

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTOR VALUES ARE IN OHMS
2. CAPACITOR VALUES ARE IN MICROFARADS (uF)
3. INDUCTOR VALUES ARE IN MICROHENRIES (uH)
4. COMPONENTS NOT LOADED FOR BASIC ASSEMBLY (LV4)
5. COMPONENTS NOT LOADED WHEN MAX1627 IS USED (LV5)
6. COMPONENTS NOT LOADED WHEN LTC1772B IS USED (LV6)

REVISIONS				
ECO	REV	DESCRIPTION	DATE	UPDATED BY
--	01	ENGINEERING RELEASE	05-28-03	L. BELLER

INTR	FUNCTION
INTR0	DEMODO
INTR1	UNUSED
INTR2	UNUSED
INTR3	UNUSED

GPIO	FUNCTION
PIO0_0	SC_TRXD_0
PIO0_1	SC_TRXD_0
PIO0_2	PWR_LED
PIO0_3	CLK_SC_0
PIO0_4	SC_RESET_0
PIO0_5	SC_CMD_VCC_0
PIO0_6	PWR_SW
PIO0_7	SC_DETECT_0
PIO1_0	SC_TRXD_1
PIO1_1	SC_TRXD_1
PIO1_2	CHANNEL_DOWN
PIO1_3	CLK_SC_1
PIO1_4	SC_RESET_1
PIO1_5	SC_CMD_VCC_N_1
PIO1_6	CHANNEL_UP
PIO1_7	SC_DETECT_N_1
PIO2_0	MAFE_HC1
PIO2_1	MAFE_DOUT
PIO2_2	MAFE_DIN
PIO2_3	MAFE_FS
PIO2_4	MAFE_SCLK
PIO2_5	DiSeqC_RX
PIO2_6	MAFE_HC0
PIO2_7	LNB_22KHZ

PIO3_0	I2C_DATA
PIO3_1	CLK_I2C
PIO3_2	13/19_SEL
PIO3_3	V_SEL
PIO3_4	UNUSED
PIO3_5	LNB_IMP
PIO3_6	UNUSED
PIO3_7	PWM1

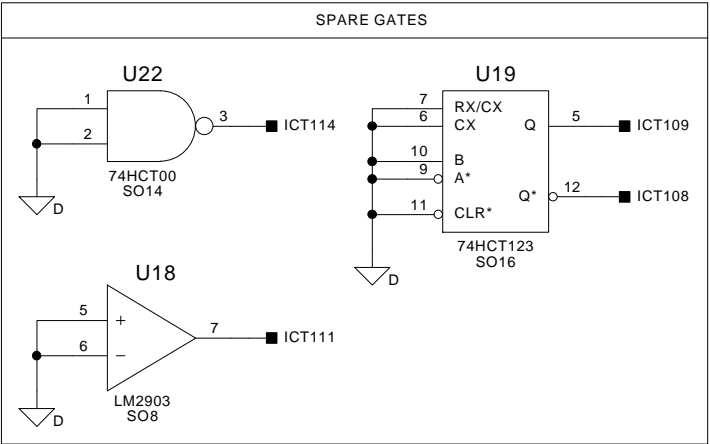
PIO4_0	UNUSED
PIO4_1	OH
PIO4_2	BOARD_ID
PIO4_3	ASC_RXD
PIO4_4	ASC_TXD
PIO4_5	UNUSED
PIO4_6	MOD_PWR
PIO4_7	UNUSED

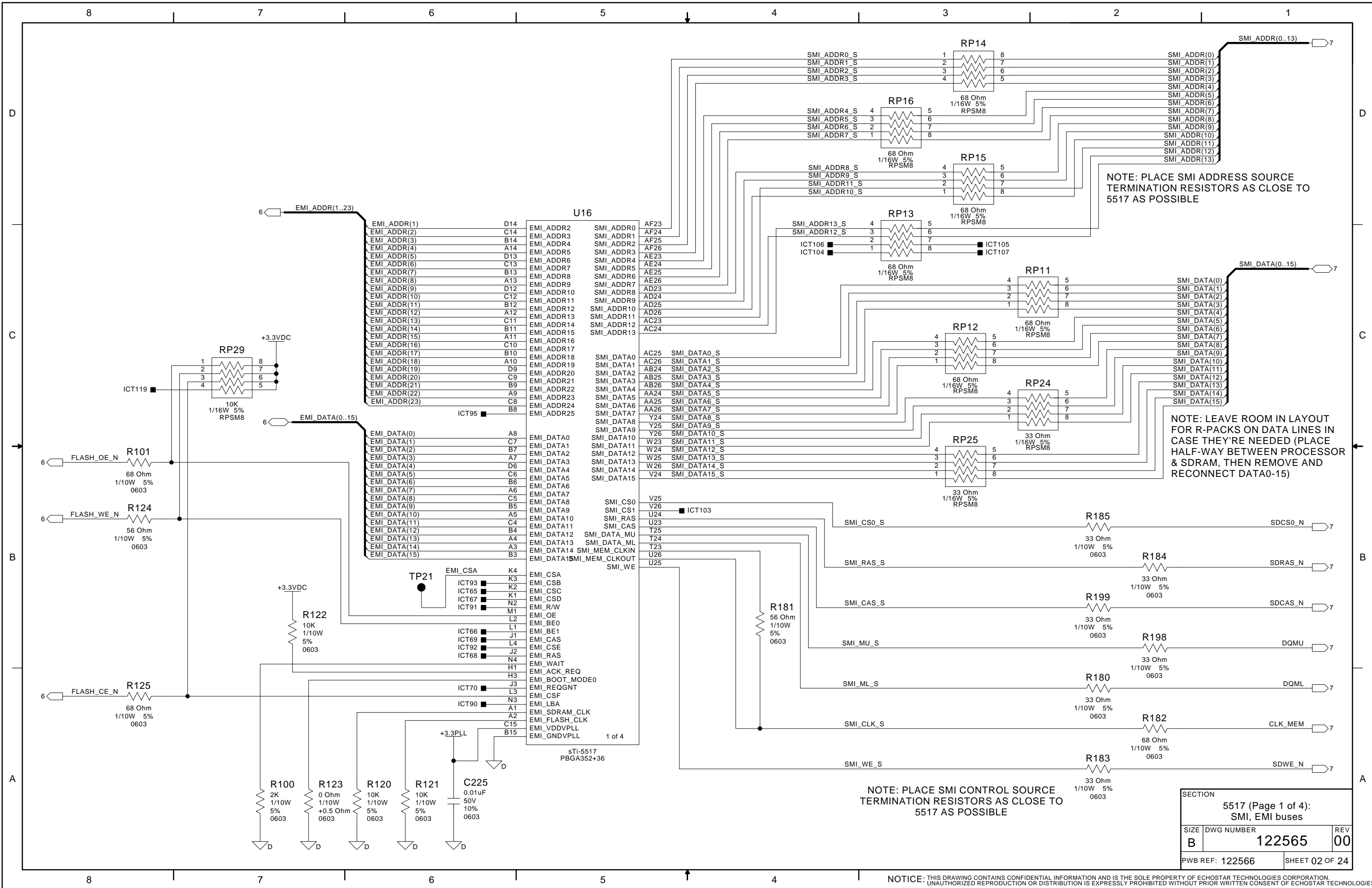
PIO5_0	PPMIN
PIO5_1	UHF_IN
PIO5_2	IR_BLAST
PIO5_3	ACC_JACK
PIO5_4	MDM_RST_N
PIO5_5	UNUSED
PIO5_6	FE_RESET_N
PIO5_7	UNUSED

ADDR	DEVICE
A0, A1 10	24LC64/32 BCM3440

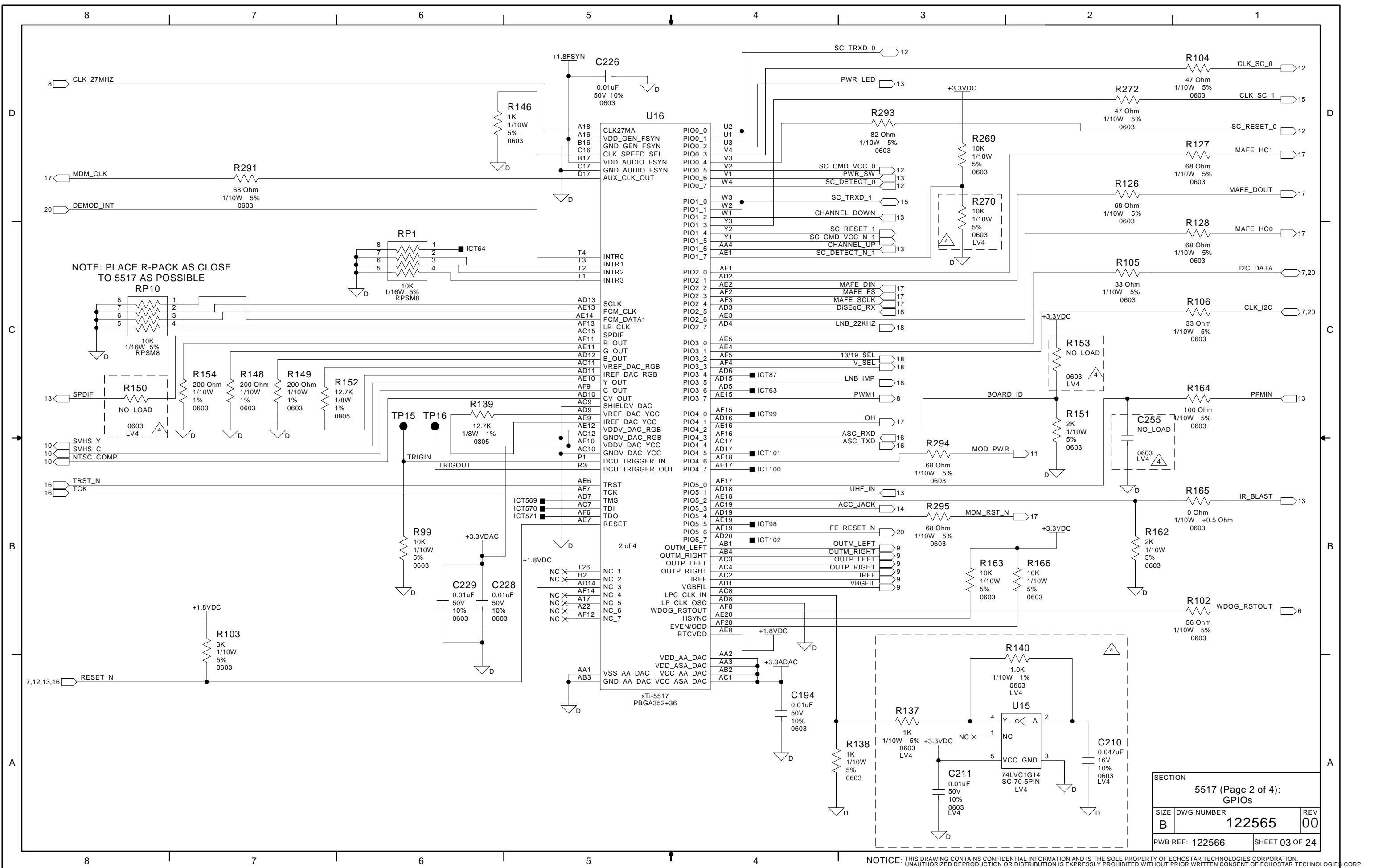
SCHEMATIC SHEET SECTIONS	
SHEET	SECTIONS
1	TITLE BLOCK, REV BLOCK, SPARE GATES
2	5517 (Page 1 of 4): SMI, EMI buses
3	5517 (Page 2 of 4): GPIOs
4	5517 (Page 3 of 4): FE
5	5517 (Page 4 of 4): DECOUPLING CAPS, +1.8V/+3.3V REGULATORS
6	FLASH
7	SMI SDRAM, EEPROM, RESET CIRCUIT
8	CLOCK SYNTHESIS
9	AUDIO BUFFERS, ANALOG POWER FILTER
10	VIDEO AMPS
11	AUDIO/VIDEO OUT, MODULATOR
12	SMART CARD READER
13	UHF RECEIVE, AC-3, BUTTONS, POWER LED, IR BLAST, IR RECEIVE
14	ACCESSORY JACK
15	EMBEDDED SMART CARD
16	SERVICES, GND TEST POINTS
17	MODEM
18	LNB POWER, DiSeqC RX
19	FE (Page 1 of 3): TUNER
20	FE (Page 2 of 3): QPSK/8PSK DEMOD
21	FE (Page 3 of 3): QPSK/8PSK DEMOD AND TUNER POWER CONDITIONING
22	POWER SUPPLY
23	MISC. DECOUPLING CAPS AND 5V TO 1.8V SWITCHER
24	REFERENCE DESIGNATOR LISTING

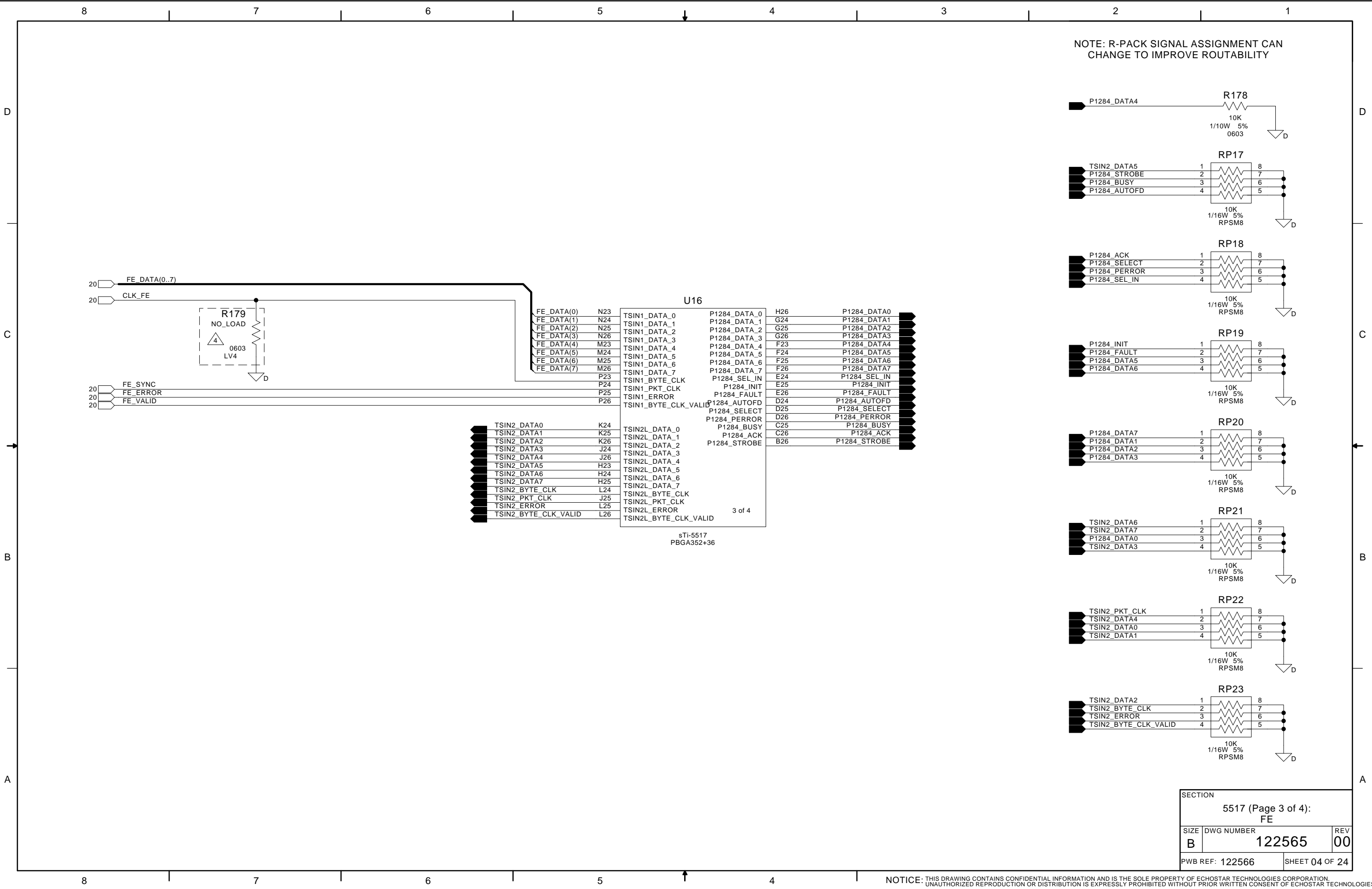
REFERENCE DESIGNATORS	
LAST USED	AVAILABLE
C373	C25,C30,C32,C127,C130-C132,C145, C146,C165,C337-C342
CR43	CR11,CR12
F2	
FB13	FB9-FB11
FL1	
G1	
HS4	
ICT575	ICT86,ICT88,ICT89,ICT113,ICT115-ICT118
ISO1	J9
J13	L18,L20
L28	
LED3	
MOD1	
Q17	Q13,Q18
R282	R69,R70,R119,R145,R190,R252,R253,R275,R280,R291
RP29	RP6,RP26-RP28
RT1	
RV5	
SW4	
SWR1	
T1	
TP37	TP24-TP29
TRL5	
U26	
VR6	
Y2	

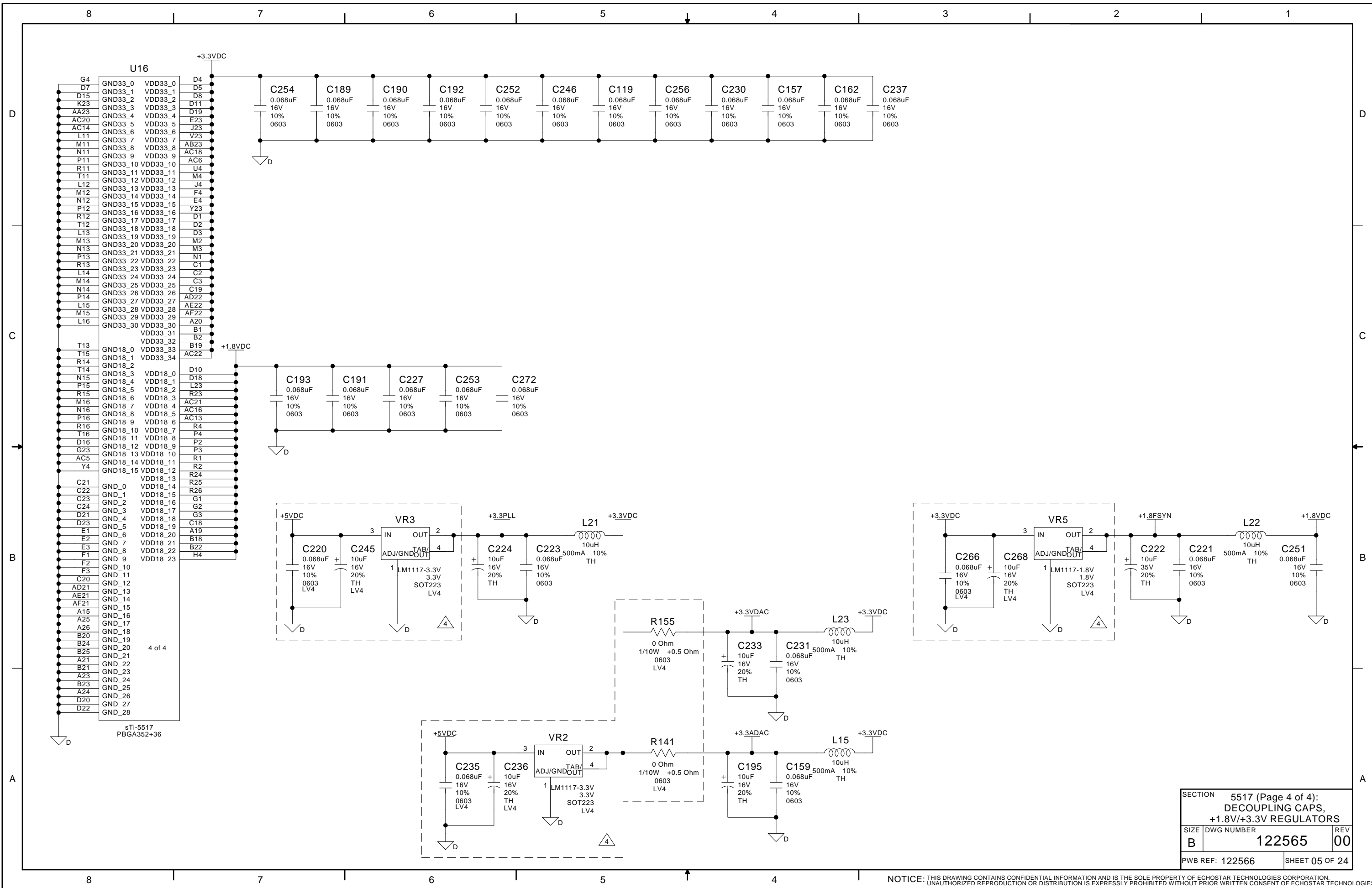




SECTION		
5517 (Page 1 of 4): SMI, EMI buses		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 02 OF 24

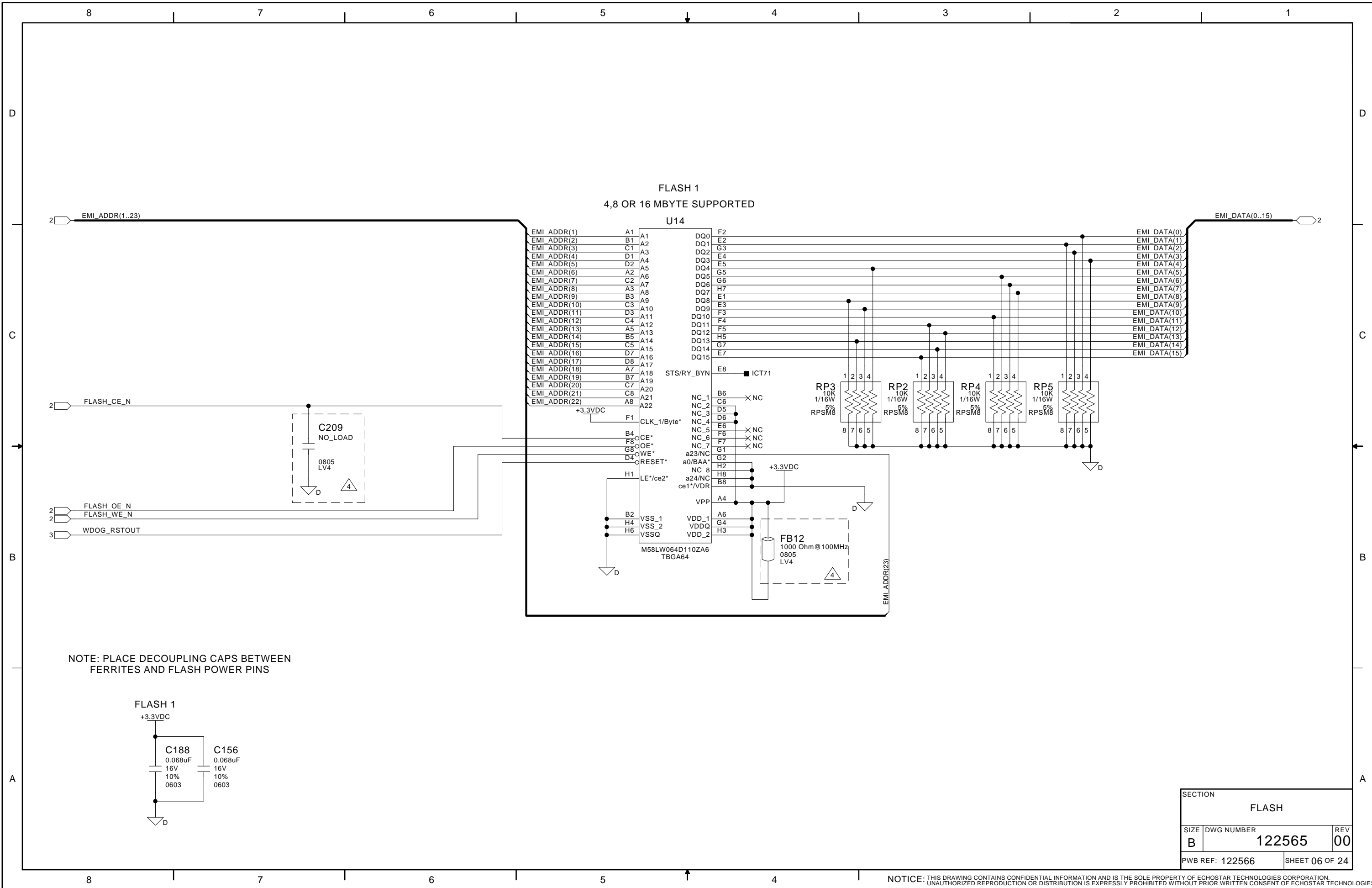


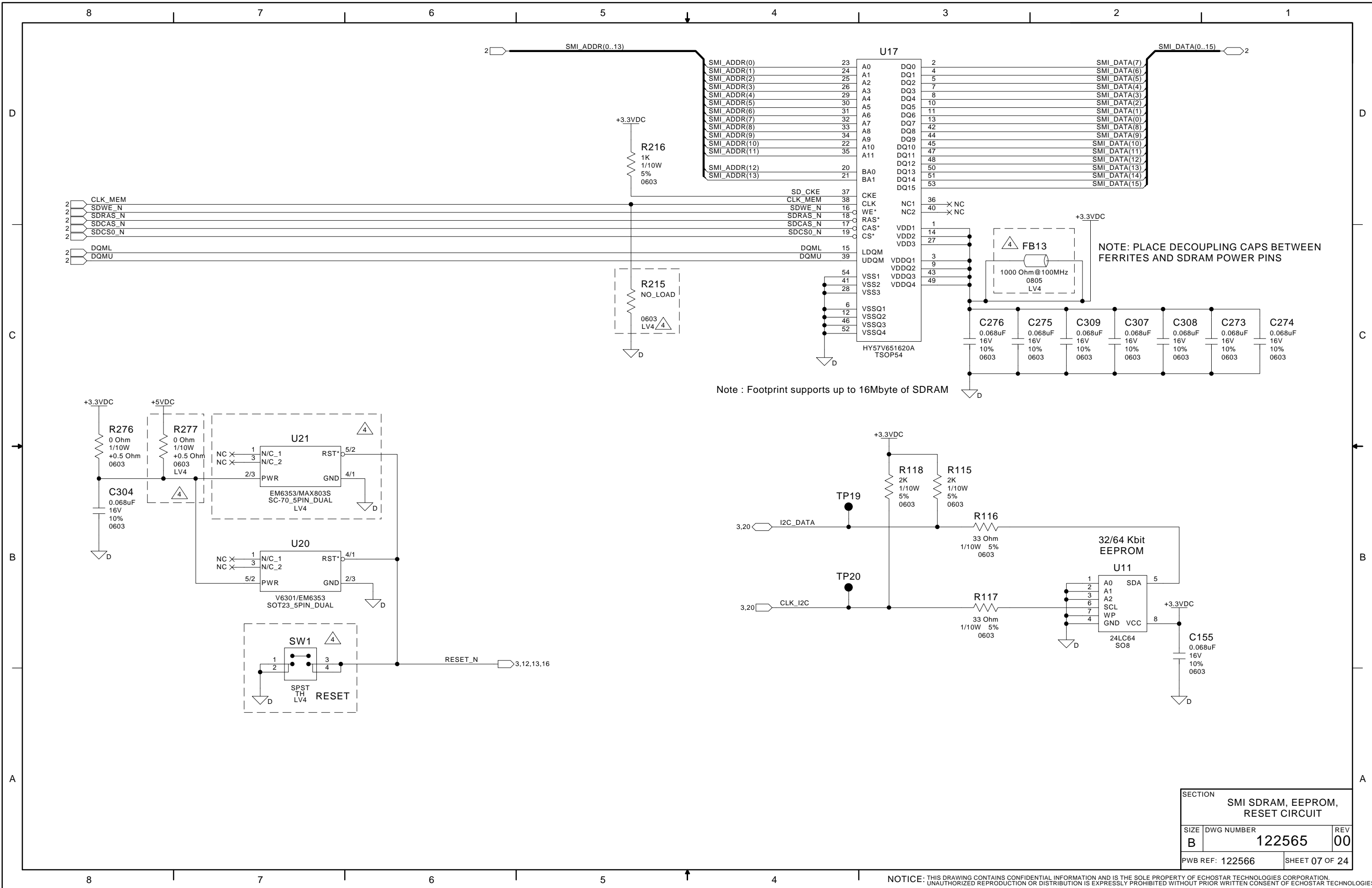


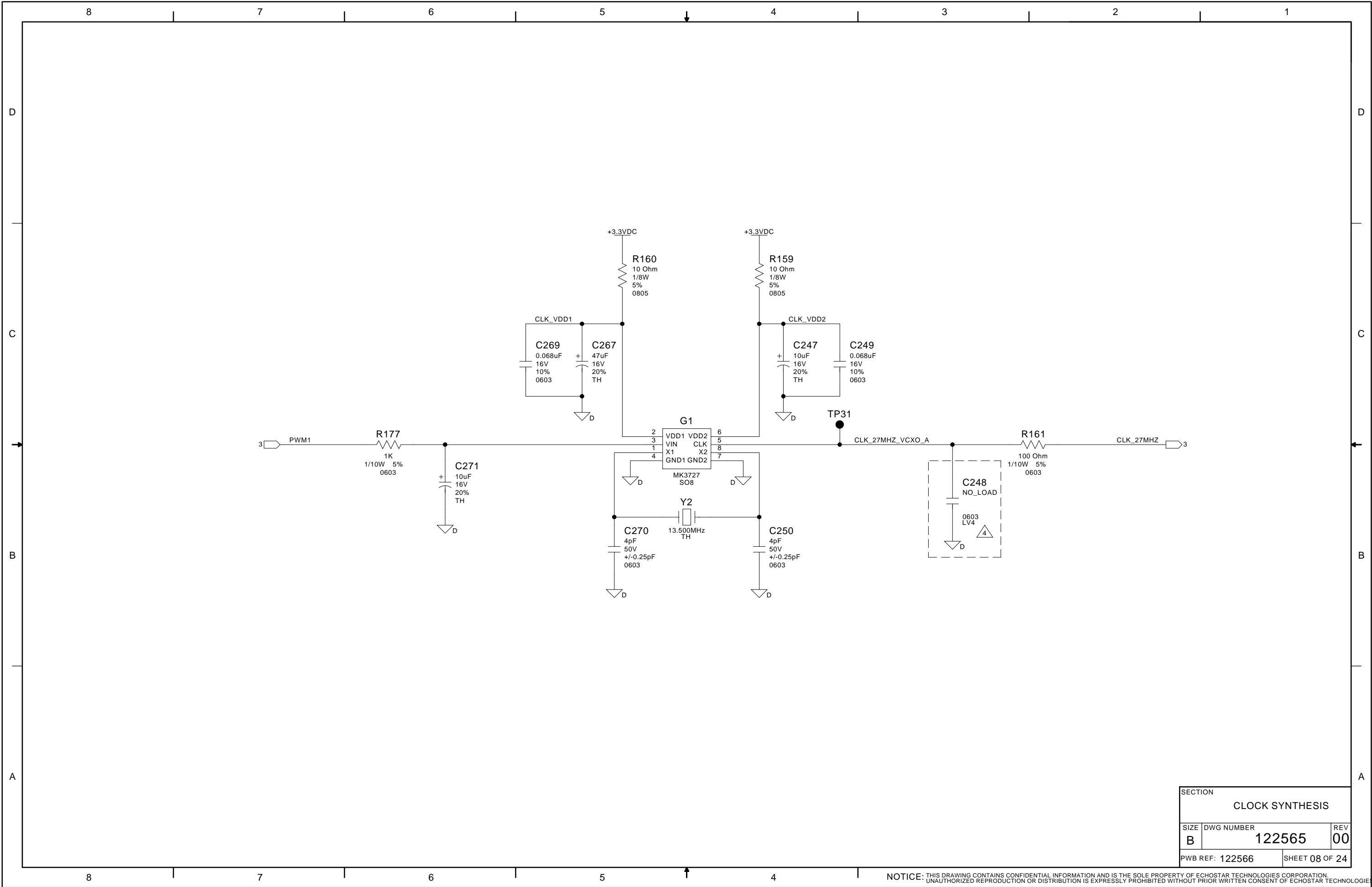


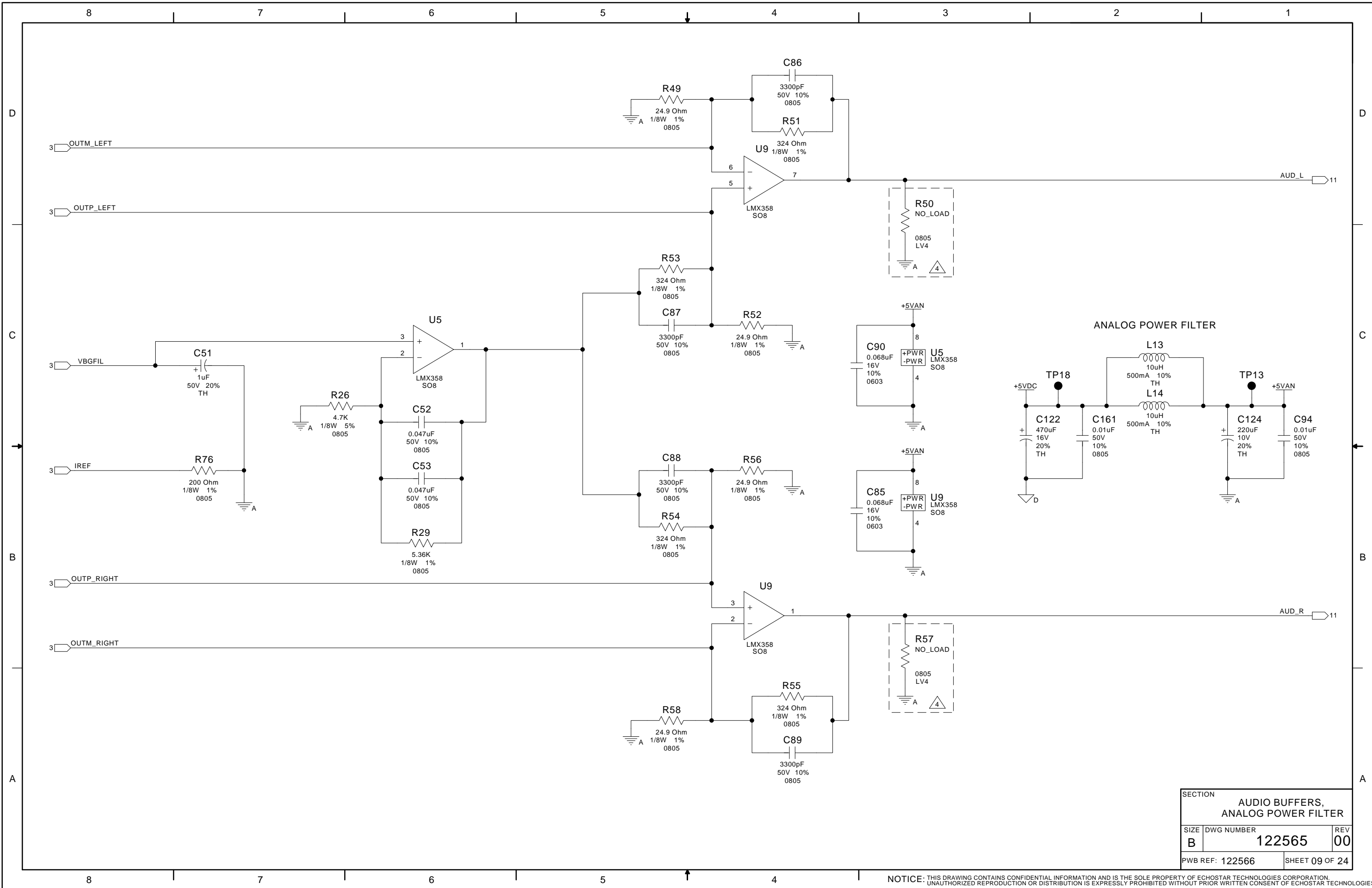
SECTION 5517 (Page 4 of 4): DECOUPLING CAPS, +1.8V/+3.3V REGULATORS		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 05 OF 24

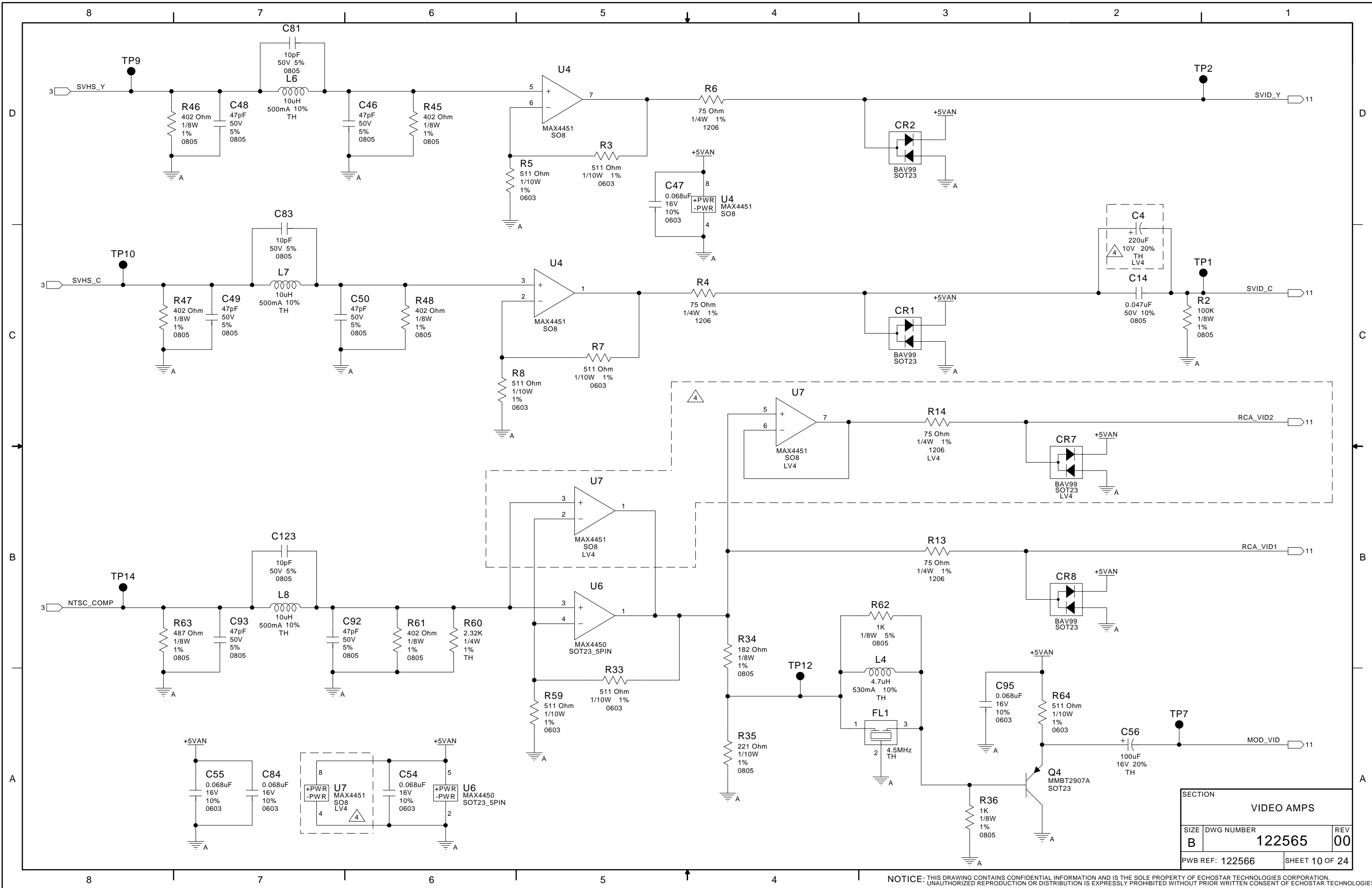
NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION.
UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.





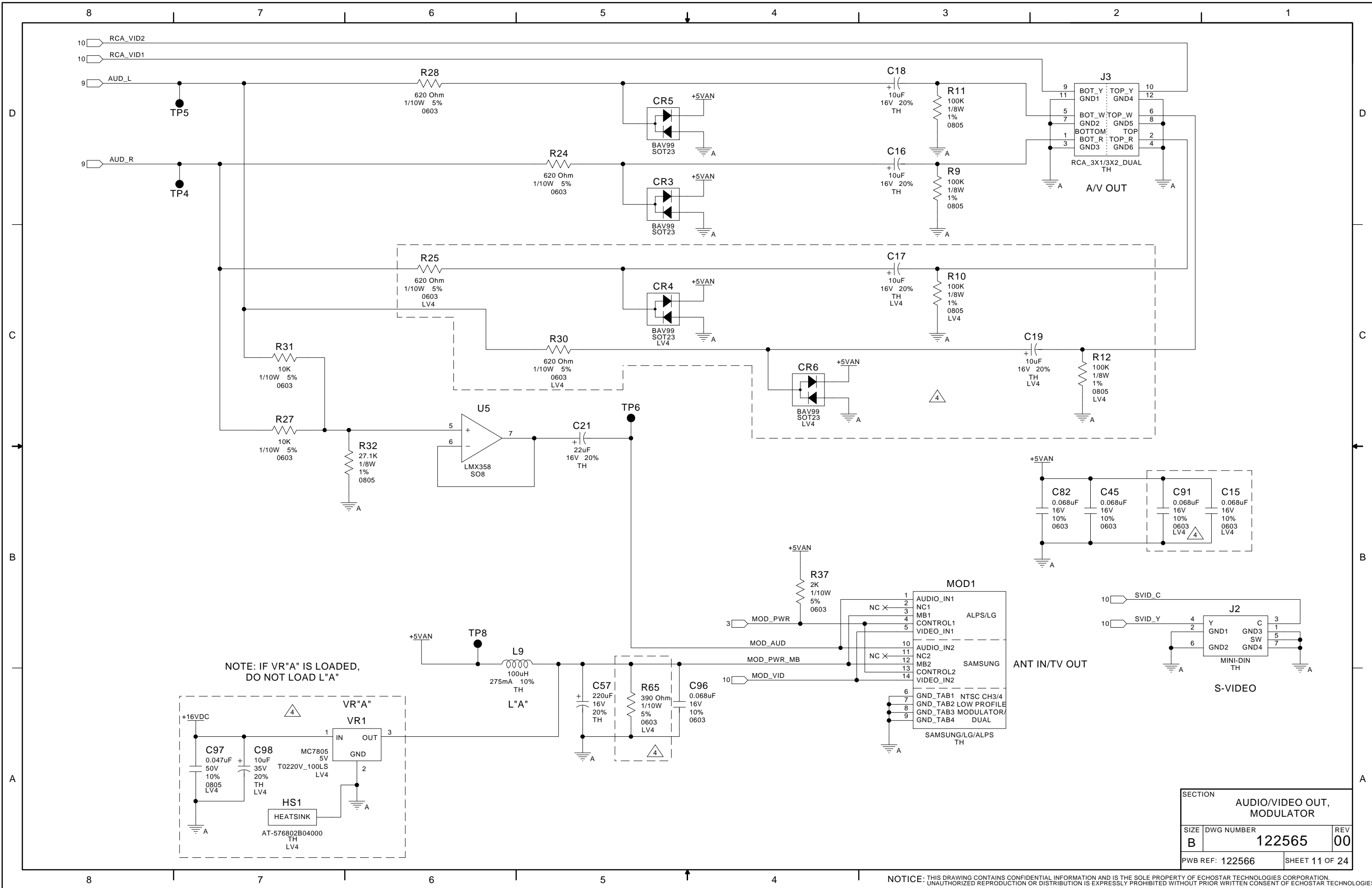






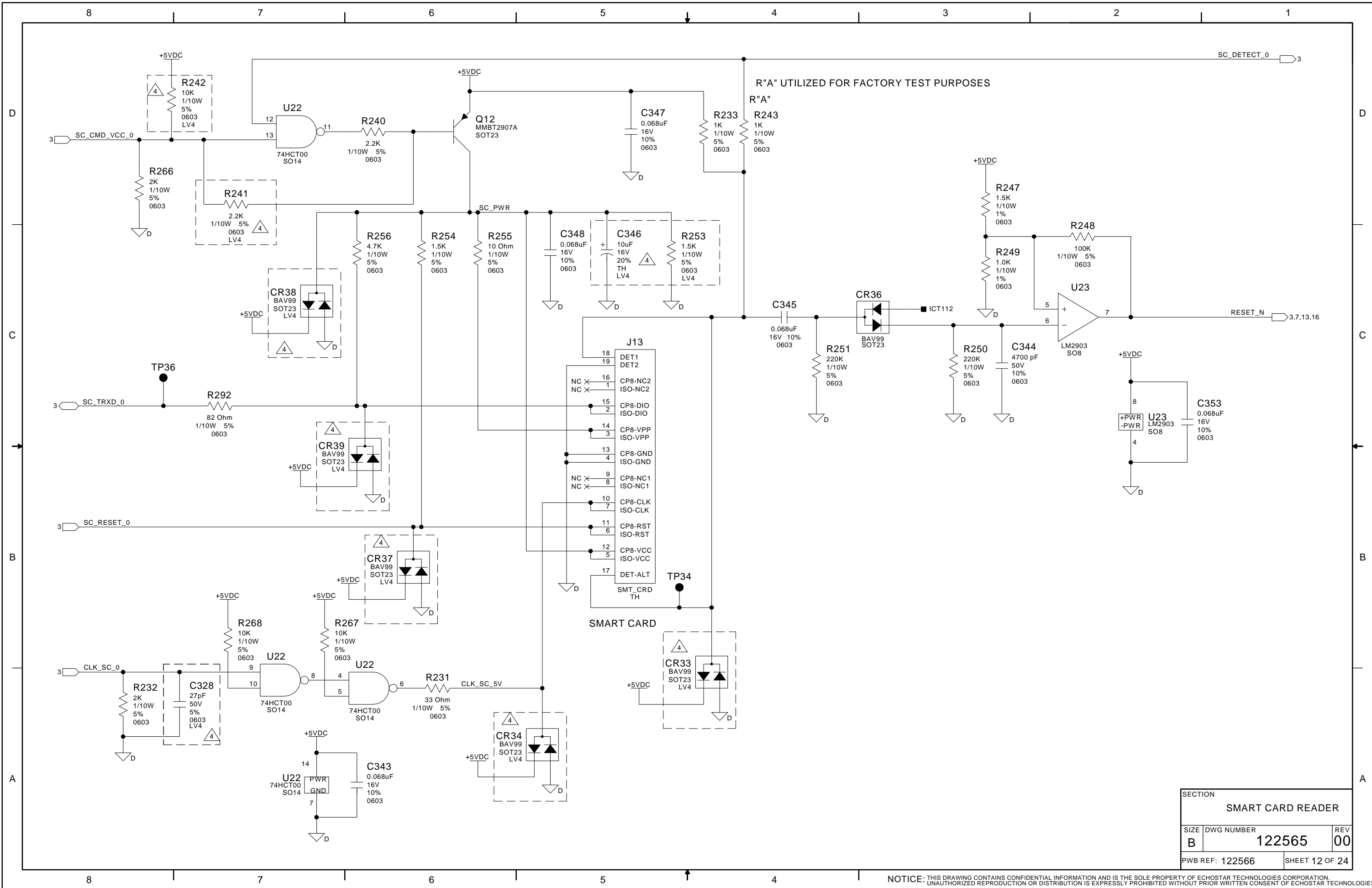
SECTION		
VIDEO AMPS		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 10 OF 24

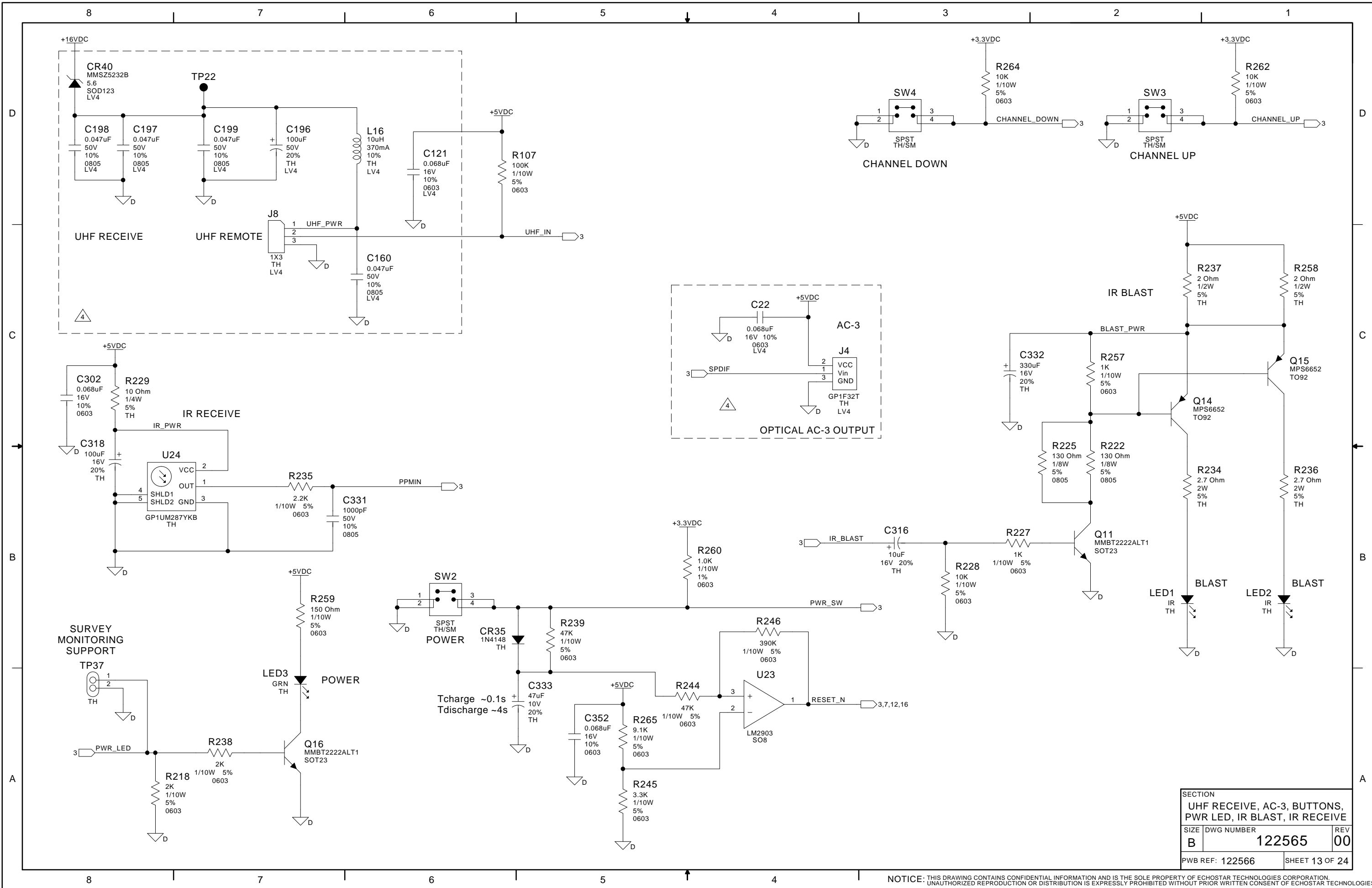
NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



SECTION		
AUDIO/VIDEO OUT, MODULATOR		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 11 OF 24

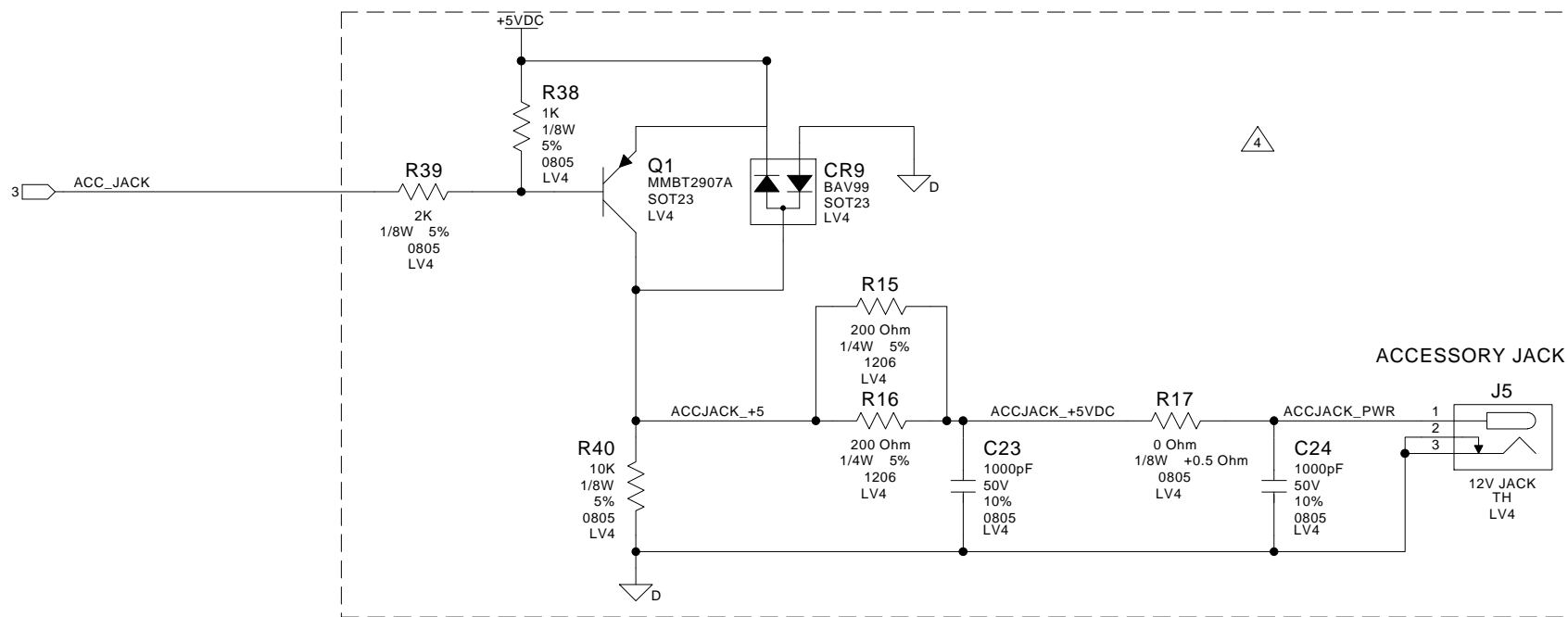
NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.





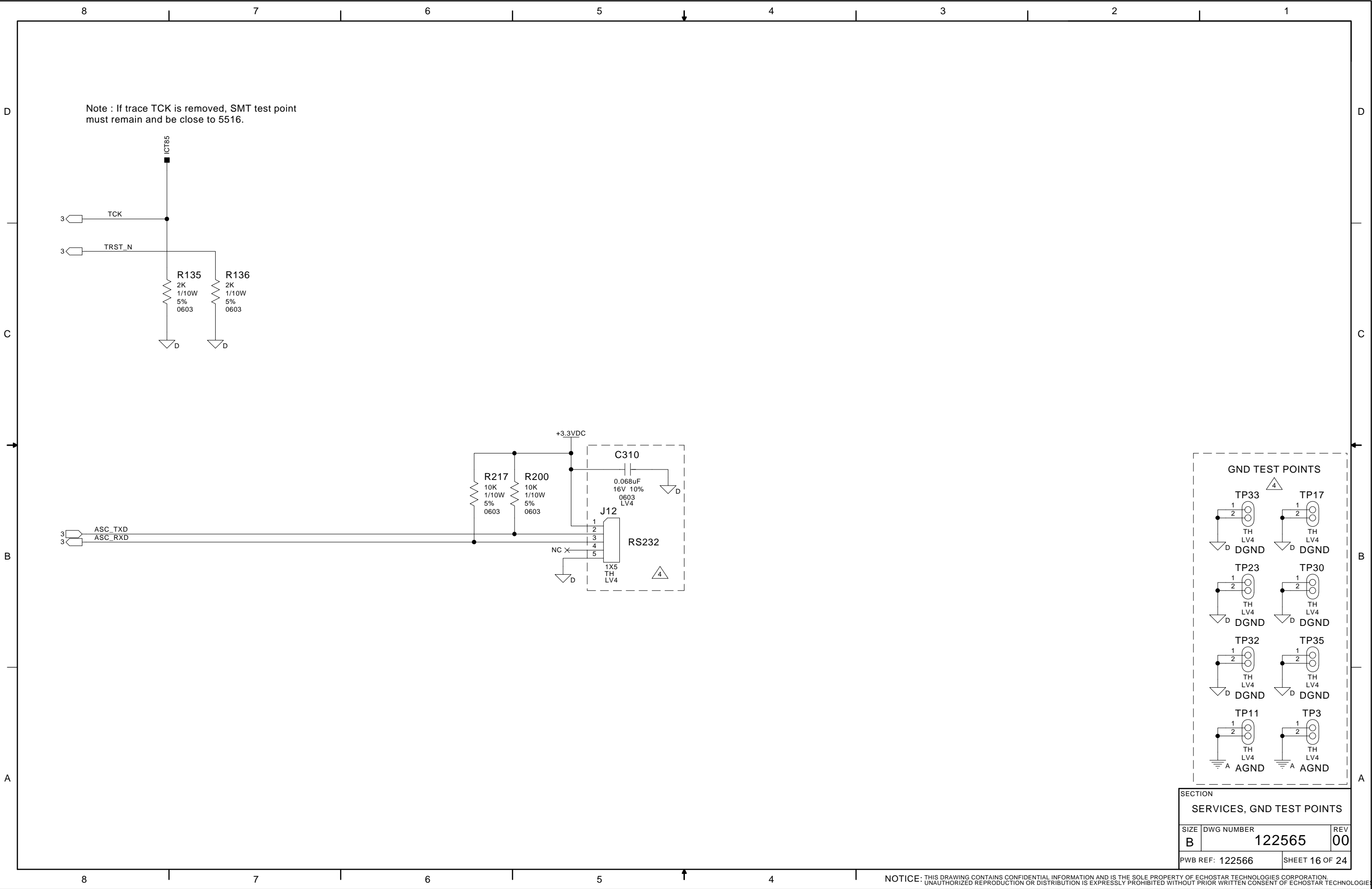
SECTION		
UHF RECEIVE, AC-3, BUTTONS, PWR LED, IR BLAST, IR RECEIVE		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 13 OF 24

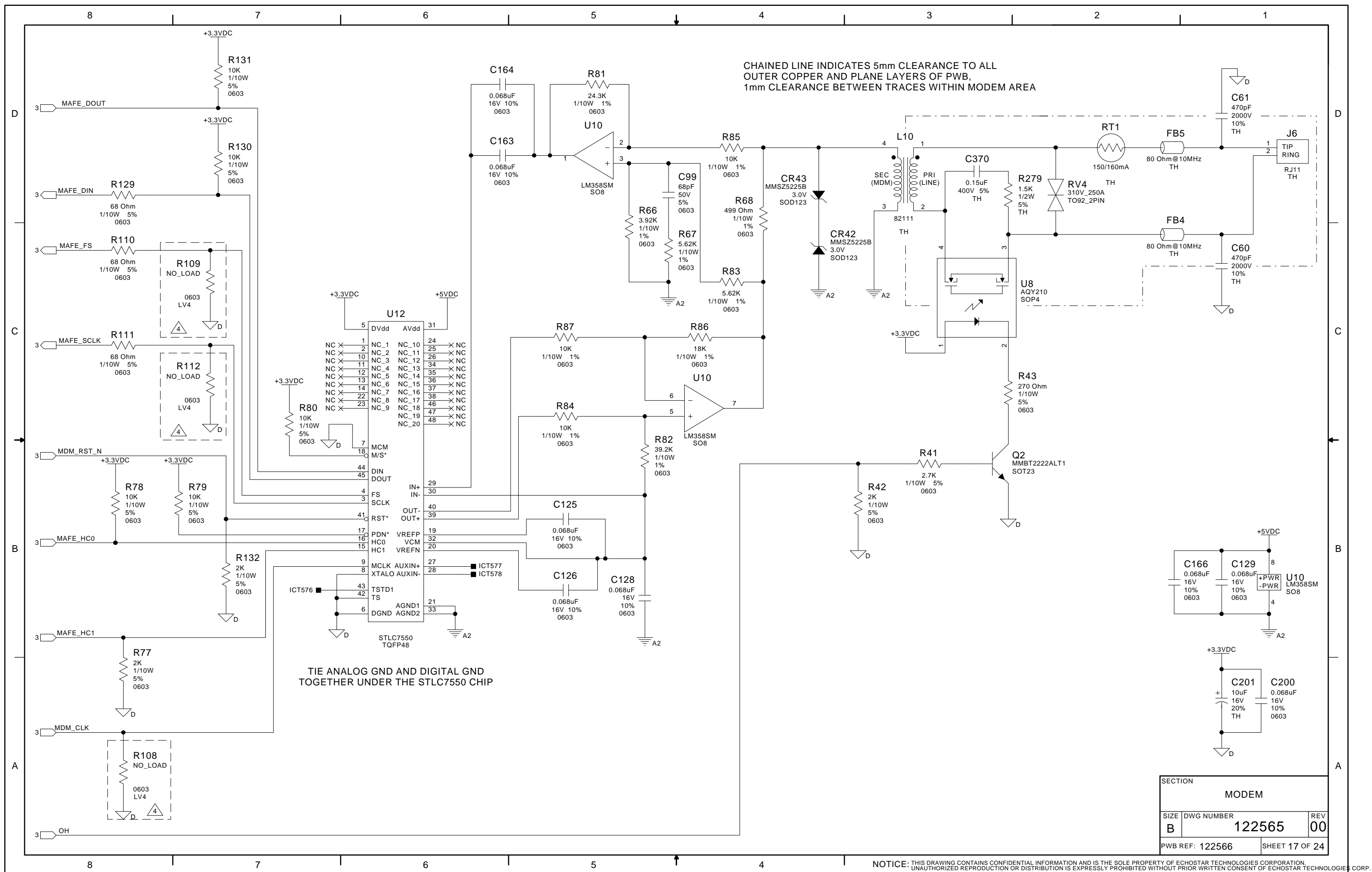
NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



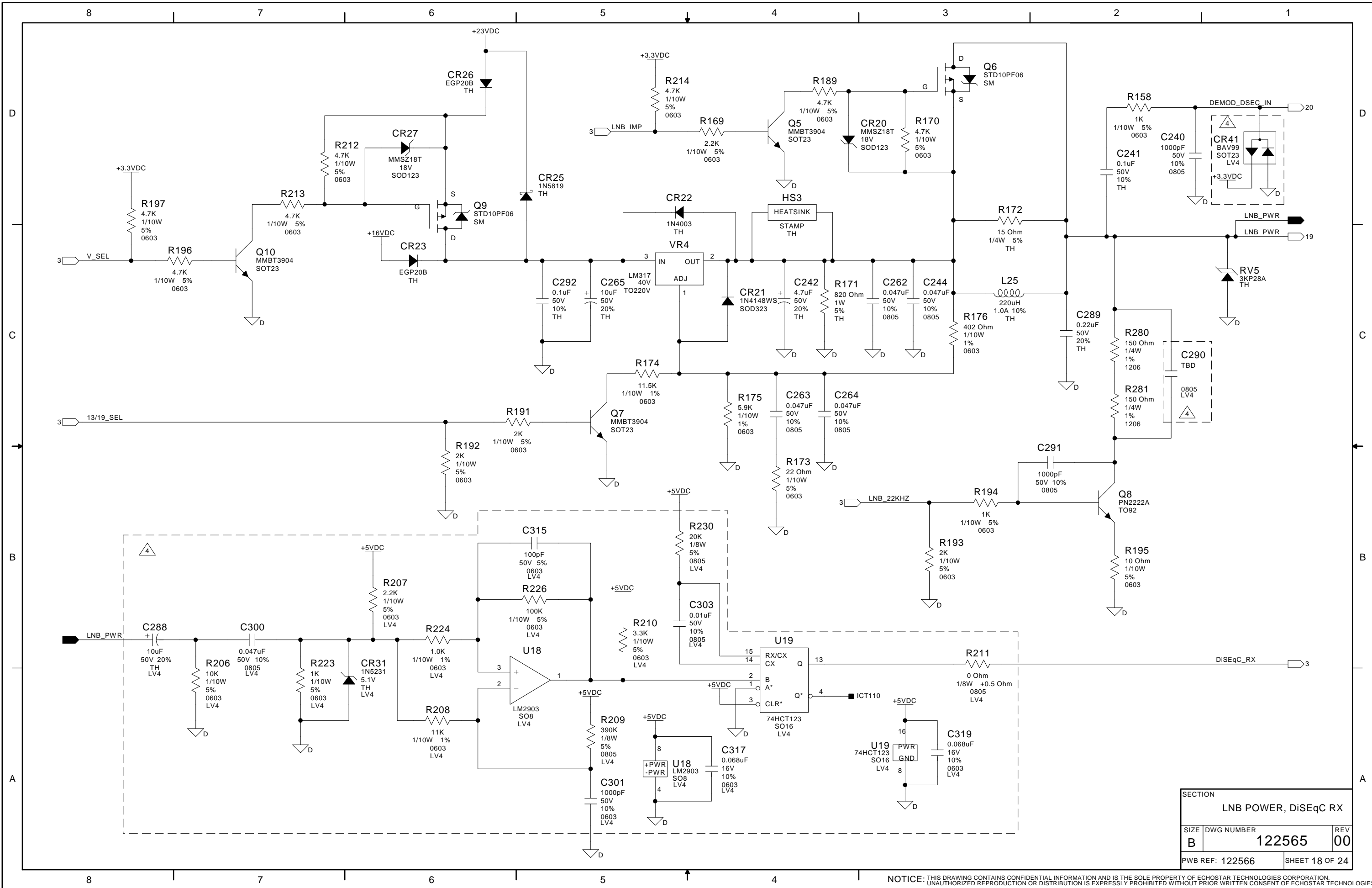
SECTION		
ACCESSORY JACK		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 14 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



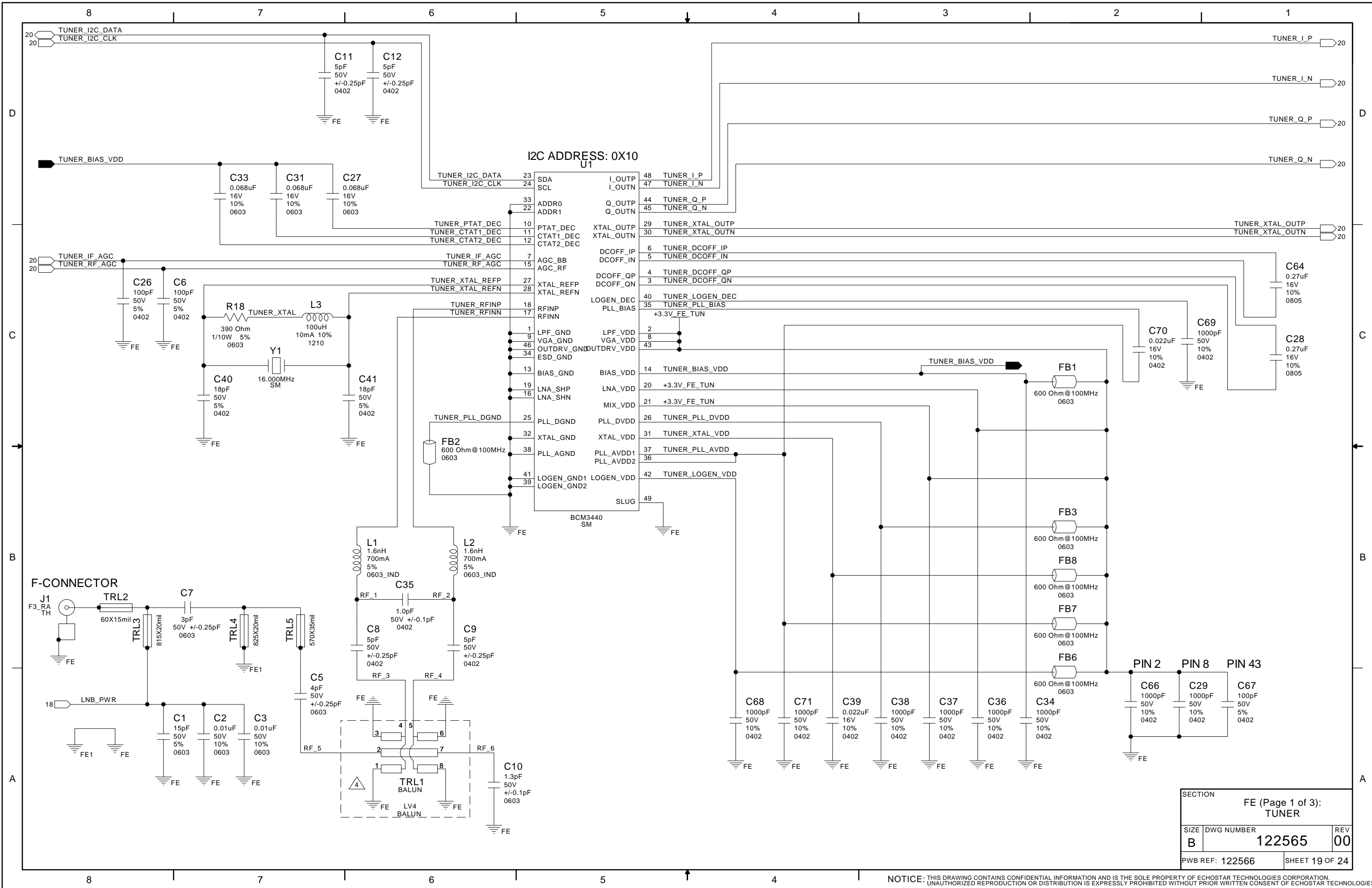


NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



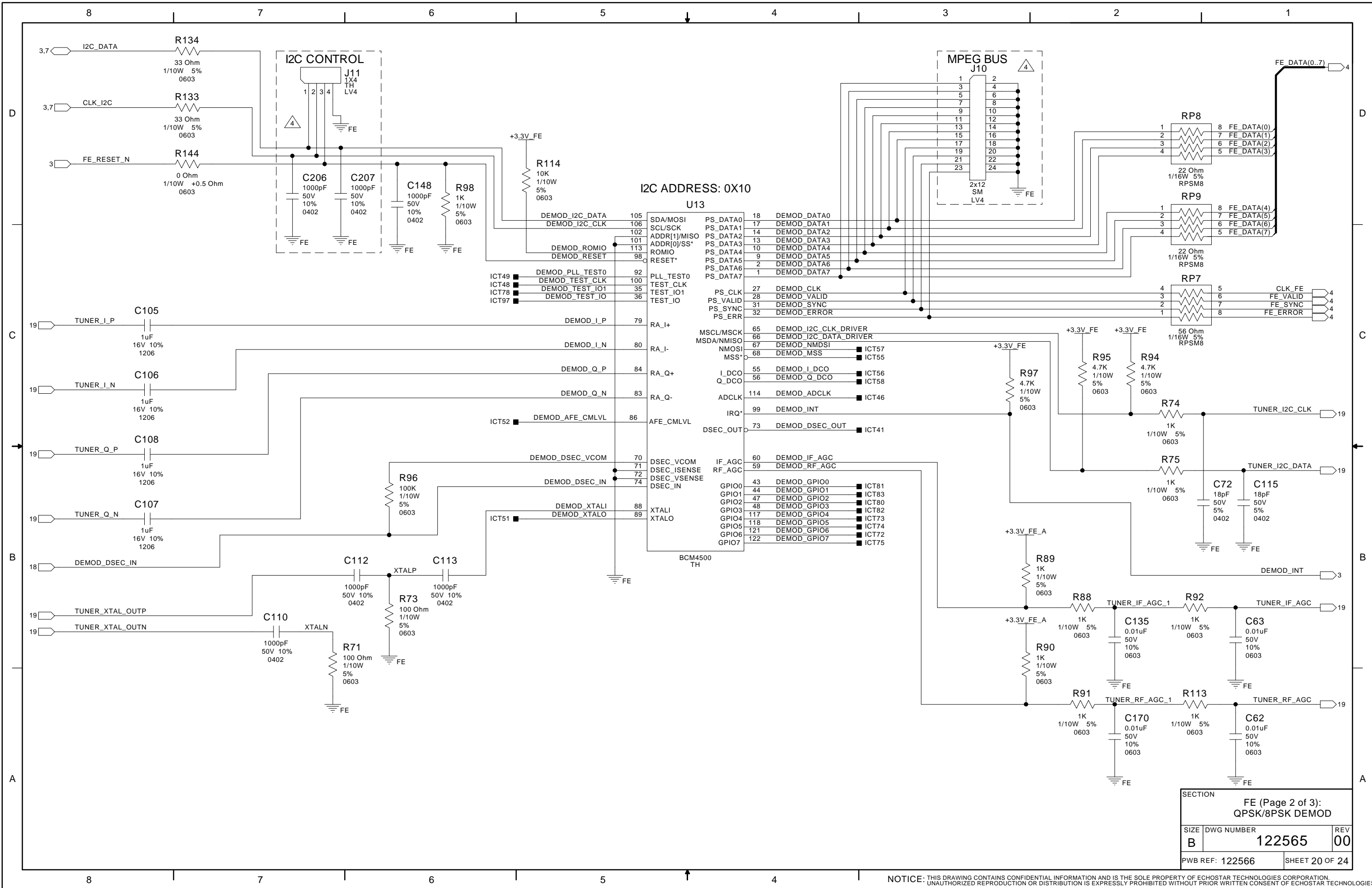
SECTION		
LNB POWER, DiSEqC RX		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 18 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



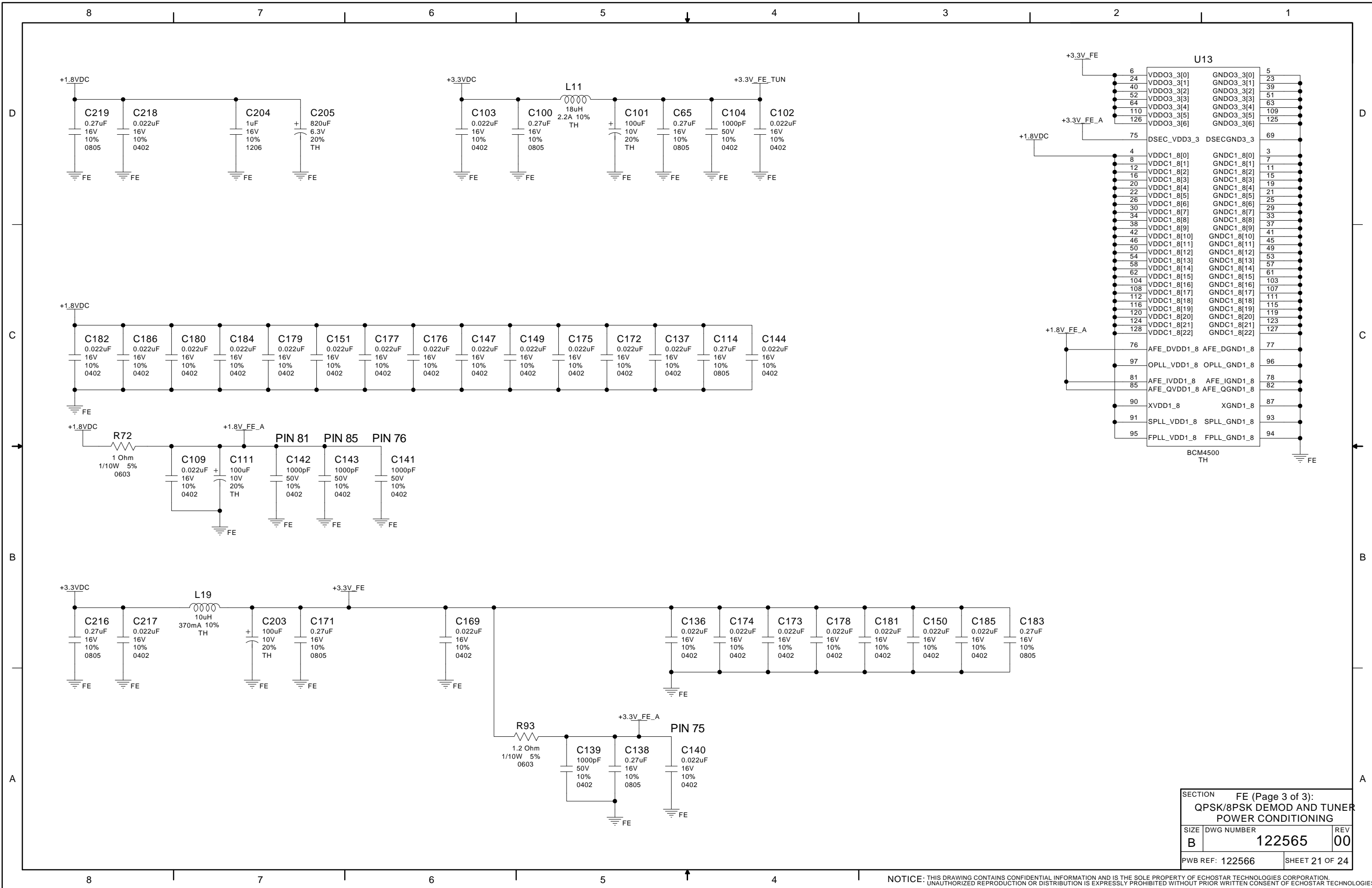
SECTION		
FE (Page 1 of 3): TUNER		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 19 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



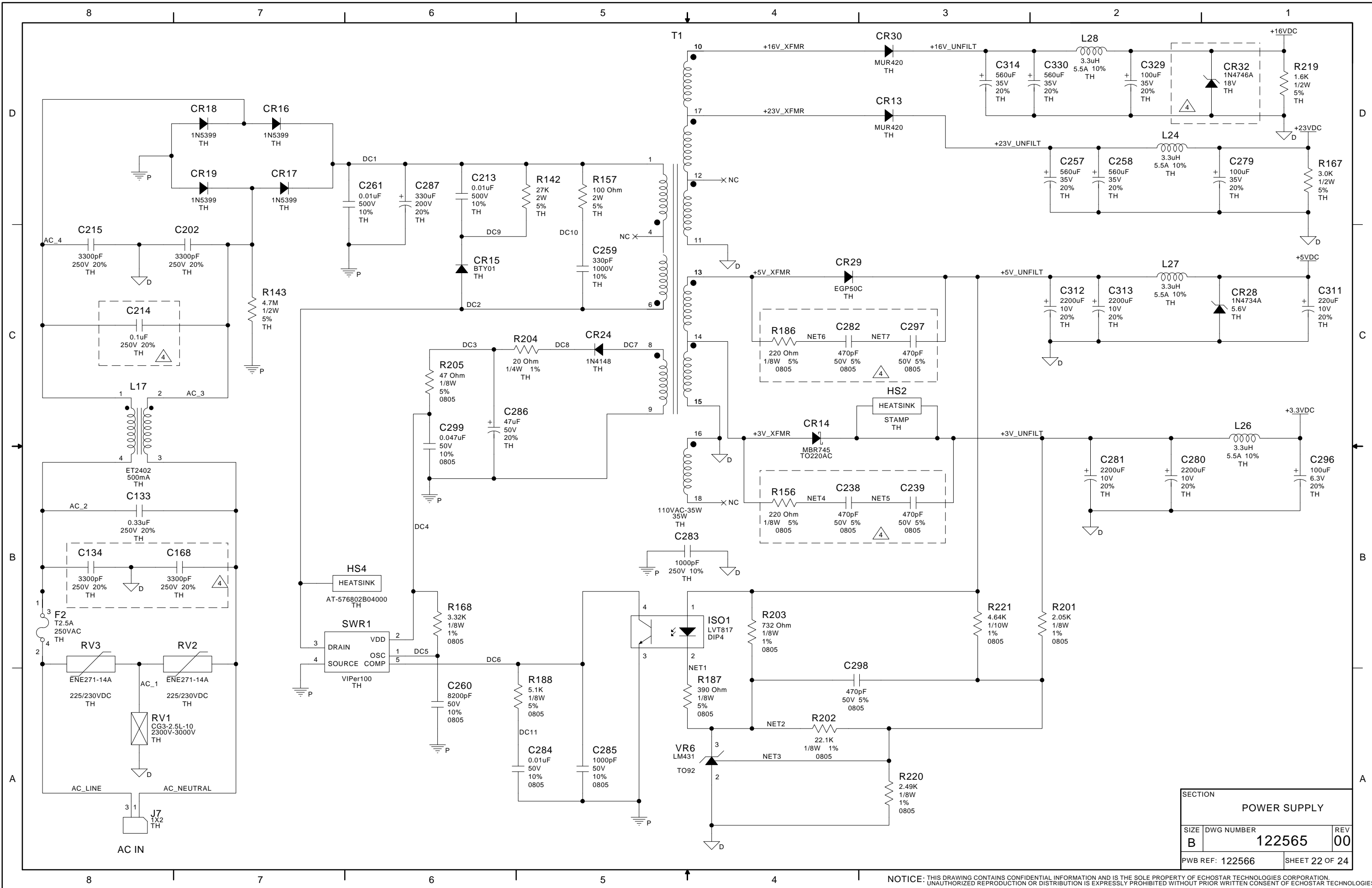
SECTION		
FE (Page 2 of 3): QPSK/8PSK DEMOD		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 20 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION.
UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



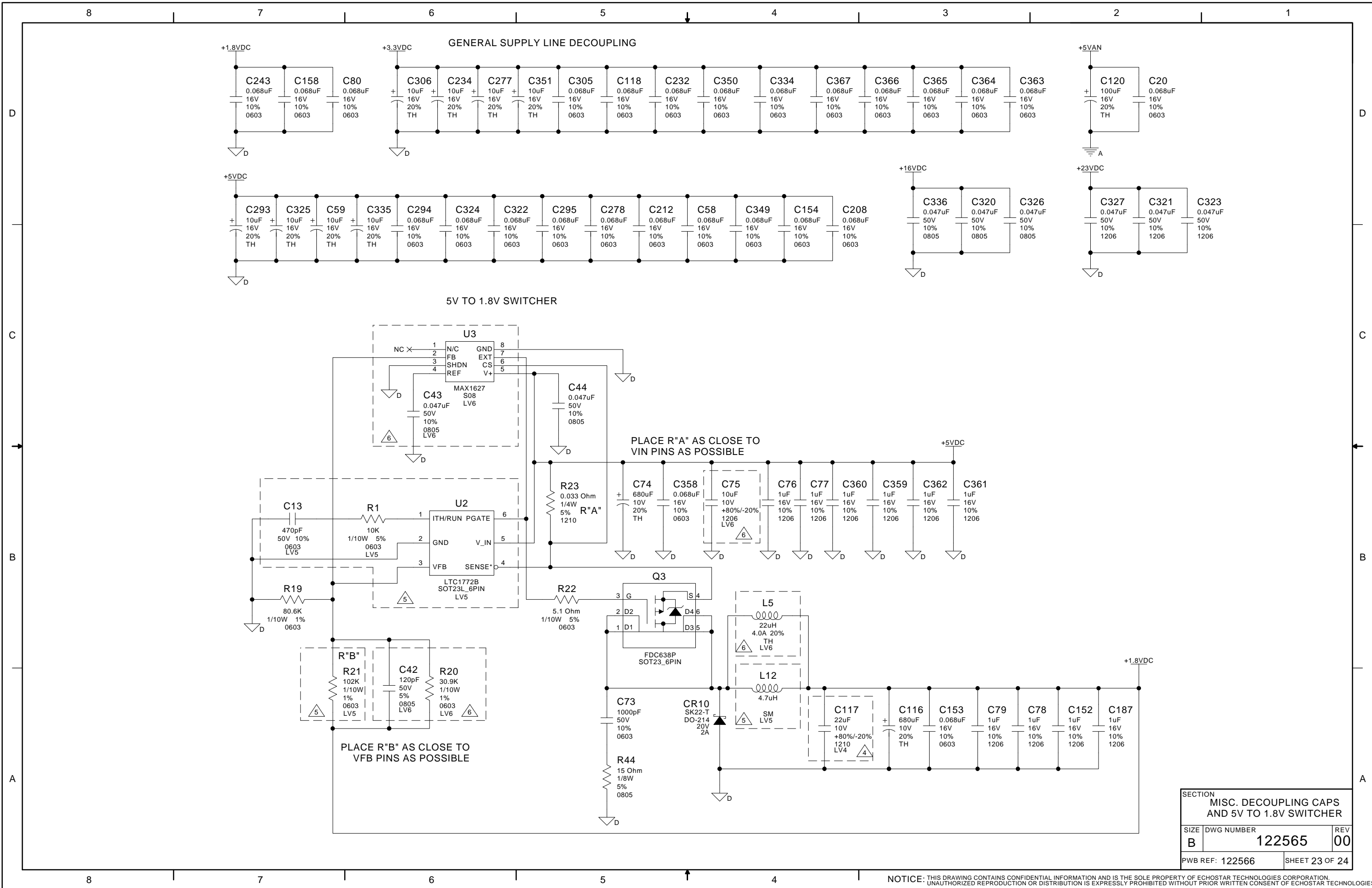
SECTION FE (Page 3 of 3):		
QPSK/8PSK DEMOD AND TUNER		
POWER CONDITIONING		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 21 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



SECTION		
POWER SUPPLY		
SIZE	DWG NUMBER	REV
B	122565	00
PWB REF: 122566		SHEET 22 OF 24

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF ECHOSTAR TECHNOLOGIES CORPORATION. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF ECHOSTAR TECHNOLOGIES CORP.



8		7		6		5		4		3		2		1	
REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF	SHEET REF
C1	19 C106	20 C216	21 C318	13 FB8	19 L12	23 R64	10 R171	18 R275	15 U4	10					
C2	19 C107	20 C217	21 C319	18 FB12	6 L13	9 R65	11 R172	18 R276	7 U5	11					
C3	19 C108	20 C218	21 C320	23 FB13	7 L14	9 R66	17 R173	18 R277	7 U5	9					
C4	10 C109	21 C219	21 C321	23	L15	5 R67	17 R174	18 R278	15 U5	9					
C5	19 C110	20 C220	5 C322	23 FL1	10 L16	13 R68	17 R175	18 R279	17 U6	10					
C6	19 C111	21 C221	5 C323	23	L17	22 R71	20 R176	18 R280	18 U6	10					
C7	19 C112	20 C222	5 C324	23 G1	8 L19	21 R72	21 R177	8 R281	18 U7	10					
C8	19 C113	20 C223	5 C325	23	L21	5 R73	20 R178	4 R282	15 U7	10					
C9	19 C114	21 C224	5 C326	23 HS1	11 L22	5 R74	20 R179	4 R283	15 U7	10					
C10	19 C115	20 C225	2 C327	23 HS2	22 L23	5 R75	20 R180	2 R289	15 U8	17					
C11	19 C116	23 C226	3 C328	12 HS3	18 L24	22 R76	9 R181	2 R291	3 U9	9					
C12	19 C117	23 C227	5 C329	22 HS4	22 L25	18 R77	17 R182	2 R292	12 U9	9					
C13	23 C118	23 C228	3 C330	22	L26	22 R78	17 R183	2 R293	3 U9	9					
C14	10 C119	5 C229	3 C331	13 ICT41	20 L27	22 R79	17 R184	2 R294	3 U10	17					
C15	11 C120	23 C230	5 C332	13 ICT46	20 L28	22 R80	17 R185	2 R295	3 U10	17					
C16	11 C121	13 C231	5 C333	13 ICT48	20	R81	17 R186	22	U10	17					
C17	11 C122	9 C232	23 C334	23 ICT49	20 LED1	13 R82	17 R187	22 RP1	3 U11	7					
C18	11 C123	10 C233	5 C335	23 ICT51	20 LED2	13 R83	17 R188	22 RP2	6 U12	17					
C19	11 C124	9 C234	23 C336	23 ICT52	20 LED3	13 R84	17 R189	18 RP3	6 U13	21					
C20	23 C125	17 C235	5 C343	12 ICT55	20	R85	17 R191	18 RP4	6 U13	20					
C21	11 C126	17 C236	5 C344	12 ICT56	20 MOD1	11 R86	17 R192	18 RP5	6 U14	6					
C22	13 C128	17 C237	5 C345	12 ICT57	20	R87	17 R193	18 RP7	20 U15	3					
C23	14 C129	17 C238	22 C346	12 ICT58	20 Q1	14 R88	20 R194	18 RP8	20 U16	3					
C24	14 C133	22 C239	22 C347	12 ICT63	3 Q2	17 R89	20 R195	18 RP9	20 U16	5					
C26	19 C134	22 C240	18 C348	12 ICT64	3 Q3	23 R90	20 R196	18 RP10	3 U16	2					
C27	19 C135	20 C241	18 C349	23 ICT65	2 Q4	10 R91	20 R197	18 RP11	2 U16	4					
C28	19 C136	21 C242	18 C350	23 ICT66	2 Q5	18 R92	20 R198	2 RP12	2 U17	7					
C29	19 C137	21 C243	23 C351	23 ICT67	2 Q6	18 R93	21 R199	2 RP13	2 U18	18					
C31	19 C138	21 C244	18 C352	13 ICT68	2 Q7	18 R94	20 R200	16 RP14	2 U18	1					
C33	19 C139	21 C245	5 C353	12 ICT69	2 Q8	18 R95	20 R201	22 RP15	2 U18	18					
C34	19 C140	21 C246	5 C354	15 ICT70	2 Q9	18 R96	20 R202	22 RP16	2 U19	1					
C35	19 C141	21 C247	8 C355	15 ICT71	6 Q10	18 R97	20 R203	22 RP17	4 U19	18					
C36	19 C142	21 C248	8 C356	15 ICT72	20 Q11	13 R98	20 R204	22 RP18	4 U19	18					
C37	19 C143	21 C249	8 C357	15 ICT73	20 Q12	12 R99	3 R205	22 RP19	4 U20	7					
C38	19 C144	21 C250	8 C358	23 ICT74	20 Q14	13 R100	2 R206	18 RP20	4 U21	7					
C39	19 C147	21 C251	5 C359	23 ICT75	20 Q15	13 R101	2 R207	18 RP21	4 U22	1					
C40	19 C148	20 C252	5 C360	23 ICT78	20 Q16	13 R102	3 R208	18 RP22	4 U22	12					
C41	19 C149	21 C253	5 C361	23 ICT80	20 Q17	15 R103	3 R209	18 RP23	4 U22	12					
C42	23 C150	21 C254	5 C362	23 ICT81	20	R104	3 R210	18 RP24	2 U22	12					
C43	23 C151	21 C255	3 C363	23 ICT82	20 R1	23 R105	3 R211	18 RP25	2 U22	12					
C44	23 C152	23 C256	5 C364	23 ICT83	20 R2	10 R106	3 R212	18 RP29	2 U23	12					
C45	11 C153	23 C257	22 C365	23 ICT85	16 R3	10 R107	13 R213	18	U23	12					
C46	10 C154	23 C258	22 C366	23 ICT87	3 R4	10 R108	17 R214	18 RT1	17 U23	13					
C47	10 C155	7 C259	22 C367	23 ICT90	2 R5	10 R109	17 R215	7	U24	13					
C48	10 C156	6 C260	22 C368	15 ICT91	2 R6	10 R110	17 R216	7 RV1	22 U25	15					
C49	10 C157	5 C261	22 C369	15 ICT92	2 R7	10 R111	17 R217	16 RV2	22 U26	15					
C50	10 C158	23 C262	18 C370	17 ICT93	2 R8	10 R112	17 R218	13 RV3	22 U26	15					
C51	9 C159	5 C263	18 C371	15 ICT95	2 R9	11 R113	20 R219	22 RV4	17						
C52	9 C160	13 C264	18 C372	15 ICT97	20 R10	11 R114	20 R220	22 RV5	18 VR1	11					
C53	9 C161	9 C265	18 C373	15 ICT98	3 R11	11 R115	7 R221	22	VR2	5					
C54	10 C162	5 C266	5	ICT99	3 R12	11 R116	7 R222	13 SW1	7 VR3	5					
C55	10 C163	17 C267	8 CR1	10 ICT100	3 R13	10 R117	7 R223	18 SW2	13 VR4	18					
C56	10 C164	17 C268	5 CR2	10 ICT101	3 R14	10 R118	7 R224	18 SW3	13 VR5	5					
C57	11 C166	17 C269	8 CR3	11 ICT102	3 R15	14 R120	2 R225	13 SW4	13 VR6	22					
C58	23 C168	22 C270	8 CR4	11 ICT103	2 R16	14 R121	2 R226	18							
C59	23 C169	21 C271	8 CR5	11 ICT104	2 R17	14 R122	2 R227	13 SWR1	22 Y1	19					
C60	17 C170	20 C272	5 CR6	11 ICT105	2 R18	19 R123	2 R228	13	Y2	8					
C61	17 C171	21 C273	7 CR7	10 ICT106	2 R19	23 R124	2 R229	13 T1	22						
C62	20 C172	21 C274	7 CR8	10 ICT107	2 R20	23 R125	2 R230	18							
C63	20 C173	21 C275	7 CR9	14 ICT108	1 R21	23 R126	3 R231	12 TP1	10						
C64	19 C174	21 C276	7 CR10	23 ICT109	1 R22	23 R127	3 R232	12 TP2	10						
C65	21 C175	21 C277	23 CR13	22 ICT110	18 R23	23 R128	3 R233	12 TP3	16						
C66	19 C176	21 C278	23 CR14	22 ICT111	1 R24	11 R129	17 R234	13 TP4	11						
C67	19 C177	21 C279	22 CR15	22 ICT112	12 R25	11 R130	17 R235	13 TP5	11						
C68	19 C178	21 C280	22 CR16	22 ICT114	1 R26	9 R131	17 R236	13 TP6	11						
C69	19 C179	21 C281	22 CR17	22 ICT119	2 R27	11 R132	17 R237	13 TP7	10						
C70	19 C180	21 C282	22 CR18	22 ICT566	15 R28	11 R133	20 R238	13 TP8	11						
C71	19 C181	21 C283	22 CR19	22 ICT567	15 R29	9 R134	20 R239	13 TP9	10						
C72	20 C182	21 C284	22 CR20	18 ICT568	15 R30	11 R135	16 R240	12 TP10	10						
C73	23 C183	21 C285	22 CR21	18 ICT569	3 R31	11 R136	16 R241	12 TP11	16						
C74	23 C184	21 C286	22 CR22	18 ICT570	3 R32	11 R137	3 R242	12 TP12	10						
C75	23 C185	21 C287	22 CR23	18 ICT571	3 R33	10 R138	3 R243	12 TP13	9						
C76	23 C186	21 C288	18 CR24	22 ICT576	17 R34	10 R139	3 R244	13 TP14	10						
C77	23 C187	23 C289	18 CR25	18 ICT577	17 R35	10 R140	3 R245	13 TP15	3		</				