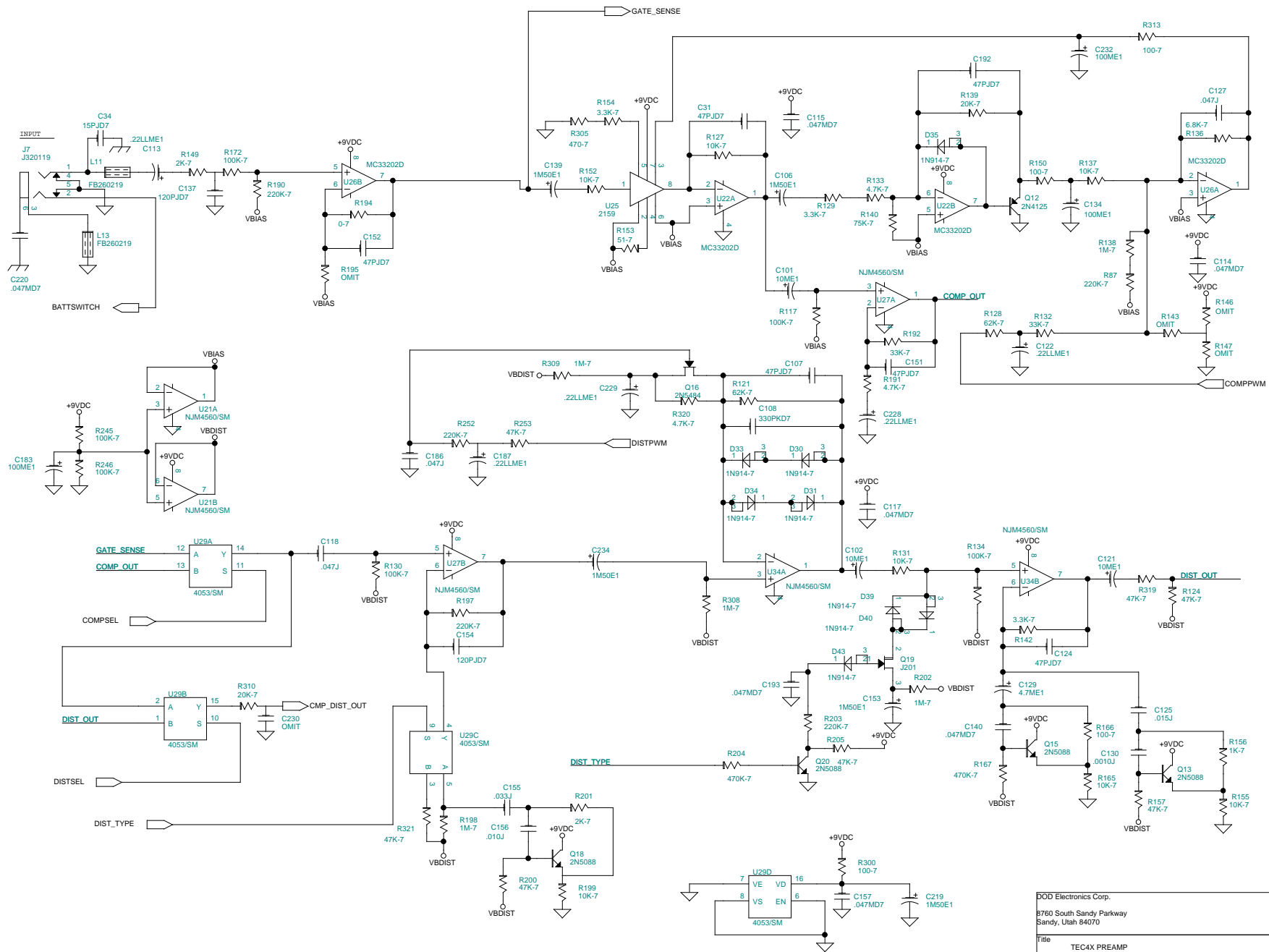


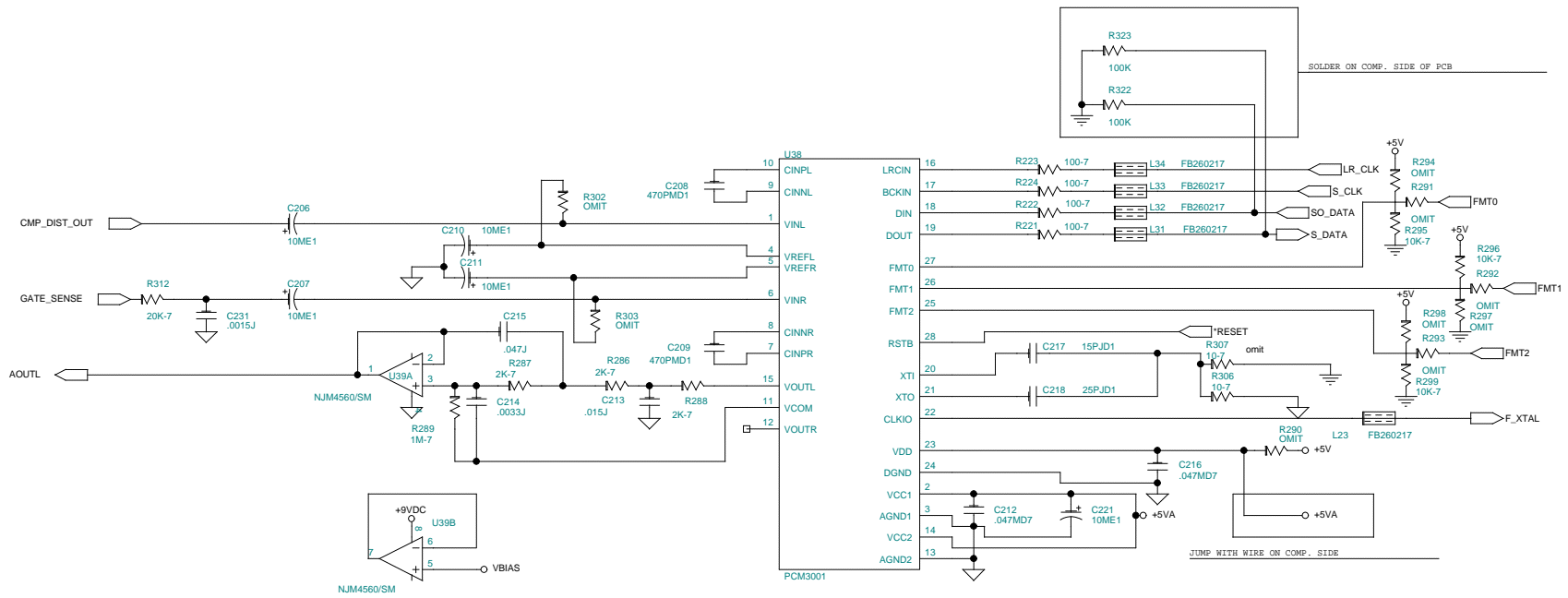
REV	DESCRIPTION	BY	ECN#	DATE	REVISION	DESCRIPTION	ECN#	DATE
A0	RELEASE TO PRODUCTION	JTL	1775	8.27.97				
A1	CHANGE R154 TO 2K TO FIX DISTORTION	JTL	1780	8.27.97				
A1	OMIT R304	JTL	1780	8.27.97				
A2	CHANGE R265 & R264 TO 50-1519;CHANGE R221-R224 TO 50-1515	JTL	1790	9.2.97				
A3	MOUNT R322 ON COMP.SIDE TO STOP NOISE WHEN SWITCHING PRESETS	JTL	1842	10.27.97				
A4	OMIT C181 AND MOUNT C235 ON COMP SIDE TO STOP MICROPHONICS	JTL	2055	12.10.97				
A5	CHANGE C183 TO 100UF	JTL	2055	2.27.98				
A5	CHANGE R310 TO 0 OHM	JTL	2055	2.27.98				
A5	OMIT C230	JTL	2055	2.27.98				
A5	CHANGE R194 TO 0 OHM	JTL	2055	2.27.98				
A5	CHANGE R264,R265,R266 AND R267 TO 33K	JTL	2055	2.27.98				
A5	CHANGE R286,R287,R288 FROM 15K TO 2K	JTL	2055	2.27.98				
A5	CHANGE C213 FROM .0015 TO .015	JTL	2055	2.27.98				
A5	CHANGE C214 FROM 330PF TO .0033	JTL	2055	2.27.98				
A5	CHANGE C215 FROM .0047 TO .047	JTL	2055	2.27.98				
A6	CHANGE R310 TO 20K	CJW	2085	3.10.98				
A7	REMOVE BATTERY CLIP	RR	2086	3.12.98				
A8	ADD D49 TO KEEP L26 AND L27 FROM BURNING UP	CJW	2121	3.26.98				
A9	CHANGE VALUES OF Q13,R156,R155,R157,C125,C130	JTL	2235	4.20.98				
A9	TIE U38.23 TO +5VA WITH JUMPER,OMIT R290	JTL	2235	4.20.98				
A9	ADD R323 TO COMP. SIDE OF PCB TO PREVENT POPPING	JTL	2235	4.20.98				
A9	CHANGE R192 FROM 10K TO 33K	JTL	2235	4.20.98				
A9	CHANGE R191 FROM 10K TO 4.7K	JTL	2235	4.20.98				
A9	CHANGE R154 FROM 2K TO 470 OHM,R305 FROM 10 OHM TO 3.3K OHM	JTL	2235	4.20.98				
A9	CHANGE R152 FROM 20K TO 10K	JTL	2235	4.20.98				
A9	CHANGE R127 FROM 220K TO 10K	JTL	2235	4.20.98				
A9	CHANGE R139 FROM 10K TO 20K	JTL	2235	4.20.98				
A9	OMIT THE FOLLOWING BT1,R315,C233,Q21,R316,R317,R318	JTL	2235	4.20.98				

LINK
5320A9_2.SCH
5320A9_3.SCH
5320A9_4.SCH
5320A9_5.SCH
5320A9_6.SCH
5320A9_7.SCH

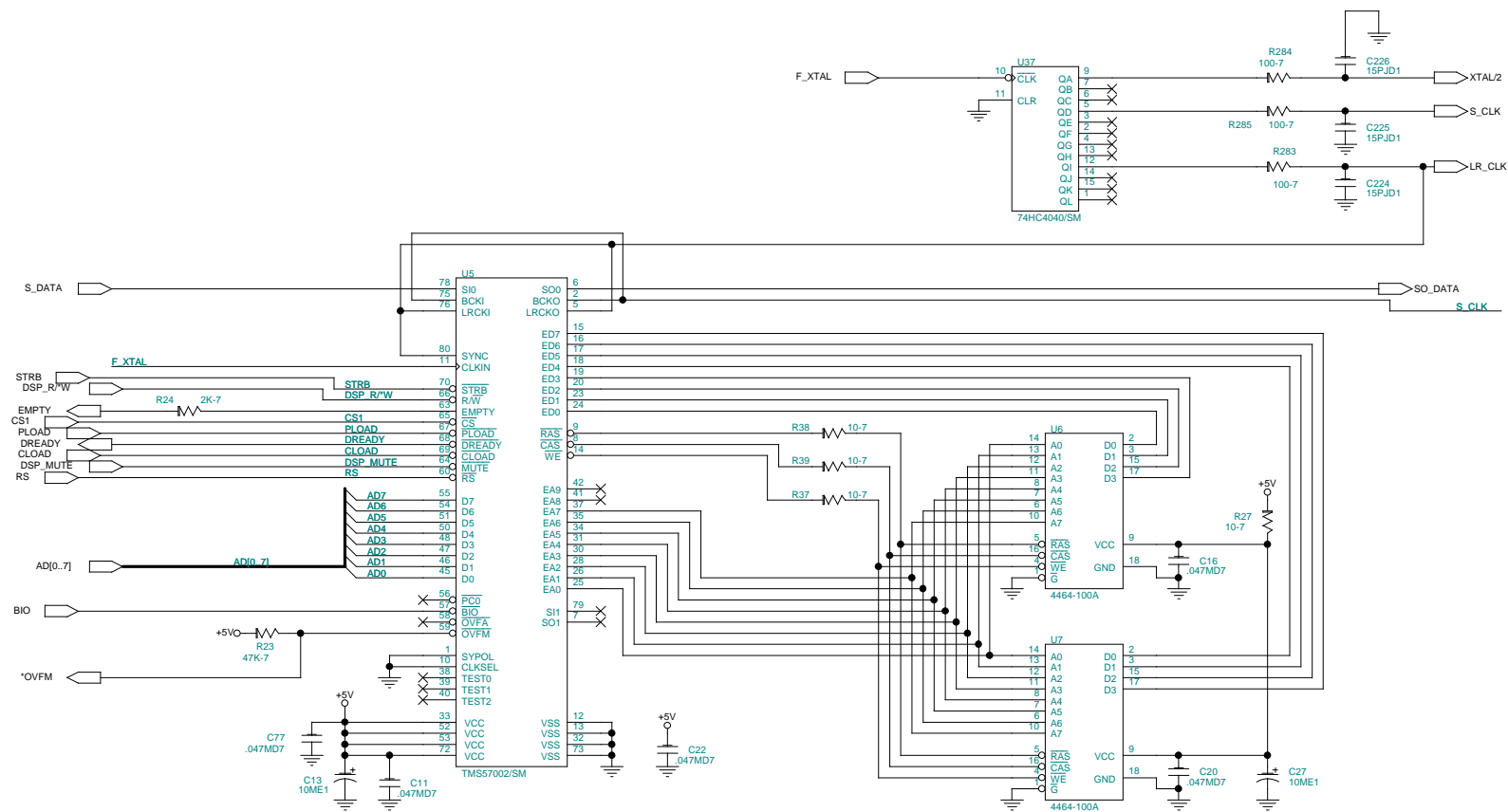
DOD Electronics Corp.		
8760 South Sandy Parkway Sandy, Utah 84070		
Title TEC4X		
Size B	Document Number 5320A9.SCH	Rev A9
Date:	Thursday, January 27, 2000	Sheet 1 of 7



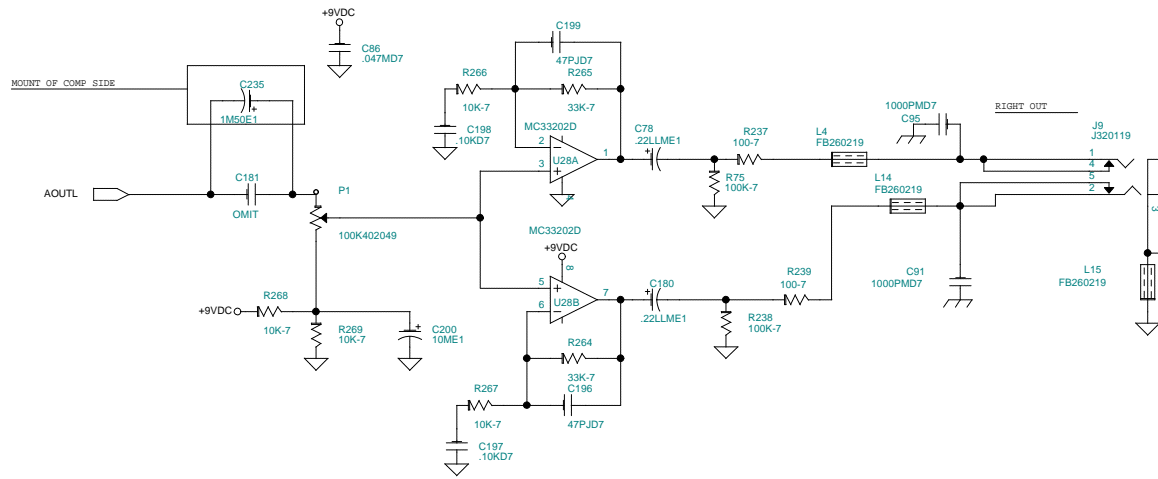
DOD Electronics Corp.	
8760 South Sandy Parkway Sandy, Utah 84070	
Title TEC4X PREAMP	
Size B	Document Number 5320A9_2_SCH
Date: Thursday, January 27, 2000	Sheet 2 of 7
	Rev A9



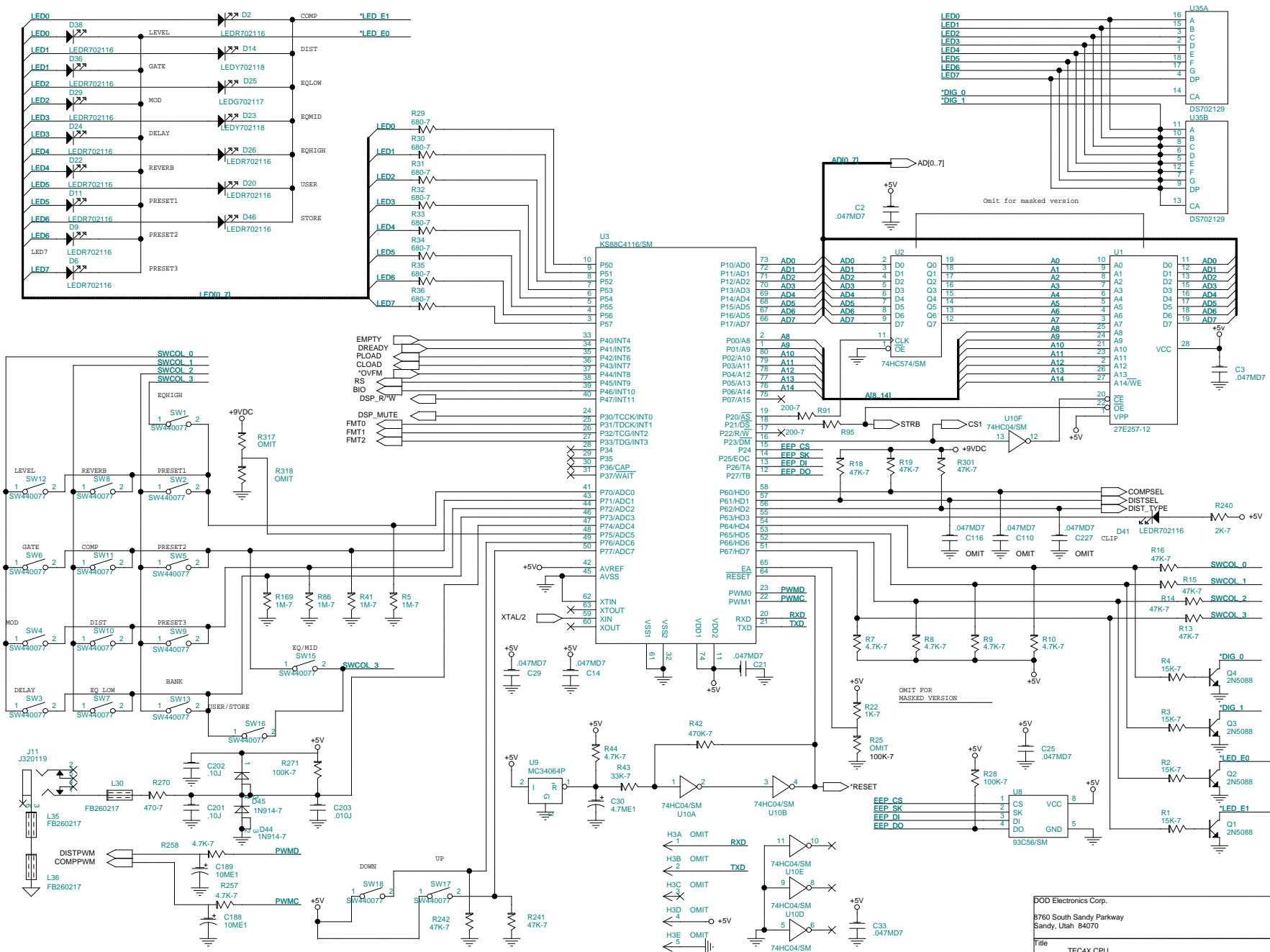
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8760 South Sandy Parkway Sandy, Utah 84070		
Title TEC4X A/D/A		
Size B	Document Number 5320A9_3.SCH	Rev A9
Date:	Thursday, January 27, 2000	Sheet 3 of 7



DOD Electronics Corp.		
8760 South Sandy Parkway Sandy, Utah 84070		
Title TC4 DSP		
Size B	Document Number 5320A9_4.SCH	Rev A9
Date:	Thursday, January 27, 2000	Sheet 4 of 7



DOD Electronics Corp.		
8760 South Sandy Parkway Sandy, Utah 84070		
Title TEC4X OUTPUTS		
Size B	Document Number 5320A9_5_SCH	Rev A9
Date:	Thursday, January 27, 2000	Sheet 5 of 7

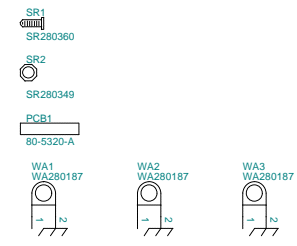
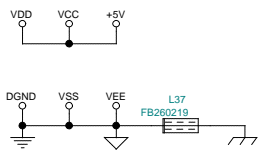
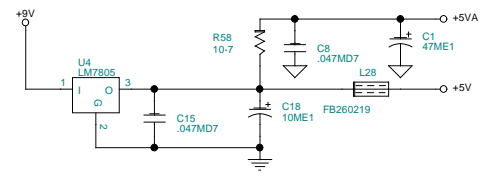
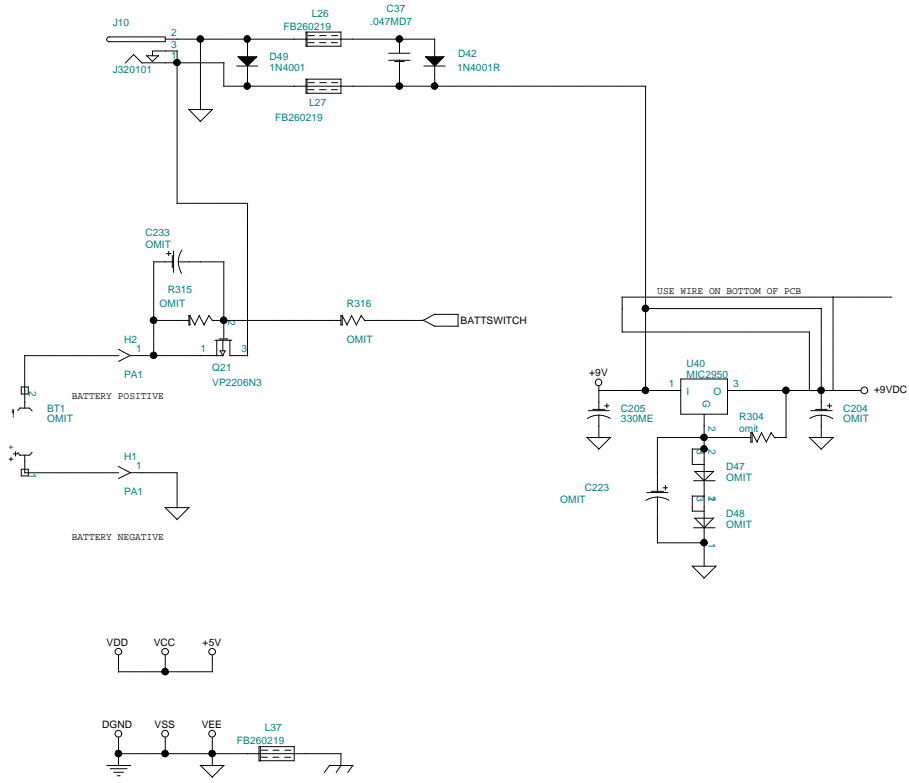


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 Sandy, Utah 84070

Title: TECAx CPU

Size B Document Number 5320A9_6.SCH Rev A9

Date: Thursday, January 27, 2000 Sheet 6 of 7



DOD Electronics Corp. 8760 South Sandy Parkway Sandy, UT 84070		
Title TEC4X POWER SUPPLY		
Size B	Document Number 5320A9_7_SCH	Rev A9
Date:	Thursday, January 27, 2000	Sheet 7 of 7

TEC4X	Revised:	June 11, 1998				
5320A9.SCH	Revision:	A9				
Bill Of Materials	June 22, 1998	9:20:27				
Quan Reference	Part	SYMAN	Description			
30	BT1,H3,Q21,R25,U40,D47, D48,R143,R146,R147,C181, R195,C204,C223,C230,C233, R290,R291,R292,R293,R294, R297,R298,R302,R303,R304, R315,R316,R317,R318	OMIT	00-0000	This part has been omitted		
1	C1	47ME1	60-0054-01	47	uF Cap	16V -20/+20% Elect., T&R, 5X8mm body
28	C2,C3,C8,C11,C14,C15,C16, C20,C21,C22,C25,C29,C33, C37,C77,C86,C110,C114, C115,C116,C117,C140,C157, C193,C212,C216,C220,C227	.047MD7	62-3129	.047	uF Cap	50V 20% Cerm, SMT 0805
14	C13,C18,C27,C101,C102, C121,C188,C189,C200,C206, C207,C210,C211,C221	10ME1	60-0049-01	10	uF Cap	16V -20/+20% Elect., -D Ammo
8	C31,C107,C124,C151,C152, C192,C196,C199	47PJD7	62-3132	47	pF Cap	50V 5% Cerm, SMT 0805
1	C34	15PJD7	62-3128	15	pF Cap	50V 5% Cerm, SMT 0805
7	C78,C113,C122,C180,C187, C228,C229	.22LLME1	60-0039-01	.22	uF Cap	16V -20/+20% Elect, LL-D T&R
2	C95,C91	1000PMD7	62-3136	1000	pF Cap	50V 20% Cerm, SMT 0805
6	C106,C139,C153,C219,C234, C235	1M50E1	60-0044-01	1.0	uF Cap	50V -20/+20% Elect., T&R C&F
1	C108	330PKD7	62-3131	330	pF Cap	50V 10% Cerm, SMT 0805
4	C118,C127,C186,C215	.047J	56-0010	.047	uF Cap	50V 5% Stacked Metal Pet 473J ammo
2	C125,C213	.015J	56-0007	.015	uF Cap	50V 5% Poly Film 153J ammo
2	C129,C30	4.7ME1	60-0048-01	4.7	uF Cap	16V -20/+20% Elect., T&R
1	C130	.0010J	56-0000	.0010	uF Cap	50V 5% Poly Film 102J ammo
3	C134,C183,C232	100ME1	60-0201	100	uF Cap	16V -20/+20% Elect., T&R, 6.3X7mm body
2	C137,C154	120PJD7	62-3135	120	pF Cap	50V 5% Cerm, SMT 0805
1	C155	.033J	56-0009	.033	uF Cap	50V 5% Poly Film 333J ammo
2	C156,C203	.010J	56-0006	.010	uF Cap	50V 5% Poly Film 103J ammo
2	C197,C198	.10KD7	62-3139	.10	uF Cap	50V 20% Cerm, SMT 0805
2	C201,C202	.10J	56-0012	.10	uF Cap	50V 5% Stacked Metal Pet 104J ammo
1	C205	330ME	60-0056	330	uF Cap	16V -20/+80% Elect-S
2	C208,C209	470PMD1	62-0003	470	pF Cap	50V 20% Ceramic Disc T&R
1	C214	.0033J	56-0003	.0033	uF Cap	50V 5% Poly Film 332J ammo
4	C217,C224,C225,C226	15PJD1	62-0007	15	pF Cap	50V 5% Ceramic Disc T&R
1	C218	25PJD1	62-0001	25	pF Cap	50V 5% Ceramic Disc T&R
1	C231	.0015J	56-0001	.0015	uF Cap	50V 5% Poly Film 152J ammo
13	D2,D6,D9,D11,D20,D22,D24, D26,D29,D36,D38,D41,D46	LED702116	70-2116	Red w/Spacer, T1, 14mm Height, T&R		
2	D14,D23	LEDY702118	70-2118	Yel w/Spacer, T1, 14mm Height, T&R		
1	D25	LEDG702117	70-2117	Grn w/Spacer, T1, 14mm Height, T&R		
10	D30,D31,D33,D34,D35,D39, D40,D43,D44,D45	1N914-7	70-0110	1N914 Diode Silicon Switching, 75 Volts PIV, SMT		
1	D42	1N4001R	70-0000	1N4001 Silicon Rectifier, 1 Amp, 50 Volts PIV, RADIAL		
1	D49	1N4001	70-0001	1N4001 Silicon Rectifier, 1 Amp, 50 Volts PIV		
2	H2,H1	PA1	00-0000	1 Pin Pad Pattern, Not a part		
3	J7,J9,J11	J320119	32-0119	1/4 Phone Jack, Hor. Mount, Full Nose Thread Slimline		
1	J10	J320101	32-0101	Barrel Jack, Hor. PCB Mount, 2.0 x 5.5 x 10mm		
9	L4,L11,L13,L14,L15,L26,	FB260219	26-0219	Ferrite Bead, 600 ohms @100Mhz, SMT 0805		

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Quan	Reference	Part	SYMAN	Description
	L27,L28,L37			
8	L23,L30,L31,L32,L33,L34, L35,L36	FB260217	26-0217	Ferrite Bead, 2.5Kohms @70Mhz, SMT 0805
1	P1	100K402049	40-2049	100 K "D" 9mm, Rot Pot, 25mm D shaft Ver
1	PCB1	80-5320-A	le	
8	Q1,Q2,Q3,Q4,Q13,Q15,Q18, Q20	2N5088	70-1007	2N5088 NPN, Transistor, T&R
1	Q12	2N4125	70-1008	2N4125 PNP, Gen. Purp. Amplifier/Switching Xstr
1	Q16	2N5484	70-1016	2N5484 JFET, N-Channel
1	Q19	J201	70-1015	J201A JFET, N-Channel
4	R1,R2,R3,R4	15K-7	50-1516	15 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
10	R5,R41,R86,R138,R169, R198,R202,R289,R308,R309	1M-7	50-1506	1 MOhm Resistor 5% 1/10 Watt TF, SMT 0805
10	R7,R8,R9,R10,R44,R133, R191,R257,R258,R320	4.7K-7	50-1509	4.7 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
17	R13,R14,R15,R16,R18,R19, R23,R124,R157,R200,R205, R241,R242,R253,R301,R319, R321	47K-7	50-1502	47 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
7	R24,R149,R201,R240,R286, R287,R288	2K-7	50-1508	2 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
7	R27,R37,R38,R39,R58,R306, R307	10-7	50-1500	10 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
10	R28,R75,R117,R130,R134, R172,R238,R245,R246,R271	100K-7	50-1504	100 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
8	R29,R30,R31,R32,R33,R34, R35,R36	680-7	50-1511	680 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
3	R42,R167,R204	470K-7	50-1523	470 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
5	R43,R132,R192,R264,R265	33K-7	50-1512	33 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
5	R87,R190,R197,R203,R252	220K-7	50-1514	220 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
2	R91,R95	200-7	50-1510	200 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
14	R127,R131,R137,R152,R155, R165,R199,R266,R267,R268, R269,R295,R296,R299	10K-7	50-1503	10 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
2	R128,R121	62K-7	50-1501	62 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
3	R129,R142,R154	3.3K-7	50-1525	3.3 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
1	R136	6.8K-7	50-1513	6.8 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
3	R139,R310,R312	20K-7	50-1507	20 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
1	R140	75K-7	50-1520	75 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
13	R150,R166,R221,R222,R223, R224,R237,R239,R283,R284, R285,R300,R313	100-7	50-1515	100 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
1	R153	51-7	50-1524	51 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
2	R156,R22	1K-7	50-1505	1 KOhm Resistor 5% 1/10 Watt TF, SMT 0805
1	R194	0-7	50-1531	0 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
2	R305,R270	470-7	50-1518	470 Ohm Resistor 5% 1/10 Watt TF, SMT 0805
2	R322,R323	100K	50-0036	100 KOhm Resistor 5% 1/4 Watt Carbon Film
1	SR1	SR280360	28-0360	Screw, 4-40 x 3/8" Phil, Pan, Mach, Black
1	SR2	SR280349	28-0349	Nut, Nylon 4-40
17	SW1,SW2,SW3,SW4,SW5,SW6, SW7,SW8,SW9,SW10,SW11, SW12,SW13,SW15,SW16,SW17,	SW440077	44-0077	SPST Switch, Tact, Radial

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TEC4X
5320A9.SCH
Bill Of Materials
Quan Reference

Revised: June 11, 1998

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Part SYMAN Description

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SW18
1 U1 27E257-12 72-3137-12 W27E257, 32K X 8 Eprom V1.00 (TEC4)

5320a9.pls

1	U2	74HC574/SM	72-1263	Octal D-Type Edge Triggered Flip-Flops, SMT
1	U3	KS88C4116/	72-5411	8-Bit CMOS Microcontroller, SMT
1	U4	LM7805	70-4014	7805 +5 Volt 1 Amp Voltage Regulator TO-220 VERT
1	U5	TMS57002/S	72-3034	TMS57002 DSP-Quad Flat Pack, SMT
2	U7,U6	4464-100A	72-3149-10	4464, 64K X 4 Dynamic RAM -100ns
1	U8	93C56/SM	72-3025	IC, 93C56, EEPROM 2K Bit Serial, SMT
1	U9	MC34064P	70-5004	MC34064 Undervoltage Sensing Circuit
1	U10	74HC04/SM	72-1086	Hex Inverter 74HC04, SMT
4	U21,U27,U34,U39	NJM4560/SM	72-4233	NJM4560 Dual Op-Amp, SMT SOIC
3	U22,U26,U28	MC33202D	72-4061	Rail to Rail Dual Op-Amp, SMT
1	U25	2159	72-4262	VCA, THAT 2159 (DOD & Digitech)
1	U29	4053/SM	72-0087	74HC4053 Triple 2 to 1 Analog Multiplexer, SMT
1	U35	DS702129	70-2129	LED, Red, DUAL 7-SEG
1	U37	74HC4040/S	72-1262	12 Bit Ripple CT, SMT
1	U38	PCM3001	72-1432	PCM3001, STEREO CODEC, SMT
3	WA1,WA2,WA3	WA280187	28-0187-A	Washer, for grounding J320119
1	X1	16.0MHZ/SM	76-0200	16.00 MHZ Crystal, SMT