

## Magnet Main Board Parts List v1.2

Schematic: v1.2 11/2/11

Board: v1.0 6/6/09

### Resistors

Part 1 of 6

Quan	Value	*Tol	Note	Package	Part numbers		Comment
2	5.76Ω	1%	1/4W	1206	R3	R5	changed from schematic v1.1
4	10.0Ω	1%	1/4W	1206	R31	R32 R36 R37	
14	3.3k	5%	1/4W, thick-film	1206	R7	R27 R42 R43 R44 R12 R13 R14 R15 R16 R17 R18 R21 R22	
2	34.8Ω	1%	thin-film (metal-film)	0805	R4	R6	changed from schematic v1.1
2	1.00k	1%	thin-film (metal-film)	0805	R46	R60	
1	1.50k	1%	thin-film (metal-film)	0805	R2		
2	1.5k	5%	thin-film (metal-film)	0805	R51	R57	
1	4.70k	1%	thin-film (metal-film)	0805	R1		
1	4.7k	10%	may be thick film	0805	R74		
2	0		short	0805	R10	R40	changed from schematic v1.0
10	8.25k	1%	thin-film (metal-film)	0805	R28	R29 R33 R34 R45 R49 R50 R55 R56 R59	
6	15k	10%	thin-film (metal-film)	0805	R8	R9 R30 R35 R38 R39	
12	15k	10%	may be thick film	0805	R61	R62 R63 R64 R65 R66 R67 R68 R69 R70 R71 R72	
4	22k	10%	may be thick film	0805	R20	R25 R26 R73	
4	24k	5%	thin-film (metal-film)	0805	R47	R48 R53 R54	
3	33k	10%	may be thick film	0805	R19	R23 R24	
2	56k	5%	thin-film (metal-film)	0805	R11	R41	
2	82k	5%	thin-film (metal-film)	0805	R52	R58	

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

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### Capacitors

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Quan	Value	Type	Tol	V (min)	Package	Part numbers								Comment
7	1000p	X7R	20%	16V	0805	C28	C29	C30	C31	C38	C39	C40		
2	0.1u	X7R	20%	16V	0805	C10	C15							changed from schematic v1.0
8	0.01u	X7R	20%	16V	0805	C18	C27	C32	C33	C41	C42	C43	C44	
2	0.1u	X7R	20%	25V	0805	C3	C4							
14	0.1u	X7R	20%	16V	0805	C1	C2	C8	C9	C11	C12	C13	C14	
						C16	C17	C20	C22	C24	C25			
4	0.47u	X5R	20%	10V	0805	C21	C23	C35	C37					
2	10u	*X5R	20%	10V	B/3528/3216/1210/1206	C34	C36							
2	22u	*X5R	20%	16V	B/3528/3216/1210/1206	C19	C26							
1	22u	*X5R	20%	10V	B/3528/3216/1210/1206	C6								
2	68u	Tant	20%	25V	D/7343	C5	C7							

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

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### Diodes

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Quan	Type	Description	Package	Catalog Number	Vendor	Part numbers	Comment
16	1N4148W	Small signal	SOD-323	1N4148WXTSMSCT-ND	DigiKey	D4 D5 D6 D7 D9 D10 D13 D14 D16 D17 D18 D19 D20 D21 D22 D23	Marking: T4
1	Avalanche	5.0V TVS Unipolar 400W	DO-214AC	SMAJ5.0ALFCT-ND	DigiKey	D3	Marking: AE
2	Avalanche	16V TVS Unipolar 400W	DO-214AC	SMAJ16ALFCT-ND	DigiKey	D1 D2	Marking: BP
4	Avalanche	12V TVS Bipolar 400W	DO-214AC	SMAJ12CALFCT-ND	DigiKey	D8 D11 D12 D15	Marking: XE

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### Integrated Circuits

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Quan	Type	Mark†	Description	Package	Catalog Number	Vendor	Comment			
3	74LVC1G19	CY_, C19_	1x1:2 Decoder/Demux	SOT23-6	296-16982-1-ND	DigiKey	U22	U23	U24	
4	74LVC2G14	C14_	Dual Inv. Schmitt Trigger	SOT23-6	296-13010-1-ND	DigiKey	U9	U16	U19	U21
2	AD620A		Instrumentation Amp	SOIC-8	AD620ARZ-ND	DigiKey	U2	U3		
3	ADA4000-2		Dual OpAmp	SOIC-8	ADA4000-2ARZ-ND	DigiKey	U1	U5	U6	
2	ADR421	R5A, R06	Voltage Reference 2.5V	MSOP-8	ADR421ARM-ND	DigiKey	U12	U17		
4	LT1010CT		Buffer Amp, 150mA	TO-220-5	LT1010CT#PBF-ND	DigiKey	U101	U102	U103	U104
1	LT1962EMS8	LTML††	Regulator, Pos, Adj, 0.3A	MSOP-8	LT1962EMS8#PBF-ND	DigiKey	U7			
1	LT1963AET		Regulator, Pos, Adj, 1.5A	TO-220-5	LT1963AET-ND	DigiKey	U105			
1	LT1964ES5-BYP	LTVY	Regulator, Neg, Adj, 0.2A	SOT23-5	LT1964ES5-BYP #TRMPBFCT-ND	DigiKey	U4			
4	MOCD223-M		Dual Channel Optocoupler	SOIC-8	MOCD223M-ND	DigiKey	U8	U15	U18	U20
2	WMS7101050*		Dig pot, Buf, 256 taps, 50K	MSOP-8	WMS7101050M-ND	DigiKey	U10	U13		
2	WMS7171050**		Dig pot, Buf, 100 taps, 50K	MSOP-8	WMS7171050M-ND	DigiKey	U11	U14		

\* May substitute any resistance value from 10k (WMS7101010) to 100k (WMS7101100)

\*\* May substitute any resistance value from 10k (WMS7171010) to 100k (WMS7171100)

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

†† Alternate markings may be: LTPQ LTPS LTPR LTSZ LTTA LTPT

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### Connectors

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Part	Manufacturer Description	Manufacturer	Catalog Number	Vendor	Comment
J1	2x12 Male 0.1" C-Grid III Vert Thru Keyed 90130-1224	Waldom/Molex	WM8255-ND	Digikey	
	Mate for J1: 2x12 0.1" C-Grid III Housing 90142-0024	Waldom/Molex	WM8044-ND	Digikey	
J2	2x8 Fem 0.1" Header Vert Thru PPPC082LFBN-RC	Sullins	S7111-ND	DigiKey	
J3	1x2 Fem 0.1" Header Vert Thru PPPC021LFBN-RC	Sullins	S7035-ND	DigiKey	
J4	1x8 Fem 0.1" Header Vert Thru PPPC081LFBN-RC	Sullins	S7041-ND	DigiKey	
JP1	1x3 Male Hdr, R/A Thru, 0.1", 0.230"-0.244" contact len				
JP2	1x3 Male Hdr, R/A Thru, 0.1", 0.230"-0.244" contact len				
JP3	Provision for jumper - do not install				

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### Other components

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Part	Type	Description	Package	Catalog Number	Vendor	Comment
FB1	Ferrite Bead	120Ω Murata BLM31PG121SN1	1206	490-1056-1-ND	DigiKey	
FB2		"				
FB3		"				
FB4		"				
FB5		"				
FB6		"				
FB7		"				
FB8		"				
FB9		"				
FB10		"				
FB11		"				
FB12		"				
FB13		"				
FB14		"				
FB15		"				
FB16		"				
FB17		"				
FB18		"				
PTC101	Resettable Fuse	60V 0.65A 60R065 Littelfuse	Radial 0.2"	576-60R065XU	Mouser	
PTC102		"				

**Board: v1.0 6/6/09**

Magnet Main v1.0 6/6/09

IC

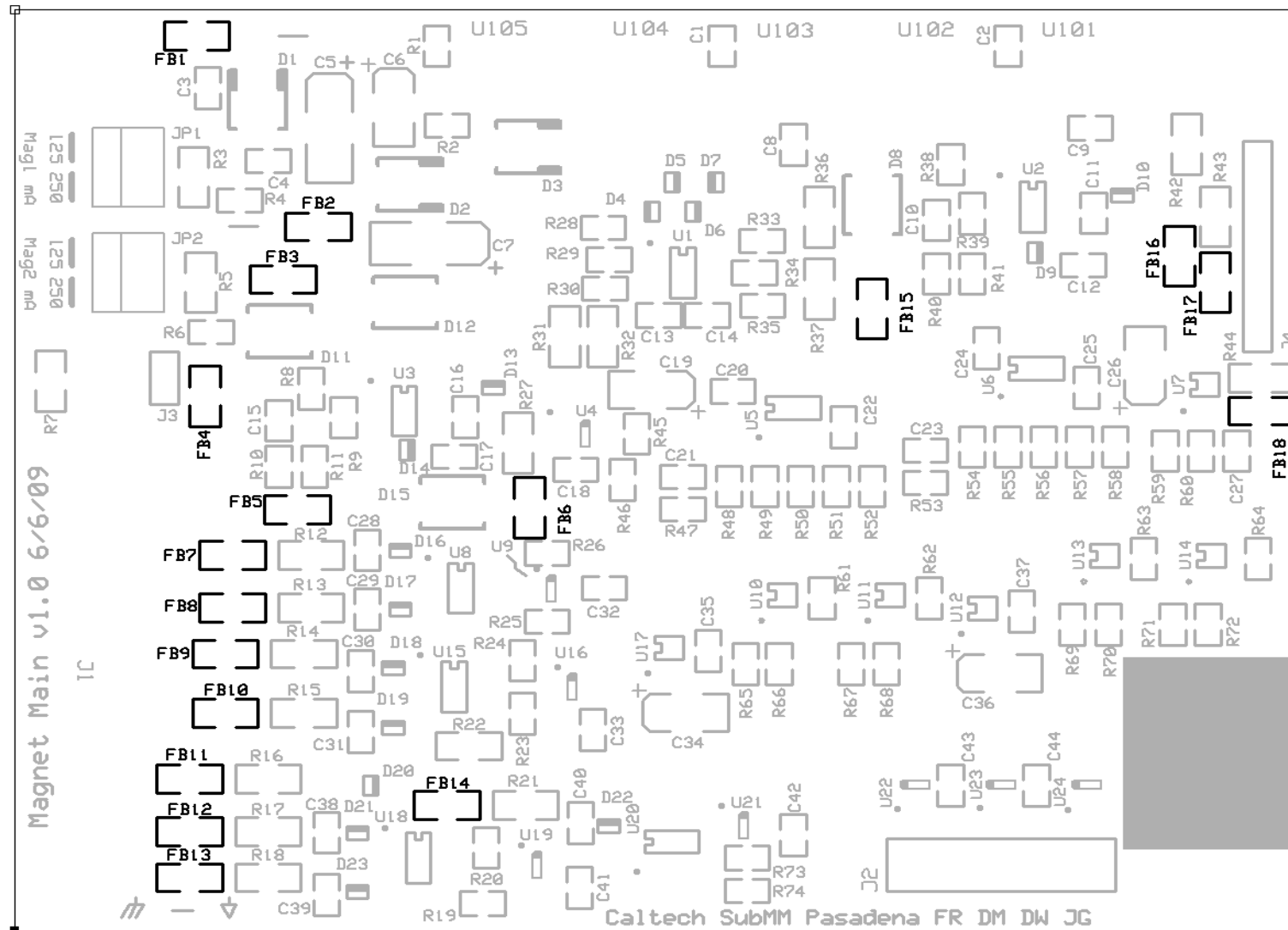
Caltech SubMM Pasadena FR DM DW JG

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## Ferrite Bead Placement



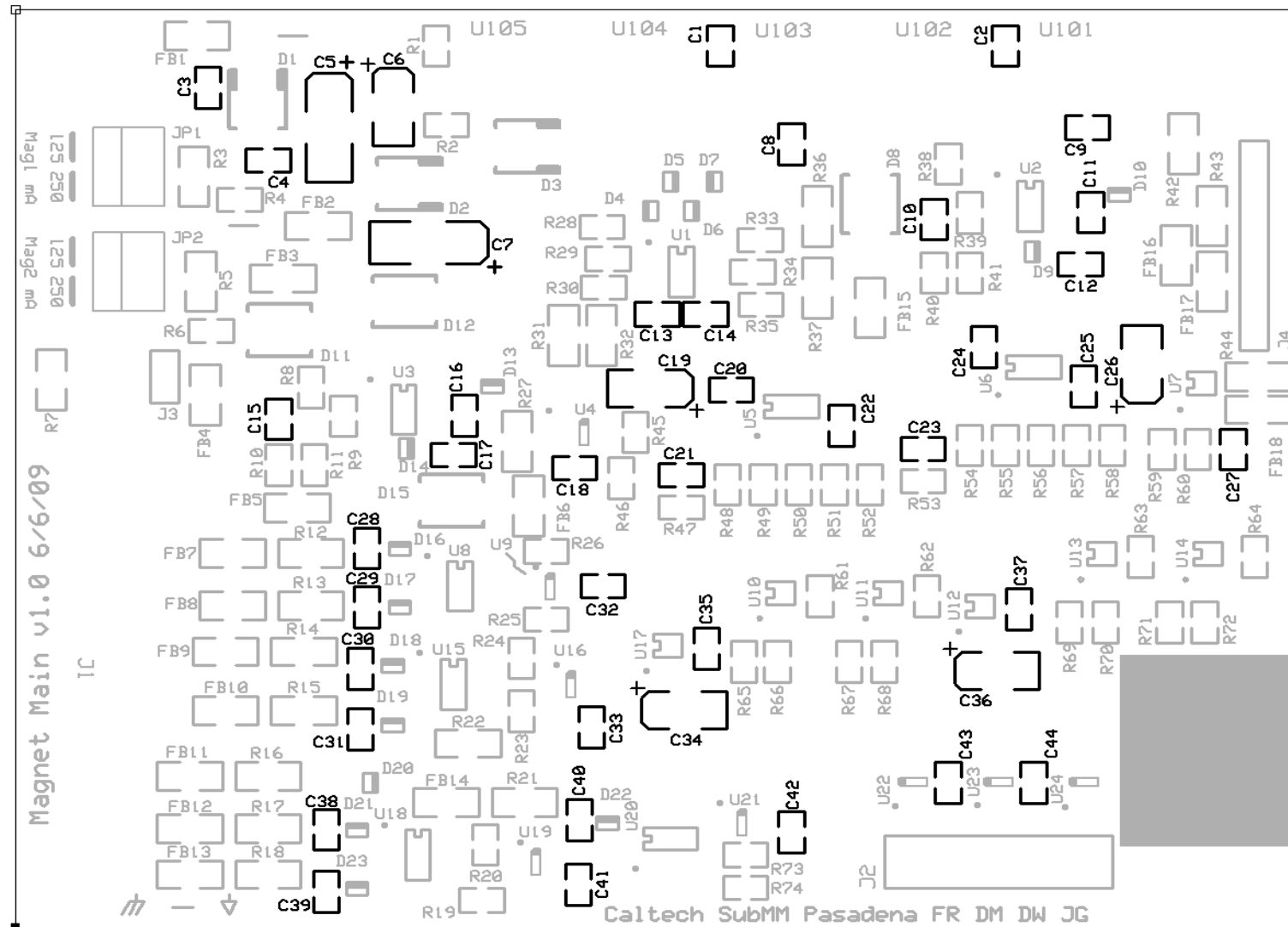


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## Capacitor Placement

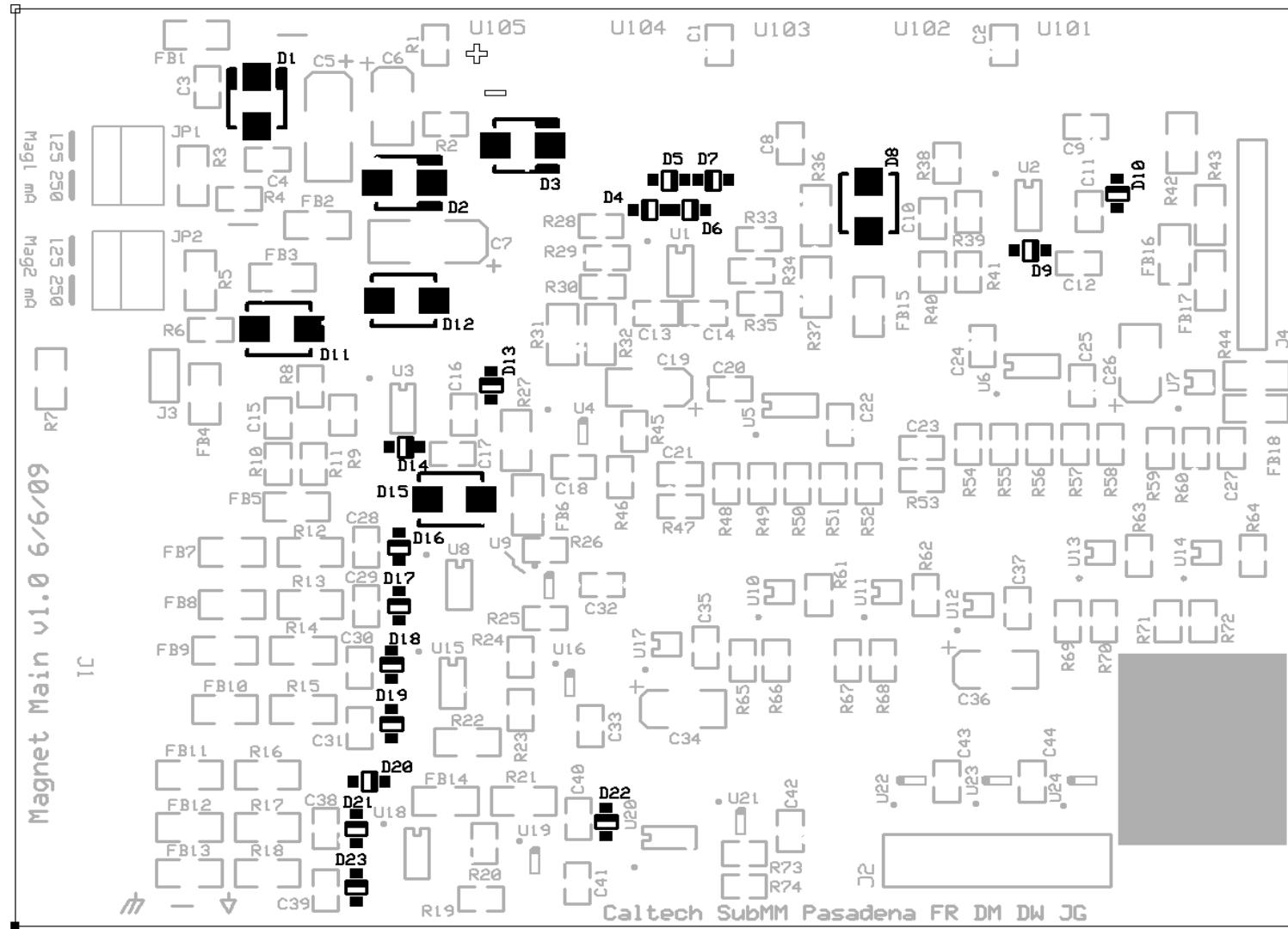


# Magnet Main Board Parts List v1.2

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## Diode Placement



**Board: v1.0 6/6/09**