

# Wharfedale *Pro* Service Manual: **TITAN-12 ACTIVE** **Professional Speaker**

**TITAN-12 ACTIVE**

## ★ **TABLE OF CONTENTS**

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SPECIFICATION-----	2
ASSEMBLY SKETCH-----	3
ASSEMBLY PARTS LIST-----	4
SCHEMATIC DIAGRAM-----	5
ELECTRONICS PARTS LIST-----	13

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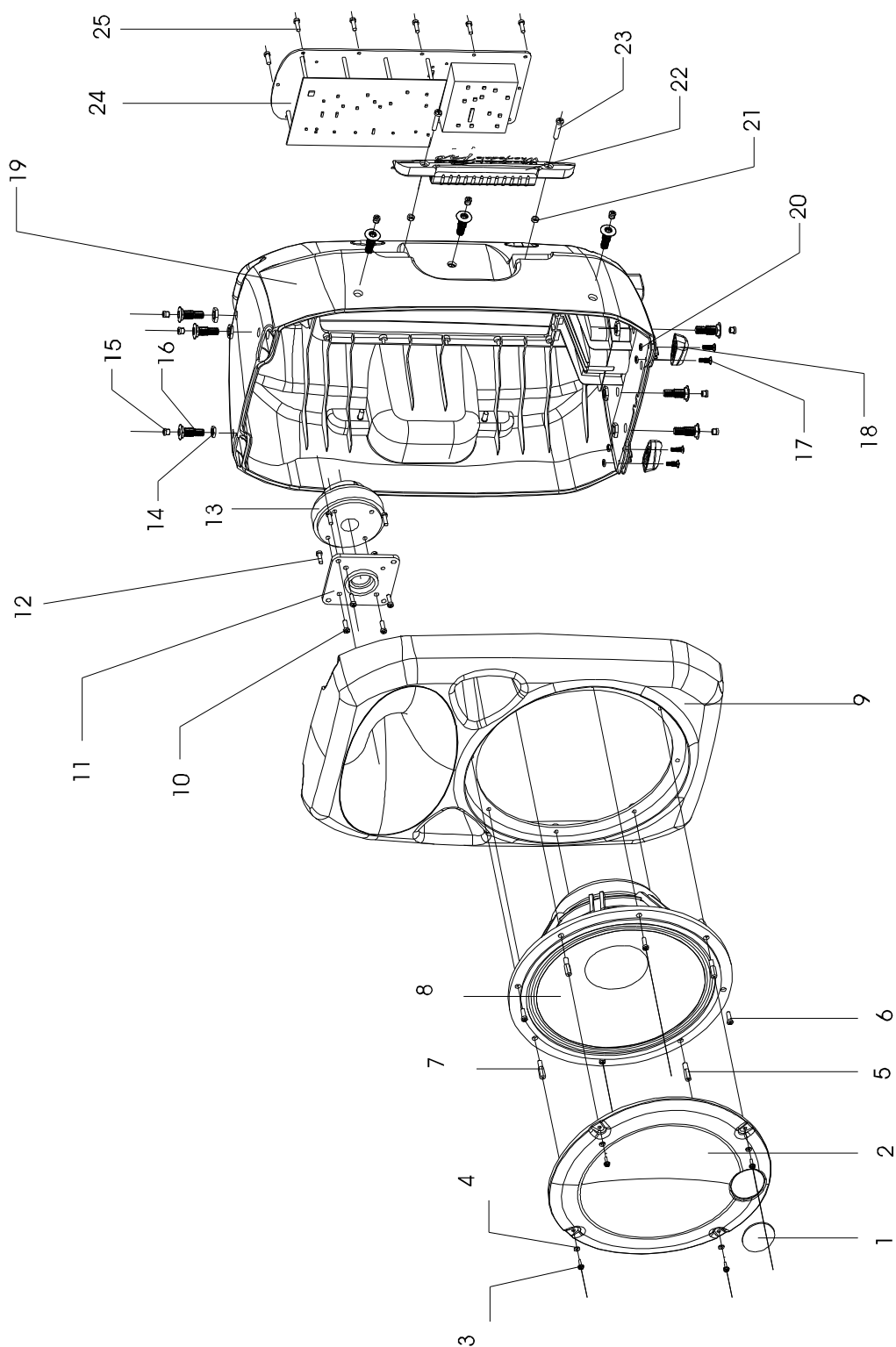
# 1.SPECIFICATIONS

## TITAN-12 ACTIVE

Model Name	Titan 12 Active
System Type	Active 12"2-way Bi-Amplified system
Frequency Response(+/-3dB)	55-20kHz
Low Frequency Transducer	
Size(mm/inches)	305mm/12"
Coil Size(mm/inches)	64.26mm/2.5"
Impedance	4 ohm
High Frequency Transducer	
Type	Compression Driver
Coil Size(mm/inches)	51mm/2"
Exit Size(mm/inches)	25mm/1"
Diaphragm Material	Titanium
Impedance	8 ohm
High Frequency Coverage(H*V)	90°*60°
Amplifiers	
Low-Frequency Power amplifier(Class D)	Rated 250W RMS, 500W Peak
High-Frequency Power Amplifier(Class A/B)	Rated 50W RMS, 100W Peak
Electronic Crossover:	24dB per octave Linkwitz-Riley
Crossover Frequency	2.3kHz
Amplifier Protection	
Power On Protection	Power switch on/off mute
Thermal Protection	Amplifier shutdown, auto reset
Low Line Voltage Shut Down	60% Nominal line voltage
Driver Protection	Independent LF and HF limiters
DC Protection	Yes
Short Protection	Yes
Clip Limiter:	Turns on approx 250W output
Limiter Indicator	Red LED
Line Output	
Line Output Connector	Switchable LOOP/MIX Balanced Male XLR Connector
Impedance	Balanced:1k ohm-Unbalanced:500 ohm
Sensitivity	+4dBu(1.78dBv or 1.228Vrms)
AC Power details	
Power Supply	High Efficiency Switching Mode Power Supply
AC Power Options	AC100-120V/220-240V, 50/60HZ
Power On Indicator	LED
Enclosure	
Enclosure Material	Injection Moulded Polypropylene
Colour	Grey or white
Dimensions(mm/inches) :	
H	556mm/21.88"
W	384mm/15.11"-180mm/7.1"
D	312mm/12.28"
Weight	
Net Weight(kg/lbs)	12.8kg/28.16lbs
Gross Weight(kg/lbs)	14.8kg/32.56lbs

## 2.ASSEMBLY SKETCH

TITAN-12 ACTIVE

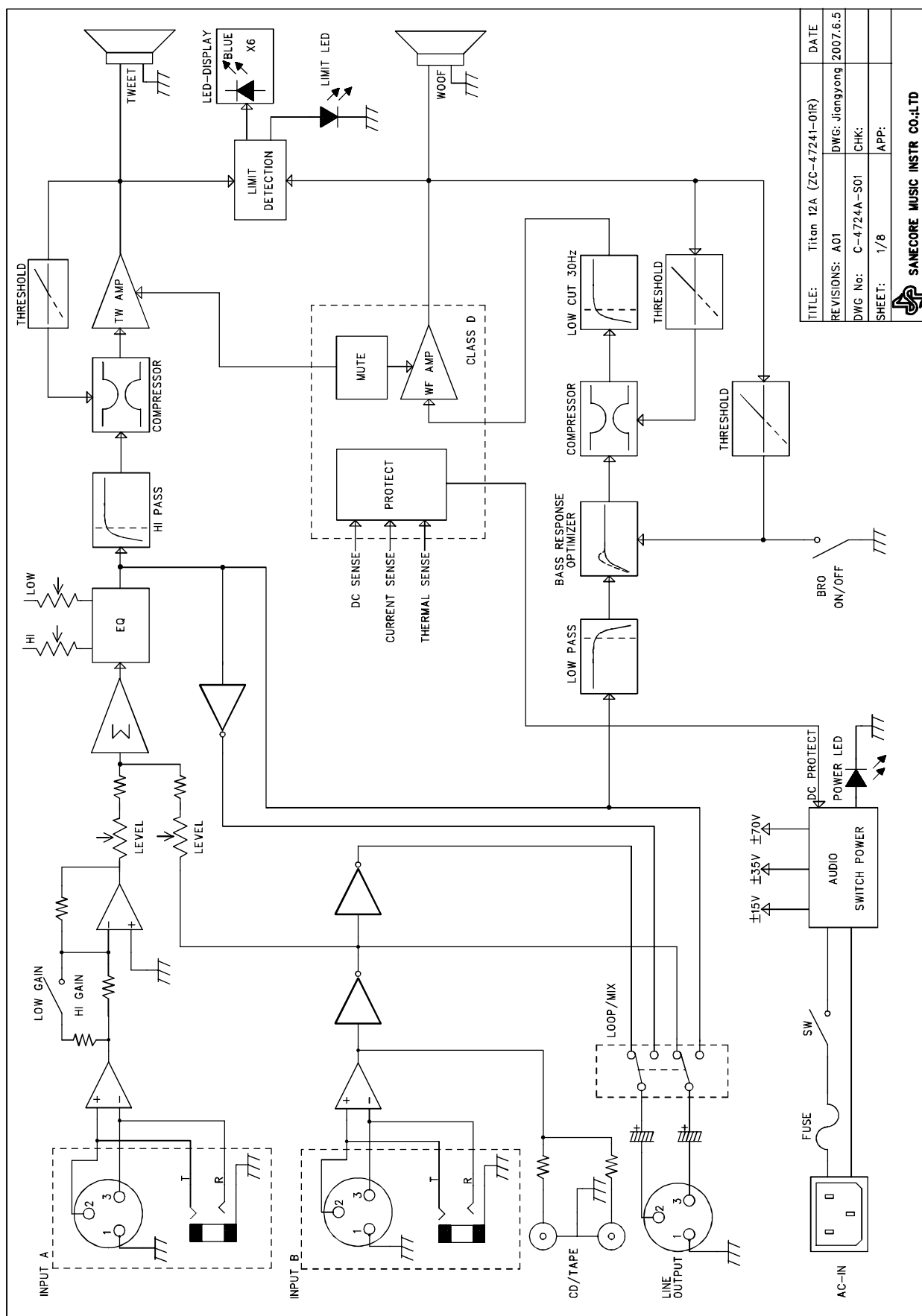


### 3.ASSEMBLY PARTS LIST

R/N	P/N	PART NAME	DESCRIPTION	QUA
1	313-2104900001R	LOGO PLATE		1
2	310-2010470001R	FRONT STEEL GRILLE		1
3	538-4001080801AR	SCREWS	MV (+) 4*8 B Zn	4
4	513-4012130800AR	WASHER		4
5	565-0413100001R	SCREWS	M5*13, M4*14*30	2
6	537-5001150801AR	SCREWS	M5*30	4
7	565-0413100002R	SCREWS	M5*13, M4*12*27.5	2
8	ZD-70301-01R	WOOFER		1
9	200-2010470003R	FRONT FRAME		1
10	537-6001100801AR	SCREWS	MP (+) 6*10	4
11	249-2010490001R	JOINING BRACKET		1
12	559-5001300071AR	SCREWS	M5*30	4
13	ZD-70100-01R	TWEETER		1
14	500-1200951100R	NUT	M12	10
15	274-0400900786R	KEYHOLE COVER		10
16	321-4201202286R	SCREWS		10
17	537-5001250801AR	SCREWS	MP (+) 5*25 BZn	4
18	231-2600275212R	PLASTIC FOOT		2
19	201-2010470003R	MAIN FRAME		1
20	500-5080400300AR	NUT	M5	4
21	500-6000084080AR	NUT	M6 BZn	4
22	243-2010470000R	PLASTIC HANDLE		2
23	539-6001350802AR	SCREWS	MC (-) M6*35	4
24	ZC-47241-01R	CROSSOVER		1
25	557-4001208061AR	SCREWS	4*20PA H	10

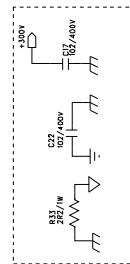
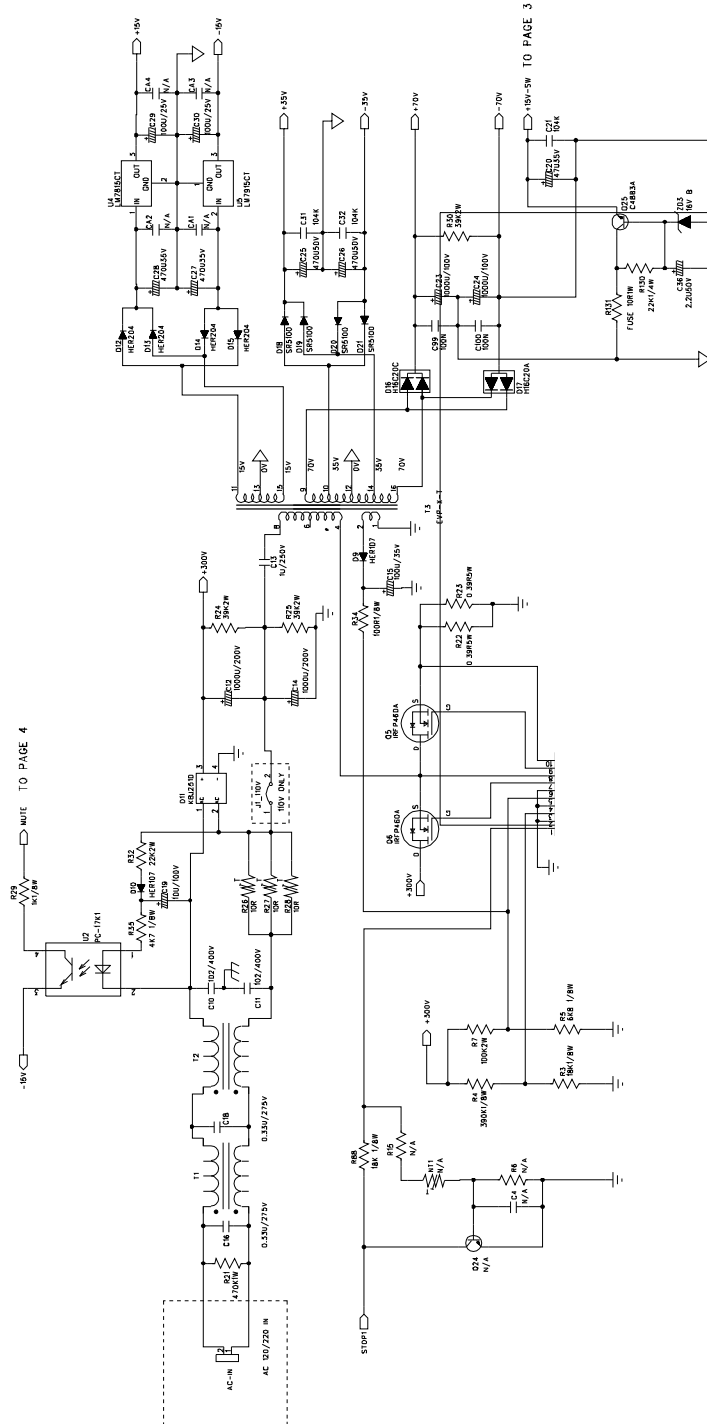
## 4. SCHEMATIC DIAGRAM

### TITAN-12 ACTIVE



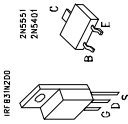
# 4.SCHEMATIC DIAGRAM

## TITAN-12 ACTIVE



TITLE:	1100 12A (C-47241-980)	DATE:
REVISION:	AD	PREP: dmyanov
DOC No:	C-47244-502	CHK:
SHEET:	2/8	APP:
SAMSUNG MUSEO WITH CO., LTD		

## TITAN-12 ACTIVE



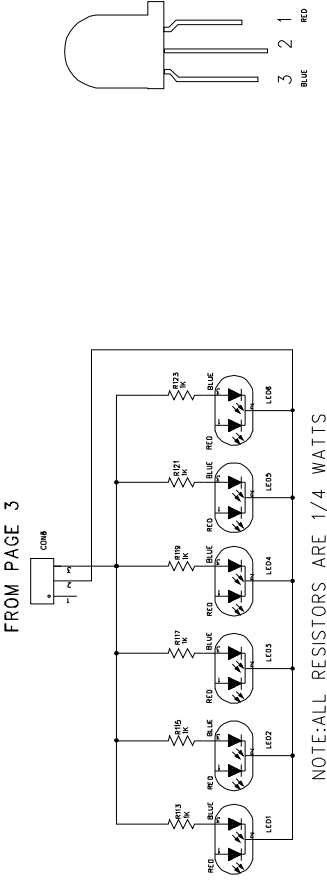
TITLE: T101 12A (2C-4724-01R)	DATE
REVISIONS: A01	DRW: JIANGYANG
DRWG No: C-4724A-S04	CHK: CHEN
SHEET: 4/8	APP: CHEN

## TITAN-12 ACTIVE



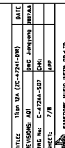


4.SCHEMATIC DIAGRAM



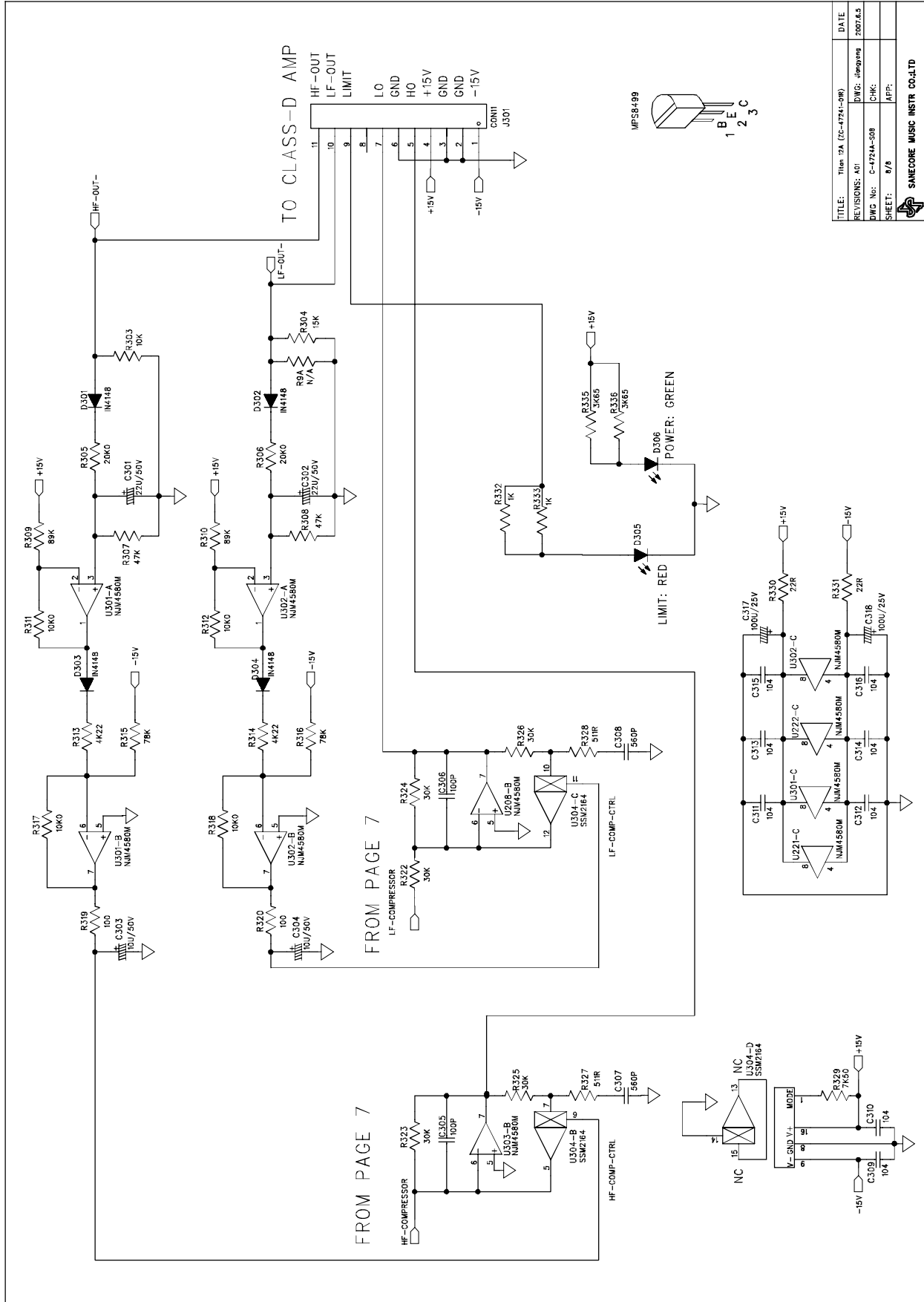
TITLE:	Titon DA (IC-1241-000)	DATE
REVISIONS:	A01	DATE: 2003/11
DWG No:	C-1241-000	Drawn:
SHEET:	6/8	APP:
SAMSUNG MICRO ELECTRONICS		

## TITAN-12 ACTIVE



# 4.SCHEMATIC DIAGRAM

## TITAN-12 ACTIVE



TITLE:	Titan 12A (20-4794-09R)	DATE
REVISIONS:	NO	DWG: Jiaojing
DWG No:	C-4724A-308	CHK:
SHEET:	8/8	APP:
SANCORE MUSIC INSTR CO.,LTD		

## 5.ELECTRONIC PARTS LIST

TITAN-12 ACTIVE

R / N	P/N	PART NAME	DESCRIPTION	QUA	LOCATION
	088-1472415000R	LAMP POP PCB		1	
1	053-1407001658R	LAMP PCB	6.4*6.4CM	1	
2	001-1002105050R	RESISTOR	1K 1/4W	6	R113, 116, 118, 120, 122, 124
3	019-0506123001R	LED		6	LED1-6
4	060-3240500967R	WIRE		1	
	088-1472415500R	AMP POP PCB		1	
1	053-1407001610R	AMP PCB	35*30mm 1.6T FR-4	1	
2	002-1002032010R	RESISTOR	1K 1/8W 1% 0805	2	R39, 41
3	002-4709032010R	RESISTOR	4R7 1/8W 1% 0805	1	R50
4	002-1003032010R	RESISTOR	10K 1/8W 1% 0805	3	R37, 42, 51
5	002-3302032010R	RESISTOR	3K3 1/8W 1% 0805	1	R36
6	002-4702032010R	RESISTOR	4K7 1/8W 1% 0805	2	R40, 49
7	002-4703032010R	RESISTOR	47K 1/8W 1% 0805	2	R45, 46
8	002-4701032010R	RESISTOR	470R 1/8W 1% 0805	1	R43
9	002-2203032010R	RESISTOR	22K 1/8W 1% 0805	2	R47, 130
10	002-2703032010R	RESISTOR	27K 1/8W 1% 0805	1	R48
11	002-2205032010R	RESISTOR	2M2 1/8W 1% 0805	1	R44
12	007-1004052060R	CAPACITOR	100nF 50V 5% 0805	8	C34, 38, 39, 41, 44, 46, 47, 48
13	007-1802052060R	CAPACITOR	1.8nF 50V 5% 0805	2	C42, 43
14	010-2251602010R	CAPACITOR	2.2uF 1206	1	C40
15	007-1014063090R	CAPACITOR	1u/100V 10% 1206	2	C33, 49
16	018-2905401227R	TRANSISTOR	2N5401S SOT-23	1	Q7
17	018-2905551227R	TRANSISTOR	2N5551S SOT-23	1	Q8
18	067-2204141110R	BRIDGE RECTIFIER	1N4148 0805	3	D24, 25, 903
19	019-0012003103R	DIODE	MURS120T3	1	D26
20	017-7110000000R	IC	ISL55001 IBZ SO-8	1	U6
21	017-7070000000R	IC	IR2011 SOP8	1	U9
22	017-5220000001R	IC	LM7805 SOP8	1	U10
23	017-7130000000R	IC	TC7W104 SSOP8	1	U7
24	017-7120000000R	IC	TC7WH08 SSOP8	1	U8
25	007-1001052093R	CAPACITOR	10P 100V 5% 0805	1	C45
26	002-2003032010R	RESISTOR	20K OHM 1/8W	1	R52
27	007-1003062090R	CAPACITOR	103/100V	1	C37
	088-1472414500R	POWER POP PCB		1	
1	053-1407001676R	POWER PCB	45*30mm 1.6T FR-4	1	
2	007-0108062060R	CAPACITOR	0.1uF/50V 0805 10%	3	C2, 5, 6
3	014-1020100002R	CAPACITOR	0.001uF 50V 5%	2	C3, 7
4	001-1003203010R	RESISTOR	10K 1/8W F	5	R1, 2, 9, 12, 14
5	001-1803203010R	RESISTOR	18K 1/8W F	3	R11, 13, 16
6	001-3300103050R	RESISTOR	33R 1/8W J	2	R17, 18
7	001-9102203010R	RESISTOR	9.1K 1/8W F	1	R19
8	001-5602103050R	RESISTOR	5.6K 1/8W	1	R20
9	001-2203203010R	RESISTOR	22K 1/8W F	1	R10

## 5.ELECTRONIC PARTS LIST

TITAN-12 ACTIVE

10	001-1002203010R	RESISTOR	1K 1/8W F	1	R8
11	014-4710311028R	CAPACITOR	MKS2 470NF 100V 10%	1	C8
12	006-4700051251R	CAPACITOR	47UF/35V 10%	1	C1
13	006-1004061194R	CAPACITOR	10UF 100V 10%	1	C9
14	006-2291051163R	CAPACITOR	2.2UF/50V 20%	1	C35
15	067-1104148000R	DIODE	1N4148	6	D1. 3. 4. 6. 7. 8
16	067-2200107000R	DIODE	HER107	1	D5
17	067-3305246000R	ZENER	16V 1/2W 1N5246	2	ZD1. 2
18	018-3408050115R	TRANSISTOR	SS8050 TO-92	3	Q1. 3. 4
19	018-3408550115R	TRANSISTOR	SS8550C TO-92	1	Q2
20	017-4660000000R	IC	DT5268S DTP8	1	U1
	088-1472410000R	MAIN POP PCB		1	
1	053-1407001600R	MAIN PCB	190*125*1.6mm	1	
2	002-4703032050R	RESISTOR	47K 1/8W 5% 0805	6	R53. 73. 74. 97. 98. 100
3	002-1003032010R	RESISTOR	10K 1/8W 1% 0805	9	R54. 55. 58. 60. 66. 68. . 82. 106. 107
4	002-5602032010R	RESISTOR	5K6 1/8W 1% 0805	1	R89
5	002-5102032010R	RESISTOR	5K1 1/8W 1% 0805	1	R77
6	002-1803032010R	RESISTOR	18K 1/8W 1% 0805	1	R88
7	002-8202032010R	RESISTOR	8K2 1/8W 1% 0805	2	R81, R94
8	002-1004032010R	RESISTOR	100K 1/8W 1% 0805	3	R38. 101. 528
9	002-2202032010R	RESISTOR	2K2 1/8W 1% 0805	2	R80, R85
10	002-5601032010R	RESISTOR	560 1/8W 1% 0805	5	R64. 61. 71. 72. 110
11	002-1000032010R	RESISTOR	10R 1/8W 5% 0805	3	R65. 67. 75
12	002-2203032010R	RESISTOR	22K 1/8W 1% 0805	4	R92. 93. 105. 130
13	002-4702032010R	RESISTOR	4K7 1/8W 1% 0805	2	R57. 59
14	002-2003032010R	RESISTOR	20K 1/8W 1% 0805	2	R108. 111
15	002-1002032010R	RESISTOR	1K 1/8W 1% 0805	4	R90. 96. 103. 104
16	002-3903032010QR	RESISTOR	39K 1/8W 1% 0805	1	R91
17	002-2703032010R	RESISTOR	27K 1/8W 1% 0805	1	R95
18	002-3003032010R	RESISTOR	30K 1/8W 1% 0805	1	R109
19	002-3302032010R	RESISTOR	3K3 1/8W 1% 0805	1	R83
20	007-1003062090R	CAPACITOR	103/100V 10% 0805	1	C50
21	007-1004052060R	CAPACITOR	100NF 50V 5% 0805	4	C65. 66. 69. 70
22	007-1001032060R	CAPACITOR	100P 50V 5% 0805	3	C55. 60. 68
23	007-2201062060R	CAPACITOR	220P 50V 10% 0805	1	C73
24	007-4701062060R	CAPACITOR	470P 50V 10% 0805	1	C54
25	007-1004053090R	CAPACITOR	100N 100V 5% 1206	2	C99. 100
26	007-0108062060R	CAPACITOR	0.1UF/50V 0805 10%	3	C21. 31. 32
27	017-5270000001R	IC	NJM4580M NJM-DMP8	1	U11
28	067-2204148110R	DIODE	1N4148 SMD 1206	5	D2. 22. 23. 27. 38
29	067-6600040110R	DIODE	10BQ040 MLL41 1206	2	D33. 34
30	018-2905401227R	TRANSISTOR	2N5401S SOT-23 KEC	6	Q11. 13. 16. 19. 27. 28
31	018-2905551227R	TRANSISTOR	2N5551S SOT-23 KEC	6	Q9. 10. 14. 15. 20. 26
32	002-5603032050R	RESISTOR	56K	1	R500

## 5.ELECTRONIC PARTS LIST

TITAN-12 ACTIVE

33	067-3327180000R	ZENER	180V 0.8W	1	ZD6
34	067-3300015114R	ZENER	15V	2	ZD4
35	067-3300068114R	ZENER	6.8V 0805 1/8W	1	ZD5
36	001-3904203010R	RESISTOR	390K 1/8W F	1	R4
37	001-6802203010R	RESISTOR	6K8 1/8W F	1	R5
38	001-1004208050R	RESISTOR	100K 2W 5%	1	R7
39	001-1008708050R	RESISTOR	0R1 2W	4	R62. 63. 69. 70
40	001-1000207051R	RESISTOR	10R 1W	1	R131
41	001-1000308050R	RESISTOR	10R 2W	1	R79
42	001-1002203010R	RESISTOR	1K 1/8W	1	R29
43	001-0470308050R	RESISTOR	4R7 2W	1	R112
44	001-4703107050R	RESISTOR	470K 1W 5%	1	R21
45	001-0220107050R	RESISTOR	2R2 1W	1	R33
46	001-1001105050R	RESISTOR	100R 1/4W	1	R34
47	001-4702203010R	RESISTOR	4K7 1/8W F	1	R35
48	001-0398810050R	RESISTOR	0.39R 5W 5%	2	R22. 23
49	001-0393108050R	RESISTOR	39K 2W	3	R24. 25. 30
50	001-2203208010R	RESISTOR	22K 2W 1%	1	R32
51	004-3307000000R	RESISTOR	10D-20	2	R26. 27
52	006-1021174293R	CAPACITOR	1000UF/100V	2	C23. 24
53	006-1014060533R	CAPACITOR	100UF/16V	1	C51
54	006-1014061153AR	CAPACITOR	100UF/25V 10%	2	C29. 30
55	006-1014081153AR	CAPACITOR	100UF/35V 10%	1	C15
56	006-4714102053AR	CAPACITOR	470UF/35 10*20	2	C27. 28
57	006-2204051143AR	CAPACITOR	22UF/25V 20%	1	C53
58	006-2291051163R	CAPACITOR	2.2UF/50V 20%	2	C36. 72
59	006-1006051243R	CAPACITOR	10UF/25V 10%	3	C52. 74. 75
60	006-0104051143AR	CAPACITOR	1UF/50V 20%	1	C76
61	006-4714132063R	CAPACITOR	470UF/50V 20%	2	C25. 26
62	006-2201061173R	CAPACITOR	22UF/63V 6*11	3	C67. 71. 80
63	006-4700051251R	CAPACITOR	47UF/35V 10%	1	C20
64	006-1004061194R	CAPACITOR	10UF/100V 10%	1	C19
65	006-1024304109R	CAPACITOR	1000UF/200V 30*41	2	C12. 14
66	013-2240320503R	CAPACITOR	220NF/100V 5%	1	C64
67	014-1040211028R	CAPACITOR	MKS2 100NF 63V 10%	2	C78. 79
68	014-1040311028R	CAPACITOR	104/100V	1	C81
69	016-4741112201R	CAPACITOR	0.47UF/100V P15	6	C56. 57. 58. 59. 62. 63
70	008-1021040005R	CAPACITOR	102/400V	4	C10. 11. 17. 22
71	014-1050411006R	CAPACITOR	1U/250V	1	C13
72	013-3304025005R	CAPACITOR	0.33UF/275V	2	C16, C18
73	067-2200107000R	DIODE	HER107	2	D9. 10
74	067-2200207000R	DIODE	HER204	4	D12. 13. 14. 15
75	067-2205100000R	DIODE	SR5100	4	D18. 19. 20. 21
76	067-2201620001R	DIODE	1N16C20A1PC SM-7820C	1	D17

## 5.ELECTRONIC PARTS LIST

TITAN-12 ACTIVE

77	067-2201620000R	DIODE	1H16C20CIPC SM-7820C	1	D16
78	067-3300041001R	ZENER	16V 1W D0-41	1	ZD3
79	034-1119992508R	BRIDGE RECTIFIER	RBV2510	1	D11
80	017-7004229125R	FIELD EFFECT TRANSISTOR	IRFP4229	2	Q17, 18
81	018-7000460125R	FIELD EFFECT TRANSISTOR	IRFP460A	2	Q5, 6
82	018-2800112115R	FIELD EFFECT TRANSISTOR	J112G	1	Q, 23
83	018-0304883113R	IC	C4883A T0-220	1	Q25
84	017-0190000000R	IC	L7815CV T0220	1	U4
85	017-1830000000R	IC	KIA7915 T0220 KEC	1	U5
86	017-2700000000R	IC	TDA7294	1	U12
87	080-0210012016R	INDUCTOR	13.6MH 0.8MM 230VAC	2	T1, 2
88	026-3334000170R	INDUCTOR	33UH	1	L501
89	022-1040041316R	TRANSFORMER		1	T3
90	066-0095010000R	SWITCH	KSD01F95B3	1	TSW1
91	056-0102224400R	JACK	CON02-3.96MM	2	CON5, 7
92	056-4103220000R	JACK	CON03-2.5MM	1	CON9
93	056-4111221100R	JACK	CON11-2.5MMB	1	CON6
94	057-2545011241R	JACK		2	CON4, CCON2
95	056-0103003300R	JACK		1	AC-IN
96	324-0280220111R	MICA LAMINATION	T0-3P	1	U12
97	324-0180130100R	MICA LAMINATION	T0-220 18*13MM	3	D16, D17, TSW1
98	324-0280220100R	MICA LAMINATION	T0-3P 18*22MM	2	Q17, Q18
	088-1472411300R	SIGNAL POP PCB		1	
1	053-1407001613R	SIGNAL PCB		1	
2	002-1003032010R	RESISTOR	10K 1/8W 1% 0805	39	R3, 4, 7A, 203, 204, 206, 207, 213, 214, 217, 218, 219, 230, 231, 232, 233, 237, 238, 245, 246, 267, 272, 275, 280, 281, 284, 285, 287, 288, 289, 291, 293, 296, 311, 312, 317, 318, 249, 321
3	002-1001032050QR	RESISTOR	100R 1/8W 5% 0805	6	R200, 201, 215, 216, 319, 320
4	002-1503032010R	RESISTOR	15K 1/8W 1% 0805	2	R278, 290
5	002-1103032010QR	RESISTOR	SMD 11K 1/8W	1	R303
6	002-1004032010R	RESISTOR	100K 1/8W	5	R235, 236, 239, 240, 254,
7	002-4701032010R	RESISTOR	470R 1/8W 1% 0805	5	R202, 241, 242, 243, 244
8	002-4702032010QR	RESISTOR	4K7 1/8W 1% 0805	1	R270
9	002-2203032010R	RESISTOR	22K 1/8W 1% 0805	7	R247, 248, 250, 251, 252, 253, 286
10	002-5603032050R	RESISTOR	56K 1/8W 5% 0805	5	R323, 324, 325, 326, 249
11	002-6802032050R	RESISTOR	6.8K 1/8W 5% 0805	3	R264, 265, 266
12	002-5102032010R	RESISTOR	5.1K 1/8W 1% 0805	2	R273, 274
13	002-5622032010R	RESISTOR	5K62 1/8W 1% 0805	1	R279
14	002-1002032010R	RESISTOR	1K 1/8W 1% 0805	2	R332, 333
15	002-3651012010R	RESISTOR	3K65 1/8W 1% 0805	2	R335, 336
16	002-4222032010R	RESISTOR	4K22 1/8W 1% 0805	2	R313, 314
17	002-4703032010R	RESISTOR	47K 1/8W 1% 0805	5	R208, 211, 277, 307, 308
18	002-2214032010R	RESISTOR	221K 1/8W 1% 0805	1	R282
19	002-5111032010R	RESISTOR	511R 1/8W 1% 0805	3	R283, 327, 328
20	002-3903032010QR	RESISTOR	39K 1/8W 1% 0805	1	R292
21	002-2003032010R	RESISTOR	20K 1/8W 1% 0805	2	R305, 306

## 5.ELECTRONIC PARTS LIST

TITAN-12 ACTIVE

22	002-9103032010R	RESISTOR	91K 1/8W 1% 0805	2	R309. 310
23	002-7503022010	RESISTOR	75K 1/10W J 0805	2	R315. 316
24	002-7502032010R	RESISTOR	7K5 1/8W 1% 0805	2	R304. 329
25	002-2200032050R	RESISTOR	22R 1/8W 1% 0805	2	R330. 331
26	002-5602032010R	RESISTOR	5K6 1/8W 1% 0805	2	R260. 322
27	002-3302032010R	RESISTOR	3K3 1/8W 1% 0805	2	R255. 256
28	002-1000032010R	RESISTOR	10R 1/8W 1% 0805	1	R294
29	007-1000062160R	CAPACITOR	1NF 5% 50V NPO 0805	8	C200. 201. 208. 209. 238. 258. 290. 291
30	007-2201062060R	CAPACITOR	220P 10% CP50V 0805	7	C204. 205. 212. 213. 215. 217. 232
31	007-1001062060R	CAPACITOR	100P 10% CP50V 0805	6	C206. 222. 249. 255. 305. 306
32	007-3300052060R	CAPACITOR	33P 5% 50V NPO 0805	2	C235. 239
33	007-5601062060R	CAPACITOR	560PF 10% 50V 0805	3	C254. 307. 308
34	007-1502052060QR	CAPACITOR	1.5NF 5% 50V 0805	2	C233. 234
35	007-6803052060R	CAPACITOR	68N 10% 50V NPO 0805	1	C237
36	007-5602052060R	CAPACITOR	5.6NF 5% 50V 0805	2	C240. 241
37	007-3902052060QR	CAPACITOR	3.9NF 5% 50V 0805	1	C244
38	007-2702052060R	CAPACITOR	2.7NF 5% 50V 0805	2	C245. 246
39	007-1004052060R	CAPACITOR	100NF 5% 50V 0805	2	C251. 252
40	007-1004062060R	CAPACITOR	100NF 10% 50V 0805	28	C264. 265. 266. 267. 268. 269. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 288. 289. 309. 310. 311. 312. 313. 314. 315. 316
41	017-8260000000R	IC	SSM2164 R-16A	1	U304
42	017-1370000000R	IC	NJM2068M SO-8B JRC!	1	U201
43	017-5270000001R	IC	NJM4580M NJM-DMP8	13	U202. 203. 204. 205. 206. 207. 208. 209. 221. 222. 301. 302. 303
44	067-2204148110R	DIODE	1N4148 SMT1206	11	D201. 202. 203. 204. 205. 206. 207. 301. 302. 303. 304
45	006-2201051163R	CAPACITOR	22U/50V 20%	16	C202. 203. 207. 210. 211. 218. 219. 230. 231. 236. 256. 259. 284. 285. 301. 302
46	006-1001051163R	CAPACITOR	10U/50V 10%	3	C253. 303. 304
47	006-1011061143R	CAPACITOR	100U/25V 10%	6	C260. 261. 262. 263. 317. 318
48	006-0104051164R	CAPACITOR	RX 1U/50V UL 20%	1	C257
49	019-0311122001R	LED	LED 204HD/E-A RED	1	D305
50	019-0322122001R	LED	LED 204GD/E-A GREEN	1	D306
51	048-3000000000R	JACK	NYS143 3PIN	1	J203
52	049-2507222016R	JACK	LA1113 7PIN	2	J200. 201
53	056-4111221100R	JACK	11PIN* 2.54MM	1	J301
54	051-0500000000R	RCA JACK	JK0200560N	1	J202
55	040-1400000000R	SWITCH	JPS2281EA	2	SW201. 202
56	089-0500000012R	SWITCH	SS-22F20-G12	1	SW203
57	020-5052119425R	POTENTIOMETER	50KB	2	VR202. 203
58	020-1032120325R	POTENTIOMETER	RK16K12D0094-10K15Ax2	2	VR201. 204
1	042-1003005001R	POWER SWITCH	RF-1003TV-5AC250V	1	
2	044-0300000000R	POWER SOCKET	R-3014 AC INLET	1	
3	031-2200512121R	FUSE	T4A 250V	1	