, Diode, Transistor, Ferrite Bead Placement

